

Sub-Optimal Performance of Enterprise Resource Planning Systems in Non Governmental Organizations in Kenya: A Case Study of AMREF Kenya

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Abstract:

The Non-Governmental Organizations play a key role in Kenya's development. Many NGO's have deployed Enterprise Resource Planning (ERP) systems in their management of the supply chain. There is a problem with Non-Governmental Organizations' (NGO) ERP systems: they experience varying degrees of inefficiencies with the deployment and application of the e-procurement software. This research had the overall objective of investigating the factors contributing to the sub-optimal performance in the ERP performance in the NGO's in Kenya. The choice of AMREF is that it is one of the largest and oldest NGO's in the medical sector in Kenya which recently implemented ERP systems. It is facing inefficiency issues with its ERP system. The research applied descriptive research design and used random sampling technique. The data collection was done with the aid of questionnaires. The key finding was that the Enterprise Resource Planning (ERP) training is wanting in terms of relevance and appropriateness. The study recommends *inter alia* that training be made more involving by incorporating the stakeholders from other departments to participate in the training exercise other than to leave it to the supplies unit and the consultant. It also recommends that the procurement procedures be enhanced in order to reduce on the number of signatories required and thus hasten the decision making process.

Keywords: Enterprise Resource Planning, Non-Governmental Organizations, Sub-Optimal Performance

1. Introduction

Enterprise Resource Planning (ERP) software integrates data from most or all of a firm's operations and support functions, synchronizing production with new orders, purchasing with demand, scheduling and shipping with customer requirements (O'Brien, 2009). According to O'Brien, (2009) when well-implemented to the organization, ERP software is an efficient, quick and accurate management tool that reduces cycle time and builds reliability.

Globally ERP solutions are applied to streamline business processes across multiple locations and geographies with suppliers, partners and manufacturers have realized significant improvement (almost 70%) in time reduction from order entry to delivery of goods (Weele, 2005). According to Weele, (2005) ERP solutions are critical for an international company's ability to achieve growth and cost reduction goals by going global. ERP's provide integration to globalizing companies but they do not provide quick fix to all market penetration and other business infrastructure (Gunson, 2010).

Many NGO's in Kenya, and Africa as a whole, have taken gigantic steps to dedicate themselves toward the achievement of the goals outlined by the United Nations (United Nations, 2011). NGOs in Africa, particularly in Kenya, can reach groups that the government and other agencies cannot and the past development strategies have given NGOs the legitimacy to act on behalf of the poor (Muganda, 1999).

According to Themistocleous (2010), organizations, including NGO's, aim to achieve several benefits by implementing ERP software: provide solutions to the problems of legacy systems, reduced development risk, increase global competitiveness and enhance business efficiency. These benefits can be ascribed to an optimal ERP system. Within the domain of procurement, ERP systems aim at achieving optimal performance through technology networking among the procurement stakeholders. Sub-optimal ERP systems can lead to many drawbacks within the organization: implementation complexity, integration problems, customization problems, over budget, employee and supplier resistance to change and problems with business strategy and competitive advantage (Themistocleous, 2010).

AMREF is an international organization headquartered in Nairobi, Kenya which seeks to empower communities to take control of their health and to establish a vibrant and participatory health care system made up of communities, health workers and governments. It recently implemented an ERP system with the aim of improving the procurement efficiency. The system has, however, not been able to seamlessly match stakeholder expectations and has been beset by sub-optimal performance (AMREF, 2011).

2. Statement of the Problem

Enterprise Resource Planning (ERP) touches many core aspects of a company's operations and, hence, their successful deployment and use are critical to performance and survival (Markus *et al*, 2010). According to Saxena *et al* (2009), the NGO ERP systems display integration bottlenecks with organizational policies and procedures, generate internal and external non-coordination and fail to seamlessly synchronize with stakeholder

platforms. The NGO's experience varying degrees of ERP inefficiencies with the deployment and application of the e-procurement software (Saxena *et al*, 2009).

A research on ERP system challenges in Kenya indicate that the success rate of ERP's is only 33% (Otieno, 2008). A global survey by Yano Research found that the market for ERP's grew only by 1.7% in 2010. O'Leary (1998) established that ERP's confer only 5% and 12% intangible and tangible benefits respectively. These findings, directly and indirectly, point to problems of ERP efficiency issues in organizations.

