

Innovation and Manufacturing Firms' Profitability

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ABSTRACT: *Innovation and Firms' Profitability aimed to determine the significant relationship between generation of high quality products and profitability; use of new technologies and profitability; and value addition and profitability in medium to large manufacturing firms in South East Nigeria. Starting from a theoretical perspective to derive testable hypotheses, the researcher studied a sample of two hundred and fifty five (255) out of a population of seven hundred (700) staff of selected manufacturing firms in zone. Pearson Product Moment Correlation was used to test hypotheses. It was found that there is no significant relationship between generation of high quality products and profitability in the firms. There is a significant relationship between use of new technologies and profitability and there is also a significant relationship between value addition and higher profitability in manufacturing firms studied. The study concludes that generation of superior quality product does not necessarily increase profitability, but use of new technologies and value additions increases revenue which directly increases profitability. The study recommends that manufacturing companies should create a continuous capability for innovation and modify their organizational processes to embrace and support innovation as an enabler that strengthens firm capacities and fortunes.*

KEY WORDS: *Innovation, quality products, new technologies, value addition and profitability.*

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I. Introduction

1.1 Background of the Study

The changing and shrinking global and national economies, occasioned by the varying degrees of economic and socio-cultural lockdown, caused by Corona Virus Pandemic, calls for a deeper evaluation of strategies for the survival of the real sector. The challenge of the Pandemic has added to the already chaotic nature of doing business in many countries of the world especially the developing ones like Nigeria. Before the Pandemic, the manufacturing sector in Nigeria and other developing countries had been faced with several challenges raging from high rate of inflation; high rate of taxation; multiple taxation; weak currency; and exchange rate fluctuation. Other challenges of the manufacturing sector in a developing country includes: high interest rate, inadequate support from the government, corruption, high level competition, insecurity, weak public infrastructure etc. (Udu 2020). Innovation could be a veritable tool for the increase in manufacturing firms' overall performance in difficult situation the world is facing now.

According to Udu and Udu (2015) innovation is the transformation of creative ideas into useful application by combing resources in new or unusual ways to provide value to the society for new or improved products, technologies, services or methods of doing things. It is important to recognize that innovation in business organization is not confined to new technological inventions. It is the consideration of current and future tastes and preferences of consumers and searching for new values to take care of such identified or

envisaged tastes and preferences. Modification here involves the existing products, technologies and processes. Innovation could also be seen as the successful implementation of creative ideas within an organization. The decisions on whether to innovate are most time faced by many business firms. Technological and administrative innovations are increasingly becoming essentials for any businesses firms that want to thrive and compete favourably in the dynamic business environment of the 21st century (Olugbade, Olweny and Oluoch, 2017).

Although increasing globalization and technological effects had resulted in more business opportunities but the marketplace has also become more crowded and competition has increased (McMullan and Shepherd 2006). The current varying degrees of economic lockdown of countries and states within Nigeria arising from the deadly effects of Corona Virus pandemic has locked down such opportunities and makes the exploitation of available few difficult. With innovation manufacturing firms can act on available business opportunities in ways which can result in competitive advantage.

Innovativeness is considered as a crucial instrument of increased organizational performance because it adds value and hence creates new taste, additional demands, new markets, new sales, higher income and more profits. It is also an essential tool for growth strategies that organizations need to venture into new markets, increase the current market share and ensure that the company continues to enjoy increased profitability. Innovation not only contributes to profitability but also to more industrious manufacturing practices, improved performance in the market and seeks to maintain positive status in customers' opinion.

Profitability is the ability to get excess income over expenditure from all the business activities of an organization within a period of time. It shows how efficiently the management can utilize all the resources available in the market. The term profit is revenue minus cost (direct and indirect cost) and the term ability indicates the power of a business entity to earn profits (Tulsian, 2014). The ability of a concern also denotes its earning power or operating performance. It is the degree to which a business or activity yields profit or financial gain (Emenike 2013).

Profitability is a relative concept whereas profit is an absolute connotation. Despite being closely related to and mutually interdependent, profit and profitability are two different concepts. In spite of their generic nature, each one of them has a distinct role in business. Greuning (2005), making some interpretation about International Financial reporting Standards (IFRS), considers that the profitability indicators generally mean an indication of how a company's profit margins are associated with sales, average capital and own average capital.

