



Value Management and Organizational Performance: A Case of Selected Manufacturing Firms in South-East, Nigeria

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ABSTRACT The study investigates the impact of value management on the performance of production firms in south-east Nigeria. The investigation embraced the survey design overview plan. The investigation had a populace size of 9038, out of which an example size of 563 was acknowledged utilizing Cochran's equation at 5 percent mistake resilience and 95 percent dimension of certainty. The survey research design was adopted for the study. The review research configuration was received for the investigation. The hypothesis were tested utilizing the Pearson product moment connection coefficient and simple linear regression statistical tools. The findings indicated that there was a significant relationship between value engineering and product quality in the selected manufacturing firms in south-east Nigeria. Function analysis had a significant positive effect on the productivity of manufacturing firms in south-east Nigeria. The study concluded that value management offers a method for stakeholders to achieve organizational performance.

INTRODUCTION

The idea of value management dates back to the General Electric Company in the United States during World War II. As a result of the war, there were deficiencies in skilled work, crude materials. Lawrence D Miles, Jerry Leftow and Henry Erlicher at GE were directed to search for adequate substitutes, without giving up quality, utility, and performance, etc. Through a group approach, they accomplished these tasks. They also noticed that these substitutes often reduced costs, improved the product quality or both; an idea born out of necessity was turned into a systematic process. This technique was called value management, value analysis, or value methodology. Presently, the intensive competition among manufacturing firms in south-east Nigeria has made the concerned organizations more proactive and efficient as possible in order to measure up with changes in the environment and be capable of surviving in the marketplace. The value of the organizational product is a factor that cannot be overlooked, as underscored by the International Standard Organization (ISO) in performance estimation. To actualize these necessities, organizations have employed an-

other methodology called the esteem management (Olaniyi and Adewale 2010).

Value Management (VM) is a style of management which emphasizes the importance of motivating people, developing skills and promoting synergies and innovation, in order to maximize the overall performance of an organization. Some of the benefits derived from implementing value management include, clear business decisions, ability to proffer better solutions to customer by looking at their actual needs, improved understanding by the participants of the organization regarding the organizations goals and an improved internal communication and increased understanding of the success factors for the organization (The Institute of Value Management 2008). In the USA, UK and many other countries, value management has been acknowledged overtime as an instrument for enhanced management and has developed from being a procedure for producing a product into different territories, for example, services or managerial zones.

Performance is alluded to being tied in with taking the necessary steps, just as being concerned about the outcomes accomplished. The performance of the organization is the result of work, since they give the most robust linkage to the key objectives of the manufacturing firms,

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consumer loyalty and monetary commitments (Jones and Bartlett 2008). While trying to react to the exercises that will empower manufacturing firms to work continuously, firms are dependable during the time spent organizing and rebuilding. Subsequently, companies need to deliberately design and build up the most appropriate and versatile technique that will empower it to use and amplify its assets and ultimately accomplish organizational targets without trading off quality (Mullins 2002; Akindele 2012). From a global viewpoint, value management centers around consistently expanding the worth accorded the customer (Kelly et al. 2004). It gives a premise to improving value for cash in the manufacturing firms (Ashworth and Hogg 2007). Likewise, it centers on value instead of expense and seeks to accomplish an ideal harmony between time, cost, and quality (Kelly et al. 2004). It provides a technique for combination of the production procedure that no other administrative structure in the production sectors can give (Kelly and Male 1991).

Unfortunately, the application of value management appears different in the manufacturing firms in Nigeria. Till date, the use of value management in Nigeria has been limited. Value management is yet to be widely practiced in most manufacturing firms in south-east Nigeria. This may affect organizational productivity development, employee satisfaction, profitability, and employee performance, employee attitude to change, sales promotion and exporting of goods which poses a threat to the overall performance of manufacturing firms in south-east Nigeria. Also, the wrong and non-application of value management may also be some of the reasons why companies are relocating their firms from Nigeria to a well-developed economy. It is against this background that the study seeks to investigate the effect of value management on the performance of production companies in south-east Nigeria.

Statement of the Problem

Implementation of value management enhances better business decisions, better solutions to its customer's needs, improved understanding for the participants of the organization regarding the organizational goals, improved

internal communication and increased understanding of the success factors for the organization (Kelly et al. 2004; Aini et al. 2009; Bruno et al. 2018).

