

Strategic Agility and Competitive Performance in the Nigerian Telecommunication Industry: An Empirical Investigation

Ade Oyedijo Ph.D.

Department of Business Administration and Management Technology
Lagos State University, Ojo
Lagos, Nigeria.

Abstract

This paper examines the relationship between strategic agility and competitive performance using data generated from nine (9) firms in Nigeria's telecommunication industry. A five-point Likert type scale based on 21-items derived from existing literature was used to measure and assess the location of the sampled telecommunication firms on different dimensions of strategic agility. Using a multiple-informant survey, respondents' rating on all the strategic agility items were summed up and averaged to obtain a strategic agility index for each participating firm. Strategic agility data were generated from the questionnaire that was completed by members of the Top Management Team (TMT) of each company. Data on profit growth, sales revenue, financial strength, operating efficiency and performance stability were collected from the firms' records. Results from the analysis showed a significant relationship between strategic agility and competitive performance. It was found that strategic agility influences the competitive performance of telecommunication firms in Nigeria (with a coefficient of 3.419). It was also found that strategic agility has a significant impact on and is a good predictor of competitive performance ($R^2 = 0.610$).

Key words: Strategic agility, competitive performance, innovation, strategic planning, strategic management.

1. Introduction and Objectives

The Nigerian telecommunication industry has experienced tremendous changes in recent years. The liberalization and de-regulation of the nations telecommunication industry and the economy as a whole has prompted the entry of many new players into this sector. Taking advantage of the opportunities provided by the de-regulation, many local and foreign investors of different sizes and strength have sought to create a niche for themselves. The level of activities in this sector has increased significantly over the past ten years and it is envisaged that this will not abate soon. The environment is therefore becoming more competitive than before while some of the leading telecom companies have started expanding their operations overseas especially into the West African sub-region to compete with long established international players. In all of these, there is increasing demand and pressure on the management of these companies to deliver on shareholders' earnings and justify increasing investment in their companies. The overall aim of this study is to examine the work that has been done on agility in the manufacturing sector and explore the relevance of this concept in the service industry to support a competitive telecommunication industry in Nigeria. The specific objectives of this study are to investigate and develop an understanding of the telecommunication industry and develop and empirically test a strategic agility model in the telecom industry in Nigeria.

2. Literature Review, Theoretical Framework and Hypotheses

The concept of agility originated from the research work sponsored by the US Government at Iacocca institute in 1991 (Iacocca 1991, CEST 1996). Following that study, several definitions of agility have been offered in an effort to clarify its meaning. For instance, Goldman, Nagel and Preiss (1995), who first suggested (Goldman and Nigel, 1993) the concept of agility, defined it as "being capable of operating profitably in a competitive environment of continually, and unpredictably, changing customer opportunities". As more studies were carried out on agility, new insights were made possible by further definitions offered by researchers such as Kidd (1994), Burgess (1994) Gunasekaran(1995) Yusuf, Sarhadi and Gunasekaran (1999). According to Kidd (1994), agility is "the synthesis of a number of enterprises that each has some core skills and competencies which they bring to a joint venturing operation" to respond to customer requirements. Gehani (1995) asserts that "an agile organization can quickly satisfy customer orders, introduce new products frequently in a timely manner...get in and out of its strategic alliances speedily".

The drive for regional and possibly global presence is currently on top of the agenda of most of the companies in the Nigerian telecommunication industry and in order to compete in a regional or global telecommunication marketplace, it is imperative for them to develop the capacity and capability to satisfy changing customer requirements effectively and efficiently, introduce new products and master the art of strategic alliances in line with the definition offered by Gehani above. In other words, there is a strong need on their part for strategic agility to deliver top of the range services nationally and internationally. Doz (2007) has recognized and underscored the need for strategic agility.

Adeleye and Yusuf (1999), Yusuf et al (1999), Yusuf and Adeleye (2002) have argued that the integration of the key elements – organization, people and technology-is the foundation for agility. Overby, Haradwaj and Sambammurthy (2006) have argued that agility is a concept integrating organizations, people and technology into a meaningful unit by deploying advanced information technologies and flexible and nimble organization structures to support highly skilled, knowledgeable and motivated people. Organizational capabilities including how they harness skills and knowledge and technology within to deliver on customer service and profitability are essential to achieving agility. Existing research has shown that this is the case in manufacturing but it remains to be seen if it is applicable in services especially in a telecommunication service sector of an emerging third world economy such as Nigeria.

