

Effect of Reverse Storage Constraints on the Performance of Imported Furniture Distributing Firms in Nairobi County

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Abstract: Therefore, the main objective of the study was to examine the effect of reverse storage constraints on the performance of imported furniture distributing firms in Nairobi County. The Inventory theory and Theory of Constraints guided the study. This study adopted the descriptive Survey research design targeting 130 managers drawn from 26 Imported Furniture Distributing Firms in Nairobi County. Simple random sampling technique was used to obtain a sample size of 83 respondents to be used in this study. The study used both primary and secondary data. Primary data was obtained by administering questionnaires to the respondents in the companies while secondary data was obtained from the firms' inventory records. Data was analysed using both descriptive and inferential statistical methods. The study established that reverse storage constraints significantly affected the performance of imported furniture distributing firms and most of the firms did not have enough storage space for reversed products. The study recommends that the firms create enough storage space for reversed products. Lastly, the firms should make every effort to create departments dedicated to reverse inventories.

Keywords: Reverse storage constrain, performance and Imported Furniture Distributing Firms.

I. INTRODUCTION

Reverse logistics can be used to enhance the organization's customer service capabilities by communicating and convincing the market place concerning the capabilities of the organization to create and preserve value for their products (Kariuki & Waiganjo, 2014). Some of the widely recognized benefits of reverse logistics include; Improved customer contentment and retention, Reduction in the acquisition of parts and subassemblies, enhanced revenue and profitability of organization through increased availability of product/service, improved efficiency and effectiveness of the organization, which lead to significant improvement in the efficiency of the organization (Kannan, Shaligram & Kumar, 2009). Other benefits include; improved time bound sensitivity towards listening to the voice of the customers; it results in anticipation of needs and wants of the customer much ahead before actually they could actually realize it. It also leads to the development of intellectual and emotional bonding with the customers which led to a belief that they made right choice in selecting the firm (Pinna & Carrus, 2012). Reverse logistics also enable the firm to develop interactive partnership with the customer rather than a proactive or reactive partnership. One of the main dimension of reverse logistics is the reverse storage. Warehousing and storage can be considered in terms of services for the production process and for product distribution. There have been major changes in the number and location of facilities with the closure of many single-user warehouses and an expansion of consolidation facilities and distribution centers (Ngubane et al., 2015). These developments reflect factors such as better transport services and pressures to improve logistics performance. Internally, the firm must examine key strategic factors in designing its reverse logistic system, such as strategic costs, overall quality, customer service, environmental concerns, and legislative concerns, and operational factors, such as cost-benefit analysis, transportation, warehousing, supply management, remanufacturing, recycling, and packaging, that a firm must examine (Rosalan, 2013). These factors are critical and must be considered prior to operational factors. Strategic costs can include the costs of equipment for dismantling products, the cost for qualified workers to run the reverse logistics system, and the cost of additional warehouse facilities. These costs are considered strategic due to the need to allocate sufficient resources (financial and humans) to these initiatives (Stock, 1998) as opposed to the resources going to other areas of the company.

1. Statement of the Problem:

Every year, since the arrival of factory processed furniture, millions of tons of furniture are being shipped worldwide and delivered to the consumer through a chain of distributors who owing to competitive pressure are now providing last mile delivery services to their clients. However, even with their distribution machinery, their products still get rejected at the point of delivery due to a host of reasons including poor handling, factory defects, wrong addresses and many other reasons depending on the client. Therefore, reversing the flow of the products becomes inevitable in many distributing organizations. Previous studies have, however, not examined the how reverse storage affects the procurement performance of Imported Furniture Distributing Firms in Kenya. Therefore, the present study sought to examine the effects of reverse storage constrain on the performance of imported furniture distributing firms in the country focusing on Nairobi based firms and their outlets.

2. Objective of the Study:

The study was to examine the effects of reverse storage constrain on the performance of imported furniture distributing firms in the country focusing on Nairobi based firms and their outlets.

3. Research Hypotheses:

In conducting the study the following hypothesis was tested

Ho: There is no statistically significant relationship between reverse transportation and the performance of imported furniture distributing firms in Nairobi County.

Ha: There is a statistically significant relationship between reverse storage constraints and the performance of imported furniture distributing firms in Nairobi County.

