

# The Impact of Technological Innovation on Organizational Performance

Adeyeyetolulope Charles

Department of Business Administration, Ajayi Crowther University, P.M.B 1066, Oyo, Oyo State, Nigeria  
tolulopeadeyeye1963@gmail.com

## Abstract

This study investigated the impact of technological innovation on organizational performance. The objectives of the study were to determine relationship between strategic planning and marketing planning capabilities on organizational performance in the manufacturing industry. The study employed survey research. Primary data was used with questionnaire as research instrument. The subjects were 137 employees of Nestle Foods Nigeria Plc. The four hypothesis formulated for this study were tested using correlation, regression analysis, Pearson's Correlation and Analysis of Variance (ANOVA), with the aid of Statistical Package for Social Sciences (SPSS). The findings from the study revealed that strategic planning and marketing capability independently and jointly influence organizational performance. Also, there is positive interaction between performance variables (i.e resources availability, staff quality, productivity, sales revenue, financial strength, public image and good will). Based on the finding, it was recommended that there is the need for organisations to be innovative technologically to be competitive in the market. And companies should train their employee for better efficiency and effectiveness.

## INTRODUCTION

The success or otherwise of any discerning organization in this World of deregulated economies and competitive market depend largely on its ability to strategically outwit her competitors. Outwitting competitors is informed by ability to deliver offering better than competitors in the market and this also depend on the ability to continually improve on the quality of goods and services being offered.

Many companies in Nigeria find it difficult to compete with their foreign counterparts, partly because of their inability to innovate.

While the multinationals enjoy necessary incentives that would encourage all round business growth, most local industries lack necessary ingredients such as size of firm, resources (financial, human), legal protection, innovation efficiency in the area of diversification, flexibility to respond to market changes and incentives to use existing and new technology.

This implies that technological innovation critically affects organizational performance in the market place.

Performance is a measure of input and output analysis and measure with which input conversion into output help to achieve set organizational goals.

Most importantly therefore, these organizations lack innovation capability.

Innovation capability is the skill and knowledge needed to effectively absorb, master and improve existing technologies and create new ones (Guan, J and Ma N, 2003).

Organizational performance can be strategically measured among several dimensions through marketing capability and strategic planning capability (Yann, C.M, et al. 2004)

According to Yann, C.M et al., Marketing Capability is a firm's ability to publicise and sell products on the basis of understanding customer needs, compensation situation, costs and benefits and the acceptance of innovation.

Strategic planning capability on the other hand is the company's ability to identify internal strengths and weaknesses, and external opportunities and threats, formulate plans in accordance with corporate vision and mission and acclimatize the plan to implementation.

## STATEMENT OF THE RESEARCH PROBLEM

For any organisation to succeed, it should be able to compete within its market, and attempt to rub shoulders with other competitors in the international frontiers. The organization must imbibe the culture of innovation because of its importance as confirmed in many studies (Bougrain & Haudeville (2003), Daniels (2002), Gelende & Fuente (2003).

Unfortunately, Nigerian manufacturers found it difficult to stand against its competitors from foreign countries.

The local companies cannot compete with the foreign counterparts in terms of product quality and other areas of marketing capabilities .

The foreign firms have strategic plan as a tool-kit for achieving their feet, which is also lacking among the domestic manufacturers. The resultant effect is while the local industries performance is on the decline, the multinationals are booming.

## RESEARCH OBJECTIVES

The main objective of this paper is to evaluate the impact of technological innovation on Organization performance of Nestle Nigeria Plc.

Other objectives are:

- To determine whether strategic planning capability & Marketing Planning Capability can jointly and independently predict organizational performances.
- To evaluate the association between strategic planning capability & organization performance.
- To ascertain the nexus between marketing capabilities & organizational performance
- To assess the main and interactive effect of strategic planning capability and marketing capabilities on organizational performance.

## LITERATURE REVIEW

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.

## INTEGRATING INNOVATIVE MARKETING CAPABILITY AND STRATEGIC PLAN

Arthur et. al., (2004) see integrating marketing innovation as a crucial industrial driving force – To them, when firms are successful in introducing new ways to market their products, they can spark a burst of buyers interest, widen industry demand, increase product differentiation and lower limit cost, any or all of which can alter the competitive positions of several firms and force strategy revision.

To Arthur et. al., a synergy between technological change, product innovation and marketing innovation are good enough driving force to propel a firm to have competitive edge over their competitors.

There is need for these technological innovation capabilities (which serve as the driving force) and strategic plan capabilities. Marketing capabilities are prerequisites to sound strategy marketing.

This synergy is a dynamic situation as it combine necessary innovative capabilities to respond to the environment.

According to Kazmi (2008), an organization need to possess dynamic capabilities to adjust in order to respond to the external environment.

