Determinants of Successful Implementation of Inventory Management Information System in Public Sector in Kenya: Survey of Nakuru County

Masakhalia Ouma Christopher[1], Josephat Kwasira[2]

Jomo Kenyatta University of Agriculture and Technology, Kenya

Abstract: *Most organizations fail to perform optimally due to poor management of inventory under their custody. Inventory and information are the key drivers of the supply chain of which the former is the lubricant of the supply chain whereas the later presents the management with the opportunity to make supply chains more responsive and efficient. Thestudy was conducted in Nakuru County on the determinants of successful implementation of inventory management information system in the public sector between 23rd to 30th May 2014. Training, Lean Management, Management support and Business Process Re-engineering were identified as the key variables that guided the study. The general objective of the study was to establish the factors influencing the successful implementation of inventory management information system in the public sector in Kenya.The study revealed that there was a very strong relationship between the study variables and the implementation of IMIS in Nakuru County. The study relied on survey design to guide in the research where all employees of Nakuru County were targeted for inclusions in the study.Questionaires were used to collect data from the respondents. The study therefore recommends that organizations should put in place proper Inventory Management Practices to ensure that implementation objectives are achieved and there is need to align operating procedures to IMIS operation requirements.*

Keywords: Inventory Management, Information system, Public sector, Implementation Process, Determinants

1. Introduction

The last two decades has seen governments around the world executing major initiatives in order to take advantage of the potential of emerging information and communication technology (Heeks, 1993). Inventory Management Information System (IMIS) is one of the most popular government ICT-based initiatives that have proved to be effective in a number of operations. IMIS enhances effectiveness and transparency of the system by computerizing the process in which public financial resources are managed. However, the author notes that the results from international experience with IMIS, including the World Bank, have so far had quite mixed success stories and unsuccessful ones too.

IMIS is often viewed as the driver of financial reform in developing countries though these systems usually fail or underperform (Timpson, 2009). Research to date has not adequately explained their poor performance. The purpose of this research project will be to examine the factors affecting the successful implementation of IMIS with special focus on the County of Nakuru.Golber and Rotbner (2010), in their paper for the United States Agency for International Development (USAID), cite countries around the world, where IMIS has been successfully implemented. Generally, the paper observes that the road to implementing successful IMIS is full of difficulties, such as resistance from the bureaucracies involved; lack of support from the top leadership; weak human capital; corruption; and, in the case of conflict-ridden countries, the instability and violence that impair any efficient long-term sustainability.

In Africa, Peterson (2006) pinpoints Ethiopian case as one of the success stories. He observes that the project was implemented in a three-step approach to process change of financial procedures. These were comprehension, improvement then expansion. Comprehension meant documenting and training staff on existing procedures. Improvement meant marginal changes to better forms, streamlining procedures and expansion meant introducing new procedures thereby moving from single to double entry bookkeeping. This three-step approach to process change of phases in turn necessitated an iterative custom approach to automation, which finally brought success.

The World Bank has funded IMIS projects as part of larger government reforms in more than 27 countries to the tune of US $ 1.1 billion (Approximately Kenya Shillings 86 Billion). Heeks (2009) discerns that. The author adds that a whopping 65% of World Bank's IMIS projects have not rated successful. Apart from Tanzania and Ethiopia, Slovak Republic; Kosovo; and Kazakhstan are just a few other countries that have managed to Implement IMIS within stipulated timelines, though with difficulties. Rwanda is following suit, in its Implementation strategy [2008 -2012], it notes that the successful implementation IMIS will help its government to track, standardize and record all its inventory activities.

The forty-seven counties in Kenya have the opportunity of managing inventory in transparent and efficient way. Lack of inventory control systems in these county governments creates an avenue for corruption. The Nakuru county government in its 2013-2014 financial budget, allocated substantial amounts of resources for the implementation of ICT-based systems in operations of all the crucial departments among them procurement department. Inventory that accounts for the largest portion of its assets has been given the highest priority in this case. It is in the spirit of improving and enhancing service delivery that a study will be carried out to identify factors affecting successful implementation of IMIS in Nakuru County.