There are high expectations in the NGO ERP performance from donors, suppliers, employees and beneficiaries (Bendell, 2006). NGO ERP efficiency issues can lead to shrinkage in donor support, inconvenience of procurement department users, supplier frustration and eventual decline in organizational performance in the long term (Jordan, 2010). This has a snowball effect that stretches to the national domain given the huge dependency on these organizations in the country.

3. Objectives of the Study

The overall objective of the research was to find out the factors that contribute to the sub-optimal performance of ERP systems in NGOs in Kenya. The study had the following specific objectives: find out whether organizational policies contribute to sub-optimal performance of ERP systems, establish if the software costs contribute to the sub-optimal performance of ERP systems, examine the adequacy of training to assimilate ERP systems performance and determine the effect of management support on ERP performance in AMREF Kenya.

4. Literature Review

An optimal ERP system generates significant benefits for a company which include: enhanced quality and efficiency, decreased costs, decision support and enterprise agility (O'Brien *et al*, 2009). These are the five basic distinguishing features of an optimally performing ERP system according to O'Brien *et al*

Lack of coordination in the decision-making processes and organizational policies results in information distortion and diminishes ERP performance (Chopra *et al*, 2008). According to Weele, (2004) flexibility in an organization's purchasing policies determines the efficiency of its ERP performance. ERP system can coordinate the operation of the system as a whole in order to achieve optimal performance. According to Zhang *et al* (2011), this is possible if there is policy coordination and true, accurate and timely information flow at all levels in the organization. Gilbelman *et al* (2001) and Robson (2002) state that organizational guidelines and procedures that do not elaborately support user and supplier flexibility generate inefficiencies and sub-optimal performance in the ERP. Gunson, (2010) perceives ERP performance not in organizational policy terms but as a trend contributing to user and supplier flexibility.

Al-Mashari (2003) avers that choked information channels and limited information flow is a consequence rather than a cause for sub-optimal ERP performance. The information produced by ERP is not only important for firms' internal management but also useful for external relationship management (Zhang *et al*, 2011). ERP performance is heavily dependent on flexible and supportive organizational processes and policies (Shah, 2009). Absence of a mechanism to update organizational procurement policies has a direct adverse impact on ERP performance (Shah, 2009).

According to O'Brien *et al*, (2009) the ERP implementation comes with several software costs that can impact on its performance if not creatively managed. The costs of an ERP software implementation can cause business disruption and trigger a slow down to the overall performance. The software costs that can impact on ERP performance include hardware, software, re-engineering, data conversions and training and change management (O'Brien *et al*, 2009). According to Chopra *et al*, (2008) software costs is one of the operational obstacles of an ERP system which can indirectly cause inefficiencies and eventual sub-optimal performance.

Implementation of optimal ERP systems require expensive information technology infrastructure such as mainframe computers and failure to meet these costs impacts on the quality of the system (Kumar, 2010). Hillegersberg *et al* (2010) states that ERP or any technological performance is principally a factor of strategic inputs and not a consequence of isolated decision-making such as cost-allocation. Shah (2009) suggests that if the ERP costs are high, the management is bound to deliberately look for ways of curtailing it and in the process stifle the necessary adjustments required to make the system perform optimally (Shah, 2009).

The quality and frequency of training has a direct correlation to ERP performance according to O'Brien *et al*, (2009). Lack of relevant and suitable training in the tasks required by ERP system leads to failure in the data conversion and overall integration of the system culminating in sub-optimal performance or absolute failure (O'Brien *et al*, 2009). Lysons *et al* (2006) indicates that the cost of training employees on ERP is high but there has to be a flexible training schedule in place if optimal user performance is to be realized. Kumar (2010) states that quality implementation of an ERP can be derailed by poorly trained employees who do not know how to properly operate the ERP system. The knowledge transfer to employees is one of the most important factors in ensuring an optimal ERP performance (Kumar, 2010).

