

**TECHNOLOGICAL INNOVATION AND ORGANIZATIONAL PERFORMANCE IN NIGERIA (A STUDY
OF SELECTED FIRMS IN IBADAN NIGERIA)**

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Abstract

The study investigated impact of innovation on organizational performance in Ibadan South West (SW), Ibadan, Oyo State, Nigeria. Its headquarters is at Oluyole Estate in Ibadan. Survey research design was employed for the study where 80 respondents (sample size) from the selected total estimated population of 100 selected employees and managers for the study area and were gathered through the use of structured questionnaire. Their responses were tested using appropriate statistical tools of SPSS package using the ANOVA, the correlation and the regression too. Our study revealed that the impact of innovation on organizational performance positively which has allowed youths to be self-employed and created economic growth and regional development. Therefore, the study recommended that solving the organizational performance can be single handedly done by the use of innovation. Hypothesis one shows organizational productivity can be explained by innovation quality is 16.0% (R Square = 0.16). The ANOVA table shows the Fcal 14.808 at 0.000 significant level at the P value of < 0.05, which shows that the regression model was fit. Hypothesis two shows that organizational profitability can be explained by technological innovation advancement is 36.5% (R Square = 0.365). The ANOVA table shows the Fcal 44.806 at 0.000 significant level. This study provides recommendations based on the findings and conclusions raised earlier; that, Since quality is very effective towards achieving higher productivity, there is need for the selected organizations in

Oluyole Estate, Ibadan, Oyo State to regularly use it in order to benefit from its effectiveness; The investors and innovators should be able to interpret the market and economic indicators since they

influence the performance of the organization. They should evaluate all the variables in the environment, scan through the environment in order to adapt to recent changes.

Introduction

Innovation can have strong consequences for organizational performance. Innovation can for instance improve productivity, product quality, cut cost of production, make the production process easy and above all improve brand quality and acceptability. Innovation is driven in most cases by technological improvement and therefore technological innovation is likely to have a significant impact on organizational productivity.

Innovation is about helping organizations grow. Innovation can be viewed as a purposeful and focused effort to achieve change in (an organization's) economic or social potential. Bottom-line growth can occur in a number of ways, such as better service quality and shorter lead times in nonprofit organizations and cost reduction, cost avoidance, and increased turnover in profit-focused organizations (Drucker et al., 2015). It can happen at all levels in an organization, from management teams to departments and even to the level of the individual. According to (Bessant et al., 2009), effective innovation must involve all areas of an organization with the potential to affect every discipline and process. Hence, concluded that cumulative adoption of innovation types over time has a positive relation with firms' performance.

It has also been explicitly stated that innovation is work rather than genius; successful innovation requires hard, focused, and purposeful work. The process of innovation in organizations can incorporate both incremental and radical change. Incremental innovation produces

small continual changes and is often visible in organizations in the form of continuous improvement (Fagerberg & Nelson, 2004).

The increasing competitive business environment has made imperative for organizations to put in place systems and processes that will guarantee appreciable organizational performance in the interest of its stakeholders. To the end, several solutions have been developed to ensure that desired organizational outcomes are achieved despite the dynamics of competition. Innovation is one of the concepts that has gained enormous popularity in both business research and practice. This research takes a look at how the nature of innovation and how its application has affected key organizational outcomes.

Statement of Research Problem

Innovation has been cited as one of the key factors that affects competitiveness. Yet despite widespread agreement about its benefits, impact of innovation strategies on performance of business is not properly determined. Although the significance of innovation in performance of organizations, the impact of innovation on organizational performance is still misunderstood for various factors, either there is little understanding of the drivers of innovation by managers or innovation strategies are established but its effect on organizational performance is not evaluated and determined (Chesbrough, 2003).

The outcome of the previous studies on impact of innovation on performance has been empirically inconclusive. Previous studies have produced contradicting results regarding the impact of innovations on organization's performance. Scholars (Balwinder, 2009), in their studies showed that innovations had least impact on performance.

It is at the center of such mixed conclusions that created and inspired the need to carry out a study from it in profit making organizations context to establish the influence of innovation on organizational performance.

Literature Review

Conceptual Framework

Innovation is considered as developments and new applications, with the purpose of launching newness into the economic area. It can be conceived as the transformation of knowledge to commercial value. Innovation has great commercial importance due to its potential for increasing the efficiency and the profitability of companies. Actually, the key reason for innovativeness is the desire of firms to obtain increased business performance and increased competitive edge.

