

TECHNOLOGICAL INNOVATION AND ORGANIZATIONAL PERFORMANCE: A STUDY OF DUFIL PRIMA FOOD PLC, PORT HARCOURT, RIVERS STATE AND TUMMY TUMMY FOODS INDUSTRY LTD, NNEWI, ANAMBRA STATE

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Abstract

This study examined technological innovation and organizational performance using Dufil Prima Food Plc and Tummy Tummy Foods Industry Ltd as the case study. In the methodology, the researcher employed descriptive survey design and the questionnaire was used as the instrument of data collection. The population of this study is composed of the permanent staff of Dufil Prima Food Plc Port Harcourt, Rivers State; and Tummy Tummy Foods Industry Ltd Anambra State. The data collected were presented in tables and analyzed using simple percentage and Analysis of Variance (ANOVA). It was discovered that there is significant effect of technological innovation on productivity, technological innovation affect patronage significantly, and there is significant relationship between technological innovation and customer acquisition. Based on the findings, it was recommended that to allow for increased organizational performance, the variables of innovation strategies namely product, process, market and organizational innovation strategies need to be employed by organizations. More so, product and process innovation which are technology-driven should be given proper attention with concerted efforts made to integrate it to the operations of the firms.

Key words: Technological Innovation, Organizational Performance, Productivity, Patronage, Customer Acquisition.

Introduction

The dynamic nature of events across the globe that poses continuous challenge for improvement, calls for regular technological innovation. Innovation is one of the engines of growth in any system. It is important to note that it can also provide growth regardless of the condition of the larger economy. It represents the nucleus of the renewal processes within any organization. Until an organization changes what its offerings to the world are and the modes of creation and delivery of those offerings, it risks the prospects of declined growth and survival (Bessant, 2015). Siep (2010) argued that a number of issues must be addressed if organizations and their managers strive to be made more effective. However, this study focused on technological innovation. For any organization to be able

to compete, it must be technologically innovative. Technological innovation and core competitiveness enjoy symbiotic relationship (Prhanlad & Hamel, 1990).

Technological Innovation Capability (T.I.C) is an important component of the core competitiveness of the manufacturing industry, and core competitiveness play a role in promoting or influencing technological innovation. Technological Innovation capability is the skill and knowledge needed to effectively absorb, master and improve existing technologies and create new ones (Guan and Ma, 2003). Organizational performance can be strategically measured among several dimensions through marketing capability and strategic planning capability (Yann et al, 2004). Therefore, this work focused on technological innovation and organizational performance using Dufil Prima Food, Port Harcourt, Rivers State.

Dufil Prima Food Plc is the manufacturer of Indomie Instant Noodle. The firm is in Port Harcourt, Rivers State Nigeria. The organization is located at 68B, Uniport Road, Choba, Port Harcourt, Rivers State. The organization was used because of its of its commitment in the use of modern technology to innovate and improve its system for higher performance. Such technological innovation was significantly made in 2018 when the organization acquires high quality modern technologies and trained it human resources on the use of such technology.

Statement of Problem

The contribution of technological innovation on corporate performance cannot be overemphasized. For that, some studies have been done in the related area of the subject matter. Hurley & Hult (2018) studied innovation, market orientation and organizational learning in Asian nations. The researchers used ex-post facto research design, and secondary sources of data were used. Also, the data analyses were done through regression statistics. The problem here is that the above study was not done within the Nigerian environment and did not use the organizations which were used in this study. Furthermore, Hanvanach, Droge, & Calatone (2013) focused on marketing innovation in Gambian firms. The researchers used cross-sectional survey and primary data were collected and analyzed through chi-square. Again, the problem is that the study did not cover the Nigerian environment, and it only analysed market innovation, neglecting other innovation strategies.

Mol & Birkinshan (2009) researched on the sources of management innovation in corporate firms in Kaduna, Northern Nigeria. The researchers used survey and primary data were collected and analyzed through ANOVA. The study focused on only sources of management innovation and did not cover technological innovation. Though done within the Nigerian environment, but covered only firms in Kaduna State without emphasis on southern Nigeria. The problem of this study is that some of the past studies covered firms outside Nigeria mainly. Those ones done within Nigeria did not cover the exact subject matter of this study. This study therefore focused on technological innovation and organizational performance using Dufil Prima Food Plc and Tummy Tummy Foods Industry Ltd as the case study. Based on the above, the main objective of this study is to examine technological innovation and organizational performance. The specific objectives are to:

1. identify the effect of technological innovation on productivity.
2. evaluate the extent technological innovation affects patronage significantly.

3. examine the relationship between technological innovation and customer acquisition.

Research Hypotheses

Based on the objectives of the study and research questions, the following research hypotheses were formulated for the study.

Ho1: There is no significant effect of technological innovation on productivity.

Ho2: Technological innovation does not affect patronage significantly.

Ho3: There is no significant relationship between technological innovation and customer acquisition.