2. Literature Review

Before the Industrial Revolution, merchants had to write down all of the products they sold every day. Then they had to order more products based on their hand-written notes and their gut feelings. This was an incredibly inefficient and inaccurate way of doing business. Merchants could not really account for stolen goods unless they did time-consuming physical counts on a regular basis. They also had trouble making sure they got the right number of products when orders came in because of sparse recordkeeping. However, it was the best they could do. Luckily, in 1889 a man named Herman Hollerith invented the first punch card that could be read by machines. By feeding sheets of paper that had little holes in specific places; people could record complex data for a variety of purposes from census taking to clocking in and out of work. This was the precursor to computers that can read data in tiny microchips. In addition, Hollerith's company even went on to form the world's first computer company IBM (Peterson, 2006).

Harvard University took Hollerith's idea in the 1930s and created a punch card system for businesses. Companies could tell which products were being ordered and record some inventory and sales databased on punch cards customers would fill out for catalog items. Unfortunately, Harvard's order management system cost too much and was too slow to keep up with rising business challenge. In the 1960s, a group of retailers (mostly grocery stores, at first) got together and came up with a new method for tracking inventory: the modern barcode. There were several competing types of barcodes before they were standardized with the Universal Product Code (UPC) in 1974. It is still the most-used barcode in the United States today (Heeks, 2009).

As computers become more efficient and cheaper, UPCs grew in popularity. In the mid-1990s, companies started experimenting with inventory management software that would record data as products were scanned in and out of warehouses. The technology evolved into a comprehensive inventory management solution by the early 2000s. Now, even small and midsize businesses can find affordable inventory management software to meet their needs. Inventory management software has been decades (even hundreds of years) in the making. Now that it is here, you should definitely take advantage of it to make sure your business does not become history. Sign up for an online inventory software demo today. Many inventory management systems exist in the marketplace, each offering specific benefits to a company if it buys their system. However, all inventory management systems offer certain benefits regardless of whose name is on the software. These benefits come from the fact that inventory management software performs robust mathematical calculations accurately and quickly. This speed and accuracy bring multiple benefits to an organization (Heeks, 2009).

3. Statement of the Problem

The speed in gathering and communicating information is vital particularly in inventory management where many resources are at stake. According to Isidore (2012), when the appropriate information required for planning is not available at the appropriate time; there is a possibility of poor priority and poor decisions. The Ministry of treasury's IMIS Strategic Plan 2011-2012 documents that although the IMIS was intended to automate and seamlessly integrate key business functions, ironically, many key activities are still undertaken outside the system despite the IMIS' capabilities to achieve full automation of these manual processes.

From the foregoing assertions, it can easily be seen that a large part of IMIS capability is not fully harnessed. A study was designed therefore to examine factors that affect the successful implementation of IMIS in Nakuru County.

Objectives of the Study

i. To analyze the role of training in successful implementation of IMIS in Nakuru County.
ii. To examine how lean management affects successful implementation of IMIS in Nakuru County.
iii. To establish the relationship between top management support and successful implementation of IMIS in Nakuru county.
iv. To assess the influence of Business Process Re-engineering on implementation of IMIS in Nakuru County.

4. Conceptual Framework
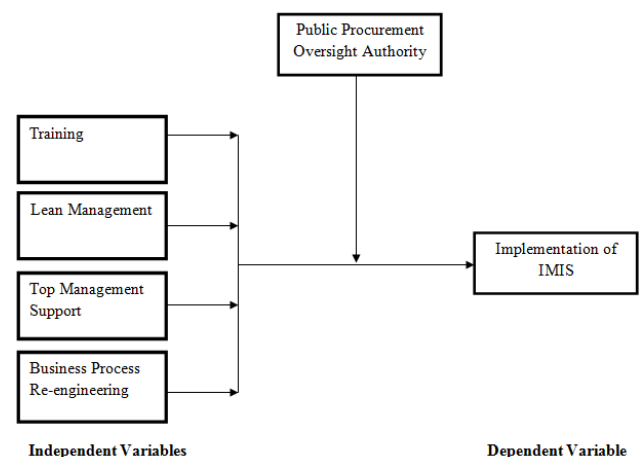
5. Justification of the Study

The researcher identified this area because of the rallying call from reform crusaders towards a transparent and accountable world, and corporate governance in general. The government to further the ideals of IMIS used a lot of money, and it was imperative if those ideals wereachieved in full. The researcher was seeking to unravel the mystery surrounding the implementation process of IMIS.

The research outcome will therefore be useful to all stakeholders of the government. These include the Policy

makers in government; the donor community, suppliers of goods and services to the government, civil servants and the public who would wish to know how the inventory management aspects of the government improve. Moreover, the study will be useful to future researchers who will choose to revisit this area; in which case this research will serve as a foundation stone upon which their research will be laid.