A typical Nigerian organization in the private sector appears to generally lack the culture of value management, and value management architecture that confers competitive advantage. This attestation depends on the non-appearance of significant worth administration unit in the greater part of these companies. The major challenge of the Nigerian production subsectors is the inability to recognize the fact that the business condition has turned out to be aggressive, dynamic and just those companies with the worth value information prevails in this advanced period. Therefore, the greater part of the companies in south-east Nigeria do not have an in-depth understanding about existing items, clients, contenders, partners and other ecological connections that are required to empower directors and business administrators settle on quality vital choice. Again this may lead to diminished development, customer disappointment, poor quality of product and staggering expense of merchandise and enterprises creation. This experience has additionally debilitated the capacity of the companies and associations to contend in the global market so as to achieve higher performance. There is additionally the general issue of poor value designing, conceptualizing, work investigation, life-cycle cost examination, value assessment and the related procedure of authoritative learning capacity and how this can improve the nature of significant worth administration that will prompt expanded organizations outcome (Amit and Belokar 2012).

Absence of value management in any organization may lead to the risk of poor quality decision, poor innovation, customer dissatisfaction, and slow decision making process, absence of strategic effectiveness, non-existence of value assessment, poor quality products and services and total loss of market share due to inability to compete with the products and services of their foreign counterparts. This is a major challenge for most organizations in Nigeria, especially in the Nigeria manufacturing sector. Therefore, the study will focus on the effect of value management on the performance

of selected manufacturing firms in south-east Nigeria.

Objectives of the Study

- i. ascertain the nature of the relationship between value engineering and product quality in the selected manufacturing firms in south-east Nigeria.
- ii. assess the effect of function analysis on productivity in the selected manufacturing firms in south-east Nigeria.

Research Hypotheses

- i. There is a positive relationship between value engineering and product quality in manufacturing firms of south-east Nigeria.
- ii. Function analysis has a significant positive effect on the productivity of manufacturing firms in south-east Nigeria.

Conceptual Review

Value Management

The term 'value management' is considered fairly synonymous with 'esteem examination' and 'worth designing.' Despite the (continuous) Australian Engineering inclination towards an American marking of Value Engineering (VE), Value Management was officially perceived in the Commonwealth of Australia, and the province of Western Australia, in 1977 with the foundation of the Institute of Value Management Australia (Spaulding et al. 2005). Kelly et al. (2004) saw esteem management as a factor that boosts the utilitarian estimation of a venture by dealing with its advancement from idea through the review of all rulings against a worth framework controlled by the customer. Kelly et al. (2004) likewise recognized the term the UK development industry board used to portray the procedure of improving an incentive for the customer. Worth administration is a procedure which incorporates better understanding just as providing answers to the business ventures.

According to the Office of Government Commerce (2007) cited by Oke and Ogunsemi (2011), value management could be defined as a well-established methodology for defining and maxi-

mizing value for money. This means that the discipline of value management can be applied to any organization, and industry project regardless of the little heed to measure or allotted time at all stages, that is for the duration of the existing cycle of the undertaking from initiation to fruition. This might be in opposition to the general conviction that value management should and must be connected at the planning phase of the construction project. This connotes that value management is becoming dynamic and various forms of its application in the construction industry are springing up. This discrepancy was further clarified by Kelly and Male (2006), where value engineering is said to be a subset of value management, in that the previous arrangements essentially with the plan is formed, while the last is involved in the general management of significant worth all through the agreement. Odeyinka (2006) defined value management as a service, which maximizes the functional value of a project by dealing with its progression from idea to consummation and commissioning through the audit (examination) of all decision against value framework determined by the customer. The Institute of Value Management (2008) defined the term value management as a style of management mainly dedicated to motivating people, develop skills and promote synergies and innovation, with the aim of maximizing the overall performance of an organization.

The Benefit of Value Management

The Institute of Value Management (2008) observed that the most visible benefits arising from the application of value management include: better business decisions, as it provides decision makers with choices to improve her products and services to external customers by clearly understanding, and giving due priority to their real needs; enhanced competitiveness and innovation, thus enhancing every member's understanding of the organization's goal; improved internal communication, simultaneously enhancing communication and efficiency by developing multidisciplinary and multitasking teamwork; and decisions which can be supported by the stakeholders (Oke and Ogunsemi 2011).

Value Engineering

For the project and product that has been approved at the regulating agencies and manufacturing association of Nigeria, Value Engineering can be implemented at all levels of design development to ensure that the product achieves its functions and objectives. Manufacturing firms repeatedly carry out VE, especially for complex projects and product. At this stage, the VE is conducted to determine the alternatives and the best method for producing a product and implementing project by maximizing value for money and improving the effectiveness of the project without compromising the future. These are usually done by excluding the function, design, and specifications that are unnecessary or not essential and suggest an alternative which can improve the delivery of the projects. Methods of developing a clear understanding of the conceptual relationships between values management in manufacturing firms and employee customers' satisfaction has preoccupied researchers over the past years. The outcome is that no less than an incomplete accord has risen (Taylor 1997), that consumer happiness is the after effect of a client's impression of the value gotten where value breaks even with seen benefit quality with respect to value (Hallowell 1996). The principal determinant of consumer loyalty is seen in the quality. The second determinant of consumer loyalty is seen in the value (Fornell et al. 1996).