Gunasekaran (1999) and van Hoek, Harrison and Christopher (2001) contend that agile manufacturing is a development from the original concept of ‘lean manufacturing’. Womack, Ross and Jones (1990) and Katamaya and Bennet (1996) see lean manufacturing as elimination of waste and doing more with less. In lean manufacturing, market stability is important. However, in agility, the focus is on ability of the organization to thrive in a competitive, rapidly changing, volatile and high velocity environment. Ren, Yusuf and Burns (2000, 2005) have suggested that agile organizations deliver better on cost, quality, speed, flexibility and innovation simultaneously without compromising on any of these criteria. This study examines the strategic service delivery attributes and factors that facilitate or inhibit the delivery of those set of criteria by the telecommunication sector in the context of Nigeria. Important to this study is the need to understand how Nigerian telecommunication companies could become agile or more agile through the use of their service operations and compete nationally, regionally, and globally. The study further examines and compares the competitiveness of a group of Nigerian telecommunication companies based on the extent of their strategic agility. The question that the study addresses is whether firms that are strategically agile will compete better than those that are less agile. Based on the exiting literature and theory reviewed above, it is hypothesized that this will be the case. However, no systematic empirical evidence exists on the validity of this proposition. Hence, the following hypotheses are proposed.

H₀₁: There is no significant relationship between strategic agility and competitive performance.

H₀₂: Strategic agility has no significant impact on competitive performance.

H₀₃: There is no significant difference between the performance of firms that are highly strategically agile and the performance of firms that are less strategically agile.

3. Operationalisation and Measurement of Variables

3.1 Strategic Agility

The four dimensions along which strategic agility was measured in this study are:

- (i) The organization dimension;
- (ii) The people dimension;
- (iii) The technology dimension; and
- (iv) The planning dimension.

The organization, people and technology construct are based on Adeleye and Yusuf (1999), Yusuf et al. (1999); Yusuf and Adeleye (2002); Overby, et.al. (2006); and Ren, et.al (2001, 2005). The planning construct was based on Barringer and Bluedorn (1999) among others.

Using 5-point Likert type scales, eight factors were used to measure the organizational dimension of strategic agility. They are the number of layers in the organization, the degree of centralization, the emphasis placed on structure and procedure (formality), the extent of intrapreneurship in the organization, i.e. the extent of support of the organization’s culture for innovation and creativity, the strength or soundness of the company’s market research system, the company’s customer performance feedback system, the company’s competitor intelligence system, the company’s linkage with suppliers and customers.

The eight elements were summed to create eight additive variables each representing an organizational dimension of strategic agility. Summation of these eight variables results in an overall measure of the agility of a firm on this dimension.

Six human resource development and management items were in the scale that was used to measure the people dimension of strategic agility. They are employee involvement in design and planning, employee education and training, employee well being and morale, employees' interaction with customers and suppliers, an active suggestion system and employee autonomy.

These six factors are considered important forces influencing the ability and capacity of an organization's employee to deal with the environmental challenges inspired and imposed by competition and industry dynamics. For instance the more trained, involved and motivated employees are, the more likely it is for them to be predisposed to handle environmental challenges.

Three items were in the scale that was used to measure the technology dimension of strategic agility. They are the process used by a firm, the research and development intensity and innovation orientation of a firm as measured by investments in new technology and innovation programmes and the quality of the firm's technological resources relative to those of its competitors in the industry. Aspects of the process measured included whether there was a programme to reduce order processing cycle time, to reduce new product or service development cycle times, to reduce overall product or service delivery cycle times, to reduce paper work, and to find and eliminate wasted time and costs in all internal processes. These measures of process improvement had been used by Powell (1995) in a review and empirical study of Total Quality Management (TQM) as competitive advantage. Because strategic agility involves anticipating future events and preparing for them systematically and realistically, the planning dimension was included as a measure of a firm's agility. Four items were in the scale that was used to measure the planning dimension of strategic agility. They are: setting of long term objectives, setting of action plans and short term objectives, external environmental sensitivity and planning flexibility. Many strategic management researchers have used these items in the analysis of a company's strategic planning and management practices (e.g. Barringer and Bluedorn, 1999; Boyd, 1998).

A five point Likert scale involving the above 21 items developed by Adeleye and Yusuf (1999); Yusuf, et. al., (1998); Adeleye and Yusuf (2002); Barringer and Bluedorn (1999); Overby, et. al., (2006); Reniet, et. al., (2001, 2005); was adopted. The scale ranging from '1' (absolutely disagree) to '5' (absolutely agree) was applied to assess a firm's emphasis on strategic agility. Since a multi-informant survey method was used, respondents' rating on all the items were summed up and averaged to obtain a strategic agility index for each participating firm. Strategic agility index is classified high when the index is equal to or greater 4.0 and low when it is lower than 4.0. As outlined in the theoretical framework, ample theoretical support exists for the above dimensions.

