

Organisational Technology: Moderating Effect on Strategic Orientation and Organisational Ambidexterity Relationship

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Abstract: *The study investigated the moderating effect of organizational technology on the relationship between strategic orientation and organizational ambidexterity of mobile communication firms in Port Harcourt. One research question was asked and one hypothesis was formulated and tested. A sample size of 115 was drawn from a population of 162 employers which consisted of 4 top level managers, 37 middle level managers and 121 supervisors. A cross-sectional survey technique was adopted and data generated were analysed using Kenny and Baron (1986) four step regression statistical tool. The result of the analysis revealed that there is a significant level of moderating effect of organizational technology on the relationship between strategic orientation and organizational ambidexterity of mobile communication firms in Port Harcourt. The study therefore recommended that Mobile communication firms should beef up their technological infrastructure capable of enhancing their effective strategic orientation and organizational ambidexterity. It was also concluded that organizational technology is a fundamental requirement of the Mobile communication firms in Port Harcourt capable of moderating the relationship.*

Keywords: *Moderator, Organizational ambidexterity, Organizational technology, Strategic orientation.*

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I. Introduction

In the work of (Prahalad & Ramaswamy, 2003) they explained that the convergence of multiple discreet technologies and major transformation within the competitive landscape were transforming the market place and the prospective for innovation was greater than ever. Obviously, the repercussion arising from this is that, failure to innovate is most projected to contribute a reduction in competitiveness (O'Regan & Ghobadian, 2005). By dint of this very thinking, there is the requirement for investigating the function of technology as a moderator with respect to existent inter-relationship observed between strategic orientation of companies and organisational ambidexterity in firms within the Nigerian setting. Conceptualising globalisation and technology have considerably changed the face of mobile communication especially within developing countries, particularly Nigeria. As a consequence, clarification becomes very important with respect to whether the innovations could be established to be sustainable. Perhaps the question should be not whether, but rather how can the mobile communication firms sustain their edge ahead of their competitors.

Technology is described to mean those capabilities and methods used by a firm or business that enable it to perform well in respect to processes and routines. Moreso, (Menguc & Auh (2007) have defined it to mean capability, fitness or effectiveness to install, put into operation, or to accomplish resources using efficient systems and processes for a firm's advantage. The resource view differentiates technology from technological proficiencies, where the latter is responsible for the good performance of processes and routines. It is evident that capabilities assist the process of creating value and aggressive advantage (Fahey & Christensen, 2001).

Interestingly, (He & Wong, 2004) studied the technological innovation in 206 manufacturing firms in Singapore and Malaysia. Their study defined a new typology which included exploitation and exploration with the technological innovation strategy. Exploitation and exploration specifically identified as dimensions were explained as "an explorative innovation dimension to denote scientific innovation performance intended at establishing novel product-market domains and an exploitative innovation dimension to denote hi-tech innovation actions intended at improving existing product-market positions". They established a fundamental significant interaction between explorative and exploitative innovation strategies with respect to firm's performance as evidently proved with respect to sales growth rate. A comparable relative difference between explorative and exploitative innovation strategies was negatively related to the performance of a firm. The research provided significant empirical evidence which showed that there exists a significant positive effect of ambidexterity in the technological innovation perspective.

Research purpose

To determine the moderating effect of organizational technology on the relationship between strategic orientation and organizational ambidexterity of mobile communication firms in Port Harcourt.

Research question

Could organizational technology moderate the relationship between strategic orientation and organizational ambidexterity of mobile communication firms in Port Harcourt.

Research hypothesis

The technology of the organisation does not moderate the relationship between strategic orientation and organizational ambidexterity of mobile communication firms in Port Harcourt.

Geographical scope

The research study was conducted completely only in Port Harcourt and examined four registered mobile communication firms' head offices.

II. Literature Review

Moderator (criticality of organizational technology as a moderator)

The technology of an enterprise is critical to the mobile communication firms but fails to moderate the relationship between strategic orientation and organisational ambidexterity of firms: From this analysis, there is the convincing prove that although organizational technology is critical and highly essential in the operations and processes of the mobile communication firms, it however, moderates the relationship between strategic orientation of companies and organisational ambidexterity in firms. Organizational technology is a fundamental requirement of the mobile communication firms, but moderates or significantly impact on strategic orientation of companies and its relationship with organisational ambidexterity in firms.