ERP performance is very dependent on internal management support for implementation and performance success (Shah, 2009). According to O'Brien *et al*, (2009) if the firm relies on external consultants and software

vendors, as opposed to in-house resources, the ERP system will not be properly integrated internally and externally leading to sub-optimal performance. Management buy-in of the ERP within the organization leads to more utilization of its capabilities and consequent evolution from flexible ERP, web-enabled ERP, inter-enterprise ERP and ultimately into e-Business suites (O'Brien *et al*, 2009). Lysons *et al*, (2010) states that management spends more time on strategic issues rather than operational and tactical concerns such as ERP implementation and execution.

5. Research Methodology

The study adopted descriptive research design. Mugenda and Mugenda, (2008) explains descriptive design as collecting data in order to test hypothesis or to answer questions concerning the current status of the subject of study. The method was chosen since it is used to obtain information that describes existing phenomena by asking individuals about their perceptions, attitudes, behaviors or values. Kothari (2004) notes that descriptive design is concerned with describing, recording, analyzing and reporting conditions that exist or existed. The study focused on the entire 5,461 NGOs in Kenya as the target population (NGO Coordination Board, 2011) with AMREF Kenya as the study population. AMREF has a workforce of 321 and is one of the leading NGO's in the country which recently implemented the ERP system and is currently experiencing ERP inefficiencies (Otieno, 2008). The study used simple random sampling to select 321 staff respondents in AMREF Kenya. The respondents were drawn from the employee listing obtained from the Human Resource department. The selected sample respondent was equivalent to 10% of the target population. According to Mugenda and Mugenda (2008), 10% population is regarded to be statistically significant sample in descriptive study.

6. Results and Discussion

6.1 Organizational Policies

Ninety six percent (96%) of the respondents agreed that the ERP system allows information sharing. The respondents who agreed cited reasons such as the ability of the system to offer services such as document tracking access to stock of different departments and emails in a click of a mouse. The respondents were asked to indicate whether organizational policies engendered a coordinated approach in the decision-making process. Sixty nine percent (69%) of the respondents indicated that organizational policies promoted a coordinated approach in decision making whereas (30.4%) indicated the contrary. The respondents who denied cited reasons such as some of the departments making their own decisions without coordinating with others. Those respondents who accepted indicated that through the current policies, each department was able to be involved with an issue at its relevant stage enabling the management to make joint decisions.

6.2 Software cost

The respondents were asked whether there was a regular schedule for effecting ERP system enhancements. Most of the respondents (62%) agreed that the organization had a regular schedule for effecting the enhancements as it is demand driven which includes annual support and enhancement contracts. A significant number (30%) indicated that there is no such regular schedule. A paltry (8%) indicated that they dint know. These research findings confirm that NGO's do not have a very regular schedule for enhancing ERP system enhancements.

The respondents were asked to indicate whether within the enterprise resource planning there was a high technology cost component. Most of the respondents (40%) indicated that there exists whereas a few (20%) disagreed. A significant number of the respondents (40%) indicated that they did not know. Those respondents who agreed indicated that incase the system crashed, the company could lose all its data whereas those for the idea that there was no cost component cited reasons such as the security of the system in place was very high. These research findings imply that the sub-optimal ERP performance is a part function of high technology costs that may impede maneuverability in the technology options platform.

6.3 Training on Enterprise Resource Planning

To the question as to whether the users are trained on ERP, the majority (87%) of the respondents indicated that they were trained whereas the rest (13%) indicated they had not received any training. Those who indicated that they have not been trained are new joiners in the organization. The respondents indicated that they received the training from the information technology, consultants or the supplies unit. These research findings confirm that ERP training indeed takes place in the NGO's. This research finding tallies with Jordan, (2010) assertion to the effect that most NGO's conduct training on ERP in some form.

6.4 Management Support

The question sought to investigate whether management was concerned with ERP implementation to which the majority (87%) agreed and the rest (13%) denied. Those respondents who agreed indicated that the management emphasized that everybody should be trained and allocated time for the same as it involved finances, and other technical support. They also mentioned the fact that if management was anti-ERP the initial deployment and even the sustainability within the organization would not have succeeded. These research findings are a clear indicator that management is indeed concerned and is keen to ensure ERP implementation and operability

success. The explanation behind those who denied could imply that managers in certain units may not be enthusiastic about ERP implementation.