Cronbach alpha coefficient was computed to test the reliability of the strategic agility scale (Cronbach 1951). Typically, the coefficient should fall within a range of 0.70 to 0.90 for a narrow construct such as the one defined here, and 0.55 to 0.70 for moderately broad constructs (Vande Ven and Ferry, 1979). In the empirical study, a reliability score 0.91 was obtained from the Cronbach's alpha test using the adapted scale. This is considerably above the 0.70 advocated by Nunnally (1978).

3.2 Competitive Performance

Competitive performance or competitiveness was operationalised and measured using a competitive performance scale comprising ten performance criteria derived from Khandwalla (1995). The ten performance criteria include: profit growth, sales revenue, financial strength, operating efficiency, performance stability, public image, employee morale, environmental adaptation, new ideas, and social impact on the society. A five-point Likert scale was applied to measure the extent of the firms' performance, using the ten criteria. The scores on the ten items were summed up and averaged to determine the mean index of firms' performance. An index of less than 4.0 was regarded as low firms' performance while an index of 4.0 and above was regarded as high firms' performance. A reliability score of 0.86 was generated from the Cronbach's alpha test using the adapted scale from Barringer and Bluedorn (1999). Subjective performance measures were combined with objective measures in this study. Subjective performance measures are widely accepted and used in organizational management research (Lawrence and Lorsch, 1967; Dess, 1987; Powell, 1992) and in this study were combined with financial statement data because the heterogeneous sample produced significant company differences in accounting reporting.

In addition, some telecommunication companies in the sample were privately-owned and unquoted and would not, given the attitudes of Nigerian managers to information disclosure, have provided actual, clinically exact confidential financial information as a matter of policy and practice.

4. Tests of Validity

4.1 Test of Convergent Validity

As a test of the convergent validity of the competitive performance measure, objective financial measures were obtained from four publicly quoted survey participants. In this subsample, return on sales, a commonly-used measure of financial performance in strategy research (e.g. Cool and Dierickx, 1993; Zahra and Covin, 1993) correlated significantly with the subjectively derived competitive performance ($r= 0.64$; $p \leq 0.01$), suggesting that although the objective and subjective measures are not identical, the objective measures constituted a key element of the respondents subjective assessments.

4.2 Construct Validity

Construct validity was sought for this study through an extensive use of the extant literature to create our measures. This provides theoretical linkages and cumulativeness with previous work.

4.3 Test of External Validity

To address the problem of external validity we conducted a reality-check using the approach introduced by McGrath, MacMillan and Venkatraman. (1995). This involved active discussion of the results with knowledgeable colleagues at the next lower rank of the final respondents who were not a part of the sample but are yet within the same companies. Their high levels of agreements or concurrence with the result provided evidence of the external validity of the results.

5. Methodology

5.1 Population, Sample and Data Collection

In order to examine the relationships that exist between strategic agility and competitive performance in Nigeria, a cross-sectional survey design was used by collecting data from a defined population. The use of survey research method is justified because it follows a correlational research strategy and helps in predicting behaviour (Bordens and Abbott, 2002). It also helps to ascertain whether or not a relationship exists between the variables of study (Kerlinger, 1973). Responses were sought from telecommunication firms on a wide range of issues relating to strategic agility and competitive performance.

The population of this study is made up of the Top Management Teams (TMTs) of the telecommunication firms operating in Nigeria. Since 99.2 percent of Nigeria's telecommunication firms are based in Lagos state (NCC, 2008), Lagos was therefore considered a good representation of telecommunication firms in Nigeria. Hence the population sample was taken from Lagos State, Nigeria.

A simple random sampling technique was used in selecting the 12 participating telecommunication firms. A total of 278 copies of the questionnaire were administered on the telecommunication firms but 248 were completed and returned. This represents 89.98 percent response rate. According to Saunders, Lewis and Thornhill, (2003), sampling is a part of the entire population carefully selected to represent that population. The justification for using random sampling technique is that it eliminates the possibility that the sample is biased by the preference of the individual selecting the sample (Bordens and Abbott, 2002). Another justification is that it is particularly necessary when one wants to apply research findings directly to a population (Mook, 1983).