Conceptual Issues

Innovation

Innovation is a specific tool for entrepreneurs. Innovation can be presented as a discipline, which is cultivatable or practical. The introduction of a novel or enhanced product, process, or service to the market place is innovation (Okon, 2019). In the present global competitive and intelligent era, innovation is becoming more relevant, due to three major trends mainly: concentrated international competition, disjointed and challenging markets and swiftly changing technologies. Innovation is the process of taking creative ideas and turning them into useful products or work methods. This is in contrast to invention which was defined by Azaze and Haji (2005) as the process of developing new ideas.

Parashar and Singh (2005) defined innovation as the ability to combine two or more knowledge. Tran (2008) on the other hand viewed innovation as the creative and commercial embodiment of organizational learning. Innovation as a potential new combination that results in radical. According to Wirtz (2010), innovation is the development and successful establishment of a technical, organizational, business related, institutional or social solution of a problem, which is perceived as groundbreaking and new, accepted by pertinent users and pursued by innovators in anticipation of an achievement.

Technological Innovation

Technology is a systematic application of physical forces for production of goods and services. The knowledge used in practical ways in industry (Oxford 2005). It is the knowledge, process, tools, methods and systems employed in the creation of goods and improving in services. Technology is the result of man's learned and acquired knowledge or his technical skills regarding how to do things well (Khalil, 2000). Technological innovation provides the life-blood of economic activities. Technological innovation is a tool for economic growth and the application of those inventions to meet emerging business opportunities, and to meet social needs, and environmental challenges. For any organization to be able to compete, it must be technologically innovative.

Technological innovation and core competitiveness enjoy symbiotic relationship (Prhanlad & Hamel, 1990). Technological Innovation Capability (T.I.C) is an important component of the core competitiveness of the manufacturing industry, and core competitiveness play a role in promoting or influencing technological innovation. Technology should be so designed to be able to match the marketing capability of the

organization and be seen as reflecting in the strategic plan of the firm and its overall success. Innovation should match resources inputs, technology and market. This according to Liao (2001) is part of innovation and the new combination of various elements of productivity.

Organizational Performance

Organizational performance indicates the effectiveness of an organization. Various indicators such as effectiveness, efficiency, financial viability and relevance to stakeholders can be used to measure corporate performance. A recent study of managers found sales growth to be the most commonly identified measure of overall organizational performance, although other studies have considered numerous variations in performance measures. Gan et al (2006) have unanimously agreed that, measuring organizational performance is challenging because it is a multidimensional theoretical construct hence there is no single operational measure.

The existence of these multiple considerations means that, it is unclear that organizational purpose can be portrayed as unitary or that the multiple purposes of an organization are reliably consistent (March & Sutton, 2017). Richard (2009) further argued that a failure of measures to reflect an organization's multiple constituencies may lead the organization to treat the satisfaction of others as pathology, rather than maintaining a healthy tension between them.

This is the capacity of a system to meet demands for deliveries or performance. Product availability and deliverability can be used to express product performance. Domestic and global competition has made companies to strive for better ways of manufacturing products (Krajewski & Ritzman, 2007). Thus if the Organization takes challenges as opportunities, and makes improvements in their current processes, they will be able to effectively face future threats (Krajewski, 2007). According to Eccles (2011) hard realities of competition has made management re-think their practices and develop effective systems to measure their performance in business. A product performance target is often derived from a market share target. An ambitious product performance target can shape the development process in a way that leads to a revolutionary product introduction.

Impact of Technological Innovation on organizational performance

The impact of technological innovation capability on company's performance is enormous (Yann et al,2004).Innovation is an interactive process characterized by technological interrelated uses between sub-system (Teece,1996). It enhances customer competence and technological competence (Daniels, 2002). To Galende and Fuente (2003), technological innovation has impact on commercial resources, organizational resources and intentions. It impacts on the firm or industry, suppliers and customers (Zaltman & Duncan, 1973), (Kelly & Kranzberg, 1978). Lei and Yursberg (2006) observe flexibility innovation, efficiency and relatively higher speed. In this work, we focused on technological innovation on customer patronage, productivity and customer acquisition.

1. Customer Patronage

Customer are the people that believe in the organisation, patronize the firm regular (especially when there are many choice/options), and some time help the business to

enhance publicity. Patronage on the other way round is the act of buying product or receiving service from a firm. In this case, customer patronage occur when people, organizations and even government show high interest in a particular (or some) business, product of a firm, service of a firm, etc. Such positive interest motivates the customers to always buy products, receive services, and even engage in indirect business promotion for the firms.

According to Abdi (2014), the word customer or consumer patronage means a person or thing that eats or uses something or a person who buys goods and services for personal consumption or use. People patronize organizations products/services at one time or the other. Customer Patronage is the support, encouragement, privilege, or aid that an organization or individual bestows to another (Carayannis, 2005). Customer Patronage is burn out of a desire to be committed to an organization either based on its service quality or perceived service qualities. Hence, the extent to which a customer will patronize the services of a bank depends on how the customer perceives the banks services (Hooley, 2017). According to Ozor, (1998) patronage is the impulse desire and consideration within the consumer or customer which induce the purchase of goods or services from certain organization.