However, (Atuahene-Gima, 2005) had argued there exists evidence of existing significant level of differences between organizational technology and technological efficiency. The author describes technology as a phenomenon encapsulating the inventiveness and disposition of creativity in organizational processes, whereas technological efficiency is referred to the application of hard and software languages which influence the process of innovation. Comprehending it from this perspective, we find that distinctive technological levels are predicated on the level of extent in which the organizations are up-to-date in the application of their technological efficiency which in turn determines the obvious technological proficiencies of the institutions that possess the capability of influencing the extent of its technological process or expression.

In reaction, (He & Wong, 2004) in assessing the effect of technology on exploitation and exploration activities had observed that technology had a significant relationship and impacts intensely on the potency of activities projected to be engaged in by an institution towards capturing future product-market (exploration) as well as also impacting on activities aimed at sustenance and production quality improvement in the marketplace (exploitation). Their findings suggest that organizational technology has an over-riding influence on competition and also facilitates the gradual emersion of efficient and highly innovative processes that facilitate change and organisational ambidexterity in firms. The position of the underlying thesis on the essentiality and functions and uses of organizational technology in the mobile communication firms is reinforced by this assertion but however, it has a substantial moderating effect.

A clear distinction is acknowledged between organizational technology and technological efficiency. Technological efficiency is recognized as a determining power of an enterprise's capabilities and technological position. While organizational technology is evidenced herein to influence innovation and to contribute substantially to the accomplishment of consistent market advantage of the mobile communication firms, its features and strength are reliant on the presence sophisticated infrastructural base. An appearance of the function of technological efficiency in this study is that of a fortunate finding.

Organisational ambidexterity

Varying literatures on organisational issues state that a company is successful when it efficiently aligns with the administration of today's business, while it simultaneously adapts to ecological changes (Duncan, 1976).

In any case, March, (1991) is of the view that the accomplishment of a business depends on a company's ability to balance exploitation of already known competencies and exploration of novel opportunities. While exploitation is referring to unavoidable additional improvement, the latter refers to fundamental innovation (Enkel, Heil, Hengstler & Wirth, 2016). It is obviously accepted that both perspectives require essentially dissimilar mind-sets, different infrastructures, different cultures, processes and learning performance with which companies have to separate their attention and resources (March, 1991; Raisch & Birkinshaw, 2008; Tushman & O'Reilly, 1996).

While exploitation includes variables such as "being effective without wasting time, highly developed state of perfection, choice and accomplishment of strategic decisions, exploration is connected with activities

such as “looking for possibilities, variations in idea, testing of an idea or uncovering something. By dint of the associated variables, several scholars are of varying opinions which supports there exists evidence of compromise between aligning an institution’s capability to exploit active competencies and uncovering new ones (Raisch&Birkinshaw, 2008), since this involves different skills and highly developed different management competencies that might make contemporary existing businesses obsolete (He & Wong, 2004; Hannan& Freeman, 2008).

However, even though there exist different opinions from writers on the difficulty involved in attaining both exploitation and exploration, it is believed that there still exist numerous promising approaches justifiably accepted by scholars as identified in literatures which could aid in attaining organisational ambidexterity in firms (Raisch&Birkinshaw, 2008). In the first instance, it is recommended that institutions can develop specific required structures that are capable of lessening the seriousness of the tensions between exploitation and exploration activities. Structural ambidexterity can be realised by the creation of a distinctive and separated spatial structures (Gibson & Birkinshaw, 2004). The idea of spatial separation involves the creation of different business units that will be engaged in the pursuit of exploitation and exploration.

Overall, the contradictory demands of exploitation and exploration and the argument of not reaching a compromise in one at the cost of the other have always pre-occupied the attention of researchers in various literatures on institutional learning (March, 1991., Levinthal& March, 1993,) and strategic management (Lubatkin *et al.* 2006, Markides&Charitou, 2004), technological innovation (He & Wong, 2004., Gary, 2003), institutional design (Jansen *et al.* 2005., Graetz& Smith, 2005), institutional theory (Benner &Tushman, 2003) and institutional behaviour (Birkinshaw& Gibson, 2004). All of the above have explained the reality and the imperative of managing conflicting demands in increasingly competitive and continuously changing markets and have also afforded a rich impression of the different types of tensions that emerge in pursuing both exploitation and exploration.

According to (Tushman& O’Reilly, 1996), ambidextrous institutions are those that possess the inclination to manage different successive innovation events simultaneously. Notably indeed, as institutions need to adapt to complex and ever changing market competitiveness, the very idea on ambidexterity is increasingly related to tensions which are observed to be coming from the desire for institutional adaptation to the environmental changes (Ingram *et al.*, 2008).