Preliminary personal interviews were conducted with the CEOs of the firms covered by the study. Data on strategic agility and non-financial competitive performance measures (i.e. public image, employee morale, environmental adaptation, new ideals and social impact on the society) were generated from comprehensive questionnaires that were completed by the members of the TMT of each company. Data dealing with profit growth, sales revenue, financial strength, operating efficiency and performance stability were collected from the firms' records. The sample included both large and small firms, both publicly quoted and privately owned. An almanac profiling the telecommunication firms in Nigeria that was developed by the Nigeria Communications Commission (NCC), an agency of the Federal Government of Nigeria, was the original source used to identify the firms.

Three firms were dropped from the sample after initial contacts in January – March 2011 for a variety of reasons including unwillingness to participate or because the firm had gone out of business at the time of data collection in September-December, 2011. The three telecommunication firms which did not participate were apathetic and unwilling to divulge information. They adduced reasons such as management policy and suspicion to justify their lack of corporation. Interviews were conducted with the CEOs or Deputy CEOs of the remaining 9 firms.

The personal interviews served two purposes. First, it allowed the researcher to explain more fully the goals of the study and to obtain the CEO’s approval and endorsement for the study. The CEOs or their representatives were approached and persuaded to fill the questionnaire and to persuade their TMT members to do the same. The study design called for the CEO to identify each of the team members and for each team member to complete a questionnaire. Second, as a part of the interview, the CEO initiated a memo which requested participation in the study by members of his management team and served to endorse the study, thereby increasing the likelihood of participation. Hambrick and Mason’s (1994) upper echelons theory suggested that researchers can identify members of a Top Management Team simply by equating executives’ titles with membership in the team and some studies have used this approach (e.g. Norburn and Birley, 1988; Tushman, Virany and Romanelli, 1989; O’ Reilly and Flatt, 1989; Keck, 1991). To closely approximate Cyert and March’s (1963) notion of the dominant coalition and following a similar approach by Knight, Pearce, Smith, et. al (1999), we asked each CEO to identify the members of his or her ‘real’ Top Management Team (TMT).

A self-report questionnaire was designed, piloted and eventually administered on the respondents in the telecommunication firms with the help of field research assistants. Telecommunication firms in Lagos State constitute the sample frame which is a representative subset of the population from which the sample was drawn. All members of the TMT including the CEO of each company, were asked to complete the questionnaire. 92% of the respondents were holding General Manager position or above, have had an unbroken service with their companies for at least five years and were considerably involved in top executive decision making roles. As stated earlier, a multiple-informant survey method was used to collect data on strategic agility. This was done to overcome the limitation of relying on a single informant (expectedly the chief executive officer). Empirical research suggests that chief executive officers tend to overlook different perceptions of strategy and strategy attributes within organizations (Bowman and Ambrosini, 1997; Walker and Enticott, 2003). This methodological limitation if not addressed can lead to mixed results in studies of the relationship between strategic agility and firm performance. From the 276 questionnaires requested from team members, a total of 248 usable responses were returned. 248 or 97.1% of the 276 team members who were asked to complete the questionnaires did so, and the average number of questionnaires returned per firm was 11.7.

The companies that did not participate in the study were involved in the same kind of businesses that the firms included in the final sample were involved in. The questionnaire consisted of a group questions designed to assess various aspects of each executive’s mental model of the strategic agility of his or her firm.

5.2 Model Specification

The following regression model was analyzed:

$$\text{Performance} = f(\text{Strategic agility}) \dots\dots\dots (1a)$$

Where:

Performance = Profit growth (PG), sales revenue (SR), financial strength (FS), operating efficiency (OE), performance stability (PS), public image (PI), employee morale (EM), adaptation (AD), new ideas (NI), and social impact on the society (SIS).

Strategic Agility = Organization (ORG), people (PPL), technology (TNG), and planning (PLN)

$$PG, SR, FS, OE, PS, PI, EM, AD, NI, SIS = f(ORG, PPL, TNG, PLN) \dots\dots\dots (1b)$$

5.3 Analytical Procedures

To derive a useful meaning from the data and examine the proposition of this study, data from the survey were analysed using the Statistical Package for Social Sciences Research (SPSS) which is very popular among academics for this type of survey by questionnaire.

The participating telecommunication firms constituted the unit of analysis. Primary data were used for the analysis. The use of primary data is justified because according to Cowton (1998), it is the quickest and simplest of the tools to use if publication is the aim.