6. Research Methodology

A survey research design was used since the interest was on establishing the relationship that were taught to exist, opinions held by employees about inventory management information systems and its implementation process according to Kothari (2008).There was need to describe,record,analyze and interpret how Training, Lean Management, Top Management Support and Business Process Re-engineering influenced Inventory Management Information System implementation process at Nakuru County. All employees were targeted for inclusion for the study however; a sample size of 81 employees was used to fill the questionnaires.

7. Research Findings and Discussions

A total of 81 questionnaires were distributed to the respondents, 66 were successfully returned thus putting the response rate at 81.48% of the questionnaires issued. From the figures above, IMIS users in the lower cadre had a higher response rate at 53.0% followed by those in the middle level at 31.8% and lastly the top-level cadre at 15.2% of all the questionnaires returned. This response rate is attributable to the fact that most of the top level officers were very busy or away from their work stations, while those in the middle and lower cadres were available and had time to respond to the questionnaires. The response rate of 81.48 % was representative enough to reflect reliable results for the study. Steven (2004) agrees that response rate at this level means less sampling bias and thus effective.

When the respondents were asked to respond to various aspects on training as they affect IMIS implementation process, the mean response was (4.0) implying that training was an important aspect to IMIS implementation process. In addition, the respondents agreed that training process improves performance as far as the new system is concerned at the Nakuru County. Further and by away of average they indicated that training policy if well outlined is a good tool for IMIS implementation process. The respondents agreed that, users were well trained before the IMIS system was put into practice. Further, the respondents agreed that the training policy is well aligned to overall organizational policy. Harish (2010) observed that effective implementation, operation and maintenance of the application solution and infrastructure require knowledge and skills. The author adds that this is a human resource aspect geared towards equipping the staff with necessary skills to use the new system. On evaluating training, Sims (1998) suggests that an evaluation of the training program is necessary to determine whether the training accomplished its objectives. According to

Bramley1996, this is the most neglected aspect of training especially in the public sector. The author adds that evaluation improves training programs by providing feedback to the trainers, participants and managers, and it assesses employee skill levels.

When the respondents were asked to respond to the specific aspects on lean management and how they affect IMIS implementation process in Nakuru County, the mean responses showed that the respondents agreed (3.7) that lean management was an important aspect to the IMIS implementation process in the county of Nakuru.On the specific aspects of lean management, the respondents agreed to the fact that there was a waste management policy in place with mean of 3.7.As to whether there was mechanism in place to ensure that resources were well utilized and there less wastage, the respondents agreed with mean of 3.7.When probed as to whether the organization had instituted mechanisms in ensuring the employees were well motivated and able to perform their functions well the response was with mean of 3.8 implying that they agreed.

When the respondents were asked as to whether the individual and overall organizational objectives were set objectively and if at all they were involved in their setting the mean was at 3.6 indicating that the respondents were positive on that aspect of lean management. Lastly, when the respondents were probed on the aspect of whether the organization had put in place relevant performance measuring tools in ensuring that the new system met its intended goals, the response was with mean of 3.8 indicating that the majority of the employees agreed to the fact that the organization had put in place mechanisms to measure the IMIS performance.

Therefore, by way of average, the research findings showed that lean management practices were strong tools in supporting IMIS implementation process in Nakuru County. When the respondents were asked to respond to various aspects on top management support and how they affect the IMIS implementation process the mean responses showed that the respondents strongly agreed that top management played an important role in the process of IMIS implementation. On the individual aspects of top management support, the allocation of adequate resources to the projects under question, the respondents strongly agreed with mean of 4.6.This is because projects cannot run smoothly with lack of funding which the management have a great say in its allocation.

On the issue as to whether employees were able to have flexible time out of their busy schedules, the response was with mean of 3.8 implying that they agreed to the fact that flexi-time was very necessary for the employees to be able to work on IMIS implementation process without being bothered with their daily roles. When the respondents were tasked to respond to whether the management were well skilled to undertake the IMIS implementation process, the mean response was 3.9 showing how the employees had faith in their management and this is important because without the management being in position to understand the procedures and processes of the new system they will hardly impart the necessary skills to the rest of the teams.

The mean response on job rotation was at 3.8 meaning that the majority of the respondents agreed that job rotation existed and it plays an important function in IMIS implementation process at the county of Nakuru. Job rotation or what is commonly known as in 'my shoes' campaigns enables employees learn new ideas and skills that enables them perform new challenging roles without problems. In the case employees are exposed to new work environment that is very relevant to the new system being implemented hence enables the organization achieve its goals.

