

# **AN ASSESSMENT OF FACTORS AFFECTING THE IMPLEMENTATION OF ENTERPRISE RESOURCE PLANNING SYSTEMS (ERP) IN GEOTHERMAL INDUSTRY IN KENYA**

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## **ABSTRACT**

The last two decades has seen a tremendous growth in the development and implementation of Enterprise Resource Planning (ERP) systems in most developing nations. While there has been widespread acceptance of ERP software in developed nations, developing nations have been left far behind. However, owing to current economic advancement and need for project implementation and accountability, developing nations Kenya being one of them are gradually turning into key users of these systems. Therefore, this calls for in-depth understanding of ERP implementation

elements and its capability in terms of enhancing effective resource planning, management and project implementation. This paper evaluates the key factors affecting implementation ERP in the public sector. Such factors are; ERP Implementation strategies, ERP Implementation challenges, and the ERP implementation perceived benefits. The regression analysis indicated that these factors under study explained up to 42.3% of ERP Implementation success.

**Key Words:** *Enterprise Resource Planning (ERP), ERP implementation strategies, ERP implementation perceived benefits, ERP implementation challenge*

## **INTRODUCTION**

Due to economic growth, enhanced customer awareness and increased competition, less industrialized nations, including Kenya, are becoming key targets for ERP sellers. The greater percentages of organizations that have joined 'ERP implementation safari' have realized business benefits from the best business practices embedded in the ERP suites. Recent articles have published both successes and failures (Johnston, 2002), but with very little details on the underlying failure rate of ERP implementations in the industrialized economies is estimated to be in the range 66%-70%. Trade journals have reported cases of ERP implementation failures in North America and Western nations where bulk this software are developed. ERP implementation in less developed economies such as Kenyan public entities are likely experience more difficulties. This could be attributed to the fact that there are more challenges facing developing nations ranging from economic, cultural diversity, economic, infrastructural and bureaucratic government procurement regulations that call for impractical compliance levels. In the developed nations, ERP systems are mainly developed based on the existing knowledge base, norms, resources and trends. Consequently, organizations implementing ERP systems may find such assumptions exemplified by these systems may not synchronize with the existing organization procedures and workflows.

Moreover, ERP software being capital intensive is possibly to be affected by financial difficulties because of cultural differences increase implementation cost, poor economic performance in the region, and can result to longer implementation timeframes as organizations devote more time and resources in solving cultural disparities. Also the basic infrastructure to support ERP may be unavailable or inadequate to permit organizations to gain maximum gains from ERP investments

(Heeks & Kenny, 2002). The challenge of ERP implementation in developing economies is further aggravated by the claim that ERP represents time-honored methods of undertaking business and thus necessitating organizations implementing ERP system to amend their operating procedures to fit into the best business practices integrated in ERP suites.

Despite the numerous benefits of ERP, implementation may be a risky venture (Poba-Nzaou, Raymond, & Fabi, 2008). Ward, Hemingway, & Daniel (2005) observed that, as a result of management and behavioral-associated bottlenecks in the implementation process, numerous ERP implementation projects have been pre-maturely terminated or failed to realize its desired goals. Arif, Kulonda, Jones & Proctor, (2005), Alshawi et al. (2004), points out that it is critical for organizations to be cognizant of the experiences and the difficulties from other institutions and learn from experiences and practices.

## **STATEMENT OF THE PROBLEM**

Implementing ERP in developing nations is a complex undertaking aggravated by the fact that ERP represents time-honored practices of undertaking business invented and developed in the developed nations. This has made it necessary for organizations adopting ERP software to change their operating procedures and processes so as to comply with business practices embedded in the ERP software. Developers and suppliers have argued that implementation of these time honored practices tremendously reduces the cost of configuration of the software and brings about enhancement in the organization's procedures. As a result, organizations often face pressure to adopt these best practices. ERP implementation and utilization also call for specialized skills which may not be adequately accessible in unindustrialized nations. There is often a disparity between inbuilt best practices, the prevailing practices and desires of a given organization. The introduction and development of ERP systems in industrialized economies and use in developing nations are a common cause of problems including but not limited to culture, economic landscape and regulations. In Kenya, the Uchumi retail chain store's experience is an illustration that it is critical to comprehend ERP implementation practices in developing countries especially for public entities with bureaucratic structures of management. This research therefore seeks to assess factors influencing the implementation ERP systems in Kenyan public entities, a case study of GDC.