Companies procure additional competitive advantage and market share according to the level of importance they give to innovations, which are vital factors for companies to build a reputation in the marketplace and therefore to increase their market share. As ICT continues to drive innovation, productivity, and efficiency gains across industries as well as to improve citizens' daily lives.

Innovation Quality

This allows making statement regarding the aggregated innovation performance in three different domains within an organization by comparing the result, being its product, process or service innovation, with the potential and considering the process on how the result has been achieved. The three domains of innovation quality are product/service, process and enterprise.

Technological Innovation

It's a part of the total innovation discipline. It focuses specifically on technology and how to embody it successfully in products, services and processes. Technology as a body of knowledge might thus be seen as a building block for technological innovation, serving as a cornerstone to research, design, development, manufacturing and marketing. All definition may lead to the conclusion that technological innovation is a highly personal concept relying heavily on knowledge, educational standards and intelligence.

With the increase in technology, it is becoming prudent for senior management to be more aware of new technologies. New technologies have the ability to completely disrupt established industries, and make most if not every of their competencies obsolete. A specific technology identified early enough and developed into a market leader may be extremely profitable.

Innovation has long been cited as essential for organizational competitiveness and success (McAdam and Keogh, 2004; Edwards et al., 2005) and as one of the key factors that affects competitiveness. Yet despite widespread agreement about its

benefits, innovation is still poorly understood. Definitions are confused and the link between innovation and its impact on the employees remain to be proven that either they are positive or negative.

Organizations should follow innovation to remain competitive and enhance emoluments of employees to keep them interested. Given the significance of innovation, there are some barriers that hamper the ability to innovate there are many barriers to innovation and that these are both internal and external to organization. The external barriers include the lack of infrastructure, deficiencies in education and training systems, inappropriate legislation, an overall neglect and misuse of talents in society.

Innovation can be radical and incremental. Radical innovations refer to path-breaking discontinuous, revolutionary, original, pioneering, basic, or major innovations (Green et al., 1995). Incremental innovations are small improvements made to enhance and extend the established processes, products, and services. Johannessen et al., (2001) developed a study that investigated six different types of innovative activity:

- (1) New products;
- (2) New services;
- (3) New methods of production;
- (4) Opening new markets;
- (5) New sources of supply; and
- (6) New ways of organizing.

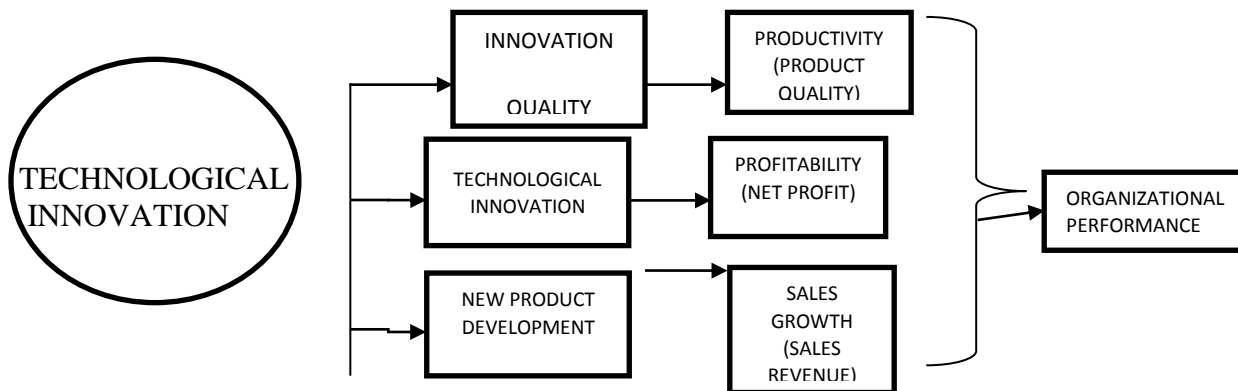


Fig. 1 The above diagram shows the conceptual model for the study which is the relationship between technology innovation use and organizational performance

Importance of Innovation In Organization

Innovation is vital in the work place because it gives companies an edge in penetrating markets faster and provides a better connection to developing markets, which can lead to bigger opportunities.

It stimulates employees to come up with something useful. It is of great importance for organizations to encourage growth of innovation among their

employees, by coming up with seminars and trainings to keep their employees stimulated and create something useful for others that can in turn result in financial gain for the company.