II. LITERATURE REVIEW

1. Theoretical Review:

Inventory Theory: Inventories occupy the most strategic position in the structure of working capital of most business enterprises (Schradly, 1967). It constitutes the largest component of current assets in business enterprises. Inventory means aggregate of those items which are held for sale in ordinary course of business. Therefore, it is absolutely imperative to manage inventories efficiently and effectively in order to avoid unnecessary investment in them. An undertaking of neglecting the management of inventories will be jeopardizing the firm's long run profitability (Pandey, 2010). In this study, the inventory theory will provide insight into furniture importing organizations readiness for reverse storage and their effect on the firms procurement performance.

Theory of Constraints: The core idea in TOC is that every system such as profit-making firms must have at least one constraint that limits the system from getting more of whatever it strives for and consequently determines the output of the system (Noreen et al., 1995). A constraint is anything in an organization that hampers the organization's progress or increased throughput such as the reverse flow of products in the case of the present study. Thus, the firm's failure to manage this constraint leads to the significant decline in its productivity. The TOC theory will be used to examine the constraining effects of reverse logistics on the procurement performance of Imported Furniture Distributing Firms.

2. Empirical Review:

Storage requirements are a major consideration in reverse logistics. It's not uncommon for regulatory bodies to mandate that a company keep recalled product in quarantine for a period of time so that it can be inspected. Litigation or other activity associated with the recall could add additional storage requirements (Dobos, 2006). In light of these variables, companies must plan to devote warehouse space to house the recalled product—or work with a recall execution partner to handle product retrieval, storage and ultimate destruction. With the development of reverse logistics, its operation process is getting more and more complex (Inderfurth & Jensen, 2008). A complete reverse logistics process operational functions includes gate keeping, collection, sorting, disposition, collection, separation, densification, transitional processing, delivery and integration, cost/benefit analysis, transportation, warehousing, supply chain management, remanufacturing / recycling, packaging, managing product returns, real time inventory, work flow, tracking warranties, ordering and exchanging parts, collaborating with suppliers, analyzing data, performing repairs, de-manufacturing, re-disposition and customer notification (Murphy & Poist, 2009; Kleber, Minner & Kiesmüller, 2002).

To maximize the competitiveness of the logistics services market, a very important aspect of the decision is not only the location of the warehouse in the supply chain, but also the decision of a possible outsourcing of warehouse space (Ferenčíková, 2014). Analysis of supply chain efficiency in terms of warehousing allows for the optimal location of warehouses, which has a direct impact on delivery times and customer service level. In the scientific studies of the logistics management, can be found a lot of factors -the processes and resources that affect the whole warehouse process. It is therefore clear that the warehouse management should focus on ways to improve the efficiency of processes, both internal and external supply chain and continuous monitoring and evaluation of the results (Kolinski & Sliwczynski, 2015). Simultaneous consideration of the use of warehouse space outsourcing, may also affect: logistics cost savings, as well as attractive pricing services offered by the entire supply chain, increase the flexibility of the entire supply chain, due to the possibility of manipulation of warehouse infrastructure available.

Many circular economy initiatives are not viable economically because they rely on existing logistics capabilities and infrastructure (Bernon & Cullen, 2007). However, investments could greatly improve the circular economy's business case. For example, France Boissons, Heineken's distribution company in France, installed equipment at its customer sites that crushes and stores up to 20 kg of glass. This equipment reduces the space required for empty bottles by 80%, lowers transportation costs, and minimizes health and safety risks for employees handling glass. LaPoste in France deploys a service that enables individuals to return products through their mailbox. The postman picks up goods to be returned while delivering letters and parcels (Murphy & Poist, 2009).

Production planning and control systems are developed for traditional production processes, which is not characterized by a cyclical material flow. The role of recycling activities has increased because of decreasing amount of raw materials and of rise in storage prices, which have economic and ecological causes. Strong social pressure and increasing governmental regulation make a current problem from reuse (Kamau & Kagiri, 2015). Material flow extended with recycling processes involves storage of raw materials, semi finished products, end-products, and recycling products. Uncertainty of wastes and returned products in time, quality and quantity, and uncertainty of duration of reuse process make the recycling planning process uncertain. So the planning becomes a more complex problem, and there are a number of decision variables in the decision making (Munyao et al., 2015). The first situation is decision about disassembly, reuse and use processes. A second relevant decision is on the field of manufacturing and purchasing, i.e. the substitution between recycled and newly procured products and materials, as alternative possibility of material supply. From this context it is clear that an integration of production and recycling planning is necessary.

