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**FACTORS INFLUENCING THE ADOPTION AND IMPLEMENTATION OF  
ENTERPRISE RESOURCE PLANNING (ERP) SYSTEM IN THE SMES SECTOR**

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# FACTORS INFLUENCING THE ADOPTION AND IMPLEMENTATION OF ENTERPRISE RESOURCE PLANNING (ERP) SYSTEM IN THE SMES SECTOR

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## Abstract

**Purpose:** The purpose of this study was to investigate the factors that influence ERP systems adoption and implementation in SMEs in Kenya.

**Methodology:** The research adopted a descriptive design. The target population was 4560 SMEs in Kenya. A sample size of 87 SMEs was selected. The respondents were identified through probability sampling in the form of stratified sampling. The collection of data was conducted through the use of questionnaires and thereafter data coding was done then followed by data presentation via graphs, tables as well as pie charts. These were then analyzed through both descriptive statistics (frequencies and means as well as inferential statistics (correlations).

**Results:** The findings revealed that organization resources bring about success of ERP related organization change. The findings on the influence of internal factors on ERP system implementation revealed that indeed the internal factors influencing the adoption of ERPs in SMEs in Kenya include; the top management of SMEs, project team constitution as well as the above average knowledge requirements.

**Unique contribution to theory, practice and policy:** The study recommends that SMEs in Kenya need to put into consideration, continuous introduction of ERP systems. Additionally, the study recommends that the government regulations as well as the other external factors should be aligned in a way that ensures that there is room for companies to explore means of adopting and implementing ERP systems so as to be able attain sustainable competitive advantage.

**Keywords:** *Organizational characteristics, internal factors, external factors, ERP systems implementation, SMEs.*

## 1.1 BACKGROUND OF THE STUDY

Enterprise resource planning (ERP) is a business management system that incorporate sets of broad software, which can be used when successfully implemented, to manage and integrate all the business functions within an organization (Boykin, 2009). They include a set of established business applications and tools for financial and cost accounting, sales and distribution, materials management, human resource, production planning and computer integrated manufacturing, supply chain, and customer information (Boykin, 2009). According to Al-Mashari and Zairi, (2008), these packages have the capacity to facilitate the flow of information between all supply chain processes (internal and external) in an organization .in addition, an ERP system can be used as a tool to assist in improving the performance level of a supply chain network by helping to reduce cycle times. On the other hand, it has usually been applied in capital-intensive industries such as manufacturing, building, aerospace and security. Recently, ERP systems have been

extended beyond manufacturing and introduced to the finance, health care, hotel chains, and education, insurance, retail and telecommunications sectors (Gardiner *et al.*, 2010).

Currently ERP was considered to be the price of entry for running a business and for being connected to other enterprises in a network economy to create “business to business” electronic commerce. According to (Rao, 2008) multinationals limit their business to only those companies that run the same ERP software as the multinational firm. It is a fact that ERP is for both large and minor firms which have to regulate their business representation according to the practices and software adopted by the large firms, Since the small and medium sized enterprises (SMEs) are going difficult they do not have the power associated with large companies, it is as a result of this that SMEs have to hit the power of IT and an integrated information system to stay competitive and customer oriented with the opening up of the economy.

According to Gardiner *et al.*, (2010), many factors have been pointed out by various authors as determinants of ERP system adoption and implementation. The main factors that play a vital role that are given much attention include: the top management support, organization resources, user involvement and participation and organisational culture. ERP has carried on to be one of the main, powerful and fastest growing in the application software industry in the next decade, it has become one of today’s largest IT investments worldwide, A recent survey predicts that the spending on ERP will reach \$166 billion in 2012 (Albano *et al.*, 2009).ongoing growth of ERP is projected due to numerous causes (Stensrud, 2009) the ERP vendor are continuously expanding the capabilities of their packages by adding functionality for new business functions such as sales force automation, supply-chain, order management, data warehousing, maintenance repair- and-overhaul, numerous ERP customers’ needs Web-based ERP systems which are changed by vendors that leads to quicker flow of information in sequence.