The duo of innovation or efficiency absolutely follows Simsek (2009) and Gupta *et al.* (2006) offered assertions that the accomplishment of ambidexterity is predicated on the type of learning that are imposed in both exploitation and exploration activities rather than differentiating them on the basis or presence of absence of learning. The over-riding concern for balancing both becomes more challenging given that innovation is a function of creative thinking and exploratory actions, whereas efficiency is related to routine performance and exploitation of skills and knowledge Bledow *et al.*, (2009).

Additional complexity is added, if we take under consideration the various types of innovation stemming from radical to incremental and that innovation is two level remarkable developmental issues that include both an actor an individual, a group, an institution and the surroundings in which the actor operates Gupta *et al.* (2007). The pursuit of ambidexterity is thus related to managing tensions arising at different levels. And whereas multiple approaches have been suggested by the literature, how institutions build an ambidextrous capability or how these tensions are managed remain largely unexplored (Bledow *et al.*, 2009, Cantarello *et al.*, 2012). Remarkable the two level approaches of the underlying thesis which are at both the institutional and individual level allows us to explore how these tensions are run down throughout the institution, how these are supposed and eventually managed following a stream of research that fixated on innovation as a process rather than an outcome (Brion *et al.* 2010, He & Wong, 2004)

Predicated on March’s (1991) explanation of exploitation and exploration as involving separate and conflicting learning processes, investigations on ambidexterity had viewed exploitation and exploration as having two ends of the same scale, challenging for scarce resources and realized through conflicting institutional capabilities. In this circumstance, ambidexterity is conceptualized as managing the tensions and conflicts that arise from these functioning to discover the suitable balance between the two. Ambidexterity is consequently used as a simile for institutions that desire to be dexterous at managing opposing demands (Simsek, 2009).

A later conceptualization by Gibson & Birkinshaw, (2004) complemented this observation with empirical evidence that ambidexterity also stems from an institutional unit’s supportive circumstance. Of recent, scholars had taken resolute on the role of connecting the possible mechanisms that should be in place between exploitation and exploration units as well as the leadership features that are capable of assisting in dealing with the tensions arising (Lubatkin *et al.* 2006, Smith & Beckman, 2006, Smith &Tushman, 2005). It has been noted that additional investigations on exploration or exploitation tensions had questioned the inbuilt opposing views between exploitation and exploration, and had proved that both functions can be treated either as two ends on a scale or as not pertinent to each other depending on the focus on a single or numerous levels of investigation (Gupta *et al.* 2006).

Organisational technology (Efficiency of organizational technology as a moderator)

Technological efficiency has the capability of determining the effectiveness of organizational technology and how it can be acknowledged as moderating the relationship between strategic orientation and organisational ambidexterity in mobile communication firms in Port Harcourt. The availability of technological efficiency is what differentiates the technological competence or capabilities of one firm from rival firms. It stands out to be the strength or structure upon which organizational information and technological systems run or are expressed and hence, considered to function as base or for progressive advancement and growth of organizational technology.

Communication firms may capitalize and push for change through their technology, however, the actual transitions is dependent more on the available technological efficiency. In this vein, organizational technological efficiency determines to a large extent the technological proficiencies of the organisations and also impacting on their level of competitiveness and organisational ambidexterity in firms. The real function of technological efficiency can therefore be obviously viewed as imperative, critical and essential to the accomplishment of organisational ambidexterity by mobile communication firms in in Port Harcourt

Strategic orientation

Organisational strategy is an expensive thought process of management that defines the commitment of resources that will be used in the future to achieve stated objectives. The actual firm's performance according to Porter (1980) depends largely on the value and choice of the industry, and that different performance levels are achieved by different industries based on the type of strategy used. In today's business environment, characterized by turbulence and dynamism, firms depend more on the kind of suitable strategic guide which will make them to gain competitive advantage. One of the guides is known as strategic orientation. Berthon, et al. (1990) which explains that strategic orientation involves basic principles capable of influencing and directing the activities of a firm and the expected behavior require to achieve firm's performance and survival Hakala., (2010). Liu and Fu, (2011) asserts that putting strategic orientation into action involves the comprehensive directions that will guide the action of the firm to address the behaviour constantly required to achieve desired result.

