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## Kaizen Costing System and Product Cost Reduction: Evidence from Selected Manufacturing Companies in Osun State, Nigeria

**Adekunle, Samuel Kayode**

Ph.D. Student, Department of Accounting and Finance, Kwara State University, Nigeria

**Jimoh Lukuman Adewale**

Ph.D. Student, Department of Accounting and Finance, Kwara State University, Nigeria

**Oke, Adesoji Aderemi**

Ph.D. Student, Department of Accounting and Finance, Kwara State University, Nigeria

**Agbogun, Sarafa Adewumi**

Ph.D. Student, Department of Management and Accounting, Obafemi Awolowo University, Nigeria

### **Abstract:**

*The hub of survival of any manufacturing company depends on how best it could manage its cost of Production without negative effects on production quality. To achieve this, the management needs strategies that will improve performance in terms of quality, cost and service delivery. Such strategy should entail the process of redesigning measures aimed at cost reduction with resulting effect on the market price of the product. One of such strategies is Kiazen which has to do with activities that continually improve all business functions and processes at a reduced cost and without compromising the expected standards. The study therefore examines the effect of implementation of Kiazen Costing System on production cost reduction in manufacturing Companies. It also examines the effect of Accountants skills in relation to implementation of Kiazen Costing System and product cost reduction. The study adopted primary data with a sample of 85 respondents comprising accountants across selected Manufacturing Companies in Osun State, South-West, Nigeria. Two hypotheses were formulated and tested in the study. In addition, descriptive statistics, kolmogorov-smirrov, Shapiro-wilk and chi-square were used in analyzing the primary data. The result of the data analysis showed that the implementation of Kaizen Costing system has significance effect on product cost reduction in manufacturing companies. The study further revealed that qualifications of an accountant (whether B.Sc., M.Sc. or PhD) have no significant effect on the use of Kaizen Costing system. The Study recommends that manufacturing firms in Nigeria should adopt and implement Kaizen Costing system as it reduces the cost of production without as well as enhancing profitability.*

**Keywords:** Kaizen costing system, product cost management

### **1. Introduction**

Globally, manufacturing industries are face stiff with competition resulting in uncertainties and associated risks in the business operating environment. They are faced with the conflicting pressure to improve customer satisfaction and service as well as pressures of cost reduction, reducing lead time, and quality improvement in order to get better result (Kavitha, 2015). In this kind of situation kaizen has been adjudged to be best strategy to suppress such pressure. According to Nasieku Oluyika and Ogunlade, (2016) the most common cost management techniques in manufacturing companies are just-in-time, Activity Based Costing, Target Costing, Budgetary Control, Costing volume Profit analysis, Life cycle costing, thorough-put Accounting and Kaizen strategy.

Any manufacturing company that wants to be successful in the market needs to implement innovation and some modern strategies which support growth, competitiveness and maximum market value and must be able to predict changes and react to them on time while they were still manageable (Helena, Erika & Miroslava, 2016). This involves managing of production cost which according to Pius, Francis and Olamide, (2013) is the focal point of any manager. Pius et al stated further that increased competition in the modern business environment among companies; coupled with a turbulent market system allowing for free entry and exit of market participants, the choice of a product by a customer is highly dependent on the consumers' perceived value of the product and availability of substitutes. So, manufacturing companies need process to redesign measures aimed at cost reduction. One of the major strategies to achieve this is Kiazen costing system. Kaizen is a strategy that can face challenges of the new millennium.

The broad objective of the study is to determine whether the implementation of Kaizen Costing System would bring about cost reduction in manufacturing companies. The study was guided by the following specific objectives:

- To examine the effects of Accountant's skills on the implementation of Kiazen Costing System
- To establish the effect of Kiazen Costing System on cost reduction of manufacturing companies

The following two hypotheses formulated and tested:

- Ho<sub>1</sub> Accountant's Skills have no significant effect on implementation of Kaizen Costing System.
- Ho<sub>2</sub> Implementation of Kaizen Costing System has no significant effect on cost reduction in Manufacturing Companies.