The fall-out of above analysis is to create value for our product to be better priced and purchased in the market. To innovate is to create value (Kim and Mauborgne, 1999).

The essence of innovation is to create value (Kim and Mauborgne, 1999). And to value innovate, companies must be able to offer radically superior value and ensure that the target market is accessible to the price and this is what management of Nestle product assumes to be doing by packaging its product for the affordability of the market.

Kim and Mauborgne, (1999) conclude that value innovation involves new product concept or new way of developing a business opportunity using the existing technologies and knowledge. This is the essence of strategic marketing derived from the corporate strategic planning capabilities.

## THE IMPACT OF TECHNOLOGICAL INNOVATION CAPABILITY ON COMPANY'S PERFORMANCE

The impact of technological innovation capability on company's performance is enormous (Yann, C.M 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.

## RESEARCH METHOD

### RESEARCH DESIGN

The study adopted a survey research design which measured two variables, dependent and independent variables. The independent variable is strategic marketing planning which was measured by sub-variables (marketing capability and strategic planning capability while the dependent variable organizational performance which has the following measuring tools:-

- i. Staff quality
- ii. Product quality
- iii. Level of sales and revenue
- iv. Financial strength
- v. Employee productivity
- vi. Public image and
- vii. Good will

### RESEARCH INSTRUMENT

Questionnaire was used to source the opinions of the staff of the company.

### STUDY POPULATION AND SAMPLE SIZE

Members of staff of Nestle Foods Nigeria PLC and a sample size (based on response) of 137 employees were administered questionnaires.

They were made up of management staff, senior staff and middle-level officers.

The sample was drawn using stratified sampling method.

### DATA ANALYSIS

The questionnaire was divided to two parts. The first part includes demographic analysis while the second part includes the analysis of the variables.

The demographic information were analysed using frequency counts and simple percentage.

The hypotheses for the study were analysed using correlation, regression analysis, t-test and analysis of variance (ANOVA).

Hypothesis 1 was analysed using multiple regression

Hypothesis 2 and 3 were tested with Pearson's Correlation

Hypothesis 4 was analysed using Analysis of Variance (ANOVA)

### IMPACT OF TECHNOLOGICAL INNOVATION ON ORGNIZATIONAL PERFORMANCE OF NESTLE FOODS NIGERIA PLC

1. Strategic planning capability and marketing capability jointly and independently predict organizational performance.

Variables	F- Ratio	Sig of P	R	R <sup>2</sup>	Adj R <sup>2</sup>	B	t	P
Strategic planning capability	13.679	.000	.412	.170	.157	.075	5.940	.009
Marketing capability						.393		

Dependent Variable: organizational performance

**Source: Field Survey, 2013.**

The table above showed the *linear regression* among Strategic planning capability and marketing capability and organizational performance of NESTLE. The result shows that Strategic planning capability and marketing capability can jointly and independently predict organizational performance.  $F = 13.679$ ;  $R = .412$ ,  $R^2 = .170$ ,  $Adj. R^2 = .157$ ;  $P = .000$ ). The independent/predictor variables jointly accounted for a variation of about 17.0% in organizational performance of NESTLE. When these variables were investigated individually, the parameters of Strategic planning capability ( $\beta = .075$ ,  $P < .05$ ) is significant at 5% level of significance and marketing capability ( $\beta = .393$ ,  $P < .01$ ), is significant at 1% level of significance. With this result, we can conclude that, Strategic planning capability and marketing capability jointly and independently predict organizational performance.

2. There is a significant relationship between Strategic planning capability and organizational performance.

Variable	Mean	Std. Dev.	N	Pearson R	P	Remark
Organizational performance	4.47445	.87843	137	.338**	.000	Sig
Strategic planning capability	3.46	1.151				

\*\* Sig. at .01 level

**Source: Field Survey, 2013.**

The above table shows the relationship between Strategic planning capability and organizational performance of

NESTLE. The analysis shows that there is a positive correlation between Strategic planning capability ( $r = .338^{**}$ ,  $p = .000$ ) and the dependent variable (Organizational performance) and are significant at .01 level of significance. With these respective values, it means that 1% change in Perceived market turbulence will result in 33.8% change in organizational performance of NESTLE. As a result of this, we can conclusively say that there is a significant relationship between Strategic planning capability and organizational performance.

3. There is a significant relationship between marketing capability and organizational performance.

Variable	Mean	Std. Dev.	N	Pearson R	P	Remark
Organizational performance	4.47445	.87843	137	.405 <sup>**</sup>	.000	Sig
Marketing capability	3.80	1.130				

\*\* Sig. at .01 level

**Source: Field Survey, 2013.**

The above table shows the relationship between Strategic planning capability and organizational performance of NESTLE. The analysis shows that there is a positive correlation between Marketing capability ( $r = .405^{**}$ ,  $p = .000$ ) and the dependent variable (Organizational performance) and are significant at .01 level of significance. With these respective values, it means that 1% change in Perceived market turbulence will result in 40.5% change in organizational performance of NESTLE. As a result of this, we can conclusively say that there is a significant relationship between marketing capability and organizational performance.