Green (1994) says that satisfaction of customers is especially associated with 'esteem', and based sensibly on the amalgamation of administrations quality attributes with such a large number of characteristics as worth (Athanasopoulos 2000). There has been a different supposition that quality recognitions lead to improved fulfillment and worth perception and that, a positive worth directly affects the fulfillment of customers. Green (1994) says that two elective philosophies of significant worth management are in a general sense distinctive with regards to their basic hypothetical convictions. He expresses that the principal approach derives its way of thinking from the logical technique and accept that issues are for the most part specialized and that they exist autonomously by human recognition. He similarly expressed the fact that the

second procedure is derived from sociology and accentuation and that varying recognitions are a fundamental element of any true issue.

Dell (1982) stated that value engineering is invariably implemented retrospectively in response to a projected cost overspend. He says that a review of the company case studies described in the last annual conferences of the Society of American Value Engineers (SAVE) revealed this to be the dominant interpretation in the USA. That it is implicitly taken for a grant that design solutions form part of a reality which exists out there and that the identification of optimal design solution is therefore directly dependent on exploring the solution space.

Value Analysis

Companies endeavor to give incentive or create value for their clients so as to amplify return on investments and assurance performance. This worth creates mind space for item and administrations. Value investigation is a logical technique used to expand esteem. Worth is recognition, thus every client will have their impression of how they characterize value. In any case, generally speaking at the largest level, worth is quality, performance, style, and structure with respect to the product cost. Expanding esteem fundamentally does not mean to diminish, taking all things together (comprehensive expense of creation), yet, giving something additional to which a premium can be charged. Value analysis is a methodology of the purposeful review that is associated with existing item structures with the true objective to consider the limit of the product required by a customer to meet the necessities at any rate cost arising with the predefined performance and reliable quality required. Value analysis depends on the use of a systematic work plan that might be categorized into six stages: introduction/arrangement, data, investigation, creativity/innovativeness, assessment and implementation and observation (Jarvis 2002). At the orientation stage, production of goods and services is a procedure or administration, while the data analysis stage recognizes and organizes the client of the product. The examination stage is the phase when elements of the item are dissected by the utilitarian investigation, which involve recognized capacities giv-

en by an item or part of it. The function has a basic (weight) and an expense.

These expenses are evaluated, and this prompts a rundown of capacities requested by their significance and worth. At the innovation stage, options are functions beginning from the examination of capacities and cost, just as a quest for it implies that permit end, change or improvement, and factions. The assessments stage entails an encounter of thoughts, an accumulation of data about the possibility and cost of those thoughts and measures the estimations of the best thought. The implementation and observation stage condenses and closes the work that has been done here alongside the particular proposition. Action plans for implementation is similarly portrayed. Value Analysis (VA) is viewed as a procedure, instead of a basic strategy, since it is both a sorted out way of improving the productivity of product applications and it utilizes many different techniques in order to achieve an organization's objective (Kirk 2002).

Aluko et al. (2011) stated that value analysis is a method for examining the value of a product or service regarding its cost, with the aim of providing the required function(s) at the lowest overall cost. Ideally, they state that value analysis otherwise known as value engineering seeks to provide the necessary function(s) during the design phase of a product, at the lowest cost without lowering quality. They observed the value of goods and services because of their utility, and consumers pay the purchase price because they satisfy their need. They further observed that consumers often do not analyze a product to determine precisely what needs it satisfies or what portion of the purchase price is paid for each of these.

Steps in Value Analysis

- i. Establish the targets (for example, cost decrease)
- ii. Consider a team for promoting, sale or deals, generation, acquiring, and so on
- iii. Analyses the manufacturing procedure of the supplier organization
- iv. Decompose different qualities of the purchased item
- v. Hold an imaginative meeting to generate new ideas of exploring every single elective plausibility

- vi. Sort the plans to set up the expense of each
- vii. Select the best option
- viii. Develop an arrangement for actualizing the chain

Benefits of Value Analysis

A portion of the critical importance of utilizing esteem examination was summarized by Jarvis (2002) into a high client direction, concentrating on those parts of the item/administration that best fulfill the clients' needs. Value examination similarly brings cost decrease by wiping out capacities that do not supply explicit preferences to fulfill clients' necessities. The new thoughts that emerged from the inventiveness/development stage may include radical changes. Additionally, esteem investigation makes another orderly attitude to be considered for the plans of a new product or to methodically improve the current ones. It is disposing of cost functions.