Data collected is subjected to four main types of analysis. In order to gain perspectives into the socio-demographic characteristics of respondents, frequency distribution of responses is calculated while descriptive statistics is employed in determining the extent of strategic agility in the telecommunication forms under study. Correlation analysis (i.e. product-moment correlation) is employed to show the existence of relationship between strategic agility and competitive performance while regression is used to determine the amount of variations in the dependent variable which can be associated with changes in the value of an independent or predictor variable in the absence of other variables. Independent t-test is another analytical procedure used in examining whether there is a significance difference between the performance of telecommunication firms that are strategically agile and the performance of those that are less strategically agile in Nigeria. Since the data were collected on a rating scale which is 'presumed to be interval scale', this parametric test is considered appropriate (Emory and Cooper, 1991). Also, going by the central limit theorem, 'for sufficiently large samples (n=30), the sample mean will be distributed around the population mean approximately in a normal distribution. Even if the population is not normally distributed, the distribution of sample mean will be normal if there is a large enough set of samples' (Cooper and Schindler, 2001). Since the sample size for this study is large (n=278), the use of this statistic is justified.

6 Empirical Results

6.1 Hypotheses Tests and Results

A total of 278 copies of the questionnaire were administered on the telecommunication firms but 248 were completed and returned. This represents 89.98 percent response rate. According to Saunders, Lewis and Thornhill, (2003), sampling is a part of the entire population carefully selected to represent that population. The justification for using random sampling technique is that it eliminates the possibility that the sample is biased by the preference of the individual selecting the sample (Bordens and Abbott, 2002). Another justification is that it is particularly necessary when one wants to apply research findings directly to a population (Mook, 1983).

6.1.1 Demographic Characteristics of the Respondents

Tables 1 and 2 show the demographic characteristics of the respondents and firms respectively. The demographic profile of respondents in Table 1 reveals that majority of the respondents were males, constituting 75 percent of all the respondents. Respondents who were 30 but less than 60 years old make up 91.9 percent of the entire respondents. Those who were less than 30 years old constitute only 5.6 percent, while 60 years and above constitute an insignificant proportion (2.5 percent) of the entire respondents. Majority of the respondents sampled were married and they constitute 68.9 percent, while 27.0 percent were single. The divorced, widower and widow make up only 4.1 percent. Also, in terms of educational qualification, majority (43.5 percent) of them were masters' degree holders. Respondents who were holders of bachelor's degree or equivalent constitute 37.5 percent while those who had professional qualifications make up 16.1 percent. Doctoral degree holders constitute the least (2.1 percent) of all the educational qualifications.

Table 1: Demographic profile of respondents

		Frequency	Percent
Sex	Male	186	75.0
	Female	62	25.0
	Total	248	100.0
Age	Less than 30	14	5.6
	30 but less than 40	56	22.9
	40 but less than 50	92	37.1
	50 but less than 60	79	31.9
	60 and above	7	2.5
	Total	248	100.0
Marital Status	Single	67	27.0
	Married	171	68.9
	Divorced	5	2.1
	Widower	3	1.2
	Widow	2	0.8
	Total	248	100.0
Educational Background	Bachelor's degree or equivalent.	93	37.5
	Masters' degree	108	43.5
	Doctoral degree	5	2.1
	Professional Qualification	42	16.9
	Total	248	100.0

Source: Field Survey November-December 2011

Table 2: Demographic profile of firms

		Frequency	Percent
Number of employers	Fewer than 100	13	5.2
	100 – 200	18	7.2
	201 – 300	47	18.9
	301 – 400	74	29.9
	Above 400	96	38.8
	Total	248	100.0
Age of Organization (in years)	Less than 5	18	7.2
	5 but less than 20	198	79.9
	20 but less than 30	20	8.0
	30 and above	12	4.9
	Total	248	100.0

Source: Field Survey November-December 2011

Table 2 shows the demographic profile of firms. This reveals that the number of firms with workforce that is above 400 employees constitute the highest (38.8 percent), while those with fewer than 13 employees are the lowest (5.2 percent). In terms of the age of the firms, those who are 20 years and above constitute the highest (37.3 percent). Organisations that are less than 5 years old constitute only 2.4 percent of the entire participating firms.