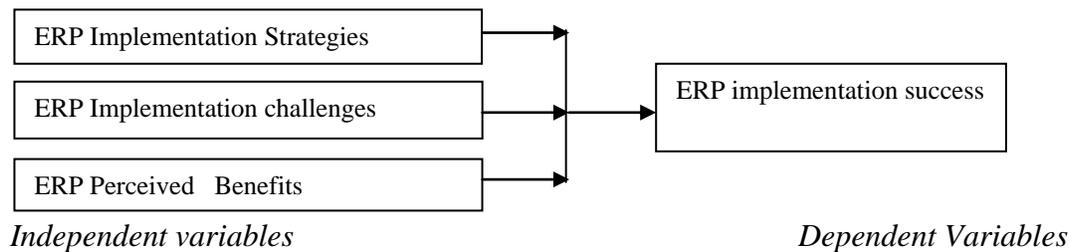
## **OBJECTIVES OF THE STUDY**

1. To determine the effect of ERP implementation strategies on the ERP implementation success.
2. To establish the effect of ERP implementation challenges on the ERP implementation success.
3. To establish the effect of ERP implementation perceived benefits on the ERP implementation success.

## **RESEARCH HYPOTHESES**

1. ERP implementation strategies have no significant effect on ERP implementation success.
2. ERP implementation challenges have no significant effect on ERP implementation success.
3. ERP implementation perceived benefits have no significant effect on ERP implementation success.

## **CONCEPTUAL FRAMEWORK**



**Figure 1: Conceptual Framework**

## **LITERATURE REVIEW**

Deloitte (1998) defined an ERP system as packaged business software system that allows a firm to share data profile and practices across the all firms, automate and integrate the bulk of its' business practices, produce and access information on a real-time basis. Kumar (2000), further defined ERP as a configurable information system package that integrate information requirements and information best practices within and across functional areas in a firm.

Davenport (1998), also defined ERP system as a packaged software product that can be purchased "off-the-shelf" by a firm so as to integrate and disseminate information and related business processes within and across functional areas. The definition highlights on the integrative capability of ERP systems within the various organizational networks particularly functional divisions, departments and sections within organizations while downplaying the hidden features of the ERP systems such as "best business processes" built in ERP suites. Shehab et al., (2004) agrees with Davenport's claim that emphasized on the integration aspect of ERP systems by noting that ERP is more than a software package that aims to incorporate the different functions in an organization. There is an emerging trend with most scholars and researchers that generally define ERP on the basis of its ability to integrate formerly, isolated functional information systems.

Umble et al., (2003) asserts that buying an ERP suite implies much more than procuring software since it contains a view of the best practices used in carrying out business activities. ERP

systems represent the best practices and established ways of doing business. Akrich (1992), Boersma, & Kingma, (2005) assert that best practices built-in in ERP, which contain procedures for users, informing them about what activities should be undertaken and how best. Therefore, it is evident that ERP is not just a software package to be custom-made to meet the needs of an organization but an organization's business blue-print that affects people's work by enforcing its own logic on a firm's strategy, organization, and culture in a bid to improve efficiency and effectiveness, (Davenport, 1998; Lee & Lee, 2002; Otieno 2010).

ERP as a system relays instructions at the workplace about how to match activities against available organization resources and other aspects of business operations. As opposed to tailor-made software that has to be configured traditionally so as to meet specific organizational requirements. ERP software is an 'off shelf', product that targets several industries and tailor-made for business practices before it can be used. Therefore, companies that adopt ERP should, for the most part, accept it all together with the seller's assumptions and change the prevailing processes and procedures to comply with them and consequently calling for efficient and effective change management.