## 2. Literature Review

### 2.1. Concept of Kaizen Costing System

Kaizen has to do with activities that continually improve all business functions and processes and it involves employees at all levels production processes. Kaizen, According to Rof (2012) is a term with Japanese Origin was launched by Masaaki Imai. Kaizen is known to be a strategy of continuous improvement based on the demands and needs of the present and potential customers. Continuous improvement involves continual and persistent examination of existing processes as against Business process re-engineering (BPR) that radically makes one-off changes to improve operational and processes of an organization (Sani and Alahverdizadeh, 2012). The concept Kaizen is a coinage of two Japanese words: KAL (CHANGE) and ZEN (for better), which according to Rof, (2012) refers to the process of continuous improvement.

Amireza (2014) describes Kaizen as a useful approach and technique that assists in increase in production as well as gaining competitive advantage and also enhances organization performances in a tight competitive market through reduction in manufacturing or production cost. According to Juliana (2015) organizations are compelled by continuous pressure to bring down to the barest minimum the cost of their products and services; this, Juliana (2015) said could be achieved through inexorable monitoring of the improvement of product quality without a time limit and fully funded by the organization's resources which Kaizen stands for. Fariba and Ziba (2013) describe Kaizen as a strategy that brings about improvement based on the needs and demands of the customers and that the concept of kaizen believes that employees of an organization should uninterruptedly think over improving and maintaining improvement achievements of the organization. In the opinion of Adeniji (2011), Kaizen costing is a process of continuous improvement that encourages constant reductions through tightening the standard. Adeniji (2011) emphasized the need to set cost reduction objective for each process and then adopt value engineering and value analysis to realize the set objective. The principle behind Kaizen Costing application is on achieving small, gradual but continuous improvements in the production process at minimal cost (Rof 2012). A very vital part of kaizen is the continual aspect of its improvement which is not one time off, but one that must be constantly encouraged and maintained for years to come. It is to a very large extent self-motivated as it is propelled by individual execution and input and must be supported by all echelon of management from the Bottom-Up and Top-Down (Laukik, 2015). According to Kaplan and Anthony (2001), Kaizen costing is based on the belief that nothing is ever perfect, so improvement and reductions in the variable costs are always possible. Like its big brother Total Quality Management (TQM), it becomes part of the culture, involving all members of the organization. Everyone is encouraged to offer ideas that, however small could lead to a reduction in variable costs, which could in turn lead to a reduction in the selling price and hopefully, a growth in sales. Alternatively, the price could be maintained and the resulting increase in profits could be used to reward the shareholders or be reinvested in other projects. It is to cut waste through continuous improvement. This is achieved by identifying the best resources and most efficient processes to remove waste from production (Kaplan et al, 2001)

Ellram (2000) observed that Kaizen Costing ensures that products meets or exceeds customer demands for quality, functionality, and prices' in order to sustain the product's competitiveness. This can be achieved through a sequential elimination of all the processes that would increase the product's cost of production without a corresponding increase in value. Nasieku et al, (2016) stated further that Kaizen has been particularly distinguished as the best method of performance improvement within companies since implementation cost were minimal. The Kaizen costing activity involves that the planning team, which after establishing and implementing the product and process design, must focus on the operational character of the process and on its development in the most efficient manner. One of the approaches of achieving the progress is gradual improvement or Kaizen costing system also called innovation. Amireza (2014) stated that Kaizen is a process oriented way of thinking that support and encourages the efforts of process oriented people for small but continuous improvement; a system that involves all employees, from top to the bottom.

Continuous improvement of Kaizen is strategy normally adopted by a company where teams of employees at various levels through cross-functional effort with collective talent within the company work together proactively on improving specific area (Imai, 1986). Kaizen, if implemented correctly, can encourage employees to think differently about their work and boost their morale as well as their sense of responsibilities.