Miles and Snow (1978) had maintained that there are four kinds of strategy, namely: prospector, analyser, defender and aggressor with consistency of processes involved among them in solving managerial strategic issues. The term strategic orientation was first used by Venkatraman, (1989) and he used aggressiveness, defensiveness and proactiveness as the dimensions to measure managerial perceptions on the process of an organisation to achieve competitive advantage. However, strategic orientation can now cover an understanding of market orientation, learning orientation, entrepreneurial orientation and technological orientation with each giving an understanding of the mechanism for adaptation, and how firms can gain competitive advantage. The learning orientation explains that an organisation that is ready to learn and continuously be committed to learn can always achieve future vision capable of enabling them to be adaptive to the changes in the environment (Calantone et al.2002). It is more interesting to note that much number of studies have been directed on the relationship between market and learning orientation, or market and entrepreneurial orientation. The reason being that according to Grinsten, (2008), he noticed the importance of investigating the relationship between different strategic orientations and in addition, that organisations that only implement one strategy will surely perform very poorly in the long run Pearson, (1993).

III. Methodology

Research Design

In this study, the quasi-experimental and cross sectional survey design were adopted and data were generated through self-administered structured copies of questionnaire distributed personally to the target organizations of interest

Population for the study

In light of this, the population for this study included 4 mobile communication firms comprised of top level managers, middle level heads of department and supervisors.

Table 3.1 Population of the study.

S/N	Firm	Top level managers ,Port Harcourt	Middle level Managers, Port Harcourt	Supervisors, Port Harcourt	Total
1	MTN	1	13	54	68
2	GLOBACOM	1	6	27	34
3	AIRTEL	1	8	33	42

4	9 MOBILE	1	10	7	18
	Total	4	37	121	162

Source: Research survey, (2020).

Sampling Technique

As an outcome of the relatively small size of the population, the sampling technique that was adopted was the non- probability sampling technique (i.e purposive or judgmental sampling) which allowed the researcher to deliberately select the sampling unit to be included in the research and ensured that all members of the population had no equal chances of being selected.

Methods of Data Collection.

Two major methods that were adopted by the researcher for the collection of primary data included both interview and questionnaire.

Validity and Reliability of Research Instrument.

The research instrument was made subject to content and face validity, while the reliability outcomes was verified through confirmatory test of intrinsic consistency using the Cronbach Alpha coefficient with a projected value of .07

IV. Results And Discussion

Analysis of finding

Table 4.1 Survey result

S/N	Firms	Distributed Questionnaire copies	Retrieved Questionnaire copies	Percentage
1	MTN	48	46	40%
2	GLOBACOM	24	24	21%
3	AIRTEL	30	30	26%
4	9MOBILE	13	12	10%
	TOTAL	115	112	97%

Source: Research survey, (2020).

Survey activities as presented in table 4.1, can be considered as substantially successful at a 97% retrieval rate.

Table 4.2: Reliability results

Variables	Dimensions/Measures	Indicators	Alpha
Strategic orientation of companies	Aggressiveness	.926	5
	Defensiveness	.915	5
	Pro-activeness	.911	5
Organisational ambidexterity in firms	Exploitation	.905	5
	Exploration	.935	5
Organizational technology		.932	5

Source: Research survey, (2020)

The test on the instrument reliability for each of the variables (table 4.2) revealed high Cronbach alpha coefficients for the instruments. From the table, the reliability dimensions and measures results proved substantial coefficients as .926,.915, .911, .932, .905 and .935 for all the variables with five indicators for each which surpassed the 0.70 benchmark earlier adopted as the criterion for reliability in the research.

Demographic section

The analysis of data in this section utilized simple percentage and charts to illustrate the distribution and frequencies of the demographic features of the participants which included gender, work experience, qualification, organizational position, and organizational network.

Organizational Technology: It is described in the context of the underlying article as the degree to which the mobile communication firms examined herein adopt, rely and utilize technology as a fundamental and imperative feature of their activities, processes, operations and systems. It is similarly the moderating variable of the research. Organisational technology’s data presented is used to describe or explain all participants’ experiences and opinions concerning the handling, upgrades and utilization of technological systems by their respective organizations.

