



INFLUENCE OF INVENTORY MANAGEMENT PRACTICES ON ORGANIZATIONAL PERFORMANCE IN ENERGY SECTOR: A CASE STUDY OF KENYA POWER

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ABSTRACT

The study sought to analyze the influence of inventory management on organizational performance. The study sought to achieve the following specific objectives: to assess the influence of inventory investment on organizational performance and to explore the influence of inventory turnover on organizational performance. This research adopted a descriptive approach on inventory management effect on organizational performance in the energy sector in Kenya. The target population of this study was composed of the management staff of Kenya Power. Simple random sampling technique was applied to come up with a sample size where primary data was gathered directly from respondents and for this study the researcher used a questionnaire. The questionnaire consisted of close and open-ended questions. The researcher conducted a multiple regression analysis so as to determine the relationship between inventory management and organizational performance. The target population was 300 staff management. The researcher used stratified random sampling procedure to select a sample size of 90 respondents. Quantitative data was collected using questionnaires and analyzed by the use of descriptive statistics using SPSS. From the findings, the researcher recommended that strong policies should be implemented in the energy sector for them to do away with the problem of organizational non-performance. To curb various challenges of inventory shrinkage in the organization, the energy sector should consider implementation of a vendor managed inventory to lower incidences of stock-out situations. The inventory investment for any organization should be spelled out as part of the organization terms. The institutions should put up to date information technology systems which are easy to follow for both the employees and the borrower, and so as to avoid carrying of excess inventory that might be a risk to the Company, accurate forecast should be in place.

Key Words: inventory investment, inventory turnover, Energy Sector in Kenya

INTRODUCTION

Stock or Inventory constitutes a substantial proportion of the current asset group. It represents investments made for obtaining a return (Duru, Oleka & Okpe, 2014). Inadequate inventory has an adverse potential effect on the smooth running of the business, while excess inventory involve extra cost, which can reduce the firm's profits (Panigrahi, 2013). Excessive stock is not desirable for longer periods because high inventory levels increase carrying cost and as inventory is increases; the profitability decreases (Priyank & Hemant, 2015). Hence, a suitable inventory control strategy will help in ensuring that the firms always keep an optimal amount of assets. Freeing frozen amounts in the form of stocks or inventories increases the firm's efficiency in the use of its resource (Ziukov, 2015). As such, a well-functioning inventory system has a great effect on total firm's performance as well as that of the firm's managers (Akindipe, 2014).

Inventories are part of current assets, which are convertible to other forms of working capital (cash and other receivables) in less than one year (Milicevic, Davidovic & Stefanovic, 2010). The theory of inventory management involves making decisions that are in line with basic trade off among firm's objectives, costs and other constraint (Mathuva, 2013). The economic order quantity theory suggests that firms should maintain the quantity of inventory which provides the lowest total holding cost and acquiring cost (Milicevic *et al.*, 2010). Thus, inventory management is vital to for an effective and efficient firm. It is also important since it helps the firm in determination of the optimal amount of materials and goods a firm can hold at any given time (Kumar & Bahl, 2014).

Inventory management refers to keeping or maintaining the firm's stocks at a level that a firm will only incur the least cost consistent with other management's set objectives or targets (Kwadwo, 2016). Inventory management is about ensuring that all input materials of production available to the firm

are maintained at a level where production is not interrupted as well as ensuring that operational cost is kept at a minimal level without affecting operation efficiency (Eneje, Nweze, & Udeh, 2012). Inventory management entails planning, organizing, controlling and directing. All these coordinated efforts are meant to ensure achievement of efficiency in all operations of the firm. Such operations may include procurement, stocking and transportation (Akindipe, 2014). Mismanagement of Inventories may lead to significant financial problems for a firm (Muhayimana, 2015).

The term organizational performance is used in three time- senses - the past, present, and the future. In other words, performance can refer to something completed, or something happening now, or activities that prepares for new needs. Profitability, for example, is often regarded as the ultimate performance indicator, but it is not the actual performance. Firm's performance is the measure of standard or prescribed indicators of effectiveness, efficiency, and environmental responsibility such as, cycle time, productivity, waste reduction, and regulatory compliance. Performance also refers to the metrics relating to how a particular request is handled, or the act of performing; of doing something successfully; using knowledge as distinguished from merely possessing it. It is the outcome of all of the organization's operations and strategies (Venkatraman & Ramanujam, 2010). Performance measurement systems provide the foundation to develop strategic plans, assess an organization's completion of objectives and goals (Alderfer, 2008).