4. There is main and interactive effect of Strategic planning capability and marketing capability on organizational performance.

Variables	F- Ratio	Sig of P	Canonical Correlation	R <sup>2</sup>	Pearson Correlation
Strategic planning capability	1.783	.000	.6702	.4491	.338 <sup>**</sup>
Marketing capability	3.413				.405 <sup>**</sup>

Dependent Variable: organizational performance

**Source: Field Survey, 2013.**

The above table displays the result of the analysis of the main and interactive effect of Strategic planning capability and marketing capability on organizational performance. The analysis reveal that both Strategic planning capability and marketing capability have a positive effect on organizational performance of NESTLE. Strategic planning capability ( $F = 3.413$ ,  $r = .338^{**}$ ,  $p = .000$ ), marketing capability ( $F = 1.783$ ,  $r = .405^{**}$ ,  $p = .000$ ). The value of the canonical correlation coefficient of .6702 indicates a fairly strong correlation between the predictors and the predicted. The coefficient of determination ( $R^2$ ) .4491 indicates that of Strategic planning capability and marketing capability account for 44.91% of the variation in the overall organizational performance variables (employee's efficiency, resources availability, staff quality, productivity, sales revenue, financial strength, public image and goodwill). Hence, we can say that there is main and interactive effect of Strategic planning capability and marketing capability on organizational performance.

## CONCLUSION

The study examined the impact of technological innovation on organizational performance in the manufacturing industry, with particular focus on Nestle Foods Nigeria Plc. The study was carried out to elicit the response of the employees as they perceive the subject matter on their company.

The researcher work concluded that strategic planning capability and marketing capability jointly and independently predict organizational performance.

Finally, because there is a positive interaction between performance variables i.e resources availability, staff quality, productivity, sales revenue, financial strength, public image and good will. Hence, there is main and interactive effect of strategic planning and marketing capability on organizational performance. This corroborates the assertion that there is need for technological innovation capabilities (which serves as driving force) and strategic planning capabilities (Yann C.M et. al 2004).

## RECOMMENDATIONS

Based on above findings, the following recommendations are discernible:

- 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.
- The company should embrace marketing capability that can help in the effective and efficient management of marketing mix.

## REFERENCES

- Azhar Kazmi, (2008), Strategic Management and Business Policy, Delhi, Tata McGraw-Hill.
- Bougrain, F. and Handeville, B (2002) Innovation, collaboration and S.M.E.s Internal Research Capacities, Research Policy Vol. 31, pp 735-745
- Clark, K & Fujimoto, T. (1991). Products Development Performance. Boston: Harvard Business School Press.
- Daniel. M. Kammen (2002), Technological Innovation and Diffusion in Developing Countries. Annual meetings of the International Energy Workshop, 18-20, June 2002, Stanford University, U.S.A.
- Daniels, E (2002). The Dynamic of Product Innovation and Firm Competences, Strategic Management Journal. Vol. 23, pp 1095-1125.
- Galende, J and Fuente J.M (2003), Internal Factors Determining a Firm's Innovative Behaviour, Research Policy. Vol. 32, Pp 715-736.
- Guan, J and Ma, N (2003), Innovative Capability and Export Performance of Chinese Firms, Technovation, Vol. 23, pp 737 – 747
- Kelly, P and Kranzberg, M (1978), Technological Innovation, San Francisco, Sac Francisco Press.
- Khalil, T. (2000). Management of Technology. The Key to competitiveness and Wealth Creation, McGrawHill.
- Kim, W.C. and Mauborgue, R (1999) Strategy, Value Innovation and the Knowledge economy. Sloan Management Review, 40, 3, Spring, 41-54
- Lei Ying, Lin Yusheng (2006), SWOT analysis of SMB Technology Innovation.
- Lia O. Zhan (2001), Technology Innovation Concepts, Strategies and Research Methods. Yunnan Materials. Oxford Advance Learner Dictionary, (2005).
- Prhanlad C.K and Hand G (1990), The core competencies of Corporation Business Review.
- Teece, D.J (1996), Firm Organisation, Industrial Structure and Technological Innovation. Journal of Economic Behaviour & Organisation, Vol. 31, Pp 193-224.
- Thomas L. Wheelen, (1995), Strategic Management and Business Policy, U.S.A. Addison Wesley Publishing Company.
- 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, Vol. 33 No. 8, pp 1123-1250.
- Zaltman G, Duncan, R.B, Holbech, J. (1973), Innovation and Organisation, New York, Wiley.