



Materials Management and its Effect on the Performance of Manufacturing Sector: Evidence from Nigerian Cement Industry

F. Oyebamiji, Florence^{1*}

¹*Department of Purchasing and Supply, The Polytechnic, Ibadan, Nigeria.*

Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

Article Information

DOI: 10.9734/SAJSSE/2018/v1i425808

Editor(s):

(1) Philippos I. Karipidis, Professor, Department of Agricultural Technology –Agricultural Economics (former Agricultural Development and Agribusiness Management), Alexander Technological Educational Institute of Thessaloniki, Greece.

Reviewers:

- (1) Akyene Tetteh, University of Mines and Technology, Ghana.
 - (2) Lawrence Okoye, University of Maiduguri, Nigeria.
 - (3) James A. Adeniran, Babcock University, Nigeria.
 - (4) Elżbieta Szczepankiewicz, Poznan University of Economics and Business, Poland.
- Complete Peer review History: <http://prh.sdiarticle3.com/review-history/25794>

Original Research Article

Received 19th June 2018
Accepted 1st August 2018
Published 6th August 2018

ABSTRACT

The study examined the effect of materials management on the performance of manufacturing industry with particular reference to the selected cement industry. Purposive sampling technique was employed to select Dangote Cement Plc, Ashaka Cem Plc and Lafarge Africa Plc, while judgmental technique was used to select ten (10) staff members from purchasing/store/ logistic department of the selected cement industry respectively, totalling thirty (30) respondents as a sample size for the study. The data collection instrument for the study was a structured questionnaire and a personal interview. Data analysis was conducted with the aid of multiple regression analysis. Result revealed that materials management dimensions jointly contribute significantly to firm performance. The study further revealed that materials inventory, materials procurement and inter-departmental collaboration have an insignificant effect on firm performance, while only materials storage has a significant impact on firm performance. The study concluded that effective materials management is a veritable tool to organization performance. Subsequently, the study recommended that management should embrace effective materials management especially in the area of materials inventory, materials procurement and inter-departmental collaboration, in order for the industry to achieve its vision of being a global leader in cement production and the largest employers of labour in the world by 2030.

*Corresponding author: Email: opaleyflorencefunmilola35@gmail.com

Keywords: Materials management; inventory; storage; procurement; inter-departmental collaboration.

1. INTRODUCTION

The manufacturing sector is recognised and acknowledged by economists and professionals as an engine room of economic growth and sustainable development globally, Nigeria inclusive. The manufacturing sector is the major determinant of the level of industrialization and the real growth of any economy. It plays a vital role in providing intermediate inputs, finished goods, increasing foreign exchange earnings, positive spillover effects and employment opportunities [1,2]. Equally, [3] reiterated that manufacturing sector serves as a catalyst for ensuring the transformation of an economy from one that is purely agrarian to an economy that fully harnesses its factor endowment and relies less on the supply of raw materials and finished goods from external sources. [4] also advanced further than the manufacturing output is the major driver of economic growth in most developing countries.

In spite of industrial policies and programmes put in place by the successive governments to boost the performance of the manufacturing industry in Nigeria, the sector is still witnessing slow growth. Studies affirm that the sector has been bedevilled by playing a leading role in an economy, by providing jobs opportunities and alleviating poverty [3]. This is evidenced by [5] that 30percent of the manufacturing firms have moribund, 60 percent were classified as ailing while only 10 percent were classified as operating at a sustainable level. In the same vein, [6] National Bureau of Statistics (2017) revealed that manufacturing sector's contribution to the economy has dropped from N8.97tn as of the end of December 2015 to N8.89tn as of the end of December 2016. Specifically, the profit level of the cement industry dropped from N749.93bn in 2015 to N649.6bn in 2016 and further fell to an all-time low of N172.87bn as at December 2017. This dwindling profit level has been attributed to ineffective materials management by previous researchers [7,1,8].

The researchers and scholars have identified materials management as an alternative paradigm to the performance of manufacturing organisations. [9] asserted that materials management is a tool to optimize performance in meeting customer service requirements at the same time adding to profitability by minimizing costs and making the best use of available

resources. Materials management is that aspect of the business activity that deals with planning for purchasing, receiving, handling, storing, and releasing of materials for use in production with effective control measures. Also, materials are industrial goods that will become part of another physical product [9]. Previous studies affirm that materials account for over 60% percent of the annual turnover in manufacturing firms [1,8,10, 7]. This implies that effective materials management is inevitable if the cement industry intends to achieve its goals of providing jobs opportunities for over 60,000 people directly, over four million people indirectly and to saves the Nigerian economy some \$4 billion in foreign exchange by 2020. Thus, priority should be given to management of materials in manufacturing organizations in order to remain and wax stronger in a global market competitive environment.