Kenya Power is a limited liability company which transmits, distributes and retails electricity to customers throughout Kenya. It is the sole electricity distributing company in Kenya with a staff complement of over 10,000 employees. The vision of the company is 'To provide world class power that delights our customers' with the mission of 'Powering people for better lives' The Company embraces the

following core values; customer First, one Team, passion, integrity and excellence (Kenya Power 2017). In Kenya electricity is mainly generated from hydro, thermal and geothermal sources. Wind generation accounts for less than 6 megawatts of the installed capacity; currently, hydro power comprises over 50% of the installed capacity in Kenya which is sourced from various stations and substations managed by KENGEN. Hydro power is generated by a process whereby mechanical energy produced by falling water is transformed into electricity energy. (Kenya Power 2017)

Statement of the Problem

Inventory constitutes the most significant part of current assets in any organization and because of the relative largeness of inventories maintained by most organizations; a considerable sum of an organization's fund is being committed to them. According to Dimitrios (2008), inventory management practices have come to be recognized as a vital problem area needing top priority. For tangible results on sustained basis, the basic cause at the root of the problem needs to be identified and tackled with efficiency. Inventory management practices thus deserve utmost attention. The reason of carrying inventory management practices is to ensure regular supply of materials as and when required. Insufficient inventories hamper production process and mitigate sales volume. On the other hand, Rajeev (2010) denotes that excessive inventories tie up working capital and boost up carrying costs.

In most organizations, direct materials represent up to 50% of the total product cost, as a result of the money entrusted on inventory, thereby affecting the profitability of the organization. According to Sander, Matthias and Geoff (2010), historically, however organizations have ignored the potential savings from proper inventory management, treating inventory as a necessary evil and not as an asset requiring management. As a result, many inventory systems are based on arbitrary rules. Inventory management

according to Onyango (2013) is a fundamental pillar in an organization and it should be taken seriously. Some of the goods and services required may not be readily available within the country thus global sourcing may have to be applied. Due to this, a robust inventory management is required to be in place to ensure timely delivery and quality standards are observed.

Locally, studies which have been done include, Kariuki (2008) attempted to explain the benefits of inventory management among energy industry in Kenya, Gathumbi (2007) examined the Application of Inventory Models in Inventory Management. There are few local studies done on establishing the role of effective inventory management in enhancing performance of commercial firms in Kenya. There are studies done on the adoption of inventory management systems by the public sector in the developed world. Thus the need to validate these in the context of the developing countries and in specific the firming sector in the developing countries since the implementation of inventory management systems will adversely affect positively performance in terms of increasing the effective and efficiency of inventory management in the private sector. Thus the study focuses on how inventory management enhances performance of energy firms in Kenya.

Today KPLC finds itself operating in a turbulent and changing environment with the high rate of solar power thus the need to use new strategies to overcome the new threats in terms of competition on its customer base and assault on its bottom line. In order to fight off the competition the Company strengthens its competitive position by investing in inventory function. It thus becomes absolutely imperative to manage inventories effectively so as to avoid unnecessary cost and ensure high level of return. For KPLC to enhance its competitiveness it needs to embrace the changing competitive trends in the market by improving the inventory management practices. Based on the foregoing, therefore this study sought to establish the influence of inventory

management on organizational performance in the energy industry in Kenya.

Objectives of the Study

The general objective of the study was to establish the influence of inventory management practices on organizational performance in energy sector. The specific objectives were:-

- To assess the influence of inventory investment on organizational performance
- To assess the influence of inventory turnover on organizational performance

LITERATURE REVIEW

Theoretical Framework

Resource Based Theory of BPO

The resource-based view (RBV) argues that firms possess resources, a subset of which enables them to achieve competitive advantage, and a subset of those that lead to superior long-term performance. Resources that are valuable and rare can lead to the creation of competitive advantage and hence superior performance. That advantage can be sustained over long time periods to the extent that the firm is able to protect against resource imitation, transfer or substitution, (Barney, 1991). Firm's resources are those tangible and intangible assets that tie semi permanently to the firm at a given time. The tangible resources include skilled personnel, efficient procedures, machinery, and capital and so on. The intangible resources include among others technological know-hows, trade contacts, and proprietary technologies.