Value Management and Performance of Manufacturing Firms

Society of American Value Engineers (2008) defined value administration as being orderly, multi-disciplinary exertion coordinated towards dissecting the elements of undertakings to accomplish the best incentive at the most minimal lifecycle cost. The declaration is that some superfluous costs are inescapable in any creation procedure; esteem the board embarks upon to distinguish and dispose these pointless expenses, bringing about cost reserve funds. Value management ought not to be mistaken for cost control. Value administration centers on value about the function, while cost control centers on the cost of producing goods and services. Noor et al. (2015) said that in Malaysia, esteem the board had been perceived by the government as a vital arranging instrument and it has been drilled as far back as an appropriate system to convey the supportable task. The use of significant value administration during product advancement stage improved the performance of an organization. Yekinnit (2015) reported a theoretical cooperative energy between value administration and sustainable item and servic-

es structure that prompts the accomplishment of best value regarding the quality and cost of an item/administration. Hence, value management can be said to be a dependable instrument for improving the performance of an organization.

Quality Product

Quality in this setting means the goods and services that meet with the buyer needs at the least costs (Basics of complete quality control and all out quality administration) (Muhammed 2005).

Productivity

Productivity is characterized as yields divided by inputs sources (Barnes 1980). It has reliably been seen like this since the term was first indicated in the late 1800s. The output alludes to an item (and later services) made, while the impute sources consolidate basic resources used for this age, especially in the brief variables of creation, for instance, works, materials, and machines. Productivity explains the limit of all related development. As opposed to uninhibitedly and freely focusing on the data sources and yields, profitability represents an important philosophical move on how a working structure (checking a workstation, a mechanical generation framework, a system, and a plant) would be used for predictable performance. While dividing the output by the data sources, the suggestion shows how well the information sources (which can be depicted as the assets) are utilized with the actual objective to deliver the output.

These outcome help shape the examination from the enhancement point of view. Eenhancing the utilization of the resources demonstrate the effects on the outputs. It is vital to take note of that if the definition is held (that is, showing how much resources is required with the end goal of creating one output unit), the examination could be taken as a gander from the control perspective to control the utilization of resources amid the production.

At first, productivity estimation and investigation is concentrated on the individual dimension, particularly, at the gathering and production lines (Takala et al. 2006). The pressure to

expand the product volumes while bringing down and keeping up the creation cost helped underline the significance of efficiency and the linkage with business arrangement. Individualistic perspective (about specialty or expertise production uniqueness) should have been changed into what is referred to presently as large-scale manufacturing consistency. After the enhancement in restorative medicines in the mid-1800s, the total populace had expanded quickly. This increase resulted in higher demands for the necessary goods, fueling the growing thin the textile, tobacco, and ship building industries. Table 1 shows the common indicators for the manufacturing sector.

Current and Future Challenges

The exact problem among manufacturing firms today is how to ensure that organizations and stakeholders try not to dismiss the essential standards on which worth administration and performance are based. The globalization has a spot and household as well as universal organization around the globe which enable one to understand that their survival depends on a high-esteem creation. A few nations, for example, Korea and India, from the national level are trying to expand value mindfulness, through gatherings, course radio shows, and simple school settings and leaflets conveyances. Spain and Brazil are empowering the distribution of value books in their local dialects to make them increasingly open (these books have been converted into Spanish and Chinese).

These patterns will build the dimension of preparing and training for administrators and cutting-edge representatives alike and additionally, the improvement of technical staff. Consequently, a key test is to apportion the important resources to keep up attention on quality, especially in the midst of financial downturns as we have them all-inclusive today.