Based on this background, this current study intends to examine the impact of materials management on the performance of the manufacturing industry with particular reference to the cement industry.

1.1 Research Objectives

The main objective of this study was to examine the impact of materials management on the performance of cement industry.

1.2 Research Questions

The following question is the focus of this study; what is the impact of materials management on the performance of cement industry?

1.3 Research Hypothesis

The following hypothesis is formulated for the study

Ho: Materials management has no significant impact on the performance of cement industry.

Hi: Materials management has significant impact on the performance of cement industry.

2. CONCEPT OF MATERIALS MANAGEMENT

The concept of materials management brings in the total systems approach to managing the

entire flow of information, scheduling the manufacturing processes and procuring, materials and services from raw materials suppliers through factories and warehouses to the end user/customer [11,12]. Materials management as a definition is the process which integrates the flow of supplies into, through and out of an organization to achieve a level of service which ensures that the right materials are available at the right place at the time in the right quantity and quality and at the right cost. [13] defined material management as a concept concerned with the management of materials until the materials have been used and converted into the final product. Activities include cooperation with designers, purchasing, receiving, storage, quality control, inventory control, and material control. According to [14] and [15], material management is a function of coordination of planning, sourcing, purchasing, moving, storing and controlling materials in an optimum manner so as to provide a predetermined service to the customer at a minimum cost. International Federation of Purchasing and Materials Management (IFPMM) also defined material management as a definite organization to plan and control all types of materials, its supply, and its flow from raw stage to finished stage so as to deliver the product to the customer as per his requirements in time.

According to [16], material management is a process of planning, acquiring, storing, moving, and controlling materials to use facilities, personnel, resources and capital effectively. [17] saw material management as the process to provide the right materials at the right place at the right time to maintain a desired level of production at minimum cost. The purpose of material management is to control the flow of materials effectively. In the same vein, [18] asserted that a material management structure should be organized in such a way that it allows for integral planning and coordination of the flow of materials, in order to use the resources in an optimal way and to minimize costs. [19] stated that material management systems should be implemented to plan, order, check deliveries, warehousing, controlling the use of materials, and paying for materials. He adds that these activities should be interrelated. [20] defined material management as the activities involved to plan, control, purchase, expedite, transport, storage, and issue in order to achieve an efficient flow of materials and that the required materials are bought in the required quantities, at the

required time, with the required quality and at an acceptable price.

The goal of materials management is to provide an unbroken chain of components for production to manufacture goods on time for the customer base. The materials department is charged with releasing materials to a supply base, ensuring that the materials are delivered on time to the company using the correct carrier. Materials are generally measured by accomplishing on time delivery to the customer, on-time delivery from the supply base, attaining a freight, budget, inventory shrink management, and inventory accuracy. The materials department is also charged with the responsibility of managing new launches [9,1,8,10,7].

2.1 The concept of Organizational Performance

Performance centre on inputs (the effort put in) and outputs (the result of the effort put in). According to [20], performance is the sum of the effects of work, because they provide the strongest relationship with the organization's strategic objectives, the customer's satisfaction and the economic contributions. [21] asserted that performance refers to both behaviour and results. Behaviours are therefore emanating from the performer and turn the performance of an abstract concept into concrete action. [22] believed that the performance consists in "achieving the goals that were given to you in the convergence of enterprise orientations". Performance is seen as a state of the enterprise's competitiveness, reached by a level of effectiveness and efficiency that ensure sustainable market presence [23]. [24] also considered performance as subjective and interpretative, not least, being related to the cost lines, which emphasizes the ambiguous nature of the concept. [25] also believed that the performance of an organizational system is a complex relationship involving seven performance criteria that must be followed: effectiveness, efficiency, quality, productivity, quality of work, innovation and profitability.

2.2 Brief History of Cement Industry in Nigeria

According to [26], the history of cement production in Nigeria is traceable to the Pre and immediate Post-independence era which witnessed the introduction of development plans

Table 1. Brief history of cement industry in Nigeria

1	Cement company of Northern Nigeria	Sokoto
2	Edo Cement Company Limited	Okpella
3	BUA Cement	Obu-Okpella
4	Dangote Cement Plc	Ibese and Obajana
5	Ashaka Cem Plc	Ashaka
6	Lafarge Africa Plc	Ewekoro
7	United Cement Company of Nigeria Ltd	MFamosing.