In ERP, technology is considered a catalyst necessary for organizational transformation. The 'best practices' incorporated in these applications are seen as a summary of the time-honored practices and ideals of operation which might not be the case, but lays no emphasis to how local settings affect process of implementation, actual operation and usage of systems. They do not whether the applications are well suited to organizations' values and culture (Otieno 2010).

Although ERP developers endeavor to configure systems to reflect 'best practices'. It is the developers not the buying organization that draws boundaries point of view on what 'best practice', implies. It infers that there is an objective function against which the 'best practice' should be appraised, and this will vary from one firm to another therefore lacking standardization.

## **ERP Drivers**

Walsham (2002) contends that in the 1990's organizations were changing their operations and practices from the decentralized information management systems to the enterprise-wide integrated business initiatives for organizational development. The top management started positioning their institutions within a global context and in return they developed a sense of global business solutions. This move was reinforced by global management experts whose income increased as approaches become more prevalent and standardized.

According to Koch (2001), consulting is believed to be driving force behind adoption of ERP. Business Process Re-engineering (BPR) formed an essential part of a greater proportion of key success factor in ERP implementations. In the mid and late 1990s, Y2K compliance was the main concern for majority of the firms as well as the wish to replace existing and the less effective

legacy systems. Business firms that sought expert advice about operating in the then new millennium were motivated by management consulting firms as well as ERP merchants to change obsolete, less efficient, in-house software with solitary integrated business solutions.

Other factors identified in the previous studies as drivers for ERP acceptance included the need to reduce operations costs, enhancing organizational performance and decision making, reducing bureaucracy, eliminating system mistakes and enhancing market competitiveness. In addition, requirements of business partners for better service delivery, the need to integrate functional units and organizational standardization across different locations and globalization of businesses. Holland et al. (1999) identified three main dimensions; strategic, technical and operational. The previous Markus & Tanis (1999) narrows down the reasons to two wider categories: technological and business performance. Founded on the reviewed studies, the primary motives that have triggered accelerated advancement in the adoption and ERP software usage are tabulated below.

**Table 1: Drivers for Adopting ERP systems**

<b>Technical</b>	<b>Operational</b>	<b>Strategic</b>
1. Need for shared information platform.	1. Business processes improvement.	1. Systems incompatibility, business growth and operating cost reduction.
2. Need switch from manual systems.	2. Enhance globalization business data visibility.	2. Regularization of business practices.
		3. Enhance client’s receptiveness.
		4. Improve organizational achievements and decision making.
		5. Integration of organization functions and processes.

*Source:* Otieno (2008)

Olson (2004) summarized two studies that scrutinized incentives for adoption of ERP. One of the studies had been undertaken on and Swedish firms and American industrial firms. The study identified the need to replace legacy systems, simplify and standardize operations by ERP systems as the primary motivation. Other motivations that got high ranking included the need for enhanced of interactions with downstream and upstream supply chain, the need gain to strategic advantage and the need link to global activities. Pressure to maintain market competitiveness, ease of upgrading systems and streamlining the organization process received low ranking from the reviewed literature. There reviews literature indicates that is an increasing appetite for ERP systems adoption in Kenya among the public sector. Hence, it is essential to find out the motivating factors and the bottlenecks faced by public entities implementing ERP systems in Kenya.

## **ERP Implementation**

Al-Mashari et al (2003) points out that implementing ERP system in many occasions call for much caution because it entails major changes that require to be cautiously undertaken so as to deliver desired objectives. Zhang et al (2003) notes that ERP implementation failures have been comparatively high at about 90% of ERP implementations either go above over budget or late and the ERP systems implementation success rate is at 33%. According Otieno to (2008), shortcomings have not been sufficiently documented and hence the inability to handle main problem areas.

