

# Effect of Enterprise Resource Planning System (ERP) on the Performance of Supermarkets in Bungoma County, Kenya

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**Abstract:** Competition is one of the major factors why most industries do not survive in the long run. Managing costs to ensure effectiveness, enjoy economies of scale, economies of scope and to achieve greater efficiencies has become the driving force of most of organizations. Technology is the key to managing costs in an organization and this study will focus more in the enterprise resource management systems (ERP). Through adoption of this technology, an organization is able to integrate all the internal, external information within the entire organization embracing accounting, finance, management, sales and services, customer relationship management etc hence performance. The purpose of this study was to establish the effect of Enterprise Resource Planning Systems (ERP) on the performance of supermarkets I Bungoma County and it also sought to address the following specific objectives; examine the effect of Enterprise Resource Planning System (ERP) on the performance of supermarkets in Bungoma County. The study employed descriptive survey and correlational research designs. Population of the study involved the eight (8) supermarkets in Bungoma County thus, the study carried out a census of the eight (8) supermarkets in Bungoma County. The target population of the study constituted 16 managers, 16 supervisors, 24 Heads of Departments (HODs) and 699 employees in the eight (8) supermarkets operating in Bungoma Town. Purposive sampling technique was used to select 16 managers, 16 supervisors, 24 HODs and 77 employees working in these stores. Data was collected using structured questionnaires and analyzed using both descriptive and inferential statistics. The following were the study results, Enterprise Resource Planning System had a positive and significant relationship with performance. The coefficient of correlation was 0.537 that is ( $r=0.537$ ,  $p<0.05$ ). It was recommended that the supermarkets should invest in technology and that there is need to integrate all core functions of organization and across the various departments this would ensure all organizational needs are addressed thereby saving on time and increase in efficiency.

**Keywords:** Enterprise Resource Planning Systems (ERP), Performance.

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## 1. INTRODUCTION

The purpose of this paper is to establish the effects of enterprise resource planning systems on performance of supermarkets in Bungoma County, Kenya. Technology has turned out to be the rightful model that most organizations are embracing in order to achieve effectiveness and effectiveness in service delivery. ERP systems, as one of the technologies, is very vital to any organizations because of the benefits that organizations accrue from its adoption. ERP aims to improve customer delivery service levels by expediting their orders hence reducing lead time. This is the reason as to why it's often referred to as back office software. This is because the ERP system doesn't handle the upfront selling process (Foti and Weinberg, 2011).

### 1.1 Background of the research

The growth of information systems and information communications technology coupled with the need for cost minimizations in organizations has led to the development of various technologies (Al- Mashari, 2003). According to Eric et

al. 2007, many firms are adopting these technologies with the hopes of improving quality and better performance through facilitation of various organizational operations and support of various objectives in order to achieve effectiveness and efficiency. In support of this, a survey in 2011 conducted by PWC (2012) most CEOs were adopting the use technology to gain efficiency, effectiveness and differentiation simultaneously. Organizations are in pursuit of technology in order to automate, innovate, empower and collaborate with the aim of gaining a competitive advantage.

According to K. Laudon & J. Laudon , (2007) ERP systems refer to systems that integrate the main business processes of an organization into a single software system. This allows for a seamless internal flow of information through the organization but is also inclusive of external customers such as suppliers and clients. Enterprise Resource Planning (ERP) system can also be defined as a system central to the organization which enhances the sharing of information across all business functions and all levels of management for the purpose of supporting the running of the organization. This reduces the problem of inconsistencies and lack of information caused by multiple transaction systems found in individual departments (Stair and Reynolds, 2009).

According to Breite (2001), ERP has replaced the old computer systems in HR, Manufacturing, finance, and the stores. ERP (Enterprise Resource Planning) system, can be able to integrate all the internal, external information within the entire organization embracing accounting, finance, management, sales and services, customer relationship management etc (Bandyopadhyay, 2003). ERP systems automate this activity with an integrated software application. Their purpose is to facilitate the flow of information between all business functions inside the boundaries of the organization and manage the connections to outside stakeholders.

Various studies have been conducted on ERP systems. Akeyo D. (2013) examined the implementation of ERP systems as a strategic approach by the Equity Bank Limited in Kenya. The study established that ERP systems had been adopted and most of the organizations core functions stabilized as soon as the system was adopted and they commended the systems on minimum loss of information as compared to the traditional system. Munyiri E. (2014) analyzed ERP implementation and organizational performance in Kenyan energy sector parastatals. The study established a positive correlation between ERP implementation and performance of an organization. These studies used different sample sizes, research designs, geographical study areas and had varied results. The researchers missed to address the application and implementation of the systems in order to enhance performance of sugar producing companies by increasing profits, reducing costs, and better service delivery. This is the knowledge gap that the researcher seeks to fill in by investigating the effects of ERP systems on the performance of the supermarkets in Bungoma County, Kenya.