However, according to Kleber et al., (2002), the uncertainty problems can be cleared by calculation of product requirements and of returned recycling products. In general, the storage of all products can be solved, and there is a choice between manufacturing and waste disposal of recycling products. Ordering restricted strategies are characterized by three storage disposition: storage restriction in traditional production; restriction on recycling, and; restriction on waste disposal in a landfilling site. If the storage of recycling products is not possible, then restriction of recycling and waste disposal is in keeping with this fact (Inderfurth, 2008).

III. METHODOLOGY

1. *Research Design ,Target Population And Sampling:*

This study adopted a descriptive survey research design to establish the effects of reverse storage on imported furniture distributing firms in the country focusing on Nairobi based firms and their outlets. This study targeted the overall management, the logistics manager, sales manager, inventory manager, stores manager and accounts manager from each firm. Therefore, the entire population under consideration in this study was 130 persons. The required sample size was obtained using simple random sampling technique. Since the actual population under consideration in this study is 130, the sample size was computed using the simplified formula proposed by Yamane (1967) for proportions where confidence level is 95% and $P \geq 0.5$ are assumed.

$$n = \frac{N}{1 + N(e)^2}$$

Where N is the population and e is the level of precision

Therefore, $n = \frac{130}{1 + 130(0.05)^2}$

$$n = 98.11$$

A sample size of 98 results from the use of the above formula. Hence, the appropriate sample size used in this study was 98 respondents.

The findings in Table 1 indicate that majority (66%) of the respondents were male while the females constituted 34%. Over half (51%) of the respondents were found to be aged between 26 to 35 years suggesting that most of the imported furniture firms in the area were employing young people. Also according to the findings, most (77%) of the respondents were highly educated having attained post-secondary level of education. The study also found that most (42%) of the respondents had a working experience of between 2 and 5 years. This was closely followed by those who had worked between 6 and 9 years in the firms (35%). As such were expected to be conversant with the study problem under investigation and provide reliable information for the study.

3. Reverse storage constraints and procurement performance of furniture firms:

The objective of this study was to establish how reverse storage constraints affects procurement performance of imported furniture distributing firms in Nairobi County. The status of effects of this variable was rated on a 5 point Likert scale ranging from; 1 = strongly disagree to 5 = strongly agree and were analyzed using the mean score. The closer the mean score on each score was to 5, the stronger the agreement was to the statement posed. A score around 2.5 would indicate uncertainty while scores significantly below 2.5 would suggest strong disagreement with the posited statements. The results on this are summarized in Table 2

Table 2: Reverse storage constraints and procurement performance of furniture firms

Statement	Mean	Std. Deviation
Our company has enough storage space for reversed products	2.16	1.167
We usually store the rejected products within the same premises	3.42	0.507
We prefer storing the rejected products where they can be easily sorted and repaired or recycled	4.05	0.848
Our storing policies are guided by space costs	4.23	0.612
Storage means extra costs for the handlers of the rejected merchandise	3.91	1.259
We usually budget for extra storage so as to accommodate reversed products	3.11	0.918
We at times are forced to outsource storage space to keep our returns	3.26	1.368
Outsourcing enables us to decongest our working area	3.55	0.709
Aggregate Scores	3.46	0.921

The results in Table 2 suggest that most of the firms did not have enough storage space for reversed products (mean = 2.16). Also according to the findings most of the firms usually stored the rejected products within the same premises (mean = 3.42). Most of the firms preferred storing the rejected products where they could be easily sorted and repaired or recycled (mean = 4.05). In most cases their storing policies were guided by space costs (mean = 4.23). Storage meant extra costs for the handlers of the rejected merchandise (mean = 3.91). Imperatively, most of the firms usually budgeted for extra storage so as to accommodate reversed products (mean = 3.11). Other findings suggest that the firms were at times are forced to outsource storage space to keep their returned products (mean = 3.26) and the outsourcing enabled us to decongest their working area (mean = 3.55). These findings imply that most of the firms were experiencing storage constraints when their products were reversed. Therefore, most opted to outsource storage whenever necessary so as to preserve their working space. The findings agreed with Bernon and Cullen (2007) that storage space was an important consideration that needed to be outsourced when limited as many circular economy initiatives were not viable economically because they relied on existing logistics capabilities and infrastructure.