7.1.2 Mean indices, correlation coefficient, regression analysis and independent samples test

Table 3: Mean index of strategic agility

Strategic Agility Indicator	Frequency	Average Weighth
Organizational dimension	248	4.68
People dimension	248	4.32
Technology dimension	248	3.79
Planning dimension	248	3.15
Means of means		3.98

Source: Field Survey November-December 2011

Table 4: Mean index of competitive performance

Competitive Performance	Frequency	Average Weight
Profit growth	248	4.19
Sales revenue	248	4.24
Financial strength	248	4.13
Operating efficiency	248	4.17
Performance stability	248	4.16
Public Image	248	4.06
Employee morale	248	3.79
Environmental adaption	248	3.97
New ideas	248	4.19
Social impact on the society	248	3.79
Mean of means		4.07

Source: Field Survey November-December 2011

Tables 3 and 4 present the descriptive statistics of the variables. The mean index of strategic agility with respect to participating firms was 3.98, while the mean index of participating firms concerning competitive performance was 4.07(See Tables 3 and 4 respectively).

Hypothesis One: There is no significant relationship between strategic agility and competitive performance
Hypothesis one was tested through correlations coefficients test. Pearson's product moment correlations coefficient (0.745**) indicates that strategic agility and competitive performance are significantly and positively correlated with each other at 0.01 level of significance. Therefore, the null hypothesis of no significant relationship is rejected. Thus, there is a significant relationship between strategic agility and competitive performance.

Table 5: Regression Analysis of strategic agility and competitive performance**Table 5a: Model summary**

Model	R	R square	Adjusted R square	Standard Error of the Estimate
1	0.745	0.610	0.598	5.818

Table 5b: ANOVA

Model		Sum of square		Mean Square	F	Sig.
	Regression	14638.016	1	14638.016	396.952	0.000
	Residual	13496.118	247	36.876		
	Total	28134.134	248			

Table 5c: Coefficients

Model		Unstandardized Coefficients		Standard coefficient	T	Sig
		B	Std. error	Beta		p
1	(Constant)	12.272	1.096		10.918	.000
	Strategic agility	3.419	0.074	0.086	22.894	.000

Dependent variable: Competitive performance

P < 0.05

Hypothesis Two: Strategic agility has no significant impact on competitive performance

The hypothesis above was tested through a regression analysis. The results of the regression analysis of the relationship between strategic agility and competitive performance are shown in Table 5. Table 5b above shows that the analysis of variance of the fitted regression equation is significant with F value of 396.952. This is an indication that the model is a good one. Since the p-value is less than 0.05, it shows a statistically significant relationship between the variables at 95 percent confidence level. The results also indicate that strategic agility actually influences the competitive performance of telecommunication firms in Nigeria with a coefficient of 3.419. Therefore, the null hypothesis of no significant impact is rejected. Thus, strategic agility has a significant impact on competitive performance.

The R^2 statistic in Table 5a indicates that the model as fitted explains 61.0 percent of the total variability in the firms' performance. In other words, 61.0 percent of the total variability in competitive performance can be explained by strategic agility. The value of $R^2 = 0.610$ shows that strategic agility is a good predictor of competitive performance.

The standardized coefficients (Beta) value in Table 5c reveals that the independent variable is statistically significant at 0.05 significant level.

Hypothesis Three: There is no significant difference between the performance of firms that are strategically agile and the performance of firms that are less strategically agile.

In testing whether a significant difference exists between the performance of firms that are strategically agile and the performance of firms that are less strategically agile, Independent Samples Test was adopted. We observed the difference under two headings: group statistics and Independent samples test.

Table 6: Independent samples test on performance of firms that are strategically agile and those that are less strategically agile.

6a: Group statistics

Statistics	Strategic agility	N	Mean	Std. Deviation	Std. Error Mean
Competitive performance index	High	168	4.2535	0.33307	0.07556
	Low	80	3.4685	0.79442	0.04626

6b: Independent samples test

	t	df	Sig (2-tailed)	Mean Difference	95% confidence interval of the difference	
					Lower	Upper
Competitive Performance	-13.848	246	0.000	-0.66495	-0.76026	-0.56954

The results of the independent sample t-test as revealed in Table 6a show that performance mean index (4.25) of firms that are highly strategically agile is different from the performance mean index (3.46) of firms that are less strategically agile. This difference between the two mean was found to be statistically significant at $p < .05$ (Table 6b). Therefore, the null hypothesis of no significant difference is rejected. Thus, there is a significant difference between the performance of firms that are highly strategically agile and those that are less strategically agile.