1.2 Research Hypotheses

H₀₁: There is no significant relationship between generation of high quality products and firms' profitability.

H₀₂: There is no significant relationship between use of new technologies and firms' profitability.

H₀₃: There is no significant relationship between value addition and firms' profitability.

II. Review Of Related Literature

2.1 Concept of Innovation

OECD, (2005) differentiates four identifiable major types of innovation as product, process, organizational and marketing. Product innovation refers to the new or improved product, equipment or service that is successful in the market because of value addition. A process innovation entails the implementation of a new or enhanced manufacturing or distribution process, or a new course of social service with added value. Organizational innovation is the new and improved ways of managing resources by categorizing internal associations, planning, directing and empowering employees, molding careers and rewarding work with pay and benefits (Ottenbacher and Gnoth, 2005). This leads to more effective use of human resource that are of importance to the successful utilization of ideas (Olughor, 2015). Marketing innovation is the improvement in the effective and efficient use of essential marketing mix (product, place, price and promotion). The objective of marketing innovation is to bring about major changes in product design and/or packaging, placement and promotion.

Thus according to (Olughor, 2015), innovation is intrinsically about identifying and using opportunities to create new products, services or work practices. Report of OECD (2005) had shown that firms decisions to expand on innovations has brought about improvement in workers capabilities, better wages and salaries and a decisive prospect for employees. Consequently, these effects of innovations on firm performance vary in scale from sales, market share to profitability.

Concept of Profitability

Profitability is defined as either accounting profits or economic profits. Accounting profits means net income, while economic profits, means net worth. Profitability is the primary goal of all business ventures. Without profitability the business will not survive in the long run. So measuring current and past profitability

and projecting future profitability is very important. Profitability is measured with income and expenses. Income is money generated from the activities of the business (Emenike 2018).

Whether you are recording profitability for the past period or projecting profitability for the coming period, measuring profitability is the most important measure of the success of the business. A business that is not profitable cannot survive. Conversely, a business that is highly profitable has the ability to reward its owners with a large return on their investment as well as reward other stakeholders reasonably. Increasing profitability is one of the most important tasks of the business managers. Managers constantly look for ways to change the business to improve profitability.

Determinants of Profitability

Profitability can be determined cost of production, which is all costs incurred in the cause or process of production; inflation rate, which is an increase in the cost of living resulting from rise in price levels of goods and services in the market over a period of time; and tax regime, which is the state of tax instruments within an industry or economy and how it affects profitability (Grilli 2011). Another important determinant of profitability is the size of the firm, which is the quantity and diversity of production capability of a firm. Larger firms have higher capacity to make higher profit.

Innovation in Businesses

Innovation is the development of a new product or the adoption of a new product or the implementation of a creative idea. This can particularly help in solving problems that can affect the profits of the company, etc. Innovativeness has been linked to proactively and risk taking. It essentially means to divert from the usual practices and try new ideas and experiment with these ideas. According to Gedajlovic & Carney (2012), innovation is the most important factor in the growth of small family firms. Normally it has been suggested that family firms do not experiment due to financial constraints and the different dynamics of family members.

2.2 Empirical Review

Adepoju and Olomu, (2017) examined the impact of research and development (R&D) expenditure, product and process innovations on small and medium enterprises (SMEs) performance in the manufacturing industry in Nigeria using a survey of 1,000 SMEs with a response rate of 52.1% in year 2009. The results with least squares method showed that R&D spending by the firms as well as product and process innovation has significant impacts on the firm's performance with the probability value of 0.0529, 0.0624 and 0.0086 respectively at 10% level of significant. This study suggests improvement in R&D spending and other technological activities which are expected to increase SMEs' profitability and thus generate more employment in the country.