Source: Field survey, 2018

and import substitution policy and which had impacted on the cement requirement for development of civil infrastructure of the nation. The basic inputs into cement manufacture are Lime-stone, Red alluvium, Shale and Gypsum. The demand for cement is derived from the demand for residential and non-residential construction. Of these two, the latter is predominantly due to government and business activity. Non-residential construction is therefore highly vulnerable to cut-backs in government spending and to forces of depression in the private business sector [26]. The output capacity of Nigeria's cement industry is set to hit 45 million tonnes per annum by 2018, 1400 per cent up from about 3.0 million a decade ago.

The chairman of BUA Group, Alhaji Abdulsamad Rabi, said the feat delivered by the sector industrialists has not only made Nigeria self-sufficient in cement production but also a net exporter of the commodity. He stated: "The cement sub-sector today represents over 90 per cent of the Nigerian mining sector and employs some 30,000 people directly and over two million people indirectly. It also saves the Nigerian economy some \$2 billion in foreign exchange. The Group Chief Executive Officer of Dangote Cement has revealed recently that the cement producer exports 0.21Mt of cement to Ghana, Togo and Niger in the first quarter of 2018.

The number of cement industry and their location in Nigeria is indicated in Table 1.

3. EMPIRICAL REVIEW

Previous studies have convergent opinions on the relationship between the materials management and organization performance. For example, [27] examined the effect of material management on the performance of Mumias Sugar Company Limited in Kenya. Stratified random sampling was used to select 79 respondents from the Company. The sample of 79 was equivalent to 10% of the target

population which is regarded as statistically significant in a descriptive study with a finite universe. The study utilized a research questionnaire. Data were analyzed with the aid of the Statistical Package for Social Sciences (SPSS) to generate the required frequencies and percentages to answer the research questions. Results reveal that materials procurement and inventory control positively influenced the performance of sugar manufacturing industries in Kenya.

[28] also determined factors affecting materials management in manufacturing firms in Nairobi, Kenya. The descriptive research design was adopted for the study to determine factors affecting materials management. A sample size of 46 respondents was selected from a list of 455 manufacturing firms. Data were collected via a structured questionnaire and analysis was performed with the aid of tables, charts and linear regression. Results show that good inventory control is important in materials management because it reduces stock levels and hence increases profitability. Also, ICT helps firms in planning, controlling and processing of materials. [29] also conducted an assessment of the effect of logistics management practices on operational efficiency at Mumias Sugar Company Limited, Kenya. Purposive and convenience sampling methods were used to select 92 respondents as the sample size for the study. Data were analyzed via mean, standard deviation, correlation and regression analysis. Result reveals that effective management of information flow improves the company's internal and external processes.

[9] also conducted an assessment of materials management and profitability of an organization. The study revealed that material management used by the organization contributes to the profitability of the company, adequate storage facilities prevents interruption on production process among other things. [30] assessed the role of materials management on organizational

performance in Kenya. A sample of 49 respondents was selected from this population using the stratified random sampling technique. Data were collected through a structured questionnaire, consisting mainly of closed-ended and open-ended questions. The data were analyzed through descriptive statistics such as mean, standard deviation, median and percentages. Results indicate that there was a significant increase in organizational performance as a result of effective materials management.

[1] also examined the impact of materials management on the profitability of Nigeria brewing firms. The population of this study is 4648 being the total staff strength of Nigeria Breweries and Guinness Nigeria PLCs, and a sample size of 368 was selected. Data were collected through a structured questionnaire and oral interviews, while data analysis was performed with the aid of simple percentages and Z- statistics. Result demonstrates that materials procurement, materials storage, materials inventory and interdepartmental collaboration have a significant effect on the profitability of brewing firms. [31] did an assessment of materials management in Kenyan manufacturing firms. The study surveyed medium and large manufacturing firms based in Nairobi, Kenya. A stratified random sampling technique was used to select 55 firms while the data was collected using a structured questionnaire consisting mainly of both close-ended and open-ended questions. Data were analyzed through proportions, percentages, median and mean. Results show that Kenyan firms were not practicing professionalism in materials management and owing to the huge amount of resources they were committing on materials related activities.