## 1.2 Statement of the problem

SMEs are of critical importance to many economies. SMEs, are fundamental part of these economies, like large firms they also face numerous challenges in implementing technologies such as enterprise resource planning (ERP) systems. Like many other technological advances, ERP systems were initially implemented mostly in large organizations. More recently, vendors have begun to provide SME-specific ERPs (Bingi, *et al.*, 2009) adoption at SMEs has been catching up with large companies.

Given that SMEs are significantly different from large organizations, the authors further say that more and more SMEs are implementing ERPs, the relevant question would be, “what factors may influence ERP adoption and implementation success in SMEs, and why?” Muscatello *et al.*, (2009), carried a study on factors influencing the successful adoption and implementation of ERPS and focused a lot on subsidiaries of larger. Lang *et al.*, (2011), studied Irish organizations including SMEs; however, their focus was on adoption of technology with respect to their sizes. The SMEs are said to face a accountability of compactness due to their size and supply restriction, they are used in developing new skills or create critical changes in existing ones. The SMEs has been known to have ability to initiate slight technological improvement: adoption of ERP system to suit their circumstances. However, for SMEs to develop completely and use this prospective they require precise strategy measures to guarantee that technology services, road and rail network are

provided. Additional, research and development institutions that are given funds by public should be encouraged to target the technological needs of SMEs. Therefore, it shows there is a chance to focus on new studies on the achievement factors of ERP adoption and implementation in SMEs.

### **1.3 Objective of the Study**

The objective of this study was to investigate the factors that influence ERP systems adoption and implementation in SMEs in Kenya.

## **2.0 LITERATURE REVIEW**

### **2.1 Empirical Review**

#### **2.1.1 Organizational Characteristics Influencing ERP Systems Implementation**

##### **2.1.1.1 Organizational Resources**

Hammer and Champy (2009) argue that managing people is a major contributing factor to the success of ERPS related organizational change. In a discussion of the causes of re-engineering failure, Albano and Pino (2009) refer to the inadequate treatment of the human aspect when implementing ERPs-related change. Blair (2011) discusses some elements of human change management which he describes as the more difficult challenge, and explains how ERPS represents a danger to people when it introduces new job structures and definitions, and forces employees to change their work style. Hammer and Champy (2009) classify the human factor as a major dimension that ERP-related improvements should focus on. They distinguish the significance of the human resource when their state companies are not asset collections, but people operating as one to create, sell and provide service. On the other hand, they are not successful to reveal how to restructure the human resource in conjunction with restructuring processes.

##### **2.1.1.2 Organizational Culture**

Organizational culture is among the major issues in both academic research and management practice, because the cultural dimension is central to all aspects of organizational behavior. That organizational culture affects business process reengineering cannot be ignored. If reengineering is going to realize its full potential of dramatically improving the way companies do business, changing of the organizational culture must be considered an integral part of the process. Systems cannot be developed irrespective of the people that will be managing and operating those systems. One of the biggest reasons why some process reengineering projects do not achieve the level of success the organization expects is because the organization or functional manager did not deal with the issue of organization culture change. Temponi (2008) put it that an organization should strive to involve the staff at all stages of the reengineering process.

##### **2.1.1.3 Management Structure and Strategy**

With ERP schemes, failure during ERP acceptance can crash harmfully on the performance of the organization. The failure to organize over project teams may occur as a result of decentralization in making conclusion processes which will be followed by unsuccessful support of decisions (Grabski *et. al.*, 2001). Forming a project group and assigning decision to particular people with specific awareness and abilities is a common practice. However, a lack of proper monitoring and enough controls over this increased responsibility to project managers and the project team in



organization processes may impose a potential business risk (Grabski, *et. al.*, 2001; Poba-Nzaou *et. al.*, 2008). Lack of competence in negotiating a contract to acquire an ERP system (Ojala *et. al.*, 2006) and misinterpretation between the customer and the dealer (Iskanius, 2009) are some of the tribulations organization acquiring ERP systems face. Other organization related threat includes insufficient sustain and dedication from top management (Aloini *et. al.*, 2007), inadequate management; unsuccessful statement during the ERP implementation (Ojala *et. al.*, 2006) and deficiency in project management methodology (Huang *et. al.*, 2004).