Olugbade, Olweny and Oluoch, (2017) studied the relationship between firms' size and innovations and came out with a surprising empirical results. Many earlier authors claim that large firms adopt new innovations more than small firms while few authors argued otherwise. This study sheds light on the relation by investigating the choice of advanced manufacturing technology and modern management accounting practices among the manufacturing companies in Nigeria that are not listed on Nigeria stock exchange. A retrospective longitudinal survey was conducted to examine the usage of advanced manufacturing technology and modern management accounting practices during a period of 5 years (2011-2015). The data were subjected to descriptive analysis and logistic regression. The outcome of the study shows that firms' size has a significant effect on both manufacturing technology and management accounting practices. Unlike many earlier findings, the study established a negative relation which implies that smaller firms applied advanced manufacturing technology and modern management accounting practices more than larger firms.

Mugo (2015) undertook a study with an objective to investigate the relationship between innovations and performance of Kenya's wine industry using a descriptive research design. The population of the census study consisted of five main wine companies in Kenya. Descriptive statistics and a suitable regression model were used to do the data analysis. The research study found that innovations are indispensable to companies' future growth and sustainability. The study concludes that innovations helps an organization in obtaining a clear direction as regards innovation and therefore the efforts of the entire organization are directed to a common innovation goal and this positively impacts on their performance.

Mugalisi (2015) also undertook a study with the objective to establish the effect of Research and Development on the performance of manufacturing companies listed at the Nairobi Securities Exchange. Descriptive research design was used and secondary data from published financial statements from year 2010 to 2014 was used. The target population was 17 manufacturing companies listed at the Nairobi Securities Exchange. The researcher used regression analysis and descriptive statistics to analyze the data collected from the study. The study found out those firms relies on technology to identify opportunities that help exploit innovative products and services. The study findings show that R&D significantly put strain on the financial

performances in the short run whereas in the long run, the firm realizes the investment returns through strategies recommended from the R&D thus improved financial performance of the firm.

Njogu (2014) undertook a similar research study aimed at investigating the effect of innovation on financial performance of small and medium enterprises in Nairobi County, Kenya. The study used a descriptive research design and obtained primary data using questionnaires. The population comprised 1050 firms and a sample of 200 firms was obtained using stratified random sampling. Data obtained was analyzed using descriptive statistics and regression analysis. The study also finds that there is a positive significant relationship between process innovation and financial performance of SMEs in Nairobi County.

2.3 Theoretical Review

Diffusion of Innovation Theory

Diffusion theory as propounded by Rogers, (1962) details how innovations spread, through market or non-market channels or within an organization. The theory therefore explains how, why, and at what rate new ideas and technology spread. The theory posits that diffusion is the process a new product is communicated to the participants of a particular market set up. The factors that affect the spread of a new idea are the innovation, modes of communication the time and the market in which the product is introduced.

Diffusion manifests itself in different areas and ways thus affecting product innovation as well as the time taken to adopt the new product either in the organization or by the market (Rogers, 1962). Diffusion of innovation theory also assumes that product innovations are not adopted by all individuals at the same time. When a new product is introduced into the market the organization's sales and marketing department is actively involved in marketing the new product and convincing the customers on why they should buy the new products. This therefore means that customers tend to adopt a new product in a time sequence (customers will adopt the new product at different times) this therefore implies that effect on profitability shall be spread over a period of time. Profits will accrue to the company in the long run rather than in the short run.

Disruptive Innovation Theory

The theory was propounded by Christensen (1997). He defined disruptive innovation as an innovation which when introduced in the market creates a new network eventually displacing products and firms that have been established over a period of time. This means that disruptive product innovations emanate from outsiders rather than already market leading firms in place. However, disruptive product innovation may take longer to develop than other forms of innovations, but once the product is introduced in the market, it penetrates faster and hence a higher degree of impact in established markets.

III. Methodology

3. Research Design

This study adopted descriptive, analytical and quantitative survey research design. The area of study is South East Nigeria comprising five States of Anambra, Imo, Enugu, Abia and Ebonyi. From a population of Seven hundred (700) medium to large manufacturing firms in the area, a sample of Two Hundred and Fifty Five (255) were selected using the Taro Yameni (1964) statistical formula. Data was analyzed using descriptive statistics while Pearson Product Moment Correlation was used to test the hypotheses.

IV. Data Presentation And Analysis

Test of Hypotheses (One)

H₀₁: There is no significant relationship between generation of superior quality products and manufacturing firms' profitability.