ERP systems are geared towards enhancing a firm's performance yard sticks such as profitability, efficiency, proficiency, and customer satisfaction. Conversely, Huang et al., 2004 posits that ERP systems are complex systems because their implementation is challenging and capital-intensive. Poba-Nzaou et al., (2008) noted that during ERP systems implementation and adoption standard ERP packages are customized to suit the local market requirements by the vendors intending to expand their market share. Further, according to Huang et al. (2004), ERP developers are upgrading ERP systems so as to expand their market share in the developing countries targeting various firms in different sectors of the economy.

According to Davenport (2000), ERP suites are a necessity for the modern business environment. This can be seen as sophisticated business tools specifically with the use of web-based technologies that enable real time integration of data and access to the relevant information which in turn renders ERP a critical business operation tool for an organization that needs to fully utilize the benefits of e-commerce. Beard & Summer (2004) evaluates that the modern business world is characterized by the need to integrate and automate all the business operations on ERP systems as the most significant investment in modern businesses.

In the modern business world, the key drivers behind ERP implementation have emphasized on facilitating business integration, enhancing business operations, rationalizing operational costs, enhancing data visibility, support customer responsiveness, and developing business decisions. The success of the ERP implementation will depend entirely on the strategic choices the implementation team will take so as to attain a strategic fit. Strategies can be classified into ERP configuration strategies, level of customization and implementation scope. In ERP execution, the nature of decisions made are strategic in nature and thus calling for a lot of cautiousness by the strategic apex due to the far-reaching effect on company operations. Such decisions are associated with: the ERP system to be implemented; ERP the implementation strategy; implementation scope; level of customization, training approach and go-live strategy (Otieno, 2008).

The outcomes are strategic decisions in ERP are far reaching because they have a long-term impact on defining the organization's processes and commitment of a colossal amount of

organizational resources. Further, they are typically embraced in a firm to support its strategic objectives which are at times considered intricate because they impact the organization as a whole and its diverse stakeholders (Lee, & Myers, 2004).

According to Otieno (2008), and Huang & Palvia (2001), the unique implementation challenges in unindustrialized economies are associated with poor financial performance, ethnic diversity, elementary infrastructure issues, and insufficient skills by both users and consulting firms, Poor change management practices. Otieno (2010) noted the high implementation cost is heightened by extensive customization.

The ERP perceived benefits is a major driving force towards success of ERP. The perceived benefits act as a motivating factor to undertake the implementation process. Anthony (2005) classifies organizational processes and they comprise of; management control, operational control, and strategic planning. A greater proportion of ERP success is as a result of the ability boost operational integration across functional units. The successful implementation of ERP systems will benefit strategic planning, managerial and operational control.

Otieno (2010) notes that in the last twenty years, a larger proportion of public entities in Kenya have implemented the ERP systems in their organizations. The Kenya Power Ltd implemented the SAP ERP system in the year 1997, and in 2006, three public entities; Kenya Ports Authority, Kenya Pipeline Corporation, and Telkom Kenya Ltd had initiated the ERP implementation process followed the suit. Since the adoption of the number of public entities implementing the ERP systems has been on a rising trend.

Other public entities have either embarked on the implementation process, or planning to implement the same in their daily operations. The major focus is on financial management, Human resource and payroll management, plant maintenance, logistics and fleet management and inventory management systems such as SAP, which has been implemented in firms majorly in energy, telecommunication, logistics and petroleum sectors. JD Edwards has undertaken ERP implemented in Kenyan firms, mainly in the manufacturing sectors, petroleum, and soft drinks. The smaller ERP systems include Great Plains Navision, Sun Accounts systems and Sage ACCPAC. Recently mainstream government ministries and state departments adopted the IFMIS system.