4. Procurement performance of imported furniture distributing firms in Nairobi County:

Finally, the study sought to determine the financial performance of imported furniture distribution firms in Nairobi county. This was the dependent variable and was measured by asking the respondents to respond to various statements describing the procurement performance of their firms resulting from reversed logistics. The status of effects of this variable was rated on a 5 point Likert scale ranging from; 1 = strongly disagree to 5 = strongly agree and were analyzed using the mean score. The closer the mean score on each score was to 5, the stronger the agreement was to the statement posed. A score around 2.5 would indicate uncertainty while scores significantly below 2.5 would suggest strong disagreement with the posited statements. These results are presented in Table 3.

Table 3: Procurement performance of imported furniture distributing firms (N=83)

Statement	Mean	Std. Deviation
Our company experiences high product recalls from time to time	2.16	0.958
Product rejection only affects particular types of products	3.66	0.692

We are able to recycle and recover the value of more than half of the goods reversed by our clients	3.81	0.507
Before we began reversing our products we used to endure significant losses	3.21	0.882
Through successful product recovery, we are able to raise our profit margins substantially	3.47	0.612
Through product reversals, we have been able to boost our customer loyalty	3.99	1.119
Well managed product reversals in our firm has increased value to our customers	3.53	0.612
Our company sales volumes have increased due to management of reverse logistics	3.71	1.259
Aggregate Scores	3.44	0.83

The results in Table 3 indicate that most of the firms did not experience high product recalls from time to time (mean = 2.16) probably owing to their quality assurance systems. As a result, product rejection was mostly confined to particular types of products (mean = 3.66). The findings also indicate that most firms were able to recycle and recover the value of more than half of the goods reversed by their clients (mean = 3.81). Most respondents admitted that before they began reversing their products, they used to endure significant losses (mean = 3.21), however, through successful product recovery, they have been able to raise their profit margins substantially (mean = 3.47). Further, through product reversals, most firms have been able to boost their customer loyalty (mean = 3.99) and the well managed product reversals in the firms has increased value to their customers (mean = 3.53). Other findings also indicate that the firms sales volumes have increased due to management of reverse logistics (mean = 3.71). These findings imply that the introduction of reverse logistics management systems had considerably improved the performance outlook of the firms. These findings are consistent with Kannan et al, (2009) and Pinna and Carrus (2012) regarding the benefits of reversed logistics management such as; improved customer contentment and retention, enhanced revenue and profitability of organization through increased availability of product/service, improved efficiency and effectiveness of the organization, and enable the firm to develop interactive partnership with the customer rather than a proactive or reactive partnership.

5. Correlation Analysis:

In this subsection the correlation analysis using the Pearson Product Moment Correlation was made to first determine the degree of multicollinearity between the independent variables and also show the degree of their association with the dependent variable separately and the resulting correlation matrix given in Table 4

Table 4: Summary of Correlations

		Storage Constraints	Performance of Firms
Storage Constraints	Pearson Correlation	1	
	Sig. (2-tailed)		
Performance of Firms	Pearson Correlation	0.412	1
Value	Sig. (2-tailed)	0.000	
	N	83	83

The study also sought to determine whether there was a statistically significant relationship between reverse storage constraints and performance of imported furniture distributing firms in Nairobi County. The correlation analysis in Table 4 indicates that a significant relationship exists ($r = 0.412$; $p \leq 0.05$). The Pearson’s product moment coefficient of correlation $r = 0.412$ is high but significant and suggests a strong and positive relationship exists between the variables. This implies that storage of the reversed products was a strong consideration in many firms as most had not developed such capacities.

6. Regression Analysis:

Simple regression analysis was used to determine the significance of the relationship between the dependent variable and independent variable. The results are given in the model summary in Table 5

Table 5: Multiple linear regression analysis model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.733 ^a	0.5373	0.5124	0.7343

The results in Table 5. show that the value obtained for R, which is the model correlation coefficient was $r = 0.733$ which was higher than any zero order value in the table. This indicates that the model improved when more variables were incorporated when trying to analyze the effects of reverse storage on performance of imported furniture distributing firms in Nairobi County. The r square value of, $r = 0.5373$, also indicates that the multiple linear regression model could explain for approximately 54% of the variations in the performance of imported furniture distributing firms in the area.