[32] also examined the effect of materials management on the profitability of Nigerian Food and Beverage (F & B) Manufacturing firms with specific reference to Nigerian Bottling Company Plc. Data were collected through a structured questionnaire and personal interview. Results show that there was a significant increase in the company's profitability as a result of efficient management of materials.

4. METHODOLOGY

Research Design: Descriptive cross-sectional research design was employed to investigate the effect of materials management on the

performance of the manufacturing organization with specific reference to the cement industry. Descriptive cross-sectional research design allows the researchers to gather less bias data [33].

Sampling Technique and Sample Size: Purposive sampling technique was employed to select Dangote Cement Plc, Ashaka Cem Plc and Lafarge Africa Plc. The choice of these organizations is based on the fact that they are quoted on the Nigerian Stock Exchange. Judgmental technique was used to select ten (10) staff members from purchasing/store/logistic department of the selected cement firms respectively, totalling thirty (30) respondents as the sample size for the study. The choice of this sampling technique is because; it ensures an intensive study of the selected items [34].

Data Collection Instruments: The data collection instrument for the study was structured questionnaire designed as proposed by [1] and a personal interview.

Validity and Reliability of the Instruments: The instruments used for the study were submitted to the Chartered Procurers for validation. In addition, Multicollinearity test was also performed to ascertain the reliability of data used (see Table 2).

Table 2. Multicollinearity test (VIF)

Model	Collinearity statistics	
	Tolerance	VIF
Materials inventory	.430	1.998
Materials procurement	.562	1.885
Materials storage	.325	2.624
Interdepartmental collection	.290	4.028
Performance	.289	4.219

Source: Researcher's computation 2018

The results from Table 2 indicate that there is no multicollinearity among the independent variables in the model.

Method of Data Analysis: Data analysis was conducted with the aid of multiple regression analysis.

Mathematical Model:To examine the effect of materials management on organization performance, mathematically the model is expressed as follows;

Organization Performance = f (Materials Management)

Materials management is measured by Materials Inventory (MRI), Materials Procurement (MRP), Materials Storage (MRS) and Interdepartmental Collaboration (IDC) [1], while organization Performance is measured by the ability to meet planned output quantities; the ability to meet market demand for product/service; the ability to deliver quality products/service to customers; and the ability to meet planned profit levels [35].

Therefore,

Organization Performance = f (MRI, MRP, MRS, IDC)

$$\text{Organization Performance} = \beta_0 + \beta_1 \text{MRI} + \beta_2 \text{MRP} + \beta_3 \text{MRS} + \beta_4 \text{IDC} + \epsilon$$

Where;

- β_0 = Intercept
- $\beta_1 - \beta_4$ = Regression coefficient
- ϵ = Stochastic error term

5. RESULTS AND DISCUSSION

Table 2(a) indicates that material management dimensions (interdepartmental collaboration, materials storage, materials procurement, materials inventory) jointly contribute 32% to the performance of firm with R^2 of 0.320. This implies that the predictor variables jointly explained 32% of the variance of organizational performance, while the remaining 68% could be

due to the effect of extraneous variables. Furthermore, the estimated Durbin - Watson value of 1.904 clears any doubts as to the existence of positive first-order serial correlation in the estimated model. This result is in line with the findings of [1] and [30] that materials management has a positive and significant relationship with profitability.

Table 2(b) reveals that the overall regression plane is statistically significant with F-statistic value of 2.945 and probability value of 0.040. This study corroborates [27] finding that materials procurement and inventory control positively influenced the performance of sugar manufacturing industries in Kenya. The result of this study also in line with [9] that material management used by the organization contributes to the profitability of the company, adequate storage facilities prevents interruption on production process among other things. In another study, [30] assessed the role of materials management on organizational performance in Kenya. Results indicate that effective material is predictor of organizational performance. In the same vein, [32] and [1] also demonstrated that efficient management of materials has strong influence on company's profitability. This implies that effective materials management is major predictor of organization performance.

Therefore, null hypothesis which states that materials management has no significant effect on the performance of cement industry is rejected, while the alternative hypothesis is accepted.