### **ERP Implementation Model**

Different models for ERP implementations have been developed different scholars. Ross (1999) developed a model for ERP implementation and adoption which entails implementation, stabilization, continuous improvement and transformation. According to Markus and Tanis (1999), proposed the Enterprise System Experience Cycle Model which entailed the following phases; charter, project, shakedown and onward and upward phases. Parr and Shanks (2000) developed a Process Phase Model (PPM) for implementing ERP systems. This is an

improvement of Ross et al., (1999) model, but assimilating the critical success factors for every stage in the implementation.

The PPM model stratifies ERP project into three levels namely; planning, project and enhancement. However, the key notable weakness of the PPM is the focus on ERP implementation project management at the detriment of more critical issues such as a firm itself, its attributes and the micro/macro environment.

## **RESEARCH METHODOLOGY**

Descriptive research design was used in geothermal development company, in Kenya to establish the relationship between independent variables (implementation strategies, implementation challenges, and perceived benefits and dependent variable (implementation outcome; business outcome and process outcome). Questionnaires were distributed to 212 ERP system users within the organization that were randomly selected using multi- stage sampling techniques (i.e. purposive and stratified random sampling). The response rate was 61.2%. The respondents were to answer how various independent factors such as implementation strategies, implementation challenges and ERP implementation perceived benefits. Data was analyzed using both qualitative and quantitative techniques. Multiple Regression and correlation analysis were used to make the statistical inferences and to test the hypotheses.

## **RESEARCH RESULTS**

**Table 1: Correlations between Implementation Strategies and the ERP Implementation Success**

		ERP Implementation Success	
ERP Implementation Strategies	Pearson Correlation (r)		.473(**)
	Sig. (2-tailed)	.	.013
	N	103	103

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

Pearson’s correlation (r) indicates the correlation between ERP Implementation strategies and ERP Implementation success. The (r) value of 0.473 indicates a positive correlation between ERP Implementation strategies and ERP Implementation success. The first hypothesis was thus rejected. The significance value of 0.013 which is less than 0.05 indicates that the relationship is statistically significant. Therefore, it was concluded that the ERP Implementation strategies has a statistically significant positive effect on the ERP Implementation strategies and ERP Implementation success.

The research finding concurred with the findings Bingi et al (1999) which concluded business procedures processes and work flow may require to be customized to suit the ERP system during

ERP implementation. The findings also were in line with Holland et al. (1999) which asserted that aligning the business processes, procedures and workflow to the ERP system is essential. Organizations were ready to change the business process to conform the ERP system software therefore necessitating minimal customization (Holland et al., 1999).

This study by also found out that orientation to change favor ERP implementation and asserts that the willingness by the organization to change the work practices is a critical prerequisite in ERP adoption and implementation. The case study organization was willing to change its business practices and processes to conform to the so-called best practices built-in ERP system.

These research results found out that due to high implementation cost and difficulty of the massive customization to the ERP software minimal customizations were undertaken this was in-line with findings of Otieno (2008). Specifically Cost was a major consideration towards minor customization in the case study organization. When the implementation strategy is advocates for customization, it is more of a technical challenge requiring much effort by the system programmers to effect system changes. Otieno (2008) further notes that the ERP configuration has a direct effect on the implementation and maintenance cost, flexibility and complexity of integration with new or existing application, so as to realize organizational needs.

The findings revealed that ERP implementation scope was a great determinant of level of ERP integration. The research findings further noted that in spite of the growing dominance advocating for the adoption of integrated ERP systems scanty information is available about what impact ERP might have on: overall integration of functional areas within the organization, what levels of integration companies can be realized with integrated ERP packages, and what benefits are being realized through ERP system.

The findings confirmed that the level customization had a substantial influence on the business processes adopted and implementation cost. The materials management and financial controlling module was heavily customized to meet both operational and regulatory requirements. SAP provided the starting point with a customized and preconfigured for energy industry. The case study organization proceeded with customization when unique requirements of the entity were not met by either by the provisions of the ERP software (2008).

