

An Investigation of the Effect of Interdepartmental Coordination between Material Related Departments on Organizational Performance: A Survey of Eldoret Water and Sanitation Company Limited (Eldowas) Kenya

Keitany Pauline Jeruto¹, Lawrence Mutwol²

¹Jomo Kenyatta University of Agriculture & Technology, Kenya (MSc procurement and Logistics),

²Moi University (Department of Educational Administration and Management policy studies)

Abstract: *The study sought to investigate the effect of interdepartmental coordination between material related departments on organizational performance: A Survey of Eldoret Water and Sanitation Company Limited (ELDOWAS). The target population of the study was 56 employees of Eldoret Water and Sanitation Company Limited. A sample of 49 respondents was selected from this population using the stratified random sampling technique, where 7 departments, which directly deal with materials, were selected which include: production, Purchasing, quality Control, Warehouse/store, Human Resource Development, Finance and audit and physical Distribution departments. Data was collected from the members of this sample using structured questionnaires. The study employed descriptive research design and inferential statistics in analyzing the data. Results of the study were presented in form of tables and figures. Results showed that Interdepartmental coordination between materials related department was critical to organizational performance and its effects would not only reduce the associated costs, but also avoid waste and non-value adding activities in the organization. The study concluded that the employees and other stakeholders in the organization should be highly involved in effective materials management upon providing them with continuous training programs.*

Keywords: Materials Management, Interdepartmental Coordination, Organizational Performance, production Costs, Wastes, Profitability

1. Introduction

According to wild (1995), materials management is a concept which brings together the responsibility for determining the manufacturing requirement that is scheduling the manufacturing processes and procuring, storing and dispensing materials (wild, 1995; Ondiek, 2009). An integrated approach to material management defines it as the function responsible for the 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 (Ramakrishna, 2005; Gopalakrishna & Sundaresan, 2006). These definitions provide the scope of materials management which includes materials requirements planning (MRP), decision on purchasing, procurement of materials, inventory management, staffing, stores and warehouse management, production and distribution of finished goods at minimum cost at due time (Osotimehin, 2006; Monday 2008; Ogbadu, 2009). Chase et al., (2009), explained the concept of materials management brings in the total systems approach to managing the entire flow of information, materials and services from raw materials suppliers through factories and warehouses to the end user/customer. The study further confirmed that a firm's success depends on how they manage their materials effectively. They indicate that it is important to monitor inventory at each stage because it ties up resources. Therefore, effective materials management is fundamental to the survival of business, industry and economy.

Materials Management department plays a vital role in an organization, and it has relationship with other departments. These relationships vary from department to department (Lemu, 2007). Majority of the companies attain significant savings from effective materials management, which amounts between 50%-60% of total costs (Song et al., 2006). Effective management of materials can lead to a reduction in cost, resulting in a significant saving. A potential 6% saving on total cost through effective material management is achievable (Bell & Sturkhart, 2007), yet the construction industry invests only 0.15 % in materials management and control (Navon & Berkovich, 2006). In addition, poor material management contributes to over a third of accidents on-site; a reduction would further lead to monetary savings to a project. Based on the possible savings that are achievable, the potential for more competitive tendering and increased profit margins are evident and become increasingly beneficial in the current economic climate (Perttula, et al., 2003).

2. Scope of the Study

The research study confined itself to the general objective of investigating the effect of interdepartmental coordination between material related departments on organizational performance. The study was limited to the employees of Eldoret Water and Sanitation Company Limited, who are working under the Purchasing, Production, Quality control, Warehouse or Store departments, Human Resource Development, Finance and Audit and Physical Distribution.

The rationale behind the choice of the departments is primarily geared to obtain diverse findings. The area was selected as the unit of study since it was accessible and convenient to the researcher.