When the respondents were asked to respond as to whether the management strived to practice the open door policy that is necessary in the organization being able to achieve high degree of interaction between employees and the management, the mean response was at 3.7 showing that there was some sort of open door policy. Open door policy enables low and middle level employees to access the management at any time without booking an appointment and share any fresh ideas on the IMIS implementation process. This will go largely in the IMIS implementation teams achieve its goals in good time. When the respondents were tasked to respond to the question as to whether the management practiced bottom up policy in communication, they responded with mean of 3.6 indicating that the management was able allow new and fresh ideas not only from the management but also from all sections of the organization. This enables and nurtures innovation in the organization, which is an important aspect of IMIS implementation process.

On the question of the organization having open forums the response from the respondents had a mean of 3.9 implying that open forums played a leading role in the IMIS implementation process hence the need for the management double its efforts in that direction. Lastly, when the respondents were asked as to whether the management encouraged departmental linkages in its day-to-day operations, they responded with mean of 4.4 on the likert scale of 1-5.This implied that departments could work alone in achieving the overall organizational objectives. All departmental heads need to link their departments to one another in pursuit of achieving IMIS implementation process.

When the respondents were asked to respond to various aspects concerning Business Process Re-engineering and how they influence IMIS implementation process the mean response was 2.7 on the Likert scale of 1-5 implying that the majority of the respondents were neutral on the fact that various aspects of Business Process Re-engineering were well put in place by Nakuru County government to enable IMIS implementation process..When the respondents were probed on the individual aspects of Business Process Re-engineering and as they influence IMIS implementation process, the response on manual processes having been replaced when the new system came into being, the mean was 3.5.This is a good indication that the management of Nakuru County was in good position to pursue the IMIS implementation process since in the mind of the user's manual processes was non-existent.

When asked as to whether procedures were modified with the introduction of IMIS the mean response was 2.3 implying that despite the introduction of the new operating system the old procedures under the manual systems were still under use. There is need to change the old procedures to be compatible with the new and ever changing system demands for the users to operate efficiently. On the question as to whether inefficient processes were replaced the mean was 3.2 indicating that the management need to work on processes that do not add value to the new system and strive to shorten processes that take a long time.

When the respondents were asked as to whether the organization had reviewed processes and procedures to meet the changing demands of the new system, the mean response was 2.5 implying that the management needed to do a lot in reviewing processes and procedures to ensure that they are in conformity with the requirements of the new IMIS processes. As to whether the new technology was accepted the mean was 3.5 indicating that the majority of the employees had come to terms with the new system and what the management needed to do was to put in more effort in ensuring that the fruits of the new IMIS are realized. Lastly, the respondents were asked to respond to the question as to whether processes were institutionalized and the mean was 2.2 implying that the majority of the respondents disagreed. There is need for the organization to ensure that processes were part of the whole organization to allow all the employees understand the requirements of the new system.

8. Summary and Conclusions

This research project serves to contribute to the growing literature on Inventory Management Information Systems. Technology has generally presented improvements in storage capacity and processing speed, which have had a profound impact on data management and transactional capabilities, with accompanying reductions in cost.

The study found out those crucial aspects of training, business process re-engineering, lean management, and top management support had been ignored at the outset of the project. There are evident steps to rectify this as shown in their strategic plan. Prominently seen in the study is the craving for training by the users of IMIS. Another item, which excited the researcher's interest, is the failure to fully involve all the users in the introduction process of this project.

9. Recommendations

The research established that there was need for business processes re-engineering in a number of areas to enable smooth IMIS implementation, this was because the operating procedures were not fully aligned to the requirements of IMIS. The waste management policy should be strengthened to officially put into place mechanisms to reduce wastage that remains a challenge in implementing IMIS. The research further identified a dire need for training of users of the system so that they can appreciate the all-round aspects of IMIS. The management should therefore ride on the enthusiasm of the users and

give them necessary support to fully implement this project.

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Author Profile

1993-1998-Bsc. Agricultural Economics, Egerton University, Kenya, 2010-Diploma in Purchasing & Supplies Management, Kenya Institute of Management, Kenya, 2012-2014-Msc.Procurement & Logistics Management, Jomo Kenyatta University of Agriculture and Technology, Kenya. Senior Inventory Controller-Safaricom Ltd-Kenya.