Imai, (1986) also in his research stated that to implement Kaizen, companies will adopt the Plan-Do-Check-Action (PDCA) cycle to solve both unit-functional and cross-functional problems in their activities. PDCA has been described as a four-stage approach for continually improving processes, products or services and for resolving problems. This according to Nawras (2017) consists of four components; 1. Problem identification, data collections and development of hypothesis (Plan); 2. Development and implementation of a solution (Do); 3. Result confirmation through before-and-after data comparison (Check); and 4. Result documentation; to inform others about the process changes and making recommendations for future PDCA cycle (Act). The fourth stage is to review all the achievements and see if the action can be taken to standardize the Kaizen activities to similar process within the company. According to Budugan and Georgescu, (2009) cited in Pius et.al, (2013), Kaizen costing method enhances improvement in the process of production through; optimizing of the launch system in fabrication, setting the machines; increase of the performances of the machines; staff formation and motivation; and encouragement of staff charged with the identification of the cost reduction possibilities.

Pius et.al (2013) opined that in order to achieve the continuous cost reduction, the concerned organization must have a budgeting system that must capture the entire organization processes which will involve adequate management. This according to them must focus on; control of all the facets of the lifecycle of a product or service; making sure that the product will be profitable throughout the entire duration of their lifecycle; establishing all elements of the supply chain within the organization through a transversal approach.

To implement the Kaizen, employees can use various techniques to develop a clearer understanding of the area of waste, such as the five whys technique or Value Stream Mapping (VSM) technique. In the five Whys technique, the employees will be asking "why" five times and answering to each of the five "why". The aims of these five whys are to uncover the root cause of a set of problems. The Value Stream Mapping is used to quickly identify opportunities to eliminate waste in the target (Anthony, Agnes & Juma. 2015). The basic principle guiding the implementation of a Kaizen Costing System is on achieving overall cost reductions during the product's manufacturing process, through the integrated effort of all departments and persons directly involved in the production process. When compared with standard costing, the Kaizen cost analysis examines the difference between the target Kaizen costs and the actual cost reduction achieved' (Rof, 2012).

## 2.2. Product Cost Management

Product cost management can be described as a set of process, methods, culture and tools used by firms who develop and manufacture products in such a way to suit its targeted profit. John (2011) in his research on the key principles of effective product cost management enumerates some of the core activities involved in product cost management as follows:

- Studying the cost tradeoffs of different concept in the research and design stage
- Evaluating multiple design alternatives for lowest cost during NPI
- Evaluating the cost of proposed solutions to an engineering change order
- Evaluating multiple manufacturing and tooling alternatives for lowest cost, including make or buy analysis
- Generating a detail "Should cost" to evaluate suppliers quotes and ensure lowest pricing
- Batch analyzing current prices of entire commodity groups to find over-cost outliers
- Valuating multiple cost-down ideas on current products in real-time to identify the highest potential reduction in the shortest amount of time.

The research carried out by Katarina and Katarina 2011, the ascertained that the following kaizen activities resulted in cost reduction; Direct Cost(Direct cost reduction per employee and Direct Cost reduction per materials); Indirect cost(Cost reduction per maintenance, cost reduction per repairs and cost reduction per energy. Figure 1 illustrates Kiazen activities leading to cost reduction.

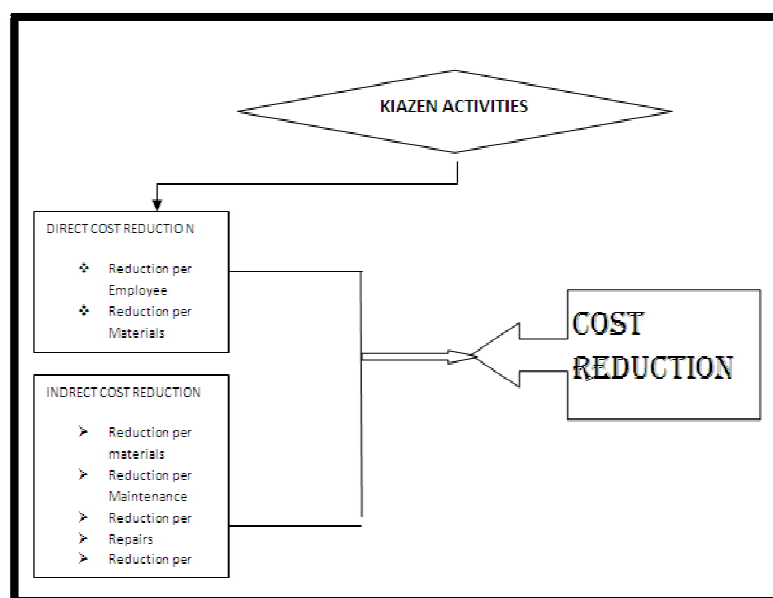


Figure 1- Model for Cost Reduction of a Typical Manufacturing Company  
Source: Author, 2019