3. Literature Review

Managing materials must be viewed as a total concept which is in balance with other major functions such as Marketing, Sales, Production, Engineering, Finance and personnel (Ogbadu, 2009). Materials management requires the right blend of technical and commercial expertise operating within the framework of an appropriate and good organizational structure if it is admitted that interdepartmental coordination among materials related departmental is a highly significantly factor to efficient materials. The coordination and movement of materials both onto and around site can be a cumbersome and time consuming task but one which is of paramount importance to site management (Lu et al., 2007).

The departments that are mostly involved are: Production, Engineering design, Quality control, Marketing, Finance and Personnel departments (Zanto, 2008). To boost the success of manufacturing firms, there's need for interdepartmental coordination among these material related departments. What then is needed is philosophy of integrated professionalism. These are achieved by each function translating awareness into action and all staff working as a team to achieve corporate objectives. Interdepartmental coordination therefore plays an integral role in achieving a higher organizational performance.

The coordination of materials and other resources has been documented by numerous authors (Thomas et al., 2005; Nepal et al., 2006; Lu et al., 2007), illustrating that effective coordination of the various resources and materials was essential to avoid waste in the company (Formoso et al., 2002). In the majority, waste on-site has been identified as being caused by poor interdepartmental coordination which results in considerable additional cost in both monetary and schedule terms (Thomas et al., 2005). Interdepartmental coordination was highlighted as one of the key issues in project failing to meet the predetermined project programme (Muholland & Christian, 2001). Through acknowledging the requirement to facilitate effective material coordination with other various tasks and resources on-site, such programme slippages could be mitigated or eliminated as the project progresses. Coordination and communication are often taken collectively due each generally occurring in unison. Where both facets are taken jointly, the cause of delay and disruption between resources and stakeholders is vastly reduced (Assaf & Al-Hejji, 2006). In addition, interdepartmental coordination is fundamental in the management of the allocation of stakeholders to resources, which is an integral part of the management of the movement and allocation of materials (Koskella, 1999). Therefore, the coordination of materials is an essential facet in management of materials, but where spatial limitations occur, this point is significantly more evident (Thomas et al., 1989).

4. Methodology

4.1 Introduction

A structured questionnaire was developed with closed ended questions. The questionnaire was administered using drop-and pick later method, where the respondents filled the questionnaires individually and the researcher went for them later. According to Churchill (1991), a descriptive research approach is used when the purpose is to; describe the characteristics of certain groups, estimate the proportion of people specified in a certain way and to make specific predictions. The research design adopted in the study was descriptive research design. Kombo and Tromp (2006), stated that the major purpose of descriptive research is description of state of affairs as it exists. It also enables the researcher to probe and obtain an in-depth understanding of a particular phenomenon with respect to variables and conditions in a situation.

4.2 Target Population

Kothari (2004), described a population as all the items under consideration in any field of inquiry. For the study, the target population consisted of 56 employees of Eldoret Water and Sanitation Company Limited. The population of the study was stratified in terms of the various departments, which deal with materials. The use of stratified sampling is in recognition of the diverse nature of the population where each group has different and unique characteristics. According to Cooper & Schindler (2000), stratified sampling gives statistical efficiency increase on a sample. The 7 selected departments included: Purchasing, production and Inventory Control, Quality Control, Warehouse/Store, Human Resource Development, Finance and Audit and Physical Distribution.

4.3 Sampling Frame

To constitute a structured sample, the researcher employed stratified sampling technique in selecting the 7 materials related departments. According to Saunders, Lewis & Thornhill (2003), a sample must be carefully selected to be representative of the population and the researcher needs to ensure that the subdivision entitled in the analysis is accurately catered for. The researcher used simple random technique in selecting the respondents to form a sample of 49 respondents

Table 3.1: Sampling Frame

<i>Department</i>	<i>No. of Staff</i>	<i>Percentage</i>
Purchasing	8	14
Production and Inventory Control	10	18
Quality Control	6	11
Warehouse / Store	10	18
Human Resource Development	5	9
Finance and Audit	7	12
Physical Distribution	10	18
Total	56	100