Table 2(a). Model Summary^b

Model	R	R square	Adjusted R square	Std. error of the estimate	Durbin-Watson
1	.566 ^a	.320	.212	.44244	1.904

a. Predictors: (Constant), interdepartmental collaboration, materials storage, materials procurement, materials inventory

b. Dependent Variable: organization performance

Table 2(b). ANOVA^a

Model		Sum of squares	Df	Mean square	F	Sig.
1	Regression	2.306	4	.577	2.945	.040 ^b
	Residual	4.894	25	.196		
	Total	7.200	29			

a. Dependent variable: Organization performance

b. Predictors: (Constant), interdepartmental collaboration, materials storage, materials procurement, materials inventory

Table 3. Coefficients^a

Model		Unstandardized coefficients		Standardized coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.521	1.529		2.304	.030
	materials inventory	.046	.178	.049	.262	.796
	materials procurement	.345	.204	.281	1.691	.103
	materials storage	.374	.170	.374	2.198	.037
	interdepartmental collaboration	.291	.151	.348	1.922	.066

a. Dependent variable: Organization performance

From Table 3, result shows that materials inventory ($t = 0.262$; $\beta = 0.046$; $P > 0.05$) has positive effect on firm performance but not significant. This implies that logistic managers of the study area need to maintain an optimum level of stock at all time. Thus, it will reduce investment losses due to deterioration, obsolescence and theft to the barest minimum level. Furthermore, result indicates that materials procurement ($t = 1.691$; $\beta = 0.345$; $P > 0.05$) has positive effect on firm performance but not significant. This connotes that procurement managers of the study area have to buy wisely from the right suppliers at the right price without compromising quality.

Result also reveals that materials storage ($t = 2.198 = 0.374$; $\beta = 0.374$; $P < 0.05$) has positive and significant effect on firm performance. This implies that materials such as defective, scrap and surplus materials are well managed.

Result also reveals that interdepartmental collaboration ($t = 1.922$; $\beta = 0.291$; $P > 0.05$) has positive effect on firm performance but insignificant. This means that inter-departmental collaboration is still very weak in the cement sector.

]The implication of this finding is that cement industry needs to improve and leverage on effective materials management. This may be a contributing factor to why the profit level of the sector tapered gradually from N749.93bn in 2015 to N172.87bn as at December, 2017(National Bureau of Statistics, 2015).

6. CONCLUSION

The study examines the effect of materials management on the performance of manufacturing industry with particular reference to the selected cement industry. The study

confirms that materials management dimensions jointly contribute significantly to firm performance. The study further reveals that materials inventory, materials procurement and inter-departmental collaboration have insignificant effect on firm performance, while only materials storage has significant effect on firm performance. The study concludes that effective materials management is a veritable tool to organization performance.

7. RECOMMENDATION

Subsequently, the study recommends that management should embrace effective materials management especially in the area of materials inventory, materials procurement and inter-departmental collaboration in order for the industry to achieve its vision of being a global leader in cement production and the largest employers of labour in the world by 2030.

COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Nwosu HE. Materials, management and firm's profitability. International Journal of Business & Management. 2014;2(7):80-94.
2. Adejugbe MO. Macroeconomic policies and the industrial sector, In wayemi A, (Ed.), Macroeconomic Policy Issues in an Open Developing Economy: A Case Study of Nigeria; 1995
3. Chukwuendo SO, Ifere EO. Manufacturing subsector and economic growth in Nigeria. British Journal of Economics, Management & Trade. 2017;17(3):1-9.
4. Ekpo AH. Industrializing a petroleum export- based economy: Nigeria, (1975-