## 2.3. Empirical Studies

Agnes and Juma (2015) in their research work on the effect of kaizen on managing cost level in the pharmaceutical industry in Kenya affirmed by 82.3% that Kiazen (Continuous improvement) had a statistically significant association with the cost level management. The study recommends that pharmaceutical companies in Kenya should fully adopt lean manufacturing in order to manage its cost level.

Also, Olabisi, Sokefun and Oginni, (2012) in their study titled Kiazen cost management technique and profitability of small and medium scale enterprises in Ogun State examines the relationship that exists between kaizen cost management techniques and profitability. The study which adopted primary data using a structured questionnaire and

analyze its data using statistical package for social sciences (SPSS) found out that there is a significant relationship between Kiazen cost management technique and profitability of small and medium scale enterprises.

Pius, Francis, and Olamide (2013) in their empirical paper examine product cost management strategies by adopting the Kiazen costing system. The study formulated and tested three hypotheses using descriptive statistics, Mann-Whitney U, Kolmogorov-Smirnoff and Multivariate Analysis of Variance in analyzing primary data. The result of the study showed that implementing Kiazen Costing System provides managers with strategies to reducing material procurement and usage cost and also reduce labour utilization cost. The study also identified a link between cost reduction strategies at the minimal batch production phase and the maximum batch production base. The study recommends that Nigeria Manufacturing firms should adopt and implement Kiazen costing system.

#### 2.4. Theoretical Frame Work

Research in management accounting has a long tradition with variety of theories being utilized and applied in the process (Scapens & Bromwich, 2010). Kaizen is considered the most important Japanese management system which is based on continuous improvements; the improvement is linked to various aspect involving the people, environment and means to carry out the tasks. In this sense, the study will adopt the concept of contingency theory in the application of KAIZEN Costing System.

#### 2.5. Contingency Theory

Contingency theory came into being as a result of the findings of leadership behavior conducted by researchers from Ohio State University in 1950. According to Nohria and Khurana, (2010) cited in Magaju, Lawan and Naziru 2018, contingency theory has sought to formulate broad generalizations about the formal structures that are typically associated with or best fit the use of different technologies. Bastina and Andreas, (2012) sees that contingency theory as an approach to the study of organizational behavior that ensures explanations are giving as to how contingent factors such as external environment, culture and technology, influence the function and design of organizations. The essence of contingency theory is that best practices depend on the contingencies of the situation. Contingency theory is often called the "it all depends" theory because when you ask contingency theorists for an answer, the typical response is that all depends (Nasieku & Oluyinka, 2016). Nasieku et al 2016 stressed that a contingency as used in contingency theory is similar to its use in direct practice and that it is a relationship between two phenomena which if one exists, a conclusion can be drawn about another.

This study adopts contingency theory in the sense that Kiazen is regarded as an important tool for product management. Product cost management require necessary strategies that will influence the profit of manufacturing companies through cost reduction where we can observe interaction with theory contingent, since these processes will be affected by interference from particular facts (factors) such as environment, technology, size and structure of an organization

### 3. Research Methodology

The study employs the descriptive statistics; primary data were obtained through the use of structural questionnaire using four point like scale with the following options : strongly agree(SA) agree (A) disagree (D) , strongly disagree(SD) with associated weights of 4,3,2,and 1 respectively .

85 questionnaires were distributed but only 70 were duly completed and returned. The 70 respondents are accountants categorized by their qualifications. They were selected from different manufacturing companies across the Osun state.

The following statistical methods were employed in the presentation and analysis of data: Frequency table to analyze the demographic characteristics of the respondent, descriptive statistics and test of normality which include Kolmogoror-Smirnoff and ordinary least square regression were employed to target the second hypothesis. SPSS revision 23 was used to analyze the data.