4.4 Sample and Sampling Technique

Nachmias and Nachmias (1989), argue that a proper sample size is required to draw conclusions for the entire population from the respondents. To determine the sample size, the researcher used Yamane (1967) Formula:-

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

Where N=Population size

n=Sample size

e=Level of precision

A 95% confidence level and P=0.05. The sample size was thus derived as follows:-

$$\text{Yamane (1967) } n = \frac{N}{1 + N \cdot e^2}$$

$$n = \frac{55}{1 + 55 \cdot (0.05)^2}$$

Sample size= 49

4.5 Research Instruments

The study utilized mostly on primary data. Mugenda & Mugenda (2003), described primary data as a direct description of any occurrence by an individual who observed or witnessed the occurrence. The main instrument for primary data collection was structured questionnaires. This is because structured questionnaires are systematic and it aims at obtaining information from a large population of respondents concurrently in a direct, open and confidential manner (Kothari, 2004). Both open and closed-ended questions were used. Questionnaire items were designed in such a way that it elicited respondent's views concerning the effect of interdepartmental coordination between material related departments on organizational performance at Eldoret Water and Sanitation Company Limited.

4.6 Data Processing, Analysis and Presentation

The data from filled questionnaires was cleaned, edited, coded and keyed into the computer for analysis. Data was analyzed using both quantitative and qualitative techniques. Quantitative data was analyzed using descriptive statistics which include mean, standard deviation, variances frequency mean and percentages. This was done with the aid of Statistical Software called SPSS (Statistical Package for Social Sciences). Kothari (2004), asserted that descriptive survey data is represented through use of means, standard deviation, variances, frequency mean, graphs, pie-charts and frequency table. Qualitative data was analyzed by giving explanation of the information obtained from the empirical literature. The results of the data analysis were presented in form of discussions, charts, tables and percentages to ease comprehension

5. Findings and Analysis

5.1 Gender

The results in Table 4.1 show that material management is a male dominated function where they constitute 62.5% while females constitute 37.5%.

Table 4.1: Gender of Respondents

Gender			
		Frequency	Percent
Valid	Male	20	62.5
	Female	12	37.5
	Total	32	100

5.2 Department/ Section

In Figure 4.1, the graph depicts information on the overall percentage of the respondents from the various materials related departments. 6.25% were from physical distribution/dispatch department, 9.38% were from finance and audit department, 15.62% were from human resource development department, 18.75% were from warehouse/store department, 12.50% were from quality control department and 21.88% of the respondents were from production department. This generally indicates that a majority of the respondents were from production department 21.88%, which deals with the processing and conversion of the raw materials into finished products and the least 6.5% were from physical distribution/dispatch department.

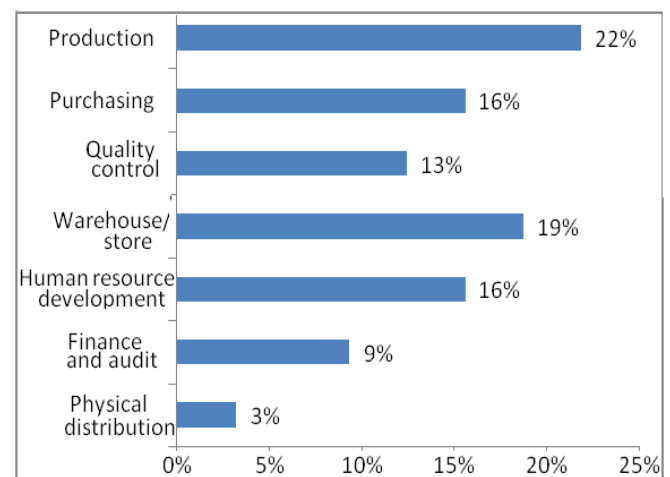


Figure 4.1: Department/ Section

6. Results

The study sought to investigate the effects of interdepartmental coordination's between material related departments on employee performance and on organizational performance. Interdepartmental coordination's pursued by the organization will determine on the performance of the organization. To boost the success of the manufacturing firms, there is need for interdepartmental coordination's among material related departments (Zanto, 2008).