Table 4.3 Distribution for organizational technology indicators

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Tech1	112	2.8750	.90170	-.199	.228	.766	.453
Tech2	112	2.8750	.78413	-.232	.228	1.381	.453
Tech3	112	2.8125	.76560	-1.138	.228	1.938	.453
Tech4	112	2.9643	.69656	.048	.228	2.000	.453
Tech5	112	2.8750	.87121	-.169	.228	1.077	.453
Valid N (listwise)	112						

Source: Research survey, (2020)

Illustrated in the table above depicted the allocation for the indicators of organizational technology. Allocations in view of the indicators revealed substantial manifestations for all the five (5) indicators which have all been discovered to be significant at ($x_1 = 2.8750$, $x_2 = 2.8750$, $x_3 = 2.8125$, $x_4 = 2.9643$, 2.8750)

(Assessing Relationship)

In assessing the moderating effect of organizational technology on the relationship between strategic orientation and organisational ambidexterity, regression analysis subject to the assertions of Kenny and Baron (1986) was adopted in the investigation of the moderating effect of technology on the relationship.

HYPOTHESIS TESTING

Ho1: The technology of an organisation does not moderate the relationship between strategic orientation and organizational ambidexterity of mobile communication firms in Port Harcourt

Model 1: $Y = a + B_1X + B_2M + e...$ Moderating Effect of organizational technology on the relationship between strategic orientation and organisational ambidexterity.

Table 4.4: Regression model 1

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.640	.150		4.277	.000
	Orientation	.812	.052	.833	15.760	.000
	(Constant)	.410	.163		2.521	.013
2	Orientation	.585	.089	.600	6.569	.000
	Technology	.300	.098	.280	3.061	.003

a. Dependent Variable: Ambidexterity

Illustrated in table 4.17 is the outcome for the analysis on the moderating effect of organizational technology on the relationship between strategic orientation and organizational ambidexterity of mobile communication firms in Port Harcourt. The evidence indicates that at a $P < 0.000$; and $t = 6.569$, strategic orientation of the organisations is significantly related with organisational ambidexterity of mobile communication firms (direct effect). In light of this, the evidence reveals that there is a significant level of moderating effect of organizational technology on the relationship between strategic orientation and organisational ambidexterity of mobile communication firms. Hence, the null hypothesis is rejected as evidenced from the Spss output of $0.812 - 0.585 = 0.227$ which indicates significant relationship.

V. Summary

From the analysis, there is a convincing indication that the mobile communication firms absolutely rely and use technological systems in the most significant ways. The evidences yield the suggestion that the examined indicators of the variables are all well practiced and evident. As a consequence, all five indicators are affirmed as significant and in light of this the studied mobile communication firms are known to depend highly on technological systems for improvements and development.

The investigation of the relationship suggests that a substantial number of the respondents affirmed that the role of organizational technology in their organizations and its impact on the systems' activities and processes is very imperative. The data revealed that a hand full of the respondents viewed their organization as depending highly on new technologies and technological efficiencies for exceptional service delivery and efficient performance

This emphasis on technological requirement and its indispensable usage in the organizations is also accepted by all other respondents who agreed on the evidence and substantial usefulness of technology in their organizations explorative activities.

VI. Conclusion

The technology of the mobile communication firms significantly moderates the relationship between strategic orientation and organizational ambidexterity

Organizational technology is significantly manifested within the mobile communication firms and impacts substantially on the relationship between strategic orientation and organizational ambidexterity of Mobile communication firms

Organizational technological efficiency influences the degree to which its technology can be viewed substantial or weak and as a result, is considered imperative and a substantial feature for organizational innovativeness and organisational ambidexterity in firms.

Organizational technology is strongly depending and influenced by the availability of the technological efficiency of the organisations. As a consequence, even though organizational technology can be considered as a driving force behind organizational exploitation and exploration activities, the actual technological proficiencies of the institutions are determined by the technological efficiency of the institutions.

VII. Recommendation

Concerning organizational technology, it is therefore imperative that organizations emphasize more on the continued acceptance and preservation of substantial technological efficiencies and systems which ultimately determine their strength of technological proficiency. What this therefore means is that from the findings, it is suggested that organizational technological efficiencies have precedence over actual technological activities or expressions.

Technological infrastructure dictates the capacity and the attributes of the technology of the organisations. In light of this, standard and substantial technological efficiency is a pre-condition for the magnitude of the organisations technological effect on the activities or processes of the institutions.

Organizational technology is imperative, however, there is a more pressing need for organizations to address their technological efficiencies because it determines their technological proficiency and plays a more crucial role in the processes and applications which are predicated on it.

Conclusively, it suffices to state that the effectiveness of organizational technology or its application should depend on the availability of its infrastructure measured as adequate with global benchmarks or indices.

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