#### 3.1. Model Specification

To determine whether the implementation of Kiazen costing system would bring about cost reduction in manufacturing companies in Osun State, the following model was formulated:

$$\text{CREDUCT} = B_0 + B_1 \text{KSYSTEM} + U_t$$

Where CREDUCT = cost reduction

KSYSTEM = Kaizen costing system

$B_0$  = intercept

$B_i$  = co efficient of kaizen costing system

$U_t$  = error term

Variables	Frequency	Percentage
<b>1. Gender</b>		
Male	58	82.9%
Female	12	17.1%
N	70	100.00%
<b>2. Age</b>		
25-34 years	25	35.7%
35-44 years	21	30.0%
45-54 years	15	21.4%
55 years- above	19	12.9%
N	70	100.0%
<b>3. MARITAL STATUS</b>		
Single	26	37.1%
Married	42	60.0%
Divorced/widowed	2	2.9%
N	70	100.0%
<b>4. Education Qualifications</b>		
BSC/HND	46	65.7%
MBA/MSc	15	21.4%
PHD	9	12.9%
N	70	100.0%
<b>5. LENGTH OF EXPERIENCE</b>		
1-5 Years	6	8.6%
6-10 years	15	21.4%
11-20 years	34	48.6%
20 years above	15	21.4%
N	70	100.0%

Table 1: Demographic Analysis of Respondents  
Source: Field Survey, 2019

As shown in table 1 above 70 accountants (respondents) consists of 58 males and 12 females were used in this study, the respondents were in the age range of 25 years old to more than 55 years old. 35.7% were in the age category of 25-34 years, 30% in the age category of 35-44 years, 21.4% falls within 45-54 years while 12.9% are 55 years and above. Education qualification was used to measure the skill of the accountants in this study. 65.7% possessed B.SC/HND, 21.4% obtained MBA/MSc and 12.9% had PHD. Qualification other demographic statistics are found in table 1 above

#### 4. Analysis and Presentation of Data

Descriptive Statistics				
Respondents	Mean		Statistic	Std. Error
	95% Confidence Interval for Mean		Lower Bound	1.30
		Upper Bound	1.64	
5% Trimmed Mean			1.41	
Median			1.00	
Variance			.514	
Std. Deviation			.717	
Minimum			1	
Maximum			3	
Range			2	
Interquartile Range			1	
Skewness			1.197	.287
Kurtosis			.015	.566

Table 2

In table 2 above, the respondents are the accountants who are categorized into 3 BSC/HND, MBA/MSc and PHD holders using 2 and 3 respectively to represent their descriptive statistics above shows the mean of 1.47 this means MBA/MSc holder responses hold on the average.

From the output displayed the kurtosis is 0.015 and its standard error is 0.566. If the kurtosis value is divided by the standard error value, and the result is greater than  $\pm 1.96$ , it means the variable has violated the assumption of normality. This Kurtosis test gives the values of 0.03. This means the data used is normal.

Tests of Normality						
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Respondents	.402	70	.000	.659	70	.000

Table 3

a. Lilliefors Significance Correction

From the output displayed in the table 3 under test of normality, the Kolmogorov –Smirnov test shows that the sample data is normally distributed since it has a significant value of (0.000) which is less than 0.05. Shapiro-Wilk test also confirmed that the data is normally distributed because its p – value is  $0.00 < 0.05$

To test the 2 hypothesis, both chi-square statistics and linear regression method were used.

Ho<sub>1</sub>: Accountant skill (Qualifications) has no significant effect on kaizen costing system.

Do Accountant Skillshave Significant Effect on Kaizen Costing System?							
		Respondents				Total	
		Bsc/HND	Msc/MBA	PHD			
Do Accountant skillshave significant effect on kaizen costing system?	SD	Count	2	0	0	2	
		Expected Count	1.3	.4	.3	2.0	
	D	Count	1	2	0	3	
		Expected Count	2.0	.6	.4	3.0	
	A	Count	20	5	4	29	
		Expected Count	19.1	6.2	3.7	29.0	
	SA	Count	23	8	5	36	
		Expected Count	23.7	7.7	4.6	36.0	
	Total		Count	46	15	9	70
			Expected Count	46.0	15.0	9.0	70.0

Table 4: Contingency Table of Chi-Square

Table 4 shows the contingency table derived from the 70 respondents on the field. This share the count (observed value) and the expected count (expected value). When the data is further processed by the SPSS it gives the person chi-square value of 5.135 and p-value 0.527 as shown in table 5

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.135 <sup>a</sup>	6	.527
Likelihood Ratio	5.239	6	.513
Linear-by-Linear Association	.302	1	.583
N of Valid Cases	70		

Table 5

a. 8 Cells (66.7%) Have Expected Count Less Than 5; The Minimum Expected Count Is .26.