7 Conclusion Implications of Findings for Management

Based on the results of this study, we may conclude that there is a significant relationship between strategic agility and competitive performance. Since the impact of strategic agility is significant, it is a good predictor of competitive performance. The findings of this study revealed a significant relationship between strategic agility and competitive performance. It also indicated that firms with high strategic agility outperform firms with low strategic agility. This study provides important implications for the management of telecommunication firms as well as other firms in Nigeria. In order to improve competitive performance, telecommunication firms need to demonstrate a high level of commitment to strategic agility. This study can also help researchers to better understand the relationship between strategic agility and competitive performance in the telecommunication industry in Nigeria. If the telecommunication firms in Nigeria must survive, grow and compete effectively in their national and regional markets, their managers should develop organizational, human, technological and planning attributes and practices that can make them become strategically agile.

8 Limitation and Suggestion for Further Research

A major limitation of this exploratory study lies in the use of questionnaire to gather the data for our analysis. According to Yin (1994) the survey by questionnaire enables the researcher to generalize results which may not apply or match perfectly with any specific case but case studies give insights into specific cases. Therefore, future research could follow the survey by questionnaire with case studies.

Using the gross sales revenue as reported by the firms and the number of registered subscribers as listed by the Nigeria Communication Commission (NCC), one of the 9 companies could be selected from the top, another one from the middle and the remaining one from the bottom. This could be done to enable a contrasting analysis to be performed based on size and cross-case analysis in order to determine whether strategic agility rating has something to do with the size and other attributes of an organization.

References

- Adeleye, E.O. and Yusuf, Y.Y. (1999). "Agile Manufacturing – Towards a Contingency Theory", *National Conference on Advances in Manufacturing Research*, Bath.
- Barringer, B.R. and Bluedorn, A.C. (1999). "The Relationship between Corporate Entrepreneurship and Strategic Management". *Strategic Management Journal*, 20: 421 – 444.
- Bordens, S.K and Abbott, B.B. (2002) *Research Design and Methods: A Process Approach* (5thed.) New York: McGraw-Hill. Business Ethics, 17: 423-434.
- Bowman, C. and Ambrosini, V. (1997). Perceptions of Strategic Priorities, Concensus and Firm Performance. *Journal of Management Studies*. 34: 241 – 258.
- Boyd, B.K. (1998). Strategic Planning and Financial Performance. *Journal of Management Studies*. 28(40): 353 – 74.
- Burgess, T.F. (1994). Making The Leap to Agility: Defining and Achieving Agile Manufacturing Through Business Process Redesign and Business Network Redesign, *International Journal of Operations and Production Management*, Vol.14, No.11, 23 – 24.
- CEST (1996). *OSTEMS Agility Mission to the US, Findings and Recommendations*, Center for Exploitation of Science and Technology, UK.
- Cool, K. and Dierickx I. (1993). Rivalry, strategic groups, and firm profitability, *Strategic Management Journal*, 14 (i). Pp.47-59
- Cooper, D.R., & Schindler, P.S. (2001). *Business Research Methods* (7th ed). New York: McGraw-Hill companies.
- Cowton, C. J. (1998). "The Use of Secondary Data in Business Ethics Research." *Journal of D. Irwin Inc.*
- Cronbach, L. (1951). Coefficient alpha and the internal structure of tests; *Psychometrics*, 16 Pp. 47-59
- Cyert R.M and J.G March (1963). A Behavioural Theory of the firm, Practice – Hall – Englewood Cliffs N.J.
- Doz, Yves, (2007). The Need for Strategic Agility, *Copenhagen Conference on Strategic Management*, Denmark, December 2007.
- Emory, C. W. & Cooper, D.R. (1991). "*Business Research Methods*" (4th Ed.) Illinois: Richard.
- Gehani, R. (1995). Time-based Management of Technology, *International Journal of Operations and Production Management*, Vol. 15, No. 2.
- Goldman, S. L. and Nagel, R. N. (1993). Management, Technology and Agility: The Emergence of a New Era in Manufacturing *International Journal of Technology Management*, Vol.18, No. 1/2, 18 – 38.
- Goldman, S.L. and Nagel, R. N. and Preiss, K. (1995). *Agile Competitors and Virtual Organizations: Strategies for Enriching the Customer*, Van Nostrand Reinhold.
- Gunasekaran, A. (1999). Agile Manufacturing, a Framework for Research and Development, *International Journal of Production Economics*, Vol. 62, Iss 1 – 2.
- Gunasekaran, A. and Yusuf, Y.Y., Agile Manufacturing – a Taxonomy of Strategic and Technological Imperatives, *International Journal of Production Research*, Vol. 40, Iss 6.
- Hambrick, D.C. and P.A. Mason (1984); Upper echelons: The organization as a reflection of its top Mfrs; *Academy of Management Review*, 9 (2).Pp. 193-206
- Iacocca Institute, (1991) *21st Century Manufacturing Enterprise Strategy*, Lehigh University, USA
- Katayama, H. and Bannet, D. (1996) Lean Production in a Changing Competitive World: A Japanese Perspective, *International Journal of Operations and Production Management*, Vol.16, No. 2, 8 – 23.
- Keck, S. L. (1991). Top Management Team structure: Does it matter anyway? *Academy of Management Proceeding*, Miami. Fl.
- Kerlinger, F.N. (1973) *Foundations of Behavioural Research*, New York: Holt, Rinehart and