Correlations

		Generation of superior quality	profitability
Generation of superior quality	Pearson Correlation	1	.395**
	Sig. (2-tailed)		.000
	N	245	245
Profitability	Pearson Correlation	.395**	1
	Sig. (2-tailed)	.000	
	N	245	245

** . Correlation is significant at the 0.01 level (2-tailed).

The researcher analyzed the data collected from the rate of generation of superior quality in manufacturing firms within the area, and result show $r=0.395$; $p<0.05$; $n=245$, which imply that the null

hypothesis stating that there is no significant relationship between generation of superior quality products and manufacturing firms' profitability is accepted.

Test on hypothesis Two

H₀₂: There is no significant relationship between use of new technologies and sales in manufacturing firms in South East Nigeria.

		Correlations	
		New technology	Sales
New technology	Pearson Correlation	1	.743**
	Sig. (2-tailed)		.000
	N	245	245
Sales	Pearson Correlation	.743**	1
	Sig. (2-tailed)	.000	
	N	245	245

** . Correlation is significant at the 0.01 level (2-tailed).

The researcher analyzed data collected on use of new technology with result being $r=0.743$; $p>0.01$; $n=245$ which imply that the null hypothesis stating that there is no significant relationship between use of new technologies and sales in manufacturing firms in South East Nigeria is rejected.

Test on hypothesis Three

H₀₃: There is no significant relationship between value addition and revenue in manufacturing firms in South East Nigeria.

		Correlations	
		Value addition	Revenue
Value addition	Pearson Correlation	1	.600**
	Sig. (2-tailed)		.000
	N	245	245
Revenue	Pearson Correlation	.600**	1
	Sig. (2-tailed)	.000	
	N	245	245

** . Correlation is significant at the 0.01 level (2-tailed).

The researcher analyzed data resulting from hypothesis three and got $r=0.600$; $p>0.01$; $n=245$ which imply that the null hypothesis is be rejected.

V. Summary Of Findings

This paper evaluates the effect of innovation on firms' profitability of manufacturing firms in South East Nigeria. Based on the analysis of data and testing of proposed hypotheses, the following findings are made:

i. Superior quality product does not have significant effect on profitability in manufacturing firms under study. With a result of $r=0.395$; $p<0.05$; $n=245$, the null hypothesis stating that there is no significant relationship between generation of superior quality products and profitability in manufacturing firms is accepted meaning that superior quality product does not necessarily produce profit.

ii. New technology plays a significant role in increasing production at an effective rate in manufacturing firms which is the key to increase in sales and profitability. With a result of $r=0.743$; $p>0.01$; $n=245$ the null hypothesis stating that there is no significant relationship between use of new technologies and sales in manufacturing firms is rejected meaning that new technologies have significant effects on firms' profitability.

iii. Value addition can significantly lead to increase in revenue as customers patronize product with additional value. Data show that customers are willing to pay more for product that give them additional value. The result of $r=0.600$; $p>0.01$; $n=245$ imply that the null hypothesis is rejected meaning that value addition have significant effects on firms' profitability.

VI. Conclusion

This clearly shows that companies who values innovation will easily gain competitive advantage and ensure greater profitability. Competitive advantage ensures companies to have sustainable success, a dominant position in their market. Innovation is being recognized as offering a competitive advantage, being one of the few sustainable advantages in today's economy.

The study concludes that generation of superior quality does not necessarily increase the profitability of firms. The study concludes that new technologies and value additions have significant positive effects on firms' profitability and should be encouraged by firm managers.

VII. Recommendations

- i. Companies should create a continuous capability for innovation and modify their organizational cultures to embrace and support innovation, as innovation is rapidly becoming an enabler that strengthens and focuses the corporate strategies.
- ii. Companies inventing and implementing of new thoughts, products or services will spur them to be leaders in their markets.
- iii. Manufacturing companies should strive to get modern technologies that would enable design superior quality designs
- iv. Manufacturing companies should adopt innovation as it increases financial performance especially profitability.
- v. Manufacturing companies also need to keep designing and redesigning their products to meet ever changing customers' tastes and preferences.

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