Table 6: Summary of ANOVA results

Source of difference	Sum of squares	Df	Mean square	F _o	Sig.
Between groups	14.027	3	4.67567	8.67197	0.005
Within groups	42.055	78	0.53917		
Total	56.082	82			

An ANOVA test was run to ascertain whether the model in Table 6 was indeed significant. The results of the ANOVA performed on the independent and dependent variables summarized in Table 5 indicate that there was a significant difference between means of variables describing reverse storage and that describing the performance of imported furniture distributing firms in Nairobi County. ($F_o = 6.504 > F_c = 2.95$; $\alpha < 0.05$; $df = 4, 78$; $p = 0.05$).

Table 7: Summary of Multiple Regression Analysis

	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
	B	Error	Beta		
(Constant)	-4.811	9.033		-3.743	.001
Storage Constraints	.408	.288	.423	2.415	.005

- a. Predictors: (Constant), Reverse Storage Constraints
- b. predicted: performance of imported furniture firms

The results in Table 7 indicate that the effect of reversed storage constrain had a statistically significant effect on the performance of imported furniture distributing firms in Nairobi County ($\beta = 0.423$; $p \leq 0.05$). This, therefore, led to the rejection of all the null hypotheses. The beta values for these variables respectively indicate that the dependent variable would change by a corresponding number of standard deviations when the independent variable change by one standard deviation.

7. Hypothesis Tests

H₀: There is no statistically significant relationship between reverse storage constraints and performance of imported furniture distributing firms in Nairobi County.

H_a: There is no statistically significant relationship between reverse storage constraints and performance of imported furniture distributing firms in Nairobi County.

The regression analysis in Table 7 indicates that a significant relationship exists ($\beta = 0.423$; $p \leq 0.05$). Consequently, the null hypothesis was rejected and alternative hypothesis accepted and the inference made that storage constraints affected the reverse supply chain performance of imported furniture distribution firms in the study area.

V. CONCLUSION

In relation to the objective of this study, it was established that reverse storage constraints significantly affected the performance of imported furniture distributing firms in Nairobi County. It was also established that most of the firms did not have enough storage space for reversed products. In most cases their storing policies were guided by space costs as storage meant extra costs for the handlers of the rejected merchandise. The findings also revealed that the firms were at times are forced to outsource storage space to keep their returned products and the outsourcing enabled them to decongest their working area. In line with the study findings above the following recommendations are made; The study also recommends that the firms create enough storage space for reversed products. The reserved space should also be used as service centers so as to sort and restore the rejected goods and recover their value for future redistribution. Storage spaces can also be outsourced in areas considered convenient for the firms and that will not affect the flow of goods. Based on the findings of this study, the researcher recommends a more critical look at the following areas in future. A study needs to be done on the effects of value recovery on reverse supply chain performance of firms. A study should also be done the effects of reversal policies on the performance of reversed logistics in furniture distributing firms.