- Khandwalla, R.N. (1995). *"The Management Style"* New Delhi: McGraw-Hill Companies Inc.
- Kidd, P. (1994) *Agile manufacturing – forging new frontiers*, Addison-Wesley, Reading, UK.
- Knight, D, Craig L. Pearce, Ken G. Smith, Judy D. Olian, Henry P. Sims, Ken A. Smith and Patricia Flood (1999)- *Top Management Team Diversity, Group Process, and Strategic conclusion*, *Strategic Conclusion*, *Strategic management Journal*: 445-465
- Kumar, A. and Motwani, J. (1995) *A Methodology for Assessing Time-based Competitive Advantage of Manufacturing Firms*, *International Journal of Operations and Production Management*, Vol.15, No.2, 36 – 53.
- McGrath, R.G.; I.C. Macmillian and S. Venkatraman (1995) *Defining and Developing Competence: A Strategic Process Paradigm*, 16,251-275
- Mook, D. G. (1983). In Defence of External Validity. *American Psychologist*, 38: 379-387.
- Norbur. D. and S. Birley (1988). *The Top Management Team and Corporate Performance*; 9 (3).Pp. 225-237.
- Nullally, J. (1978). *Psychometric Theory*, 2nd ed. Mc Graw – Hill, New York.
- O' Reilly, C.A III and S. Flatt (1989). *Executive team Demography, Organizational Innovation and firm Performance*; Working paper, University of California, Berkeley.
- Overby, E., Haradwaj, A and Sambammurthy, V. (2006). *Enterprise Agility and the Enabling Role of Information Technology*, *European Journal of Information Systems*, Vol. 15, No. 2.
- Ren, J. , Yusuf, Y. Y. and Burns, N. D., (2005) *Agile Partner selection: A Hierarchical Model and Empirical Investigation*, *International Journal of Information and Systems Sciences*, Vol. 1, No.1.
- Ren, J.; Yusuf, Y. Y. and Burns, N. D. (2000) *"A Prototype of Measurement System for Agile Enterprise"*, *The Third International Conference of Quality Reliability Maintenance*, Oxford, UK, 29 – 30 March.
- Saunders, M., Lewis, P. and Thornhill, A. (2009). *Research Methods for Business Students* (5th ed) England: Pitman Publishing Winston, Inc.
- Tushman, M.L., B. Virany and E. Romanelli (1989). *Effects of CEO and executive team succession on subsequent organization performance*. Paper presented at the *Academy of Management* meeting.
- Van de Ven, A.; and Ferry D; (1979). *Measuring and Assessing Organizations*. Willey, New York.
- Van Hoek, Harrison, A and Christopher, M. (2001). *Measuring Agile Capability in the Supply Chain*, *International Journal of Operations and Production Management*, Vol. 21, Iss 1/2.
- Walker, R.M. and Enticott, G. (2003). *Using Multiple-Informants in Public Administration: Revisiting the Managerial Values and Actions Debate*. *Public Administration Review*. 6:481 – 496.
- Womack, J., Roos, D. and Jones, D.T. (1990). *The Machine that Changed the World*, Rawson Associates, New York, NY
- Yin, R.K. (1994) *Case Study Research, Design and Method* (2nd Edition), London, Sage Publications.
- Yusuf, Y. Y. and Adeleye, E. O. (2002). *A comparative study of lean and agile manufacturing with a related survey of current practices in the UK*, *International Journal of Production Research*, Vol. 40, No. 17.
- Yusuf, Y. Y., Sarhadi, M. and Gunasekaran, (1999) *Agile Manufacturing: The Drivers, Concepts and Attributes*, *International Journal of Production Economics*, 62, 33-43
- Zahra, S. and Covin J. (1993). *Business Strategy, Technology Policy, and Firm Performance*. *Strategic Management Journal*, 14 (6) Pp. 451.478.