6.1 Effects of Interdepartmental Coordination's Between Material Related Departments on Employee Performance

The respondents were required to respond to the question of the effects of interdepartmental coordination's on employee performance. Using a likert scale of 1-5, 1 being Strongly Disagree and 5 being Strongly Agree, Table 4.2 was to provide an overview of the effects of interdepartmental

coordination between material related departments on employee performance. The responses are presented in Table 4.2.

Table 4.2: Effects of Interdepartmental coordination's between Material Related Departments on Employee Performance

<i>Effect</i>	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>
Reduced inspection	32	3.87	1.28
Improved teamwork and coordination	32	4.25	1.02
Less supervision and autonomy	32	3.94	1.27
Reduced staff turnover	32	3.06	1.18
Reduced employee stress	32	3.29	1.44
Building cross sectional competence	32	3.97	1.20

Discussion

From Table 4.2, the various descriptive statistics on the effects of interdepartmental co-ordinations between materials related departments on employee's performance were performed. The effect with the highest means was improved teamwork and coordination (4.25), implying that the respondents strongly agree that improved teamwork and coordination was an effect of interdepartmental coordination between material related departments on employee performance. Other effects on employee performance with the highest means included: building cross sectional competence (3.97), less supervision and autonomy (3.94) and reduced inspection levels (3.87). The responses with the least means included reduced staff turnover (3.06) and reduced employee stress (3.29).

These responses with means less than 3.5 implied that most respondents were indifferent with those effects. The highest value of mean indicates that majority of the respondents "Agree" that improved teamwork and coordination would result to a high performance of the employees in the organization, hence driving the organization forward.

Responses with the highest standard deviation included: Reduced employee stress (1.44) and Reduced inspection (1.28). This meant that the responses were varied and thus were not significant. However, responses with lower standard deviation meant that the response were not varied and thus were significant. These included: Improved teamwork and coordination (1.02), Reduced staff turnover (1.18) and Reduced inspection (1.28). The study therefore deduced that interdepartmental coordination between material related departments has an effect on employee performance.

The second statement in the objective was to investigate the effects of interdepartmental coordination between material related departments on organizational performance. Interdepartmental coordination's within material related departments is required in the organization to boost its performance hence meet its goals and objectives (Thomas et al. 2005). It is therefore crucial and plays an integral role in materials management, thus achieving a higher performance in the organization.

6.2 Effects of Interdepartmental Coordination's Between Material Related Departments on Organizational Performance

<i>Effect</i>	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>
Reduction of non-value adding activities	32	3.87	1.17
Reduced stock levels	32	3.42	1.46
Improvement in cooperation and communication	32	3.84	1.02
Reduced duplication effort	32	3.69	1.15
Improvement in status control	32	4.16	1.32
Reduced obsolescence and surplus	32	3.40	1.49
Increased profitability	32	3.75	1.22

The respondents were therefore given propositions on the effects of interdepartmental coordination between material related departments on their organizational performance and asked to indicate their level of agreement. Various descriptive were performed. Their responses are presented in Table 4.2. The respondents pointed out that interdepartmental coordination's between material related departments was an important factor of organizational performance.

Discussion

The ratings on the effects, when scored on a likert scale of 1-5, 1 being strongly disagree, and 5 being strongly agree, majority of the respondents on average 3.73 implied that they agree on the effects. The effects with the highest mean response include: improvement in status and control (4.16), improvement in cooperation and communication (3.84) and reduction of non-value adding activities (3.87). the effects with means higher than 3.5 implies that the respondents "agree" that interdepartmental coordination between material related departments affects organizational performance.