2. Productivity

Prokopenko (2006) defined productivity as the relationship between the output generated by a production or service system and the input provided to create this output. Kane (2015) defined the productivity as that which people can produce with the least effort. Because of its central importance to competitiveness and world prosperity, the topic of productivity has been a matter of interest since the beginning of industrialization. Productivity is perhaps one of the most important and influential basic variables governing economic production activities (Singh, Motwani, & Kumar, 2010; Tangen, 2015).

Productivity is the ratio of what is produced to what is required to produce it. It measures the relationship between output and inputs. Also, productivity means how much and how well we produce from the resources used (Gronroos & Ojasalo, 2014; Calabrese, 2012). Productivity is commonly defined as a ratio between the output volume and the volume inputs. In other words, it measures how efficiently production inputs, such as labor and capital, are being used in an economy to produce a given level of output. Productivity is considered a key source of economic growth and competitiveness and, as such, is basic statistical information for many international comparisons and country performance assessments. For example, productivity data are used to investigate the impact of product and labor market regulations on economic performance. Productivity growth constitutes an important element for modeling the productive capacity utilization, which in turn allows one to gauge the position of economies in the business cycle and to forecast economic growth. In addition, production capacity is used to assess demand and inflationary pressures.

3. Customer Acquisition

Customer acquisition enables organizations to achieve high customer based while retention makes them to remain with the firm and patronize it. Seanzoni (2019) opined that acquiring more customer based is one of the goals of technological innovative firms. They therefore adopt numerous strategies (like advertising, price reduction, public relations, sales discount, repackaging) to acquire new customers and make them

understand the needs for constant patronage. Customer acquisition is possible when firms have positive image within public and use new business promotion strategies which will be attractive to new customers (Valdivia, 2010). Customer acquisition entails the extent a business or product attract new customers regularly, retain them and utilize them for business promotion and business performance (Emery, Ault and Agee, 2014). A firm is achieving customer acquisition when it continued to attract new customers and retain/satisfy the old ones so as to achieve high performance.

When a business adopt customer focus strategy, new customers will continue to request for the product, buy and use it and even help the firm to expose the product to other prospective customers. In this direction quality consumer goods and appliances is a key to woo, attract and retain customers for the market growth of the firm (Panda, 2014).

Theoretical Framework

In this study, the researcher used knowledge-based theory, resource based theory (RBT) and social cognitive theory to analyze the subject matter.

Knowledge-Based Theory

The knowledge-based theory of the firm considers knowledge as the most strategically significant resource of the firm. This theory was propounded by Grant in 1996. Its proponents argue that because knowledge based resources are usually difficult to imitate and socially complex, heterogeneous knowledge bases and capabilities among firms are the major determinants of sustained competitive advantage and superior corporate performance. Strategic innovation is well rooted in the knowledge-based theory of organization. It is widely accepted that the ability of an organization to innovate is linked to the abundance of accessible knowledge within an organization. An organization's in-house research and development (R&D) activities are known to be a source of new knowledge.

Grant (1996) acknowledge that hurdles that usually emerge from divergence of interests between employee conditions and owner expectations can hamper smooth coordination of specialized knowledge. As such, firms that seek to entrench uniformity of interests should pursue coordination of specialized knowledge by encouraging cooperation among all employees in the organization. However, the pursuit of cooperation may lead to bureaucratic imposition of coordination objectives through hierarchical structures, a situation that can be avoided through incorporation of other administrative and enforcement tools such as recognition of organizational culture and process designs. The researcher chooses this theory because it suggests another strategic innovative tool which is knowledge management and how this can be used to improve the organizations performance.

Resource Based Theory (RBT)

The supporters of this view argue that organizations should look inside the company to find the sources of competitive advantage instead of looking at competitive environment for it. The resource based theory (RBT) emerged as a complement to Porter's theory of competitive advantage. Initially, a theory of competitive advantage is based on the resources any organization develops or acquires to implement product market strategy. Chesbrough (2003) basic contribution was recognizing that organization specific resources along with competition among organizations based on their resources can be essential for organizations to gain advantages in implementing product market strategies.

Resources refer to all components made available by an organization to performers of innovative work tasks. It has been averred that employees need access to sufficient resources to be creative.

These resources may include appropriate access to funds, materials, facilities, knowledge, information, sufficient time to produce novel work in the domain, and the availability of training. It is also important to have sufficient resources for innovative problem solving (Denisi, 2003). The researcher chose this theory because it brings another angle of innovation which examines how resources can drive competitive advantage through customized strategies to drive growth over time. The resources and capabilities of an organization are the primary considerations in formulation of its strategy; they are the main constants upon which an organization can establish its identity and build its strategy, and are the primary sources of organization's profitability. The key to a resource-based approach to innovation strategy is to understand the relationships between resources, capabilities, competitive advantage and profitability and an understanding of the mechanisms through which competitive advantage can be sustained over time. This requires designing strategies which allow for maximum exhibition of the organization's unique characteristics.