REFERENCES

- [1] Aro-Gordon, S. & Gupte, J. (2016). Contemporary Inventory Management Techniques: A Conceptual Investigation. *Proceedings of the International Conference on Operations Management and Research*, 21 – 22 January 2016, Mysuru, India.
- [2] Barker, T.J., & Zabinsky, Z.B. (2008). Reverse logistics network design: A conceptual framework for decision making, *International Journal of Sustainable Engineering*, 1(4), 250-260.
- [3] Bernon, M., & Cullen, J. (2007). An integrated approach to managing reverse logistics, *International Journal of Logistics*, 10(1), 41-56.
- [4] Colantone, K., & Crinò, B. (2012). Domestic competent on foreign products, (onlinesauces) <http://www.oecdilibrary.org/docserver/download/5km91p2xcsd4.pdf?expires=1361799767&id=id&accname=guest&checksum=E1A96402080DA86B144D54A0975E435E>. Site visited on 20/06/2017.
- [5] Carter, R. J., & Price, P. (2003). *Integrated materials management*. Pitman.
- [6] Cannella, S., Framinan, J. M., Bruccoleri, M., Barbosa-Povoa, A. P., & Relvas, S. (2015). The Effect of Inventory Record Inaccuracy in Information Exchange Supply Chains. *European Journal of Operational Research*, 243(1), 120-129.
- [7] Chiou, C.Y., Chen, H.C., Yu, C.T., & Yeh, C.Y. (2012). Consideration Factors of Reverse Logistics Implementation - A Case Study of Taiwan's Electronics Industry. *Procedia - Social and Behavioral Sciences* 40 375 – 381
- [8] De Brito, M.P., & Dekker, R. (2012). Reverse Logistics—A framework. *Econom. Inst. Rep. EI*, 38, 1–19.
- [9] De Brito, M.P. & Dekker, R. (2001), Modelling product returns in inventory control - an empirical validation of general assumptions, *Econometric Institute Report EI 2001-27*, Erasmus University Rotterdam, (*International Journal of Production Economics*, forthcoming).
- [10] De Brito, M.P., Flapper, S.D.P., & Dekker, R. (2002). Reverse Logistics: a review of case studies. *Econometric Institute Report EI 2002-21*
- [11] Diaz, A., & Fu, M.C. (2007), Models for multi-echelon repairable item inventory systems with limited repair capacity, *European Journal of Operational Research* 97(3):480-492.
- [12] Dobler, D. W., Burt, D. N., & Lee, L. (2006). *Purchasing and supply management: text and cases*. New York, NY: McGraw-Hill.
- [13] Dowlatshahi S. (2010). A cost-benefit analysis for the design and implementation of reverse logistics systems: Case studies approach, *International Journal of Production Research*, 48(5), 1361-1380.
- [14] Du, Y., & Hall, R. (2007) "Fleet sizing and empty equipment redistribution for center-terminal transportation networks", *Management Science* 43(2), 145-157.
- [15] Fleischmann, M.; Krikke, H.R.; Dekker, R. & Flapper, S.D. (2000). A characterization of logistics networks for product recovery. *Omega*, 28, 653–666.
- [16] Geneva (2005). *International Wooden Furniture Markets*, International Trade Centre UNCTAD/WTO and International Tropical Timber Organization, Volume II.
- [17] Hass, D.A. Murphy, F.H. & Lancioni, R.A. (2003), Managing Reverse Logistics Channels with Data Envelopment Analysis". *Transportation Journal*, 42(3), pp. 59-69.
- [18] Ho, G.T.S, Choy, K.L., Lam, C.H.Y. & Wong D.W.C. (2012). Factors affecting implementation of reverse logistics: A Survey among Hong Kong businesses. *Measuring Business excellence*, 16(3), 29-46.
- [19] Inderfurth, K., & Jensen, T. (2008). Analysis of MRP policies with recovery options, 10th Int. Working Sem. on Production Economics, Innsbruck/Igls, Austria, Pre-Prints Vol. 2., 265-300
- [20] Kamau, L., & Kagiri, A. (2015). Influence of inventory management practices on organizational competitiveness: A case of Safaricom Kenya Ltd. *International Academic Journal of Procurement and Supply Chain Management*, 1(5), 72-98