This finding confirms the assertion by Shah (2009) to the effect that ERP performance is very dependent on internal management support for implementation and performance success.

7. Inferential Statistics

The following table 4.16 displays R (the correlation between the observed and predicted values of the dependent variable), which is .903. This is indicative of a very strong relationship between the observed and predicted values of the dependent variable. The correlation was a good fit describing 84.4% of the variance in R²adj 81.5% this indicates only a slight overestimate with the model.

Table 4.16: Linear relationship between Independent variables and dependent variable

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
dimension0 1	.903 ^a	.844	.815	.0048837

Pearson correlation analysis was conducted to examine the relationship between the variables. As cited in Wong and Hiew (2005) the correlation coefficient value (*r*) range from 0.10 to 0.29 is considered weak, from 0.30 to 0.49 is considered medium and from 0.50 to 1.0 is considered strong. However, according to Field (2005), correlation coefficient should not go beyond 0.8, to avoid multicollinearity. Since the highest correlation coefficient is 0.78 which is less than 0.8, there is no multicollinearity problem in this research (Table 4.8).

All the independent variables had a positive correlation with the dependent variable with training having the highest correlation of ($r=0.789$, $p < 0.05$) followed by organizational policies with a correlation of ($r=0.689$ $p < 0.05$) and then management support with a correlation of ($r=0.6528$ $p < 0.05$), software costs have the least correlation of ($r = 0.5334$ $p < 0.01$). This indicates that all the variables are statistically significant at the 95% confidence interval level 2-tailed. This shows that all the variables under consideration have a positive effect on the dependent variable.

These research analyses is indicative of the fact that ERP sub-optimal performance in the Non-Governmental Organizations (NGO's) is a factor of training, organizational policies, management support and software costs in that order. The analyses tally with the arguments proffered by Weele, (2004) and O'Brien *et al.*, (2009) on the organizational policies and training issues as having a causal correlation with the sub-optimal ERP performance in the NGO's. They also affirm the scholarly views expressed by O'Brien *et al.*, (2009) and (Shah, 2009) on the precipitation of ERP sub-optimal performance by software costs and management factors in the NGO set-up. The research results, however, disaffirm Gunson, (2010) and Hillegersberg *et al* (2010) who discounted organizational policies and software costs respectively as the causal factors for the sub-optimal performance in the NGO ERP performance.

8. Research Findings

The NGO's conduct some training of the employees on the ERP. The training is conducted by consultants, information technology specialists and the supplies unit. The training is quite wanting in terms of relevance and appropriateness. The training schedule is inflexible in the sense that there is no set schedule for the training modules for the existing employees and for joiners. There is no set time-table for refresher trainings to cover emerging aspects in the ERP. The NGO's face data conversion issues with the ERP which ultimately lead to manual workarounds and precipitate sub-optimal performance of the system.

There is a seamless information sharing mechanism through the Non-Governmental Organizations (NGO) Enterprise Resource Planning (ERP) platform. The system enables intradepartmental and interdepartmental sharing of procurement and other information. The ERP system engenders a coordinated approach in the decision-making process within the NGO set-up. However, the organizational guidelines and procedures are not wholly supportive of supplier-centric culture. They consist of elements that discourage suppliers and consequently generate complaints. The NGO procurement policies pertaining to ERP does not wholly encourage faster payment processing due to the multiple payments approval layers. The NGO policies do not engender user and supplier flexibility. They display bureaucratic bottlenecks that defy innovative approaches to unique circumstances within the procurement function. They organizational policy milieu in the NGO's cause sub-optimal performance in the ERP.

The management in the Non-Governmental Organizations is concerned with ERP implementation. There is overwhelming internal management support of the ERP. However, management is not proactive enough in addressing ERP challenges. There is insufficient prioritization of ERP issues by the management. Within the ERP framework problematic situations do arise but the NGO management does not deal with such challenges proactively. The NGO management does not adequately resource the ERP and does not inspire the appreciation of the ERP usage in the organization. The management approach in the NGO's therefore triggers sub-optimal performance of the ERP.