Innovation can also help develop original concepts while giving the innovator a proactive, confident attitude to take risks and get things done.

Keeping abreast with the current trend demands another important factor to entrepreneurs to fuel their creativity and innovations. Manufacturers are constantly innovating to produce more without sacrificing quality.

When a company has an innovative culture, it will grow easily, despite the fact that the creative process is always simple. Tried and tested methods may be reliable but trying out a new thing is a worthwhile experiment. It improves the standard of living and creates a better quality of life.

Innovation and Organizational Performance

Costa and Cabrel (2010) studied the effect of differentiated knowledge source and learning process on technology capacity to innovate and competitive performance using selected manufacturing companies. However, this study will reveal that manufacturing firms can develop their competitive advantage through manipulating innovations that consumers are willing to pay for and innovations that would reduce manufacturing costs. They also recommended that manufacturing firms first utilize quality improvements to exploit consumers' willingness to pay for innovative products.

This initiative would enable manufacturing firms to improve their finances for innovation and develop their "brand" in construction products. Sustainable competitive advantage could then be firmly established when manufacturing firms engage in productivity improvements that lead to lower manufacturing costs and/or faster completion times. This study concludes that innovation can be a useful competitive tool if manufacturing firms apply strategies

according to their competitive environment.

Research Method

This study adopted quantitative data analysis for this study; the survey research design was employed. The scope of the study covers Ibadan South West (SW), Ibadan, Oyo State, Nigeria. Its headquarters is at Oluyole Estate in Ibadan. The primary method of data collection was used for this study through a field survey of firms with the aid of purposive well-structured questionnaires. The questionnaires instrument was designed using five (5) likert's scale, as well as through an in-depth personal interview guided by the questions raised in the questionnaire which proved to be most effective due to the fact that most respondents could not fill in their responses or due to time constraints.

A sample of 80 respondents was identified from a population of 100 of employees and managers within the study area using random sampling method based on reports of the number of employees and managers in the study area and approximately 100% of the administered questionnaires were retrieved. Each of the dependent and independent variables of the research construct were measured by two (2) items each validated by different authors found in extant literature.

Pre-test was also constructed through a pilot study which was carried out for the research instrument's validity. Split half method of reliability test results on the split halves 0.734 and 0.864 respectively show that research instrument is reliable (Garson, 2009).

Presentation of Data

A sample size of 80 was derived from the population of 100 employees of

selected firms in Oluyole Estate, Ibadan adopting the survey research design which

represents the total number of questionnaires and respondents.

Table 1.1.1 Analysis of Questionnaire

Questionnaires	Respondents	Percentage (%)
Returned	80	100
Not returned	0	
Total distributed	80	100.0

Source: Field Survey, 2021

Analysis of Gender Respondents

		Frequency	Percentage(%)	Valid Percentage (%)	Cumulative Percentage (%)
Valid	Male	35	43.8	43.8	43.8
	Female	45	56.3	56.3	100
	Total	80	100	100	

Source: Field Survey, 2021

From the above table, 35 were males while 45 of the respondents were females, representing 43.8% and 56.3% respectively.

This means that the research study has most of its respondents being females.

Table 1.1.3 Analysis of Age Respondents

		Frequency	Percentage(%)	Valid Percentage (%)	Cumulative percentage (%)
Valid	21-30	16	20.0	20.0	20.0
	31-40	31	38.8	38.8	58.8
	41-50	28	35.0	35.0	93.8
	Above 50	5	6.3	6.3	100.0
	Total	80	100.0	100.0	

Source: Field Survey, 2021

From the above table, 16 (20.0 %) respondent falls between 21-30 years, 31 (38.8%) respondents between 31-40 years, 28 (35.0%) respondents between 41-50 and

5 (6.3%) respondents above 50. This means that the research study has most of its respondents between the age of 31-40 years.

Table 1.1.4 Analysis of Marital Status Respondents

		Frequency	Percentage (%)	Valid percent (%)	Cumulative Percent (%)
Valid	Single	14	17.5	17.5	17.5
	Married	53	66.3	66.3	83.8
	Separated	6	7.5	7.5	91.3
	Divorced	6	7.5	7.5	98.8
	Widow/Widower	1	1.3	1.3	100.0
	Total	80	100.0	100.0	

Source: Field Survey, 2021

From the above table, 14 (17.5%) respondent falls between single, 53 (66.3%) respondents between married, 6 (7.5%) respondents between separated, 6 (7.5%) respondent falls between divorced and 1

(1.3%) respondent falls between widow/widower. This means that the research study has most of its respondents being married.