**Table 2: Correlation coefficient between the implementation challenges and ERP Implementation Success**

		ERP Implementation Success	
ERP Implementation challenges	Pearson	1	-.554(**)
	Correlation		
	Sig. (2-tailed)	.	.015
	N	107	107

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

Pearson's correlation ( $r$ ) indicates the correlation between ERP Implementation challenges and ERP Implementation success. The ( $r$ ) value of -0.554 indicates a negative correlation between ERP Implementation strategies and ERP Implementation success. The second hypothesis was thus rejected. The significance value of 0.015 which is less than 0.05 indicates that the relationship is statistically significant. Therefore, it was concluded that ERP Implementation challenges has a statistically significant negative effect on ERP Implementation success. The challenges that were identified in this study were similar to the earlier study by Otieno (2010). The findings were consistent with the finding earlier study by Otieno (2008) which noted that ERP projects face additional challenges in the less industrialized associated to the cultural differences, economic and elementary infrastructure issues.

These findings noted that incompatibility is major concern which would probably be encountered by entities in Kenya during ERP implementation, assimilation and usage. The procedures and workflows embedded in the ERP suites are different with the established organization culture, norms and beliefs built in the existing work flows and business practices in the implementing organization thus need for extensive training to acquaint the users to the new practices so as to realize the desired organizational outcome (Otieno, 2008).

ERP sellers enjoy global brand identity. They are impeded by the cultural disparities, policy resource and restrictions, their capability to concurrently meet the varied individual organizations requirements in different countries may be constrained. The leading world-wide ERP developers emphasize common solutions to enterprise integration by imposing functionalities which may make their systems may be too rigid for many entities operating in a diverse business and social contexts. The greater proportion of the business entities in Kenya are small and medium scale organizations which have varied methods of undertaking business; their culture; adaptive logistical networks; and their agility in reacting to various customer needs (Otieno, 2008).

Heterogeneity among African countries further increases the cost of implementing ERP systems. ERP developers and sellers from the industrialized economies consider Africa a homogeneous thus an assumption that a norm in a country is applicable to the other. The different cultural backgrounds in each country and absence of regional policies work contrary to regional standardization. Typically, what is true in one African country may not be a norm to any of its neighbors. This makes it compulsory for entities procuring ERP to undertake in intensive customization.

Poor change management and failure to realize the desired benefits is a source of ERP implementation challenges to organizations. ERP goes beyond what is seen as a software suite, it is a way of doing business which changes the business landscape. It introduces far-reaching changes in the manner day to day operations are undertaken in an organization. Implementing ERP system brings modifications how people work, processes, downsizing of the manpower, and rationalizing duties and responsibilities within the functional departments. There were no change

management experts in the organization during the ERP implementation process in the case study organization. In the case study organization, there was not any indication of initiative to manage change.

There is the challenge of absence of knowledge and skills on ERP in regard to configuration, customization, and use the ERP system further lessens the benefits obtainable. It was found out that there are a few experts in the area whose demand is so high and organizations have had to remunerate them highly in order to retain them however, this does not guarantee of their retention.

The research found out that the complexity of the ERP systems posed serious challenge during the implementation. Because of the complexity of ERP systems, the case study organization was due to the complexity and lack of adequate capacity was not in a position to fully implement and realize the benefits they had envisaged. Majority respondents noted that the complexity of the ERP system not discouraged ERP adoption but also resulted to difficulty in the implementation and use. The ERP systems are complex therefore necessitating for users to be adequately trained on the use. ERP implementation is cumbersome task and thus demands for co-operation amongst the sellers, ERP implementation team and the organization’s management.