## **1.2 Objectives of the research paper**

To establish the effect of ERP systems on the performance of supermarkets in Bungoma County, Kenya

## **2. LITERATURE REVIEW**

### **2.1 Contingency Theory**

The essence of contingency theory is that best practices depend on the contingencies of situation. According to Halldorsson, Herbert and Tage (2003) the changes in dependent measures are considered to represent performance caused by variations in the independent measures. Following Carton's hypothesized relationship, inventory management practices e.g. ERP systems, are determinants of changes in organizational competitiveness of telecommunication firms. In this respect changes in inventory management practices will represent organizational competitiveness. The essence of organizational competitiveness is creation of value. Value creation may be a combination of financial and non-financial objectives (Ketchen & Hult, 2007). Successful organizational competitiveness of a firm can be equated with successful value addition hence organizations performance.

### **2.2 Lean Theory**

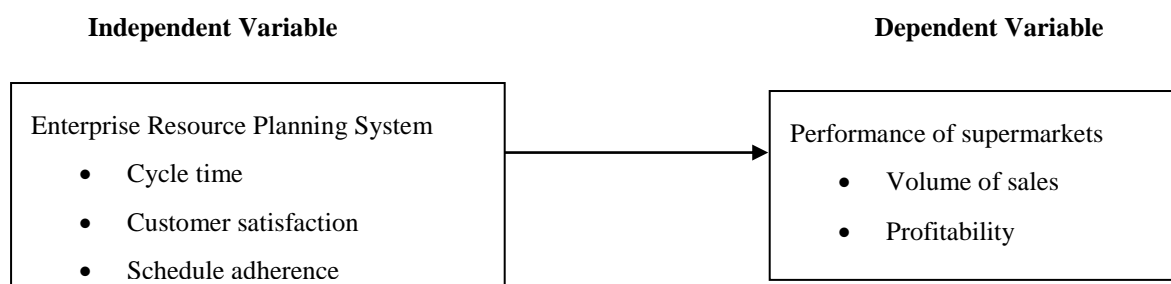
Lean theory is an extension of the idea of Just in Time (JIT). (Kros, Falasca, & Nadler, 2006), elaborate just in time as a pull-based system designed to align the production and business processes throughout the supply chain. (Green & Inman, 2005), assessed the impact of lean theory on financial performance. They conclude that this theory may eliminate buffer stock and minimize waste in production process. (Eroglu & 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. Feinberg & Keane, (2006), discuss their findings of reducing inventories at firm level. They go on saying

that 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 (Feinberg & Keane, 2006). Scholarly studies indicate that companies successfully optimize inventory through lean supply chain practices and technological systems to achieve higher levels of asset utilization and customer satisfaction leading to improved organizational growth, profitability and market share (Waller, Tangari, & Willians, 2008).

According to ken *et al.* (2010), the way an organization has been structured also determines the level of service delivery. In an organization that is highly decentralized, the service levels are likely to be high than in the organizations which haven’t. More so the operations of the department through the ERP systems will help improve the lead time thus high competence. The caliber of the staff affects a firm’s profitability as professionals will engage to produce quality output. Kwamboka R. (2015) examined the relationship between enterprise resource planning and financial performance of commercial state corporations in Kenya. The study concluded that ERP had a statistically significant positive influence on the profitability ratio of state corporations in Kenya.

Omwanza E. (2017) conducted a research on the influence of enterprise resource planning system on the performance of donor funded projects in Kenya, a case of geothermal development company in Nakuru County. The study established that GDC has ERP systems and Finance department staff have has been trained and most of them have ERP system licenses. The study also confirmed that all transactions are processed by the Financial Accounting module and management of donor funds is purely through ERP system.