Theoretical Framework

Resource-Based View Theory

The RBV hypothesis is one of the basic standards of the upper hand of a firm. The RBV of the firm believes that a company's inside proce-

Table 1: Common indicators for the manufacturing sector

<i>Key productivity lever</i>		<i>Indicator</i>	<i>Formula</i>	<i>What it measures</i>
Increase sales	1	Delivery-on-time on schedule	No. of requests conveyed Absolute no. of requests conveyed	Efficiency in delivering orders
	2	Return Material Authorization (RMA) Turn Around Time (TAT)	Time is taken to deal with RMA demand (time taken from when RMA solicitation is gotten to when RMA is settled)	Productivity in taking care of and settling client demands, and the dimension of client services
	3	Innovation or thought transformation rate	No. of suggestions implemented Total no. of suggestions	The rate at which new thoughts are assessed and actualized effectively through progress initiative
Increase output per unit cost of production	4	Cost-to-sales ratio	Cost of goods sold Sales	Cost efficiency of producing goods relative to sales
	5	Defect rate	No. of defects Total no. of goods produced	The effectiveness of quality control and system
Optimize the use of labour	6	Capability or flexibility of the workforce	No. of roles or jobs per worker Total no. of roles or jobs	The ability of the workforce to multi-task, and flexibility of the organization to deploy its workforce
Optimize the use of labour	7	Employee variable pay-provision	The measure of performance related to rewards Deals	Encourages key basic leadership identified with variable pay levels
	8	Product yield per employee	No. of good output No. of employees	The effectiveness of the manufacturing procedure and the profitability of the worker
Optimize the use of capital	9	Production cycle time or throughput time	Time is taken to produce a product	Productivity and effectiveness of the assembling production procedure
	10	Overall equipment effectiveness	Availability x Performance x Quality	The adequacy of hardware in production an item

Source: Productivity Work website at www.enterpriseone.gov.sg

dures make an asset pack which can turn into the methods for making and sustaining competitive favorable position (Bates and Flynn 1995). The RBV writing thinks about a firm as an accumulation of heterogeneous assets, or variables of creation or as packs of assets, including all sources of information that enable a firm to work and execute its methodologies (Barney 1991). An organization gains an upper hand when it has basic assets (these can be physical assets, HR or hierarchical assets) that its rivals do not have. Developing and maintaining this upper hand depends on whether the production firms can complete value building and value investigation. In the context of the resource-based view, a firm

might lose its competitive advantage if value engineering and value analysis are not done. This support the hypothesis of the study that there is a positive relationship between value engineering and product quality and Function analysis has a significant positive effect on the efficiency of production firms in south-east Nigeria. This implies that value management helps to improve the value of products and services through value engineering and value analysis. Value engineering and value analysis help organizations to reduce the cost of production without compromising quality, this makes the consumer contented which eventually affects the overall performance of the organization.

Empirical Review

Ezezue (2015) carried out a study on Value Management in Nigerian Manufacturing Companies: Challenges and Prospects. The specific objectives were to determine the extent to which inadequate orientation and focus on value Management principle impeded the success of value Management in Nigerian manufacturing companies; to ascertain the extent to which value management eliminated waste or unnecessary costs in Nigerian manufacturing companies and to compare managers trained in value management with managers untrained in value management. The study adopted a survey design. Questionnaire and oral interview were the tools used for data collection. The population of the study included the top, middle and lower management staff of the twenty (20) manufacturing companies selected out of five (5) states in South-Eastern Nigeria. The total number of the management staff of those selected manufacturing companies was six thousand (6000). The sample size of the study was 375 which were determined using Taro Yamane formula. The study found out that inadequate orientation and focus in value management principles impeded the success of value management in Nigerian manufacturing companies. The study also discovered that with proper orientation, focus and training on the concept of value management, there could be better performance and productivity will be high, and that trained managers are better than untrained managers. The study concluded that value management is “a race without a finish”, hence, the survival of any manufacturing organization depends on “high value”.

Aini et al. (2009) researched on the Impact of Value Management Implementation in Malaysia. The goals of the examination were to research the present improvement of value management and its advantages to the Malaysia construction industry and to explore the present level worth management applications in the Malaysian development project. The examination embraced survey methodology. The number of the populace in the examination comprised of the customers and the enrolled specialists of the construction business in Malaysia with the sample size of 5581. Primary sources were utilized in data accumulation through the admin-

istering of a poll to the respondent. Information was analyzed utilizing the Chi-square test and Levene's test single direction ANOVA. The investigation discovered that a global advancement in significant value management influenced the Malaysian construction industry, as a greater part of the state funded colleges had guaranteed that worth management philosophy information had been incorporated into their prospectuses, therefore, the future development industry professional has had the vital learning given by value management system which ought to have prepared them for delivering a superior practically, and provide better value for cash construction business. It was additionally found that most of the respondents needed worth management as the instrument to lessen the expense. The examination inferred that there was an empowering result towards the fate of significant value management in the Malaysia development industry when over 80 percent of the respondents from different fragments of the business expressed that they were keen on coordinating the worth management application in their future activities.