Since the p-value  $> 0.05$  it means the null hypothesis is accepted. This means accountant qualification (whether BSC/HND, MBA/MSC, PhD) has no significant effect on the use of kaizen costing system.

Ho<sub>2</sub>: kaizen costing system has no significant effect on cost reduction in manufacturing companies.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.177	1	3.177	21.192	.000 <sup>b</sup>
	Residual	10.194	68	0.15		
	Total	13.371	69			

Table 6: Analysis of Variance (ANOVA)

a. Dependent Variable: CREDUCT

b. Predictors: (Constant), KSYSTEM

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.228	0.228		1.000	0.321
	KSYSTEM	0.301	0.065	0.487	4.603	.000

Table 7: Regression Result

a. Dependent Variable: CREDUCT

The result of the regression analysis showed in table 6 and 7 above focus; on the second hypothesis Ho<sub>2</sub> which targets the main objective.

In table 6, the F-statistics is 21.192 and the p-value is 0.000<0.05. This makes the study statistically significant.

In table 7, the regression result can be summarized as:

$$\text{CREDUCT} = 0.228 + 0.301\text{KSYSTEM}$$

This means kaizen costing system contributed about 30% to any positive change in cost reduction. The t – statistics value is 4.603 and the p-value of KSYSTEM is 0.000<0.05. This has statistically significant effect on cost reduction in manufacturing companies. Chi square 5.135

## 5. Discussion and Findings

The following findings emanated from the literature and empirical data analysis:

The respondent perceived that qualifications of an accountant (Whether B.Sc., M.Sc. or PhD) have no significant effect on the use of Kiazen costing System (see question with chi square 5.135 and p-value 0.527>0.005).

The main objective of the study was addressed by the second hypothesis H02. The regression result (t-statistics pf 4.603 and p-value of KSYSTEM 0.000<0.05) and analysis of the variance-(f-statistics of 21.192 and p-value 0.000<0.05) revealed that the use of Kiazen costing system has significant effects on cost reduction in manufacturing companies. This shows that implementation of kaizen changes the existing process and removes unnecessary activities and try to reduce of production without any negative effect on the quality of goods produced. Manufacturing companies in Osun State need to adopt this method as major approach to cost maintenance and reduction. This was supported by Olabisi, Sokenfun, and Oginni, (2012).

## 6. Conclusion and Recommendation

There is no doubt that organizations; manufacturing companies inclusive operate and compete in highly turbulent environment which necessitates managers to constantly seek for cost reduction system to implement as a way out. The principle of the implementation of costing system is on achieving overall cost reduction during the production process through integrated effort of all departments and personnel directly involved in production process Pius et.al (2013). The challenge therefore is being able to manufacture product or provide services within an acceptable cost framework. The Management should focus on managing the cost of production, as without affecting the overall objectives of an organization

In as much as customers demand continuously high quality and better performance of product or services and at reasonably low price, organizations are encouraged to adopt and implement Kiazen Costing System to complement other costing techniques in order to strengthen their cost reduction possibilities. From empirical of this study, manufacturing companies most especially in Osun state are admonished to adopt and use kiazen costing system which has tendency for cost reduction in every production stage. This study has found out that the best strategy and costing system to achieve cost reduction without compromising quality and standards is Kaizen. Therefore, Manufacturing Companies in Osun State are encouraged to adopt and implement Kiazen Costing System for survival, profitability and competitive advantage in the industry.