Lean Theory

Lean theory is an extension of ideas of just in time. Kros, Falasca, and Nadler, (2008), elaborate just in time as a pull-based system designed to align the production and business processes throughout the supply chain. Green and Inman (2009) assessed the

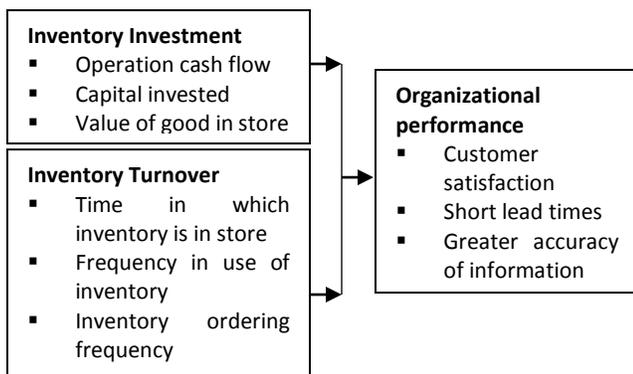
impact of lean theory on organizational performance. They say that theory may eliminate buffer stock and minimize waste in production process. Eroglu and Hofer (2011) found that leanness positively affects profitability of a business firm. They argue that inventory leanness is the best inventory control tool. The theory elaborates on how manufacturers gain flexibility in their ordering decisions, reduce the stocks of inventory held on site and eliminate inventory carrying costs. At the aggregate level, the empirical strength of the lean explanation lies both in the timing and the magnitude of the adoption. However in the theory, inventory constrains a firm's ability to respond to fluctuations in demand. Scholarly studies indicate that companies successfully optimize inventory through lean supply chain practices and systems to achieve higher levels of asset utilization and customer satisfaction leading to improved organizational growth, profitability and market share (Green & Inman, 2009).

Another study suggesting a positive relationship between inventory management and performance was that of Eroglu and Hofer, (2011) in which their study focused on US energy firms covering the period of 2003-2008. They found that leanness positively affects profit margins. According to Eroglu and Hofer, (2011) firms that are leaner than the industry average generally see positive returns to leanness. They used empirical leanness indicator as a measurement for inventory management. Contrary to the present study, their study focused on assessing the relationship between inventory performance and overall firm performance. Criticism leveled against the theory is that it can only be applicable when there is a close and long-term collaboration and sharing of information between a firm and its trading partners.

According to Lean Theory, inventory management act as a major component of any supply chain irrespective of whether it is product or service supply chain. Inventory management plays an important role in matching demand and supply within the each and every partner in the entire supply chain, ultimately

providing flexibility in coping up with external and internal events of the today's uncertain, globalized business environment (Floyd *et al.*, 2010). Ineffective inventory control is a major problem faced by industries in developing countries and that even the very basic inventory control concepts and techniques are not used by the majority of the companies studied. Due to the heavy reliance on imported industrial raw materials and parts, and the endemic bureaucratic delays and associated communication problems in developing countries, order lead times cannot be computed with any degree of accuracy (Chen, Frank, & Wu, 2007). Therefore, the Lean theory is of essence to the effectiveness of inventory management of energy firm's inventories which will result to increased profitability, productivity and customer satisfaction.

Conceptual Framework



Independent Variables **Dependent Variables**

Figure 1: Conceptual Framework

Source: Author (2018)

Empirical Review

Inventory Investment

The objectives of inventory management practices are to minimize inventory investments and to maximize customer service. It is a plan to see that, the goals can be inconsistent or even indirect conflicts the role of the materials management is thus to balance the objective in relation to the existing

conditions and environmental limitations (Thummalapalli, 2010). The basic object of inventory management is to maximize customer service through maintaining appropriate amount of inventory with minimum possible cost. Inventory costs are costs associated with the operation of an inventory system. In the inventory management decision encompasses the principles procures and techniques for deciding what to order, how much to order, when it is needed and how and where to store if their decisions at each of these levels should be consistent with decision at the other level and should support the company objective by achieving desired level of customer service and achieving inventory objective.