Laurie (2007) carried out a study on Values Management Aligning Employee Values and Organization Goals. A research survey design was adopted. Data were collected through a primary, secondary and oral interview with the sample size of 52 employees. The study discovered that those strategic values roused employees to the degree that they mirrored workers' inward feeling, regularizing, and task-arranged qualities, and creating a zone of existing qualities. The examination concluded that value management is a social procedure that comes from regular interactions with formal administration frameworks which give opportunity to upgrade the social interaction that is inspiring to workers.

Nur et al. (2012) carried out a study on Worth Management: Private Sector's Perception in Malaysia. The examination embraced a qualitative research structure. The goal was to investigate the discernment towards the usage of value management among the private specialists in the business development in Malaysia during these value administration performances. The specific objective is to gauge the perception of private sector practitioners towards value management implementation and to identify the ac-

ceptance level of the construction consultants on value management implementation. Data were collected from primary sources which was achieved through semi-structured questionnaire and interview. Data were analyzed based on the response gotten from the questionnaire and interview in a percentage format.

The study found out that the perception of the private sector's consultants towards value management appeared skeptical and negative during its initial project activity. This is due to the lack of value management knowledge, and they do not have experiences with the value management workshops. That once they experienced the value management studies, the recognition towards worth management changes because of its advantages delivered by the value management process. The investigation concluded that the acknowledgment dimension of significant worth management among the private segment's advisor is in contrast with open division offices because of the absence of comprehension and information regarding significant value management.

Tam et al. (2013) critically examined whether value management can achieve VFM for clients without compromising the quality requirements in South Australia. The study adopted a survey research design. Data were collected from primary sources with a population of 82 respondents, while 23 questionnaires were returned. Data were analyzed using a questionnaire which was designed in 5-point Likert scale format. The study found out that the whole of life cost (WLC) of the construction project the primary key of success in achieving VFM and a single value management workshop alone may not have the capacity to achieve its purpose. The study concluded that value management study could expand the functional value of a structured venture; it ought not to be viewed as a contention arranged plan survey, cost decrease or standardization exercise. Ayodeji et al. (2015) carried out a study on the implementation of value administration as an economic sustainability instrument for building development in Nigeria. The study adopted a case study approach and a survey research design. The study revealed that value management had a significant task to carry out in conveying monetary sustainability in development, since both worth administration and

Sustainability (the financial measurement) have a shared objective, which is; accomplishing an incentive for cash.

Value management in giving financial sustainability in construction incorporates decrease of by and large expense, while keeping up capacity through recognizable proof and evacuation of pointless materials and process as well as utilization of unnecessary materials to save the cost of importation and transportation. The investigation inferred that value administration assumes a fundamental job in conveying a financially sustainable task and upgrade value for cash, thereby, giving a general fulfillment to the customer.

METHODOLOGY

The investigation used a quantitative research technique approach as it concentrated on numerical and experimental information to accomplish the examination ends. The examination assembled information using production firms' staff as respondents in the investigation. A self-controlled survey was utilized to assemble information from the respondent. The investigation was conducted in south-east Nigeria. The haphazardly examining strategy was utilized in this investigation in light of the fact that most production firms fall under the private division, subsequently making it difficult to build up an example casing to use possibility inspecting procedures. A sum of 509 surveys was utilized in the last example, which results in a successful reaction rate of 72 percent out of the 563 that was at first circulated. The surveys were conveyed just as the development duplicate was sent through mail station in 2017. The survey utilized in this investigation was obtained from materials received from existing literature and contained 5-point Likert scale sort of inquiries from "firmly concur" to "emphatically oppose this idea." The assembled information was dissected separately for illustrative and inferential measurements through adaptation 17 of the IBM SPSS programming bundles. The Pearson product moment relationship coefficient and straightforward direct relapse measurable tools were used to test the hypotheses to acquire the exploration end of the examination. Reliability and validity were likewise conducted.

RESULTS

Hypothesis One

Ho: There is no positive relationship between value engineering and product quality in manufacturing firms in south-east Nigeria

Hi: There is a positive relationship between value engineering and product quality in manufacturing firms in south-east Nigeria

Table 2: Descriptive statistics

	Mean	Std. deviation	N
Value engineering	1.3045	.66077	509
Product quality	2.1356	1.03068	509

Table 2 demonstrates the illustrative statistics of the value engineering or designing and item quality with a mean reaction of 1.3045 and Standard deviation of .66077 for value management and a mean reaction of 2.1356 and Standard deviation of 1.03068 for item quality and some respondents (509). Via cautious perception of standard deviation esteems, there isn't much distinction with respect to the standard deviation scores. This suggests that there is about a similar inconsistency of information which focuses on both the dependent and independent variables.