## 7. References

- i. Adeniji, A.A., (2011). Cost Accounting: A Managerial Approach. EL-TODA Ventures Ltd. 5<sup>th</sup> ed. Agnes, W.N., & Juma, B., (2015). Effect of Kiazen on Managing Cost Levels in the Pharmaceutical Industry in Kenya. International Journal of Academic Research in Business and Social Sciences, 5(9), 145-153.
- ii. Amireza, R., (2014). Kiazen and Kiazen Costing. Academic Journal of Research in Business & Accounting, 2(8), 43-52.

- iii. Anthony, M.O, Agnes, W. N., & Juma D., (2015). Effect of Kiazen on Managing Cost Levels in the Pharmaceutical Industry in Kenya. *International Journal of Academic Research in Business and Social Sciences*, 5(9), 145-154.
- iv. Bastian, H., & Andreas, W., (2012) A BibliometricView on the use of Contingency Theory in Project Management research. *Project Management Journal*, 43(3), 4-23.
- v. Budugan, D., & Georgescu, I. (2009). Cost reduction by using budgeting via the Kaizen method. *Analestintifice ale Universitatii "Alexandru Ioan Cuza" din Iasi-Stinte Economice*, 56, 3-9.
- vi. Ellram, L. M. (2000). Purchasing and Supply chain management's participation in the target costing process. *Journal of supply chain management*, 36, 39-51.
- vii. Fariba, R. & Ziba, R. (2013). Impact of Kaizen implementation on performance of manufacturing companies' staff. *European online Journal of Natural and Social Science*, 2(3), 1094-1103
- viii. Helena, C., Erika, S., & Miroslava, T., (2016). Application of the Kiazen philosophy – a road to a learner business. Retrieved from <http://dx.org/10.15414/isd/2016.s4.01>
- ix. Imai, M. (1986). *Kiazen: The key to Japan's competitive success*. New York: McGraw-Hill.
- x. John, B. (2011). Key principles of effective product cost management. Retrieved from <https://www.manufacturing.net/article/2011/10/key-principles-effective-product-cost-management>.
- x. Juliana, G., (2015). Cost reduction by using budgeting via kiazen method. Retrieved from <https://www.researchgate.net/publication/46532752>
- xi. Kavitha, J (2015). Kiazen Costing – A Management Technique. *International Journal of Business and Management Invention*, 4(9)01-05.
- xii. Katarina, T., & Katarina, C., (2011). Kiazen and its applying during cost decreasing in process of production firm maintenance. *International Journal of Engineering*, 9(3), 315-318.
- xiii. Laukik, P, (2015). Kiazen and its implications. A Japanese Terminology to referred to continuous improvement. *International Journal for Science, Research and Development*, 3(2), 1772-1775.
- xiv. Magaji A., Lawan, Y., & Nasiru S., (2018). Explored and critique of contingency theory for management accounting Research. *Journal of Accounting and Financial Management*, 4(5), 40-40.
- xv. Nasieku T & Oluyinka I. O. (2016), Cost Accounting Techniques Adopted by Manufacturing and Service Industry within the last Decades. *International Journal of Advances in Management and Economics*, 5(1), 48-61.
- xvi. Nawras, S. (2017). Using the PDCA Cycle to support continuous improvement (Kiazen). Retrieved from <https://theleanway-net/the-continous-improvement-cycle.pdca>.
- xvii. Olabisi, J., Sokefun, A.O., & Oginni, B.O., (2012). Kiazen Cost Management Technique and Profitability of small and Medium Scale Enterprises (SMEs) in Ogun State, Nigeria. *Research Journal of Finance and Accounting*, 3(5), 103-111.
- xviii. Pius, V.C.O, Francis, C.E & Olamide M. M., (2013). Production Cost Management via the Kiazen Costing System: Perception of Accountants. *Journal of Management and Sustainability*, 3(4), 114-125.
- xix. Rof, M.L. (2012). Kiazen Costing Method and its Role in the Management of an entity. *Revister Tinerilor Economist (The Young Economists Journal)*, 104-109.
- xx. Sani, A.A. Allahverdizadeth, M. (2012). Target and Kiazen Costing. Retrieved from <http://www.waset.ac.nz/journals/waset/v62/v62-10pdf>.
- xxi. Scapens and Bromwich (2010). *Management Research 20 years on*. Retrieved from [www.elsevier.com/locate.mar](http://www.elsevier.com/locate.mar).