Table 1.1.5 Analysis of Level of Education Respondents

		Frequency	Percentage (%)	Valid Percentage (%)	Cumulative Percentage (%)
Valid	SECONDARY	8	10.0	10.0	10.0
	NCE/ ND	10	12.5	12.5	22.5
	HND	11	13.8	13.8	36.3
	B.Sc.	32	40.0	40.0	76.3
	M.Sc.	18	22.5	22.5	98.8
	PhD/Post Doctorate	1	1.3	1.3	100.0
	Total	80	100.0	100.0	

Source: Field Survey, 2021

From the above table, 8 (10%) respondent falls between Secondary, 10 (12.5%) respondents between NCE/ND, 11 (13.8%) respondents between HND, 32 (40%) respondents between B.SC, 18 (22.5%)

respondent between M.Sc. and 1 (1.3%) respondents between PhD/Doctorate. This means that the research study has most of its respondents as B.Sc. holders.

Table 1.1.6 Analysis of Business Experience Respondents

		Frequency (%)	Percentage (%)	Valid Percentage (%)	Cumulative Percentage (%)
Valid	Less than 1 year	6	7.5	7.5	7.5
	1-4 years	28	35.0	35.0	42.5
	5-10 years	28	35.0	35.0	77.5
	Above 10 years	18	22.5	22.5	100.0
	Total	80	100.0	100.0	

Source: Field Survey, 2021

From the above table, 6 (7.5%) respondent falls between less than 1yr, 28

(35.0%) respondents between 1-4yrs, 28 (35.0%) respondents between 5-10yrs and

18(22.5%) respondents between above 10yrs. This means that the research study has most of its respondents as respondents

that are in business between 1-4 years and 5-10yrs.

Table 1.1.7 Analysis of Department Respondents

		Frequency(%)	Percentage (%)	Valid Percentage (%)	Cumulative Percentage(%)
Valid	Production and Operation	18	22.5	22.5	22.5
	Marketing	23	28.8	28.8	51.3
	Accounting and Finance	13	16.3	16.3	67.5
	Personnel/Human Resource	13	16.3	16.3	83.8
	Research and Development	13	16.3	16.3	100.0
	Total	80	100.0	100.0	

Source: Field Survey, 2021

From the above table, 18 (22.5%) respondents were in Production and Operation department, 23 (28.8%) respondents were in Marketing department, 13 (16.3%) respondents were in Accounting and Finance, 13 (16.3%) respondents were in Personnel/ Human Resources department and 13 (16.3%) respondents were in Research and Development department. This means that the research study has most of its respondents in marketing.

Hypothesis Testing

Linear regression analysis was used to test the research hypotheses and analyze the dependent and independent variables. Scatter diagram was use to study the relationship between two variables. It shows what happens to one variable when the other variable changes.

Hypothesis 1: Improved innovation quality has no positive significant effect on organizational productivity in Nigeria.

Table 2.1.1 Model Summary of Innovational Quality and Organizational Productivity

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.399 ^a	.160	.149		.33661

a. Predictors: (Constant), INNOVATION_QUALITY

Table 2.1.2 Anova of Innovational Quality and Organizational Productivity

ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
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1	Regression	1.678	1	1.678	14.808	.000 ^b
	Residual	8.838	78	.113		
	Total	10.516	79			

a. Dependent Variable: ORGANISATIONAL_PRODUCTIVITY

b. Predictors: (Constant), INNOVATION_QUALITY

Interpretation of results

The result from the model summary table revealed the extent to which the variance, organizational productivity can be explained by innovation quality is 16.0% (R Square = 0.16). The ANOVA table shows the Fcal

14.808 at 0.000 significant level. The table shows that there is a significant relationship between Innovation quality and organizational Productivity among selected organization in Oluyole Estate, Ibadan.