The performance of an organization depends on the attractiveness of the industry in which the organization operates how much competitive advantage it has. Having a competitive advantage does not automatically guarantee a higher or better performance in comparison with the break-even competitor in the business. The value associated with competitive advantage is its appropriateness with respect to the organization depends on its product price. Product pricing is an integral component of the organization's strategy. However, when choosing prices for its products, the organization is most influenced by the competitive aura that surrounds it, particularly by the bargaining power of the customers, by existing prices of the rival business establishments and by the reactions expected from competitors to the chosen price.

Social Cognitive Theory

The theory brings to light the environmental effects on human development, simultaneously placing responsibility on the individuals for an internal growth. It uses the cognitive, behavioral, and environmental determinants, the primary vital variables that influence organizational behavior. In short, social cognitive theory posts that a person, his environment and the way he acts mutually conflate to explain an individual's actions (Glanz, 2002). The theory suggests that every person has the ability to change into a creative, entrepreneurial individual if given the opportunity and proper support to develop their abilities. Thus it can be stated that the secret to ensuring innovation and creativity in employees is the support of the management towards entrepreneurial activity. The corporate environment is vital in personal development of the individual but a person is responsible for and can affect their own perception.

Empirical Review

Some studies have been done in related areas of this work. To start with:

Rosli and Sidek (2013) studied the impact of innovation on the performance of enterprises: evidence from Malaysia confirmed that product innovation influenced firm performance significantly. Besides consolidating the existing theory on the importance of

innovation for explaining a variation in firm performance, the findings also inform SMEs and policy makers that innovation is a critical factor in today's entrepreneurial activities. Odhiambo (2008) conducted a research on the innovation strategies being used at Standard Chartered Bank and concluded that with the advent of globalization, financial institutions have been forced to improve business methods to attract and maintain existing customers. Such innovative strategies put a focus on all facets of the business operations ranging from customer care, technological advancement to better products in the market.

Tajuddin, Ibrahim and Ismail (2015) in the study relationship between innovation and organizational performance in construction industry in Malaysia which revealed that principally organizational innovation is significantly positive in influencing organizational performance. Nevertheless, innovative design solution and advanced technology dimensions were insignificant in influencing project performance and business performance respectively.

Olu, Marius, Anca, and Florentina (2017) focused on the impact of innovation on the entrepreneurial success: Evidence from Nigeria. This study sought to test the relationship between innovation, the financial performance of company and firm's competitive advantage. This was done through correlation and regression analysis. Data were analyzed using descriptive and inferential statistics. Hypotheses were tested at 0.05 significant levels with the aid of parametric student t-test. The results revealed that there is a positive relationship innovation and the financial performance of company. A clear lesson from this study is that the future must include promoting innovation and entrepreneurship; in other words, business competitiveness depends on the creativity and innovativeness of its entrepreneurship.

Namusonge, Willy & Olawoye (2016) determined the role of technology on performance of firms on Nigerian. The target population is 176 firms listed in the Nigerian Stock Exchange with financial returns as at August, 2014. Out of the population, a sample of 60 firms was taken. Methods of statistical analyses include mean, standard deviation, and Pooled, Random and Fixed regression models based on the preferences suggested by the Hausman specification test results. The results of panel analysis indicated a positive relationship.

Michael (2019) examined innovative distribution strategies and performance of selected multinational corporations (MNCs) and domestic manufacturing firms in Nigeria. The work examined the relationship between the production capacity, market share, possible return on investment, profitability as resulting from IDS of both DE's and MNC's. The study in its descriptive nature, adopts a cross-sectional survey design. One hundred and seventy-five participants were randomly selected from six multinational and indigenous firms. Five hypotheses were stated and tested. The findings revealed that the sales turnover of multinational corporations (MNCs) with high level IDS and domestic enterprises (DEs) with low level of innovative distribution strategies is significantly different at $t = 68.442$, $df = 89$ and >0.05 . And that, innovative distribution teams/strategies adopted by MNCs and DEs when compared and analyzed have a significant effect in predicting annual overall profitability at $F(1,174) = 13.086$. The findings also reveal that there is a significant effect of IDS of MNCs and DEs on their capacity to increase market shares at $F(1,174) = 18.237$ and there is positive relationship

between the obstructive distribution parameter confronted by MNCs and DEs on their annual sales turnover to distribution mix and internal channel management.

Gap in Literature

Many studies have been executed on technological innovation and organizational performance. Most of the studies cover innovation and employee performance, strategic innovation and organizational survival and strategic innovation and organizational transformation. The methodology employed by most of the past studies differed from what the researcher is using presently. Some of the past studies used only secondary sources of data without emphasis on primary data. Some of the past studies used chi-square and regression statistics for their data analysis without paying attention to analysis of variance (ANOVA), simple percentage, and statistical package for social sciences (SPSS) as used in this study. Most of the past studies were done in banking industry with no emphasis on manufacturing firms as it is done in this study. Some studies which covered Nigeria organizations did not cover the organizations used in this study, and they did not cover the exact variables (technological innovation and productivity, technological innovation and patronage, technological and customer acquisition,) used in this study. Based on the foregoing, it's a fact that little or nothing has been covered on technological innovation and organizational performance using Dufil Prima Food Plc and Tummy Tummy Foods Industry Ltd as the case study.