**2.3 Conceptual framework**



**3. METHODOLOGY**

The study employed descriptive survey and correlational research designs. Population of the study involved the eight (8) supermarkets in Bungoma County thus, the study carried out a census of the eight (8) supermarkets in Bungoma County. The target population of the study constituted 16 managers, 16 supervisors, 24 Heads of Departments (HODs) and 699 employees in the eight (8) supermarkets operating in Bungoma Town. Purposive sampling technique was used to select 16 managers, 16 supervisors, 24 HODs and 77 employees working in these stores. Data was collected using structured questionnaires and analyzed using both descriptive and inferential statistics. The following regression equation was used to represent enterprise resource planning system and organizational performance:-

$$Y = a + b_1x_1 + e$$

Where Y= Organizational performance

a= Y intercept when x is zero

b= Enterprise resource planning system

e= error term

**4. FINDINGS AND DISCUSSIONS**

Enterprise Resource Planning System is one of essential determinants of performance of supermarkets in Bungoma County. To measure enterprise Resource Planning System, a set of eight statements were formulated. The respondents were asked to indicate the extent of agreement with each of the Enterprise Resource Planning System statements. The pertinent results are presented in Table 1 below:

**Table 1: Descriptive Statistics- Enterprise Resource Planning System**

Enterprise Resource Planning (ERP)	1	2	3	4	5	Mean	STD
Supermarket uses ERP	3.67(4%)	5.5(6%)	9.17(10%)	22.94(25%)	58.72(64%)	4.2752	1.07902
ERP addresses the enterprise needs of an organization by tightly integrating the various functions of an organization	3.67(4%)	10.09(11%)	3.67(4%)	66.97(73%)	15.6(17%)	3.8073	0.94748
ERP software operates core processes such as order processing, order fulfillment, shipping, invoicing, production planning, purchase order and general ledger	5.5(6%)	4.59(5%)	7.34(8%)	30.28(33%)	52.29(57%)	4.1927	1.11784
ERP is used across the various departments	6.42(7%)	7.34(8%)	3.67(4%)	54.13(59%)	28.44(31%)	3.9083	1.09326
ERP software addresses the entire organizational needs	9.17(10%)	9.17(10%)	3.67(4%)	45.87(50%)	32.11(35%)	3.8257	1.23861
ERP systems has led to significant cost savings by continuously monitoring the organizational health	3.67(4%)	5.5(6%)	11.93(13%)	33.03(36%)	45.87(50%)	4.1193	1.06044
ERP saves on time and is efficient	3.67(4%)	4.59(5%)	9.17(10%)	38.53(42%)	44.04(48%)	4.1468	1.01676

**Source: Field Data (2018)**

From Table 1, the results revealed that 45.87(50%) and 32.11(35%) of the respondents agreed and strongly agreed that Supermarket uses ERP with a mean of 3.8257 and standard deviation of 1.23861. This implies that there is great dispersion from mean (agree). Similarly, with a mean of 3.8073 and standard deviation of 0.94748, more than half of the respondents, 66.97(73%) agreed that ERP addresses the enterprise needs of an organization by tightly integrating the various functions of an organization and additional 15.6(17%) strongly agreed.

The results also revealed that 30.28(33%) of the respondents agreed and 52.29(57%) strongly agreed that ERP software operates core processes such as order processing, order fulfillment, shipping, invoicing, production planning, purchase order and general ledger. The mean of 4.1927 and standard deviation of 1.11784 implies there us great deviation from the mean. It was also revealed that ERP is used across the various departments as shown by 54.13(59%) and 28.44(31%) of the respondents who agreed and strongly agree with a mean of 3.9083 and standard deviation of 1.09326. This suggests there is great dispersion from mean.

Regarding ERP software addresses the entire organizational needs, the findings revealed that 38.53(42%) and 44.04(48%) agreed and strongly agreed respectively with a mean of 4.1468 and standard deviation of 1.01676. The findings further revealed that more than half of the respondents confirmed that ERP systems has led to significant cost savings by continuously monitoring the organizational health as shown by 33.03(36%) of the respondents who agreed and 45.87(50%) strongly with a mean of 4.1193 and standard deviation of 1.06044. Lastly, 22.94(25%) of the respondents agreed and 58.72(64%) strongly agreed that ERP saves on time and is efficient with a mean of 4.2752 and standard deviation of 1.07902 which implies there is great deviation from mean (agree).