A significant amount of investment can be saved when organizations have no obsolete and excessive inventory. Any decrease in these numbers can reduce the operational costs and most importantly taxes paid due to inventory stored in the warehouse will also decrease (Van Weele & Van Raaij, 2014). Many business owners have difficulty throwing away products they paid good money for. But holding on to obsolete products just burns up even more investments. Eliminating obsolete stock promptly, and use the cash and space you save for something more profitable. Naude and Badenhorst-Weiss (2011) argues that once these items have diminished in value, the company must discount the product or discard them, which can cause large losses for a company. A number of organizations collapse due to poor planning and corruption which drives firms to close down their operations. This can be stopped if proper inventory management is practiced and the technique thoroughly utilized for the benefit of the firm.

Inventory Turnover

Stock control plays a critical role in the success of any organization that is towards meeting its objectives (Thummalapalli, 2010). In order for the organization to manage stocks effectively and realize high levels of

production optimization there is need of carrying out proper practices like keeping the amount of stock, making door to door delivery services, forecasting and establish the function material needs of the organization hence establishment of proper demand can also be over a longer period or demand study. Kimaiyo and Ochiri (2014) state that long term forecast used by telecommunication industry should be more accurate than short term forecasts because the forecast is aggregated over a segment of the operations. Holding the right levels of telecommunication stock is one of the most difficult challenges to most organizations. According to Cachon and Olivares (2010) obsolete inventory has become a prominent phenomenon in most of the organizations. Many organizations are striving to avoid obsolete inventory and are also trying to avoid excessive inventory. The items when become obsolete are unusable and it does not yield any value to the services and in turn they consume valuable storage space in the warehouses, added are the taxes. These excessive costs may yield to increase in the overall facility costs.

The organizations must implement steps and methods that can help inventory managers identify the excessive inventory and make use of the excessive inventory before it turns out to be obsolete (Thummalapalli, 2010; Macharia & Mukulu, 2016). According to Ashok (2013) the decision of how much stock to acquire and when, logically follow classification of what is required. The natural is to say buy as much as you need when you need it which is mostly used by many organization for them the decision of how much to purchase and this is made more important by the close relationship between purchase quantity and scheduled use therefore for inventory management practices to be effective enough the following techniques should followed. According to Macharia and Mukulu (2016) the just-in-time (JIT) inventory method is an approach where materials, parts, and other goods are ordered only in quantities required to meet immediate production

needs. These items are then carefully scheduled to be received at precisely the time they are needed. This increases efficiency, reduces waste, and ultimately minimizes inventory management costs and lead time costs.

METHODOLOGY

The study adopted a descriptive research design. Descriptive research involved gathering data that described events and then organize, tabulate, depict and describe that data collection (Kothari, 2006). This was a survey and therefore the researcher studied Kenya Power and Lighting Company. However, from the possible 300 target population, stratified random sampling was employed to select managers from the organization and obtain a total of 90 sample population. This was 30% of the total population. The managers were deemed suitable for the study as they had better knowledge and awareness on the issue at stake and provided specific information from a management perspective.

RESULTS

The Inventory Investment Affects Organizational Performance

Most of the respondents stated that the inventory investment contributed heavily on organizational performance in the energy Sector. This was represented by 74.9% of the respondents while 25.1% of the respondent stated that there was no influence of inventory investment on organizational performance in the energy Sector. This showed that the inventory investment contributed towards organizational performance in the energy Sector. The findings supported findings by Hellen (2012) where she noted that poor management of inventory in terms of analyzing cost of investment for inventories affected true picture of inventory value and negatively affected organizational performance.

On amount of investment on inventory that affected the performance, majority of the respondents stated

that inventory investment enabling effective organizational performance was important. This was represented by 51.8% of the respondents while 17.6% of the respondent also agreed that inventory investment enabling effective organizational performance was important. This showed that inventory investment enabling effective management contributed greatly on organizational performance in the energy Sector.

On whether operation cash flow had an impact on organization performance, majority of the respondents stated that operation cash flow had an impact on organization performance to achieve high organization performance. This was represented by 45.8% of the respondents while 18.6% of the respondent also agreed that operation cash flow had an impact on organization performance to implement high organization performance. This showed that managers in the energy sector were competent in their tasks and that helped in improving organization performance in the energy sector.