- 2009). Industrial development: A catalyst for rapid economic growth. In Udoh E, Ogbuagu UR, Essia (eds.) Industrial Development: A Catalyst for Rapid Economic Growth. P.N Davision Publications, Port Harcourt; 2011.
5. Manufacturing Association of Nigeria (MAN). Manufacturing sector groans under recession weight; 2016. Available:<https://www.vanguardngr.com/2017/01/2016-review-manufacturing-sector-groans-recession-weight/>
6. National Bureau of Statistics. Revenue: Manufacturers Suffer N30bn Decline In 3 Months; 2017. Available:<https://economicconfidential.com/financial/revenue-manufacturers-suffer-n30bn-decline-3months/>
7. Ogbadu EE. Profitability through effective management of materials. Journal of economics and International Finance. 2009;1(4):099-105.
8. Unam JM. Materials management: An Effective tool for optimizing profitability in the Nigerian food and beverage manufacturing industry. Journal of Emerging Trends in economics and management Sciences (JETEMS). 2012;3(1):25-31.
9. Ibegbulem AB, Okorie C. Assessment of materials management and profitability of an organization. Journal of Policy and Development Studies. 2015;9(3):153-166.
10. Adeyemi SL, Salami AO. Inventory management; A tool of optimizing resources in a manufacturing industry: A case study of Coca Cola Bottling company. Ilorin plant. Journal of social Sciences. 2010;23(2):135-14226.
11. Chase RB, Jacobs RF, Aquilano NJ, Agarwal NK. Operations management for competitive advantage. (11th Ed.). New Delhi : Tata McGraw –Hill; 2009.
12. Wild R. Production and operations management. 5th Edition, Cassel, London; 1995.
13. Bailey P, Farmer D. Materials Management Handbook, 2nd Ed Gower Publishing Company Limited, Aldershot, Hants, England. 2009;416-429.
14. Ramakrishna RV. Materials management - profit centre. Indian Institute of Materials Management Knowledge Bank; 2005.
15. Gopalakrishnan P, Sundaresan M. Materials management: An intergrated Approach, New Delhi: Prentice Hall; 2006.
16. Ballot RB. Materials management: A Results Approach, 2nd, Ed, American Management Association Inc., USA. 2006; 209-218.
17. Tersing RJ, Campbell JH. Modern Materials Management, 4th Ed, North-Holland Publishing Company, Amsterdam, The Netherlands. 2004;277-284.
18. Beekman-Love GK. Materials management, 2nd Ed, Martinus Nijhoff Social Sciences Division, Boston. 1998;81-92.
19. Chandler IE. Materials management on projects, 1st Ed, The Construction Press Ltd, Lancaster, England. 2001;143-154.
20. Stukhart G. Materials Management Approach for small Scale Sector, 2nd Ed Marcel Dekker Inc. New York. 2007;24-40,198-218,256- 270.
21. Brumbach GB. (1988). Some ideas, issues and predictions about performance management. Public Personnel Management, Winter. 2008;387-402.
22. Neely A. Business performance measurement: Unifying theories and integrating practice, Second Edition, Cambridge University Press; 2007.
23. Niculescu M, Lavalette G. Growth strategies (in Romanian Strategii de crestere). Bucharest. Economica Publishing House; 1999.
24. Wholey JS. Formative and Summative Evaluation: Related Issues in Performance Measurement, American Journal of Evaluation. 1996;17(2):1-6.
25. Rolstadas A. Enterprise performance measurement. International Journal of Operations and Production Management. 1998;18:9-10.
26. Mojekwu JN, Ademola I, Oluseyi S. Analysis of the contribution of imported and locally manufactured cement to the growth of Gross Domestic Product (GDP) of Nigeria (1986 – 2011). African Journal of Business Management. 2013;7(5):360-371.
27. Cyprian B, Makori M. Role of material management on performance of sugar manufacturing industries In Kenya case of Mumias Sugar Company Limited. The Strategic Journal of Business & Change Management. 2017;1(12):227–245.
28. Wanjogu H, Iravo M, Arani W. Factors affecting materials management: A survey of small and medium-sized manufacturing firms in industrial area Nairobi, Kenya,

- Jomo Kenyatta University of Agriculture and technology; 2015.
29. Atieno M, Wanyoike DM. An assessment of the effect of logistics management practices on operational efficiency at Mumias sugar company limited, Kenya. International Journal of Economics, Commerce and Management. 2015; 3(6).
 30. JerutoKeitany PD, Wanyoike M, Salome R. Assessment of the role of materials management on organizational performance- A case of new Kenya Cooperative Creameries Limited, Eldoret Kenya. European Journal of Material Sciences. 2014;1(1):1-10.
 31. Ondiek GO, Odera O. Assessment of materials management In Kenyan manufacturing firms. Journal of Business Studies Quarterly. 2012;3(3):40-49.
 32. Asaolu TO, Agorzie CJ, Unam JM. Materials management: An effective tool for optimizing profitability in the Nigerian food and beverage manufacturing industry. Journal of Emerging Trends in Economics and Management Sciences (JETEMS). 2012;3(1):25-31.
 33. Sekaran U, Bougie R. Research methods for business: A skill building approach. (5th ed.). New Jersey. John Wiley and Sons; 2010.
 34. Mugenda O, Mugenda G. Research methods: Quantitative & qualitative approaches, Nairobi – Kenya, Acts Press; 2003
 35. Hartenian L, Gudmundson D. Cultural diversity in small business: Implications for firm performance. Journal of Developmental Entrepreneurship. 2000; 5(3):209–219.

© 2018 Florence et al; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://prh.sdiarticle3.com/review-history/25794>