Further, responses with means of approximately 3 meant that the respondents were indifferent on the said effects. These includes: reduced obsolescence and surplus (3.40) and reduced stock levels (3.42). The study therefore deduces that with a mean score of 3.7, interdepartmental coordination between material related departments clearly affects organizational performance. Organizations must therefore coordinate their functions and activities to ensure that they meet their intended objectives.

The available literature supports the notion of interdepartmental coordination within material related departments as important for organizational performance (Nepal et al. 2006). The integration of various material related departments together with integrated professionalism is an indication of higher organizational performance. Responses with lower standard deviation included Improvement in cooperation and communication (1.02) Reduced duplication effort (1.15) and Reduction of non-value adding activities (1.17) which implied that the responses were not varied and hence close to mean thus significant. Responses with higher standard deviation included: Reduced obsolescence and surplus (1.49), Reduced stock levels (1.46) and Improvement in status control (1.32). These implied that the responses were close to the mean implying that the said

effects were significant to organizational performance. This then shows that interdepartmental coordination within material related departments was fundamental to the organizational performance.

6.3 Correlation Analysis of the Variables Studied

		Inter-departmental coordination's	Organizational level of Performance
Interdepartmental co-ordinations	Pearson	1	0.745
	Sig. (2-tailed)		0.805
	N	32	32
Organizational level of performance	Pearson	0.745	1
	Sig. (2-tailed)	0.805	
	N	32	32

*. Correlation is significant at the 0.05 level (2-tailed).

The inferential statistics on the study variables was performed and correlation analysis done. The results of the correlation analysis are presented in Table 4.3. From the findings, results showed that there was a positive correlation of 0.745 between interdepartmental coordination between material related departments and organizational performance. Thus, there was a strong positive relationship between interdepartmental coordination between material related departments and organizational performance of Eldoret Water and Sanitation Company Limited. The correlation of the study variables were computed at 0.05 significant levels.

7. Summary

The study sought to investigate the effect of interdepartmental coordination between material related departments on organizational performance. Interdepartmental coordination was found to be fundamental in the allocation of resources, which is an integral part of the management of the movement of materials hence essential to avoid waste and non-value adding activities in the organization. From the results, it was evident that there was a significant relationship between interdepartmental coordination between material related departments and organizational performance of 0.745. Thus, there was a strong positive relationship between interdepartmental coordination between material related departments and organizational performance of Eldoret Water and Sanitation Company Limited. Therefore, to boost the success and performance of organizations, there is need to highly involve employees and other stakeholders in the organization and providing them with continuous training programs so as to help them develop the necessary skills and capacities.

8. Conclusion

The study concluded that interdepartmental coordination between material related departments played a significant role in organizational performance since it is essential to avoid waste, unnecessary cost and non-value adding activities, hence interdepartmental coordination between material related departments was significant to organizational performance. The study also concludes that there was a need to motivate the employees to work

together, train them and have evaluation mechanisms to ascertain their effectiveness in order to achieve the benefits of organizational performance

9. Recommendation

The study recommends that the organizations put in place measures that will help motivate the employees to work together, and have evaluation mechanisms to ascertain their effectiveness in order to achieve the benefits of organizational performance. Further, the study recommends continuous and active involvement of employees and other stakeholders in effective materials management.

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Author Profile



Pauline Jeruto Keitany has done (Msc) Master of Science in Procurement and Logistics, BBM (Purchasing and Supplies Option) with First Class Honours Degree. She has completed her education from Jomo Kenyatta University of Agriculture and Technology and Moi University. Presently she is working as Lecturer at Laikipia University, Lecturer at Mount Kenya University, Lecturer at University of Nairobi, Lecturer at Rift Valley Institute of Science and technology. She has worked as Operations manager in Turbo Highway Company limited and Sales Executive Cooperative insurance Company Limited (CIC). She has taken education in the field of Public procurement, Supply chain management, Global procurement, Procurement research and performance, Strategic purchasing and supply management, National and international Logistics Management, Procurement Management, Inventory management.