On whether capital invested in inventory had an impact on organization performance, most of the respondents strongly disagreed that capital invested in inventory had an impact on organizational performance in the energy sector (43.5% of the respondents). It was also clear from the study that some respondents disagreed that capital invested in inventory had an impact on organization performance as per 20% of the respondents. The study also showed that 11.8% of the respondents agreed that capital invested in inventory had an impact on organization performance; this was according to 11.8% of the respondents. According to this data, inventory investment system was not fair and impartial in organizational performance in the energy Sector.

The findings agreed with Ayugi (2009) where he found out that the cost of inventory in an organization especially dead stock is the same as capital invested on non-profit making investment and therefore affect organizational performance.

A research was done to determine whether value of goods in store affected organization investment.

Table 1: Value of goods in store affects organization investment

		Frequency	Percent
Valid	STRONGLY DISAGREED	40	47.1
	DISAGREED	21	24.7
	STRONGLY AGREED	13	19.3
	NOT SURE	5	1.9
	AGREED	6	7.1
	Total	85	100.0

The table above showed that most of the respondents stated that they disagreed that value of goods in store affected organization investment and this was represented by 41.1% of the respondents while 24.7% of the respondents stated that they disagreed that value of goods in store affected organization investment. The 19.3% of the respondents agreed that value of goods in store affects organization investment. This showed that

value of goods in store affected organization investment in the energy Sector.

Inventory Turnover

On whether inventory turnover's affected organizational performance in energy firms, majority of the respondents stated that inventory turnover affects organizational performance in the energy sector. This was supported by 62.4% of the respondents, while 37.6% of the respondents stated

that inventory turnover does not affect organizational performance in the energy sector.

On the time in which inventory was in store, most of the respondents strongly agreed with the time in which inventory was in store. This was supported by 50.6% of the respondents. The 24.7% of the respondents agreed that time in which inventory was in store was sufficient. But 11.9% strongly disagreed with the time in which inventory was in store. Therefore organizational performance in the energy Sector was diverted by the inventory turnover.

On whether time in which retailers cleared inventory was good, most of the respondents' strongly agreed that the time in which retailers clear inventory was good. This was supported by 61.2% of the respondents. The 11.8% of the respondents agreed that the time in which retailers cleared inventory was good. But 14.1 % strongly disagreed that the time in which retailers cleared inventory was good. Therefore majority of respondents were in agreement that the time in which retailers cleared inventory was sufficient.

On the frequency in use of inventory, most of the respondents strongly agreed that there was

frequency in use of inventory. This was supported by 54 % of the respondents. The 24 % of the respondents agreed that there was frequency in use of inventory. But 4.1% strongly disagreed that there was frequency in use of inventory.

On inventory ordering frequency, most of the respondents strongly agreed that inventory ordering frequency was observed. This was supported by 36.5% of the respondents. The 21% of the respondents agreed that the organization fully ensured frequency on inventory ordering. But 10.6% strongly disagreed that inventory ordering frequency was observed.

Further Analysis

From table 2, the results showed that inventory investment was positive and significantly (p value, 0.012) related to organizational performance in the energy sector. The table also showed that inventory investment system was not fair and impartial and it was the main inhibiting factor, hence it was positive and significantly (p-value, 0.023), further, It was also established that value of goods in store affected organization investment, (p-value 0.015).

Table 2: Analysis of Inventory investment

		The amount of investment on inventory affects the performance	Operation cash flow has an impact on organization performance	Capital invested in inventory has an impact on organization performance	Value of goods in store affects organization investment
The amount of investment on inventory affects the performance	Pearson Correlation	1	.908	.746	.911
	P-value	.	.012	.023	.015
Operation cash flow has an impact on organization performance	Pearson Correlation	.908	1	-.375	.949
	P-value	.012	.	.026	.000
Capital invested in	Pearson	.746	-.375	1	-.457

inventory has an impact on organization performance	Correlation				
	P-value	.023	.026	.	.006
Value of goods in store affects organization investment	Pearson Correlation	.911	.949	-.457	1
	P-value	.015	.000	.006	.

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

Table 3: Analysis of Inventory turnover

		Time in which inventory is in store	The time in which retailers clear inventory is good	Frequency in use of inventory	Inventory ordering frequency
Time in which inventory is in store	Pearson Correlation	1	.988	.766	.963
	p-value	.	.014	.044	.019
The Time in which retailers clear inventory is good	Pearson Correlation	.988	1	-.903	.950
	p-value	.011	.	.000	.000
Frequency in use of inventory	Pearson Correlation	.766	-.903	1	-.872
	p-value	.044	.000	.	.000
Inventory ordering frequency	Pearson Correlation	.963	.950	-.872	1
	p-value	.019	.000	.000	.