Table 2.1.3 Coefficients^a of Innovation Quality and Organizational Productivity

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
	B	Std. Error	Beta			
1	(Constant)	1.411	.149		9.451	.000
	INNOVATION_QUALITY	.362	.094	.399	3.848	.000

a. Dependent Variable: ORGANISATIONAL_PRODUCTIVITY

b. Independent Variable: Innovation Quality

The coefficient table shows that the simple model that expresses how there is a significant relationship between innovation quality and organizational productivity among selected organization in Ibadan, Oyo State. The model is shown mathematically as follows:

$Y=a+bX$ where y is organizational productivity and x is innovational Quality, a is a constant factor and b is the value of coefficient. From this table therefore, organizational productivity is = $1.411+0.362$ innovational quality. Therefore, a unit increase in innovational quality will lead to 0.362 increases in purchase intention.

Decision

Table 2.1.4 Model Summary of Technological Innovation advancement and organizational profitability

The above result implies that there is a significant relationship between innovation quality and organizational productivity among selected organization in Ibadan, Oyo state. State i.e. since our P value (0.000) is LESS than 0.05. Thus, the decision would be to reject null hypothesis (H_0) and accept alternative hypothesis (H_1), i.e. there is a significant relationship between innovation quality and organizational productivity among selected organization in Ibadan, Oyo state.

Hypothesis 2: Technological innovation advancement has no positive significant effect on organizational profitability in Nigeria.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.604 ^a	.365	.357	.33546

A. Predictors: (Constant), Technological_Advancement

Table 2.1.5 Anova of Technological Innovation advancement and organizational profitability ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.042	1	5.042	44.806	.000 ^b
	Residual	8.777	78	.113		
	Total	13.820	79			

A. Dependent Variable: Organisation_Profitability

B. Predictors: (Constant), Technological_Advancement

Interpretation of results

The result from the model summary table revealed the extent to which the variance, organizational profitability can be explained by technological innovation advancement is 3.65% (R Square = 0.365).

The ANOVA table shows the Fcal 44.806 at 0.000 significant level. The table shows that technological Innovation advancement has a significant effect on organizational profitability

Table 2.1.6 Coefficients^a of Technological Innovation advancement and organizational profitability

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.814	.160		5.103	.000
	TECHNOLOGICAL_ADVANCEMENT	.603	.090	.604	6.694	.000

a. Dependent Variable: ORGANISATION_PROFITABILITY

b. Independent Variable: TECHNOLOGICAL INNOVATION

The coefficient table shows that the simple model that expresses how technological innovation advancement have a significant effect on organizational profitability among selected firms in Ibadan, Oyo state. The model is shown mathematically as follows:

$Y=a+bX$ where y is brand loyalty and x is process innovation, a is a constant factor and b is the value of coefficient. From this table therefore, organizational profitability = 0.814+0.603 technological innovation advancement. Therefore, a unit increase in will lead to 0.603 increase in organizational profitability.

Decision

The above result implies that technological innovation advancement has a positive significant effect on organizational profitability among selected firms in Ibadan, Oyo state), i.e. since our P value (0.000) is LESS than 0.05. Thus, the decision would be to reject null hypothesis (H_0) and accept alternative hypothesis (H_1), i.e. technological innovation advancement have a significant effect on organizational profitability among selected firms in Ibadan, Oyo state

Conclusion

This paper has evaluated innovation use on organizational performance in selected manufacturing company. Innovation has a positive relationship with the performance of manufacturing organizations. This implies that for organizations to maximize their profit, they should effectively make use of innovation and harness the opportunities around to stay novel. Innovation in organizations must not be neglected as it helps to improve firms, sales, market share and profitability, productivity and efficiency. Innovation leads to a better quality service, products and processes that improve the standard of people.

There is a significant relationship between innovation use and organizational performance. This implies that a favourable innovation would result to favourable profitability and sales growth. This shows that an increase in innovation use will lead to greater profit.

Recommendations

The following are the recommendation which are found useful and if rationally adopted, will go a long way in effectiveness and the usefulness of innovation in

achieving higher performance in organizations. These recommendations include:

- Since quality is very effective towards achieving higher productivity, there is need for the selected organizations in Oluyole Estate, Ibadan, Oyo State to regularly use it in order to benefit from its effectiveness.
- The companies should continually embark on technological innovation advancement to improve organizations profitability in order to meet the organizations needs and also ensure self-efficacy.
- Since product development and market segmentation is very effective towards achieving sales growth and higher performance, there is need for the selected organizations in Oluyole Estate, Ibadan, Oyo State to regularly use it in order to benefit from its effectiveness.
- The investors and innovators should be able to interpret the market and economic indicators since they influence the performance of the organization. They should evaluate all the variables in the environment, scan through the environment in order to adapt to recent changes.

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