While the Table 3 shows the Pearson relationship coefficient for value designing and item quality. The relationship coefficient indicates 0.763. This value demonstrates that connection is critical at 0.05 dimension (2-tailed) and infers that there is a noteworthy positive connection between value engineering or designing and item quality ($r = .763$). The computed relationships

coefficient is more noteworthy than the table estimation of $r = .195$ with 507 degrees of opportunity ($df. = n-2$) at alpha dimension for a two-followed test ($r = .763, p < .05$). Furthermore, since the computed $r = .763$, is more prominent than the table estimation of .195, we dismiss the invalid speculation and assume that there is a significant positive connection between value engineering and product quality in the chosen production firms in south-east Nigeria ($r = 0.763, P < .05$).

Table 3: Correlations

		Value engineering	Product quality
Value Engineering	Pearson correlation	1	.763**
	Sig. (2-tailed)		.000
	N	509	509
Product Quality	Pearson correlation	.763**	1
	Sig. (2-tailed)	.000	
	N	509	509

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

Hypothesis Two

Ho: Function analysis has no significant positive effect on the productivity of manufacturing firms in south-east Nigeria

Hi: Function analysis has a significant positive effect on the productivity of manufacturing firms in south-east Nigeria

Interpretation

The regression aggregate of squares (393.399) in the Table 4 is more than the residual total of squares (286.094), which shows that a greater amount of the variety in the needy variable is

Table 4: ANOVA

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	393.399	1	393.399	697.162	.000 ^b
	Residual	286.094	507	.564		
	Total	679.493	508			

a. Dependent Variable: Productivity

b. Predictors: (Constant), Function analysis

clarified by the model in Table 5. The critical estimation of the F measurement (0.000) is under 0.05, which implies that the variety clarified by the model is not due to possibility.

However, in Table 6 where R, the correlation coefficient which has a value of 0.761, indicates that there is a positive relationship between functional analysis and productivity. R square, the coefficient of determination, shows that the model explains 57.9 percent of the variation in productivity with the linear regression model, the error of the estimate is low, with a value of about 0.75119. The Durbin Watson statistics of 0.117, which is not more than 2, indicates that there is no autocorrelation.

Function analysis coefficient in Table 6 of 0.761, indicates a positive significance between function analysis and productivity, which is statistically significant (with $t = 26.404$). Therefore, the null hypothesis should be rejected and the alternative hypothesis accordingly accepted. Thus, function analysis has a significant positive effect on the productivity of manufacturing firms in south-east Nigeria.

DISCUSSION

Hypothesis one was tested with the Pearson product moment correlation coefficient, to

ascertain the nature of the relationship between value engineering and product quality in the selected manufacturing firms in south-east Nigeria. However, the resulting review states that there is a significant positive relationship between value engineering and product quality in the selected manufacturing firms in south-east Nigeria ($r = 0.763$, $p < .05$). This work was in accordance with the examination completed by Athanassopoulos (2000), whereby, customer fulfillment is perceived as being profoundly connected with 'value,' and quality is based, thoughtfully, on the amalgamation of administration quality traits with so many properties as cost. Vale Engineering improved item configuration to improve benefit without giving up the value to be inferred by the clients. Anayo (2016) inferred that there is a huge effect of item plan on profit per share. That is, product configuration sway emphatically on gainfulness. Anayo (2016) also concluded that value engineering in building industry is an administration device of cost control that lessens cost and expands productivity without relinquishing the incentive to be inferred by the clients. Yoshikawa (1995) discovered that VE prompted cost decrease and benefit improvement. VE was coordinated with Quality Function Deployment (QFD) and Fail-

Table 5: Model Summary

<i>Model</i>	<i>R</i>	<i>R square</i>	<i>Adjusted R square</i>	<i>Std. the error of the estimate</i>	<i>Durbin-Watson</i>
1	.761 ^a	.579	.578	.75119	.117

a. Predictors: (Constant), Function analysis

b. Dependent Variable: Productivity

Table 6: Coefficients

<i>Model</i>		<i>Unstandardized coefficients</i>		<i>Standardized coefficients</i>	<i>t</i>	<i>Sig.</i>
		<i>B</i>	<i>Std. error</i>	<i>Beta</i>		
1	(Constant)	-.851	.103		-8.256	.000
	Function analysis	1.260	.048	.761	26.404	.000

a. Dependent Variable: Productivity

R = 0.761

R² = 0.579

F = 697.162

T = 26.404

DW = 0.117

ure Modes and Effects Analysis (FMEA) is organized and focused methodology towards accomplishing quality, cost and dependability sending targets (Chin et al. 2006). VE upgraded item structure, quality and the capacity of the improvement group to deal with any contentions that emerge from meeting clients' needs and any inborn fluffiness in the framework. Khaled et al. (2015) expressed that VE is a system used to break down the capacity of the goods and services to get the required elements of the client at the most minimal absolute expense without decrease in the important quality or performance, that is, consumer loyalty. VE executed is concerned about functional improvement, time decrease, and improving performance through minor utilization of vitality, just as, cost decrease. The utilization of VE standards urges individuals to work better as a group, looking dependably to improve their arrangement of production and services.