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

From table 3 the results showed that inventory turnover was positive and significantly (p-value, 0.011) related to organizational performance in the energy sector among the devolved energy sector. The results from the table also established that frequency in use of inventory was positive and significantly (p-value, 0.044) related to organizational performance in the energy sector although not strongly related. On the other hand, the result also showed that Inventory ordering frequency was positive and significantly (p-value, 0.019) related to organizational performance in the energy Sector. Generally, we concluded that there was a strong relationship between the inventory turnover and organizational performance in the energy Sector.

SUMMARY

The study showed that inventory investment correlate well with organizational performance in the energy sector. Organizational performance in the energy sector also relate well with organizational performance in the energy Sector. From the study it was seen that inventory investment contributed heavily on organizational performance in the energy sector. This therefore is clear that top level management commitment impact heavily on the success of organizational performance in the energy sector. From the study, the response on whether the amount of investment on inventory affected the performance was the most important factor with a high percentage of agreement from respondents.

From the study majority of the respondents agreed that operation cash flow had an impact on organization performance to implement high organization performance. From the respondents majority disagreed that capital invested in inventory had an impact on organization performance, this showed that a lot pertaining to inventory investment needs to be amended for the energy sector to ensure high levels of organizational performance in the energy sector.

For organizational performance in the energy sector to be effective and efficient the inventory investment of any given organization must at first understand the strategic plans they have even before they share to the employees for implementation. Inventory investment was very important in heading direction to any activity, so the leaders of the organizations should enable an effective governance strategy and the leaders should support the platform by all means. Inventory turnover was a factor that contributed to organizational performance in the energy sector. It was clear that this variable correlate well with the dependent variable which was organizational performance in the energy sector. From the table it was shown that the main reason this occurs according to the respondent was the lack of the basic management skills which were necessary in the industry growth. It was unfortunate that sound inventory turnover is not independent. When the inventory turnover grows it become possible to meet organizational performance in the energy sector but if the inventory turnover stagnate then the implementation become difficult.

CONCLUSIONS

The study concluded that inventory investment affect organizational performance of the energy sector. The results showed that policies and procedures are in place to guide inventory investment in the Organization. There were procedures and policies which regard warehouse maintenance and cleaning, inventory quality control, record keeping and

reporting. Management policies in the inventory department define the general conduct of the organization operation. They also concern themselves with return of goods and exit strategy in the event of downscaling or shutting down operations, disposal of obsolete and damaged goods. The policies also define how the activities in the warehouse should be carried out and clearly defines the processes to be adopted as well as streamlining the business processes and providing checks and balances.

The study deduced that inventory turnover affects the organizational performance of the energy sector. There were proper records of stock in the inventory management department. Proper records determine the proper level of providing proper services while minimizing the costs of carrying inventory. The desired inventory was usually held down to a reasonable figure, but large enough to permit the company to effectively merchandise the products and services it offers. Organizational performance, particularly of the service companies and energy companies is important to the Kenyan economy.

RECOMMENDATIONS

The inventory investment for any organization should be spelled out as part of the organization terms. It is important for the management and employees of the organization centers to be committed in the operations of the organization and more important they should be committed in organizational performance in the energy sector. The inventory investment of the energy sector on their part should ensure proper utilization of the resources already availed to provide better structures.

Inventory replenishment techniques were major concern raised in the study. To avoid carrying of excess inventory that might be a risk to the Company, accurate forecast, (supply & demand) should be in place. This will help in reducing stock outs/lost sales and carrying of excess inventory. The Company also needs embrace just in time principle (JIT). Inventory management practices need to be put in place that

address issues of information management processes, variation in demand and lead time, employee skills and employee attitudes. It is therefore important to note that inventory management process, inventory management, lead time, technology and innovation have a significant influence on the organizational performance of companies in Kenya and it is important to address them as the success of such companies depends on the effective management of these issues.

Suggestion for further Research

The research investigated the influence of inventory management practices on organizational performance in energy sector. The researcher suggests this research to be done specifically on the energy sector in all county governments not limited to Nairobi County only. Further research can be done on other factors influencing organizational performance in energy sector.

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