Research Methodology

- ❖ **Research design:** The descriptive survey design was used in this study.
- ❖ **Population of the study:** The population of this study is composed of the permanent staff of Dufil Prima Food Plc (the manufacturer of Indomie Instant Noodle) Port Harcourt, Rivers State; and Tummy Tummy Foods Industry Ltd (the manufacturer of Tummy Tummy Instant Noodle) Anambra State. The organizations have a total number of 125 and 104 staff respectively, making a total of 229 as our study population.
- ❖ **Sample size determination:** The researcher determined the sample size using the Taro Yamane's formula as cited by Alugbuo (2002:18). The formula is:

$$n = \frac{N}{1+N(e)^2}$$

Where n is the sample size and N is the number of items in the population. The square of maximum allowance for sampling error or level of significance is represented by e. The researcher used 5% to represent the level of significance. Therefore, n can be determined thus:

Dufil Prima Food Plc (The Manufacturer of Indomie Instant Noodle) Port Harcourt, Rivers State

$$n_1 = \frac{125}{1 + 125(0.05)^2}$$

$$n = \frac{125}{1 + 125(0.0025)}$$

$$n = \frac{125}{1 + 0.3125}$$

$$n = \frac{125}{1.3125}$$

= 95.2380 \cong 95 staff.

Tummy Tummy Foods Industry Ltd (The Manufacturer of Tummy Tummy Instant Noodle) Anambra State

$$n_1 = \frac{104}{1 + 104(0.05)^2}$$

$$n_1 = \frac{104}{1 + 104(0.0025)}$$

$$n_1 = \frac{104}{1 + 0.2575}$$

$$n_1 = \frac{104}{1.2575}$$

$n_1 = 82.703$

Total sample size = 83

- ❖ **Sampling procedure:** Here, the researcher used probability simple sampling; specifically the simple random sampling technique.
- ❖ **Sources of data/method of data collection:** Both primary and secondary data were utilized in this study.
 - a. **Primary Data:** The primary source is questionnaire.
 - b. **Secondary Data:** The secondary sources are journals, articles, internet, textbooks, and the records and publications from the organizations.
- ❖ **Data analysis technique:** The statistical techniques that were used for data analysis include; simple percentage and Analysis of Variance (ANOVA) using 20.0 version of Statistical Package for Social Sciences (SPSS). The p-value was used as the basis for decision.

Data Presentation, Analysis and Interpretation

It could be seen that 158 copies of questionnaire representing 88.8% were returned while 20 copies of the questionnaire representing 11.2% were not returned. Therefore, 158(88.8%) is our sample size.

Table 1: Technological innovation and productivity

S/ N	Questionnaire Items	SA	A	U	SD	D	N	ΣX	X	Dec.
1	Technological innovation enhances the productivity of business	70	55	8	15	10	158	634	4.0	Positive
2	When there is technological innovation, it adds value to efficiency in the organization	56	41	11	26	24	158	553	3.5	Positive
3	Technological innovation leads to customer awareness of firm products	64	53	12	20	9	158	617	3.9	Positive
4	Technological innovation enhances output maximization of firm	73	64	6	9	4	158	661	4.2	Positive
5	Organizational expansion could be achieved through technological innovation	66	61	7	15	9	158	634	4.0	Positive

Source: field survey, 2020

From the data analysis above, it was discovered that all the items were positive. This is because item 1 has a mean of 4.0, item 2 has a mean of 3.5, item 3 has a mean of 3.9, item 4 has a mean of 4.2 and item 5 has a mean of 4.0. We therefore conclude here that technological innovation enhances the productivity of business; when there is technological innovation, it adds value to efficiency in the organization; technological innovation leads to customer awareness of firm products; technological innovation enhances output maximization of firm; and organizational expansion could be achieved through technological innovation are the effects of technological innovation on productivity.

Table 2: Technological innovation and patronage

S/ N	Questionnaire Items	SA	A	U	SD	D	N	ΣX	X	Dec.
6	Technological innovation contributes to customer patronage	55	42	16	19	26	158	555	3.5	Positive
7	Sales volume could be achieved through technological expansion and innovation	48	37	18	30	25	158	527	3.3	Positive
8	Technological diversification leads to high sales	42	30	10	40	36	158	476	3.0	Positive

9	New market development contributes to customer acceptance of the products	44	34	12	35	33	158	495	3.1	Positive
10	Technological innovation through market segmentation enhances patronage	41	48	9	25	35	158	509	3.2	Positive

Source: field survey, 2020

The data above indicated that all the items were positive. This is because item 6 has a mean of 3.5, item 7 has a mean of 3.3, item 8 has a mean of 3.0, item 9 has a mean of 3.1 and item 10 has a mean of 3.2. We therefore conclude here that technological innovation contributes to customer patronage; sales volume could be achieved through technological expansion and innovation; technological diversification leads to high sales; new market development contributes to customer acceptance of the products; and technological innovation through market segmentation enhances patronage are the technological innovation that affects patronage.