Again, hypothesis two was tested with simple linear regression, to determine the effect of function analysis on productivity in the selected manufacturing firms in South East, Nigeria. However, that result shows function analysis has a significant positive effect on the productivity of manufacturing firms in south-east Nigeria ($r = 0.761$; $F = 697.162$; $t = 26.404$ $p < 0.5$). This result was in line with that of Celik (2010) stating that value management team to contribute equally in value management workshops and connect through addressing the problem objectively, without bias or fixed conclusions by improving productivity. Morgan (2006) clearly stated that when an organization adopts values analysis to determine procedure and item cost, value and worth, capacity to gauge, spending plan and dealing with future dangers will improve fundamentally. In summary, word value management/analysis by its exceptional nature is a concentrated, interdisciplinary critical thinking exercises that emphasizes on improving the idea of the capacities that are required to achieve the objectives or targets of any product, procedure, services or organization. Value analysis help organizations to recognize elements of the item or services, build up the value of those capacities; and give just the essential capacities to meet the required performance at lower expense, eliminate, or minimize wasted material, time, and prod-

uct cost, all these are geared towards improving value to the customer (James 2012).

CONCLUSION

The key commitment by the value management procedure is to dispose the pointless cost which does not add to the estimation of the services, items, frameworks and that incorporates the manufactured item. The value management method supports the improvement of a value culture inside the firms which facilitates the method of achieving desirable change. This study investigates the effect of value management on the performance of selected manufacturing firms in South-East, Nigeria. Overall, this study established the positive and significant consequences of value management on the performance of selected manufacturing firms. The findings have further implications for value engineering and value analyses in ensuring good performance. The manufacturing firm's case for value management suggests that the government and all stakeholders' decisions could consider and stimulate the adoption and implementation of value engineering and value analyses that affect performance. For the manufacturing firms, it was concluded that the findings have positive implications for manufacturing firm and all stakeholders, which have long desired and strived for the organizational outcome and the nation's economic growth. There was a significant positive relationship between value engineering and product quality, and function analysis had a noteworthy positive effect on the efficiency of production firms in South-East, Nigeria. For the government to enhance sustainability and economic growth, the role played by manufacturing firms is a worthwhile consideration.

RECOMMENDATIONS

Thus, this study recommends that the government can achieve greater investment-friendly business environment if they can implement policies and strategies that encourage value creation and that mandates all manufacturing firms to implement value management that promotes economic growth as stipulated by law. However, the manufacturing firms should critically carry out value engineering during product devel-

opment in order to boost product quality that will increase the company's wealth and function analysis method should be adopted by manufacturing firms and government, because it allows multi-disciplinary members of the value management team to contribute in addressing problems that will hinder the productivity of an organization.

LIMITATIONS AND FURTHER STUDIES

This study acknowledges some limitations that call for urgent attention. First, some of the respondents showed a negative attitude towards the study because there is no financial benefit attached, while some refused to supply the necessary information probably due to their ignorance of the primary purpose of this study. The conclusions deserve further consideration in a larger population, states, and more extensive industrial situation. If the population size were large enough, and covered the entire 36 states in Nigeria, we would be obliged to propel the extended measurable procedures in order to propel the legitimacy and unwavering quality of the outcomes and increment in the precision of expectation. Second, a potential restriction and future research are to inspect the various impacts of various value management variables on execution and sustainability. The investigation was drawn nearer fundamentally through non-probability inspection. All factors being put into consideration; the representativeness of the example might be undermined. Along these lines, the outcomes should be repeated in different zones to substantiate the finding in this examination. Additionally, the example used in this examination was from five states in south-east Nigeria out of the thirty-six states, and the capital city, Abuja, implying that the outcomes cannot be used as a yardstick to evaluate the remaining states in Nigeria. Thus, future examinations in different parts of the nation should be done with a more extensive range; it should be led as they set an exploration hole. Primarily, future research studies should be conducted in the more extensive African setting to confirm the outcome hypothesized in this investigation.

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