**Table 3: Correlations between the ERP perceived benefits and the ERP Implementation Success**

		ERP implementation success	
ERP perceived benefits	Pearson Correlation	1	.652(**)
	Sig. (2-tailed)	.	.000
	N	110	110

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

Pearson’s correlation (r) indicates the correlation between ERP perceived benefits and ERP Implementation success. The (r) value of 0.652 indicates a positive correlation between ERP implementation perceived benefits and ERP Implementation success. The third hypothesis was thus rejected. The significance value of 0.000 which is less than 0.05 indicates that the relationship is statistically significant. Therefore, it was concluded that ERP Implementation perceived benefits has a statistically significant positive effect on ERP Implementation success. The results provided a quantifiable business case that before initiating ERP system implementation, there were substantive benefits related to business developments which included enhanced inventory management, improved financial and cash management, enhanced customer response time, availability of information, enhanced human resource management and increased revenue by retaining current clientele and attracting new clients from business rivals.

There was no evidence in the case study organization that the ERP reduced the number of employees because none of its employees were laid off. This finding confirmed Laughlin (1999)

and Mabert et al., (2001b) noted that the ERP does not lead to job redundancies. However, earlier it was noted widely that one of the notable benefits of ERP associated with elimination of non-values adding activities linked to efficient home grown systems. Otieno (2010) highlights that there is notable difference between ERP implementations in Kenya compared to other parts in the globe is the scope of the implementation. Kenyan ERP implementation is generally smaller in size and fewer of modules implemented. However, the implementations face similar difficulties to global implementation. Finally, this paper delivers important information towards comprehending ERP implementation and critical aspects affecting ERP success. The findings are similar with other supply chain information systems implementation studies. However, there are some features which are exceptional to ERP implementations due to the integrative features embedded in the ERP packages that needs to be harmonized in order to achieve the desired results.

The findings from this study indicate determining success of ERP implementation project is contentious. For example, if ERP implementation project goes beyond the contracted period as well as the budgetary allocation, organizations may still consider the ERP implementation successful. This calls for the need to put in place suitable performance measures to gauge the ability for ERP implementation projects to delivered within the desired timeframe and financial allocation, and with the desired functionality.

**Table 4: Coefficients of The Study Model (A)**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
V <sub>1</sub>	(Constant)	2.456	1.043		2.355	.028
	ERP Implementation Strategies	.438	.157	.655	2.790	.011
V <sub>2</sub>	ERP Implementation challenges	.302	.157	-.357	1.928	.028
	ERP Implementation perceived benefits	.366	.187	.440	1.952	.035

V<sub>1</sub>: Implementation strategies, V<sub>2</sub>: Implementation challenges, V<sub>3</sub>: Perceived benefits & Dependent Variable: ERP Implementation success

Table 4 shows the significance (p) values for each independent variable (ERP Implementation strategies). If  $p < 0.05$ , the conclusion is that the independent variable is a predictor of the dependent variable. In testing the effect of ERP Implementation strategies on ERP implementation success, the significance value, (p) of 0.011 which is less than 0.05, it indicates

that ERP implementation strategies have a statistically significant effect on ERP Implementation success. The effect of ERP implementation challenges has a significance value (p) of 0.028 which is less than 0.05 shows that ERP implementation challenges have a statistically significant effect on ERP implementation success. Finally, in testing the effect of ERP implementation perceived benefits on ERP implementation success, it showed a significance value (p) of 0.035 which is less than 0.05. This showed that ERP implementation perceived benefits do have a statistically significant effect on ERP implementation success.

The model generated from the study was:

$$Y = 2.456 + 0.655V_1 - 0.357V_2 + 0.440V_3$$

Where: Y is ERP Implementation success;  $V_1$  is ERP Implementation strategies;  $V_2$  is ERP Implementation challenges;  $V_3$  is ERP Implementation perceived benefits

From the model, it can be inferred that holding ERP Implementation perceived benefits and ERP Implementation challenges constant, a unit increase in ERP Implementation strategies would result in an increment of 0.655 units ERP Implementation success. Secondly, holding ERP Implementation strategies and ERP Implementation perceived benefits constant, a unit increase in ERP Implementation challenges would decrease ERP Implementation success by 0.357 units. Finally, it can be inferred from the study that holding ERP Implementation strategies and ERP Implementation challenges constant, a unit increase in ERP Implementation perceived benefits would result in an increment of 0.440 units in ERP Implementation success.