Table 3: Technological innovation and customer acquisition

S/N	Questionnaire Items	SA	A	U	SD	D	N	ΣX	X	Dec.
11	Technological innovation enhances acquisition in business	51	35	6	41	25	158	520	3.3	Positive
12	The issue of technical design and product innovation encourages firm output maximization	42	48	9	39	23	158	530	3.4	Positive
13	Acquisition innovation promotes efficient service delivery	42	47	11	38	20	158	527	3.3	Positive
14	Acquisition innovation contributes to organizational new product development	56	47	13	22	27	158	578	3.7	Positive
15	Acquisition innovation leads to customer retention	44	36	18	39	21	158	511	3.2	Positive

Source: field survey, 2020

It could be seen from the above analysis that all the items were positive. This is because item 11 has a mean of 3.3, item 12 has a mean of 3.4, item 13 has a mean of 3.3, item 14 has a mean of 3.7 and item 15 has a mean of 3.2. We therefore conclude here that technological innovation enhances acquisition in business; the issue of technical design and product innovation encourages firm output maximization; acquisition innovation

promotes efficient service delivery; acquisition innovation contributes to organizational new product development; and acquisition innovation leads to customer retention are the relationship between technological innovation and customer acquisition.

Test of Hypotheses

Ho1: There is no significant effect of technological innovation on productivity.

Descriptive

	N	Mean	Std. Dev.	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	5	65.8000	6.49615	2.90517	57.7340	73.8660	56.00	73.00
2.00	5	54.800	8.89944	3.97995	43.7499	65.8501	41.00	64.00
3.00	5	8.8000	2.58844	1.15758	5.5860	12.0140	6.00	12.00
4.00	5	17.0000	6.36396	2.84605	9.0981	24.9019	9.00	26.00
5.00	5	11.2000	7.52994	3.36749	1.8503	20.5497	4.00	24.00
Total	25	31.5200	25.15472	5.03094	21.1366	41.9034	4.00	73.00

ANOVA

VAR00001

	Sum squares	df	Means Square	F	Sig.
Between group	14285.040	4	3571.260	79.256	.000
Within Groups	901.200	20	45.060		
Total	15186.240	24			

From the SPSS output in Appendix II, the p-value is 0.00, which is less than the level of significance (0.05), therefore we reject the null hypothesis and conclude that there is significant effect of technological innovation on productivity.

Ho2: Technological innovation does not affect patronage significantly.

Descriptive

	N	Mean	Std. Dev.	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	5	46.0000	5.70088	2.54951	38.9214	53.0786	41.00	55.00
2.00	5	38.2000	7.01427	3.13688	29.4906	46.9094	30.00	48.00
3.00	5	13.0000	3.87298	1.73205	8.1911	17.8089	9.00	18.00
4.00	5	29.8000	8.22800	3.67967	19.5836	40.0164	19.00	40.00
5.00	5	31.0000	5.14782	2.30217	24.6081	37.3919	25.00	36.00
Total	25	31.6000	12.52664	2.50533	26.4293	36.7707	9.00	55.00

ANOVA

VAR00001

	Sum squares	df	Means Square	F	Sig.
Between groups	3002.400	4	750.600	19.660	.000
Within groups	763.600	20	38.180		
Total	3766.000	24			

From the SPSS output, the p-value is 0.00, which is less than the level of significance (0.05), therefore we reject the null hypothesis and conclude that technological innovation affects patronage.

Ho3: There is no significant relationship between technological innovation and customer acquisition.

Descriptive

	N	Mean	Std. Dev.	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	5	47.0000	6.24500	2.79285	39.2458	54.7542	42.00	56.00
2.00	5	42.6000	6.50385	2.90861	34.5244	50.6756	35.00	48.00
3.00	5	11.4000	4.50555	2.01494	5.8056	16.9944	6.00	18.00
4.00	5	35.8000	7.79102	3.48425	26.1262	45.4738	22.00	41.00
5.00	5	23.2000	2.86356	1.28062	19.6444	26.7556	20.00	27.00
Total	25	32.0000	14.36141	2.87228	26.0719	37.9281	6.00	56.00

ANOVA

VAR00001

	Sum squares	df	Means Square	F	Sig.
Between Groups	4268.000	4	1067.000	31.290	.000
Within Groups	682.000	20	34.100		
Total	4950.000	24			

From the SPSS output, the p-value is 0.000, which is less than the level of significance (0.05), therefore we reject the null hypothesis and conclude that there is significant relationship between technological innovation and customer acquisition.

Discussion of Findings

In line with the hypothesis one, this study showed that there is significant effect of technological innovation on productivity. This could be confirmed in table 1. This is in line with the view of Neely (2017) who stated that innovation contributes to organizational growth, output maximization, and business expansion. Also, Peters (2009) noted that productivity could be achieved through innovation practices.

Based on the research hypothesis two, this study showed that technological innovation affects patronage. This could be confirmed in table 2. In this direction, Siep (2010) observed that market expansion and high level of patronage could be achieved through market innovation. Also, it has been asserted that high sales and customer acquisition is product of market innovation in business.