- [21] Kannan, G., Shaligram, P. & Kumar, S.P.A. (2009). "A Hybrid Approach Using ISM and FuzzyTOPSIS for the Selection of Reverse Logistics Provider", *Resources, Conservation and Recycling*,54(1), 28-36
- [22] Kariuki P.W, & Waiganjo, E.W. (2014). Factors Affecting Adoption of Reverse Logistics in the Kenya Manufacturing Sector: A Case Study of Coastal Bottlers Company. *International Journal of Academic Research in Business and Social Sciences*, 4,9
- [23] Kleber, R., Minner, S., Kiesmüller, G. (2002). A continuous time inventory model for a product recovery system with multiple options. *International Journal of Production Economics*. 79, 121-141
- [24] Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Delhi: New Age International (P) Limited Publishers.
- [25] Krumwiede, D., & W.-Sheu, C. (2002). A model for reverse logistics entry by third-party providers, *Omega* 30, 325-333
- [26] Lau, K.H. & Wang, Y.(2009). Reverse logistics in the electronic industry of China: A case study-supply chain management. *An International Journal*, 14(6), 447-65.
- [27] Lebreton, B. (2007). *Strategic Closed-Loop Supply Chain Management*. Berlin: Springer-Verlag Berlin Heidelberg.
- [28] McKinnon, A. (2010). Environmental sustainability. In: McKinnon, A.; Cullinane, S.; Browne, M.; Whiteing, A. *Green logistics. Improving the environmental sustainability of logistics*. London: Kogan Page Ltd.
- [29] Meade, L. & Sarkis, J. (2012). "A Conceptual Model for Selecting and Evaluating Third-party Reverse Logistics", *Supply Chain Management. An Int. Journal*, 7(5), pp. 283-295
- [30] Meade, L., Sarkis, J., & Presley, A. (2007). The theory and practice of reverse logistics. *Inter. J. Logist. Sys. Manag.*, 3, 56–84
- [31] Moffat J. (2002), Resources for the repair of non-modular aero-engines, *Omega – International of Management Science* 20(1):99-103.
- [32] Mollenkopf, D.A. & Closs, D.J. (2005), The Hidden Value in Reverse Logistics. *Supply Chain Management Review*,9 (5), 34-43.
- [33] Morana, R.; Seuring, S. (2011). A Three Level Framework for Closed-Loop Supply Chain Management—Linking Society, Chain and Actor Level. *Sustainability*. 3 (4), 678-691.
- [34] Mugenda, O.M., & Mugenda A.G, (2003). *Research Methods: Qualitative and Quantitative Approaches*. Nairobi: Acts
- [35] Muller, M. (2011). *Essential of Inventory Management (2nd ed.)*. American Management Association.
- [36] Munyao, R. M., Omulo, V. O., Mwithiga, M. W., & Chepkulei, B. (2015). Role of Inventory Management Practices on Performance of Production Department: A Case of Manufacturing Firms. *International Journal of Economics, Commerce and Management*, 1625-1656.
- [37] Murphy, P.R., & Poist, R.P. (2009). Managing of logistics retromovements: An empirical analysis of literature suggestions, *Transportation Research Forum*, 29(1), 177-184
- [38] Ngubane, N., Mayekiso, S., Sikota, S., Fitshane, S., Matsoso, M., & Bruwer, J.-P. (2015). Inventory Management Systems used by Manufacturing Small Medium and Micro Enterprises in Cape Town. *Mediterranean Journal of Social Sciences*, 6(1), 382-390.
- [39] Othman, N. N. (2015). *A Study on Inventory Management at A Manufacturing Company*. Degree's Thesis, University Malaysia Pahang, Faculty of Industrial Management.
- [40] Pinna R., & Carrus, P.P. (2012). Reverse Logistics and the Role of Fourth Party Logistics Provider, Pathways to Supply Chain Excellence. Available from: <http://www.intechopen.com/books/pathways-to-supply-chain-excellence/reverse-logistics-and-third-party-logistics-providers-capabilities>
- [41] Pollack, K. (2015) When, Not If: Product Recalls and the Importance of Recall Planning. *Supply Chain Brains*

- [42] Ravi, V., Shankar, R., & Tiwari, M.K. (2005). Analyzing Alternatives in Reverse Logistics for End-of-Life Computers: ANP and Balanced Scorecard Approach, *Computers and Industrial Engineering*, 48(2), 327-356
- [43] Rogers, D.S. & Tibben-Lembke, R.S. (2008), *Going Backwards: Reverse Logistics Trends and Practices*, Centre for Logistics Management, University of Nevada, Reno, NV.
- [44] Rosalan, N. A. (2013). *A Study on Inventory Control System Practice in Kuantan Food Processing Small Medium Enterprise*. Degree Thesis, University Malaysia Pahang, Faculty of Technology.
- [45] Rubia S, & Corominas A. (2008). Optimal manufacturing-remanufacturing policies in a lean production environment. *Computers & Industrial Engineering*, 55, 234-242.
- [46] Saen, R.F. (2010). Reverse Logistics Strengthens Supply Chain, *Transportation and Distribution*, 41(5), 95-100.
- [47] Saen, R.F. (2009). A New Model for Selecting Third-party Reverse Logistics Providers in the Presence of Multiple Dual-role Factors. *International Journal of Advanced Manufacturing Technology*, 46, 405-410.
- [49] Sanders H., A. van Harten & M.C. van der Heijden (2000), "Logistiek en retourlogistiek bij Wehkamp" in A.R. van Goor, S.D.P. Flapper and C. Clement (eds.), *Handbook of Reverse Logistics*, Kluwer B.V., Deventer, The Netherlands (in Dutch).
- [50] Saunders M. & Lewis P. (2008). *Research Methods for Business Students*, India Powling Kingley.
- [51] Sekeran, G. (2003). *Scientific Qualitative research*. New Jersey: Prentice-Hall. Print.
- [52] Thierry, M.C., Salomon, M., van Nunen, J. & van Wassenhove, L.N. (2005). Strategic issues in product recovery management. *Calif. Manag. Rev.*, 37, 114-135.
- [53] Tiwari, R.K. (2013). Identification of factors affecting reverse chain performance in relation to customer satisfaction using ISM Modelling & MICMAC Analysis. *Uncertain Supply Chain Management* 1, 237-252