**4.1 Correlation between Enterprise Resource Planning System and Performance**

The Pearson correlation analysis was used to investigate the relationship between Enterprise Resource Planning System and performance of the supermarkets in Bungoma County. In examining the effect of enterprise resource planning systems of the supermarkets in Bungoma County on performance of the supermarkets in Bungoma County, the study find out a coefficient of correlation (r) as 0.537\*\*, P<0.01 at 99.0% confidence level. This postulates that there is a moderate and significant positive relationship between Enterprise Resource Planning System and performance of supermarkets in Bungoma County. This implies increase in the utilization of Enterprise Resource Planning System would result to increase in the performance of supermarkets in Bungoma County. The results are as shown in Table 2:

**Table 2: Correlation between Enterprise Resource Planning System and Performance**

		ERPS	Performance
<b>ERPS</b>	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	109	
<b>Performance</b>	Pearson Correlation	0.537**	1
	Sig. (2-tailed)	0.000	
	N	109	109

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

Source: Field Data (2018)

#### 4.2 Regression Results of Enterprise Resource Planning System and Performance

Regression analysis was conducted to find the proportion in the dependent variable (Performance) which can be predicted from the independent variable (Enterprise Resource Planning System). Table 3 shows the analysis results.

**Table 3: Model Summary Enterprise Resource Planning System and Performance**

Model	R	R <sup>2</sup>	Adj. R <sup>2</sup>	B	SE	$\beta$	T	Df	F	Sig.
(Constant)				1.634	0.310		5.274			
RFID	0.537	0.423	0.418	0.646	0.073	0.537	8.857	(1,108)	78.444	0.000

Predictors: (Constant), Enterprise Resource Planning System

Dependent Variable: performance

Source: Field Data (2018)

The results revealed a coefficient of determination ( $r^2$ ) of 0.423. Meaning Enterprise Resource Planning System can explain 42.3 % of the variance in performance of supermarkets in Bungoma County. The adjusted r square attempts to produce a more honest value to estimate r square for the population. The F test gave a value of  $(1, 108) = 78.444, P < 0.01$ , which supports the goodness of fit of the model in explaining the variation in the dependent variable. It also means that Enterprise Resource Planning System is a useful predictor of performance of supermarkets in Bungoma County. The unstandardized regression coefficient ( $\beta$ ) value of Enterprise Resource Planning System was 0.646 with a t-test of 8.857 and significance level of  $p < .001$ . This indicated that a unit change in Enterprise Resource Planning System would result to change in performance by 0.646 significantly. The regression equation to estimate the performance of supermarket as a result of Enterprise Resource Planning System was thus stated as:

$$\text{Performance} = 1.634 + 0.646 \text{ ERP System}$$

The research hypotheses were tested using the significance level of both the R and R<sup>2</sup>; the research aimed to test the hypothesis with an aim of accepting whether there was any effect by the Enterprise Resource Planning System on performance. From the results, Enterprise Resource Planning System had significant positive effect on performance of supermarket with  $P < 0.01$  and it significantly accounted for 42.3% variance in performance of supermarkets in Bungoma County.

These finding is in agreement with Jack & Samuel (2006) who found out that ERP management systems can improve costs, productivity, reduce time lags, reduce waste, improve customer service and improve overall efficiency. Lysons & Farrington (2006) indicated that ERPS allows orders to be tracked throughout the entire manufacturing process and assist purchasing and control departments to move the right supplies at the right time to manufacturing or distribution points. Goga (2014) established that Enterprise resource planning system implementation has a positive influence on organizational performance of commercial state corporations in Kenya. Parto *et al.* (2016) indicated that that, the positive impact of ERP module implementation on financial performance is happen over time. Second, extensive use of implementation status of holistic ERP system provides a synergy derived to improve financial performance. Madapusi & D'Souza (2012) that ERP system implementation is significantly related to financial performance over time.



## 5. CONCLUSION

The objective of the study was to determine the effect of Enterprise Resource Planning systems on the performance of supermarkets in Western Kenya. The study revealed that Enterprise Resource Planning System has a positive and significant relationship with performance. The coefficient of correlation was 0.537 that is ( $r=0.537$ ,  $p<0.05$ ). This implies that an increase in the utilization of Enterprise Resource Planning System would result to increase in the performance of supermarkets in Bungoma County. The regression results revealed that the coefficient of determination was 0.423 that is ( $r^2=0.423$ ) meaning that Enterprise Resource Planning Systems can explain 42.3% of the changes in the performance of supermarkets in Bungoma County. This suggests that ERPS is significant predictor of supermarket performance in Bungoma County.

## 6. RECOMMENDATION

Even though majority of the supermarket were found to use ERPS, the study recommends that there is need to integrate all core functions of organization and across the various departments this would ensure all organizational needs are addressed thereby saving on time and increase in efficiency

## ACKNOWLEDGEMENT

The paper wants to acknowledge the contributions from Dr. Egessa and Mr. Kwendo who assisted in the formulation of this paper to the best of their ability.

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