In line with our hypothesis three, this study discovered that there is significant relationship between technological innovation and customer acquisition. This could be confirmed in table 3. In tandem, Tran (2008) noted that process innovation contributes to

business effectiveness and organizational growth. Wirtz (2010) stated that innovation practice enhances organizational productivity and high performance.

Conclusion

Innovation is inevitable for businesses, especially those in production sector. Manufacturers should be innovative about their technology so that they can be competitive in the market. That companies should train their employee so that they can master new innovation, so they can be productive, which will lead to better performance. There should be pragmatic strategic planning capability in order to bring about superior performance and ultimately sustained competitive advantage.

Recommendations

Based on the findings from the study, the following recommendations were made.

1. To allow for increased organizational performance, the variables of innovation strategies namely product, process, market and organizational innovation strategies need to be employed by organizations.
2. Product and process innovation which are technology-driven should be given proper attention with concerted efforts made to integrate it to the operations of the firms.
3. Considering the importance of innovation strategies to organizational performance, organizations as a matter of policy should ensure that their employees are knowledgeable about it and it is enforced in their operations.

References

- Abdi, A. (2014). *Strategic planning and performance of banks in Kenya: A case of National Bank of Kenya*. Unpublished Thesis, University of Nairobi
- Alugbuo, C.C (2002). *A practical guide to project writing*. Owerri: Credo Publishers.
- Anyanwu, A. (2002). *Research methodology in business and social sciences*. Owerri: Canum Publications.
- Azaze, A. & Haji, A. (2005). *The impact of strategic and environmental factors on the Malaysian Furniture Industry Export Marketing Performance*. Unpublished Master's Thesis, School of Management, Selangor, Universiti Putra Malaysia.
- Bessant, J. & Phelps, R. (2015). Innovation management measurement: A review. *International Journal of Management Reviews*, 33(2), 21-47.
- Boush, D.M (2011). *Mediating advertising effects*. New York: John Wiley and Sons Inc.
- Broman, M. (2014). *Assessing productivity in assembly systems*. Lic. Thesis, Department of production engineering, The royal institute of technology Stockholm.
- Calabrese, A. (2012). Service productivity and service quality: A necessary trade-off? *International Journal of Production Economics*, 135(2), 800–812.
- Carayannis, E.G (2005). *Measuring intangibles: Managing intangibles for tangible outcomes in research and innovation*. Unpublished Thesis, The George Washington University.
- Chesbrough, H. (2003). *Open innovation: The new imperative for creating and profiting from Technology*, Boston: Harvard Business School Press.
- Daniels, E. (2002). The dynamic of product innovation and firm competences. *Strategic Management Journal*, 23, 1095-1125.

- DeNisi, A., Hitt, M., & Jackson, S. (2003). The knowledge-based approach to sustainable competitive Advantage. In Jackson, Hitt and DeNisi (Eds.) *Managing knowledge for sustained competitive advantage*, San Francisco: Jossey-Bass, 3-33.
- Eccles, R. (1991). The performance measurement manifesto. *Harvard Business Review*, 2(1), 131-137.
- Emery, E., Ault, P.H & Agee, K.W (2014). *Introduction to mass communication*. New York: Dodd, Mead and Co.
- Galende, J. and Fuente, J.M (2003). Internal Factors determining a firm's innovative behavior. *Research Policy*, 32, 715-736.
- Gan, C., Cohen, D., Clemes, M. and Chong, E. (2006). A survey of customer retention in the New Zealand banking industry: Banks and bank systems. *Journal of Organizational Research*, 1(4), 83-99.
- Glanz, K., Rimer, B.K. & Lewis, F.M. (2002). *Health Behavior and Health Education. Theory, Research and Practice*. San Fransisco: Wiley & Sons.
- Grant, R. (1996). "Toward a knowledge-based theory of the firm". *Strategic Management Journal*, (17), 117-130.
- Grönroos, C. & Ojasalo, K. (2014). Service productivity: Towards a conceptualization of the transformation of inputs into economic results in services. *Journal of Business Research*, 57(4), 414–423.
- Guan, J. and Ma, N. (2003). Innovative capability and export performance of chinese firms. *Technovation Journal*, 4(2), 17-30.
- Hanvanach, S., Droge, C. & Calatone, R. (2013). Reconceptualizing the meaning and domain of marketing knowledge. *Journal of Knowledge Management*, 7(4), 23-34.
- Hooley, G. (2017). Marketing capabilities and firm performance: a hierarchical model. *Journal of Market-Focused Management*, 4(3), 259-278.
- Hurley, R. & Hult, T. (2018). Innovation, market orientation and organizational learning: an integration and empirical examination. *Journal of Marketing*, 6(2), 42-54.
- Hurley, R. & Hult, T. (2018)Abdi, A. (2014). *Strategic planning and performance of banks in Kenya: A case of National Bank of Kenya*. Unpublished Thesis, University of Nairobi
- Kane, F. (2005). *Work and the nature of man*. New York: World Publishing Co.
- Kelly, P. and Kranzberg, M. (1978). *Technological innovation*. San Fracisco: Sac Fracisco Press.
- Khalil, T. (2000). *Management of technology: The key to competitiveness and wealth creation*. McGrawHill.
- Krajewski, L., Ritzman, L. & Malhotra, M. (2007). *Operations management: Processes and value chains. 8th ed*. Upper Saddle River, New Jersey: Pearson Prentice Hall.
- Lei, Y. and Yusheng, L. (2006). *SWOT analysis of SMB Technology Innovation*.
- Lia, O.Z (2001). *Technology innovation concepts, strategies and research methods*. Yunnan Materials.
- Michael, M. O. (2012). Innovative distribution strategies and performance of selected multinational corporations (MNCs) and domestic manufacturing firms in Nigeria. Being a Ph.D thesis submitted to the school of post graduate studies, in