## **RESULTS OF HYPOTHESIS TESTING**

Test on the first hypothesis showed the existence of a positive correlation ERP Implementation strategies and ERP Implementation success. The significant test revealed a statistically significant positive effect of ERP Implementation strategies on ERP Implementation success. The first hypothesis was thus rejected. It was then concluded that ERP Implementation strategies has statistically significant positive effect on ERP Implementation success. Test on the second hypothesis showed a negative correlation between ERP Implementation challenges and ERP Implementation success. This showed a negative effect of ERP Implementation challenges on ERP Implementation success. The significance test revealed a statistically significant effect of ERP Implementation challenges on ERP Implementation success. The third hypothesis was rejected and conclusion made that ERP Implementation perceived benefits has statistically significant effect on ERP Implementation success. Test on the third hypothesis revealed that ERP Implementation perceived benefits has positive correlation with ERP Implementation success.

## **CONCLUSIONS**

The aim of the study was to assess the factors influencing implementation of ERP systems and in public entities in Kenya, using GDC as a case study. The study was guided by three objectives. Based on results from data analysis and findings in relation to the study objectives, the following conclusions were made:

First; ERP Implementation strategies has statistically significant positive effect on ERP Implementation success. This shows that organizations that implement ERP strategies are likely to enjoy significant improved ERP Implementation success. The findings of study indicated that it is inevitable for organizations implementing ERP systems to redesign their business processes and customize the ERP software packages. However, due to the technical complexity and associated cost it is suggested that slight customization can be undertaken to save costs and time. The implementing entities should only adopt small-scale customization to modify the ERP systems to suit the individual strategic and decision-making requirements which can be hard to copy.

Second; ERP Implementation challenges has statistically significant negative effect on ERP implementation success. Therefore, organizations that minimize implementation challenges are expected to experience significant enhanced ERP implementation successes. World-wide ERP Merchants have enjoyed global brand status. Because of the resource and policy constraints, cultural disparities, their capability to concurrently meet business needs of many countries are limited. In fact, as the big the leading world-wide ERP developers, such as oracle, SAP, and Baan ERP, emphasize common solutions to enterprise integration by imposing features, their systems may be too rigid for many entities operating in a different business and social context. The greater proportion of the business entities in Kenya are small and medium scale organizations, which have; different ways of undertaking their day to day business operations; business culture; and the agility in attending to the customer needs (Otieno, 2010). The different cultural backgrounds in each country and absence of common continental policies work against regional standardization. Characteristically, what is true in one African state may not be a norm in other states. This frequently makes it obligatory for entities implementing ERP to undertake in intensive customization.

Lastly, ERP Implementation perceived benefits has positive effect on ERP Implementation success. This implies that organizations that realize from perceived benefits are likely to experience improved ERP Implementation success. Quantifiable benefits related to business improvements which included enhanced inventory management, improved financial and cash management, customer response time, and availability of information, enhanced Human Resource Management. From the There was no indication in the case study organization that ERP reduces headcount because none of its employees was laid off.

## RECOMMENDATIONS

Public institutions in both service industry and manufacturing are recommended to adopt robust strategies that are in tandem with the overall organizational operations and objectives in order to ensure successes in ERP implementation. The management of the institutions should develop sound structures and policies by way of relevant investment in management information systems. Management of these organizations must be cost conscious and strategic in adopting these practices as some of them may be costly. However, the cost aspect must not compromise on the quality of the end product.

It is also recommended that public institutions and firms should embrace and deal with operational challenges that relate to the implementation of ERP as a system within and outside the organization's supply chain. Management must be involved in this process as they are better placed in identifying the organization's needs and challenges in collaboration with other key stakeholders. Lastly, the government through its various organs and state departments should be able to explain to the users in quantifiable terms on the benefits of the adoption and the use of ERP as an element of organization's competitive edge in productivity.

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