There is some progressive innovation of the ERP system within the NGO set-up. This means that there is a progressive evolution of the system to keep in step with the galloping technological changes globally. The ERP software cost management is well-controlled. The software costs are however high but the NGO's are able to save costs that arise due to the automation process e.g. through the paperless office initiatives made possible by ERP interconnectivity. The ERP system enhancement is not executed end to end and on periodic basis in the NGO's.

9. Research Conclusion

The organizational policies in the Non-Governmental Organizations (NGO's) are progressive in the sense that they encourage information sharing, engender a coordinated approach in the decision-making processes. They, however, cause sub-optimal performance in the ERP since they are not very flexible and the payments processing guidelines are not supplier-centric. Additionally, the organizational policies do not support user and supplier flexibility.

The software cost management in the NGO sector with respect to the ERP is good. There is also an innovative approach to the ERP software management and some control to the related costs. ERP deployment and use generates cost savings to the NGO's. However, the ERP system enhancements are not deployed in a regular schedule end-to-end. The ERP training in the NGO's, albeit being largely suitable and relevant, is inflexible and does not follow a regular schedule. There are also data conversion issues that impede the optimal performance of the ERP.

There is internal management support for ERP implementation in the NGO's. However, the management does not adequately resource the ERP and does not inspire the appreciation of the ERP usage in the organization. The management approach in the NGO's therefore triggers sub-optimal performance of the ERP.

In conclusion therefore, the most significant factor contributing to sub-optimal performance of ERP in NGOs in Kenya is training requirements, followed closely by organizational policies, management support and finally software costs. The study recognized that the four independent variables that were studied explain only 84% of the factors contributing to suboptimal performance of ERP systems in NGOs in Kenya and that the 16% are other factors that not studied that contribute to the suboptimal performance of ERP.

10. Recommendations

Based on the findings, the following recommendations can be made:

1. Training should be made more involving and this can be achieved by incorporating the stakeholders from other departments to participate in the training exercise other than to leave it to the supplies unit and the consultant to carry the day. In addition, the training should be more structured in terms of scheduling, predictability and content coherence. It should not be left in the hands of the information technology experts, consultants and supplies managers only. It should be a joint effort and coordinated right from the strategic decision-making level. Further, refresher courses should often be undertaken regularly. On-the-job training should be conducted at all levels to ensure seamless ERP operability understanding.
2. The procurement procedures be enhanced in order to reduce on the number of signatories required and thus hasten the decision making process. The organization policy framework should be enhanced to support faster decision making. Organizational policies should also be changed to ensure that there are no delays in supplier payment. They should be amended to get some supplier-centric elements. Organizational policies should be made more flexible to keep in step with the dynamic technological evolution and take cognizance of urgent supplies. The policies should also be enhanced to enable user and supplier flexibility in their roles.
3. Management approach should be transformed to prioritize Enterprise Resource Planning issues. The management should schedule meetings to critically discuss areas of improvement with regard to procurement and be able to adopt problematic issues of Enterprise Resource Planning System that arise from the end users. In addition, they should always review Enterprise Resource Planning processes and provide the necessary remedial actions. The management should always be on the alert on the drastic technological changes in ERP and be ready to embrace it by ensuring that the latest ERP system is what is being used and is fully implemented.
4. The management should always ensure that there is a regular schedule for deploying ERP system enhancements. These enhancements should take cognizance of the global technological evolution to ensure interoperability with supplier and other stakeholder software. There should preferably be a regular schedule for auditing the ERP software with a view to implementing the necessary technological and process enhancements. The NGO sector could also tap into user feedback as a reservoir of getting the necessary ideas to effect the ERP changes. The NGO strategists should come up with innovative ways to contain and proactively manage the ERP software costs.
5. The study recommends further research into the skill levels and the effectiveness of the ERP trainers in the NGO's. This recommendation is based on the fact that despite the training conducted there is evidence of non-seamless understanding of ERP processes, basic functions and general operability issues. Secondly, a further

research should be conducted to find out the other determinants constituting 16 % of factors contributing to suboptimal performance of ERP in NGOs in Kenya which were not covered in the current study.

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