- partial fulfillment of the requirements for the award of doctor of philosophy (Ph.D) in business administration (entrepreneurship), of department of business studies, school of business, college of development studies, Covenant University, Ota, Ogun State, Nigeria.
- Mol, M.& Birkinshan, J. (2009). "The sources of management innovation: When firms introduce new management practice. *Journal of Business Research*, 12(6), 62-80.
- Namusonge, G .S., Willy, M. & Olawoye, O. (2016). The role of innovation on performance of firms on Nigerian stock exchange. *European Journal of Research and Reflection in Management Sciences*, 4(1), 39-56.
- Neely, A. (2017). The performance measurement revolution: Why now and what next? *International Journal of Operation & Production Management*, 19(2), 205-228.
- Odhiambo, H. (2008). The innovation strategies being used at Standard Chartered Bank. *Journal of Asian Review*, 3(3), 44-67.
- Okon, A. (2019). Successful market innovation. *European Journal of Innovation Management*, 2(1), 6-11.
- Olu, D. O., Marius, P., Anca, G. P. and Florentina, R. B. (2017). Impact of innovation on the entrepreneurial success: Evidence from Nigeria. *Journal of Business Management Full Length Research Paper*, 11(2), 261-265.
- Oxford Advance Learner Dictionary, (2005).
- Ozor, I.O (1998). *Principle and practice of marketing, book 2nd Edition*. John Jacob's Classic Publication Limited.
- Panda, T.K (2014). Consumer response to brand placements in films role of brand congruity and modality of presentation in bringing attitudinal change among consumers with special reference to brand placements in Hindi Films'. *South Asian Journal of Management*, 11(4), 7 - 26.
- Parashar, M. and Singh, S.M (2005). Innovation capability. *IBM Management Review*, 1(1), 115-123.
- Peters, B. (2009). Persistence of innovation: Stylized facts and panel data evidence. *Journal of Technology Transfer*, 3(4), 226–243.
- Prhanlad, C.K and Hand, G. (1990). *The core competencies of corporation innovation*. *Management Business Review*, 2(3), 71-90.
- Prokepenko, J. (2006). Productivity management: A practical handbook publications quarterly. *Journal of Economics*, 106, 407-443.
- Richard, F. (2009). Measuring organizational performance: Towards methodological best practice. *Journal of Management*, 15(5), 451-525.
- Rosli, G. and Sidek, B. (2013). The impact of innovation on the performance of enterprises: evidence from Malaysia confirmed that product innovation influenced firm performance significantly. *Journal of social management*, 2(1), 120-144.
- Scanzoni, J. (2019). *Social exchange and behavioural independence*. In R.L. Burgess & T. L. Huston (Eds.), *Social exchange in developing relationships*. New York: Academic Press.
- Siep, S.M (2010). *Organizational strategies and expected employee work behavior*. Unpublished MA Thesis, University of Twente.

- Singh, H., Motwani, J. & Kumar, A. (2010). A review and analysis of the state-of-the-art research on productivity measurement. *Industrial Management and Data Systems*, 100(5), 234-41.
- Tajuddin, B., Ibrahim, D. and Ismail, O. (2015). Relationship between innovation and organizational performance in construction industry in Malaysia. *Journal Management Review*, 1(1), 67-85.
- Tangen, S. (2015). Demystifying productivity and performance. *International Journal of Productivity and Performance Management*, 54(1), 34-46.
- Teece, D.J (1996), Firm organisation, industrial structure and technological innovation. *Journal of Economic Behaviour & Organisation*, 31, 193-224.
- Tran, T. (2008). A conceptual model of learning culture and innovation schema. *International Business Journal*, 18(3), 287-299.
- Valdivia, M.C (2010). Mujer y familia: Conflicto y desarrollo. *Letras de Deusto*, 30(87), 21-146.
- Wirtz, H. (2010) Innovation networks in Logistics – management and competitive advantage. *International Journal of Innovation Science*, 3(4), 177 – 19.
- Yan, C.M., Guan, J.C., Pun, K.F and Tan, P.Y (2004). *An audit of technological innovation capabilities in Chinese firms: Some empirical findings in Beijing China*. Research Policy.
- Zaltman, G., Duncan, R.B and Holbech, J. (1973). *Innovation and organization*. New York, Wiley.