#### **2.1.1.4 User Involvement and Training**

Partially the ERP projects do not attain the preferred profit because managers underrate the efforts involved in transforming the management (Al-Mudimigh, *et. al.*, 2001). The latest amendments which an ERP system may come up with can bring unenthusiastic result such as confrontation (Grabski *et. al.*, 2001). Other threats associated to users acknowledged in the literature are unsuccessful communication; inadequate training; users are not capable to comprehend the profits of the new ERP system; inadequate human resources commitment; inadequate compassion to user resistance; failure to highlight reporting to users (Huang *et. al.*, 2004; Ojala *et. al.*, 2006; Sumner, 2000) and loss of skills (staff turnover) (Grabski *et. al.*, 2001).

#### **2.1.1.5 Skill Mix**

The implementation of an ERP needs particular ability during and after implementation. A project team with expertise including modified management, business process restructuring (BPR), risk management and technical skills are frequently necessary (Grabski *et. al.*, 2001); inadequate training and lack of skill; shortage of internal knowledge; inadequate business analyst who is skilled; incapable of recruiting and retaining qualified ERP professionals; and disappointment in mixing internal and external expertise successfully can hamper the implementation (Grabski *et. al.*, 2001).

### **2.1.2 Internal Factors affecting Implementation of ERPs**

#### **2.1.2.1 Top Management Support**

The most important factor when adopting and implementing ERPS is the top-level management's commitment to the strategic direction itself. Hammer (2008) believes that reengineering must be driven from the topmost level. The primary ingredient for project success is top leadership, either the CEO or someone in a position to compel the compliance of all parties involved in reengineering. Line responsibility is said to be the key, and reengineering is top-down, autocratic rather than through a democratic process. This is undoubtedly a prerequisite for strategy implementation. Therefore, top managers must demonstrate their willingness to give energy and loyalty to the performance management implementation process (Grint, 2011).

#### **2.1.2.2 ERP Cost Elements and Project Complexity**

Considering that ERPs are expensive (Yang *et. al.*, 2010) and SMEs undergo financial limitation the operational and economic threat are clear evident than the compensations. Straight expenses are those that are openly connected with the implementation of a system (Love *et. al.*, 2004). The other cost element recognized in the literature is the implementation cost. That contain the initial cost of the, customization costs; costs of migrating data from the old system to the new ERP system; costs of integrating different modules; annual maintenance costs of the ERP system; and vendor project management (Haddara, 2011)

### **2.1.2.3 Staff Training**

According to Ackon (2009), training “refers to learning experiences designed to enhance the short-term and/or long-term job performance of individual employees”. In this respect, training is viewed as part of an on-going developmental process. Training needs to be linked with the organizational mission. So, when governments plan their training activities, they need to provide the link with the organizational mission and local budget and implementation. Considerate the occurrence of employee training needs understanding of all the modifications that take place as a result of learning. As the producer of new skills, workers’ training is located inside a broader planned background of human resources management, i.e. worldwide managerial organization, as a designed staff education and development, both individual and group, with the goal to benefit both the organization and employees. According to Bingi *et. al.*, (2009) in his book Personnel and Human Resource Management, training is a movement intended for gaining of accurate knowledge and skills for the purpose of an occupation or chore.

### **2.1.2.4 Risks of Implementing an ERP System**

When organization case is needed to work on greatest and terrible cases it takes into account the best case only and not thinking in a manner of any risks coming on the way . On the other hand if any terrible circumstances take place both cases needs to be considered, (Melendez 2008). The possible danger of adopting ERP is identified Willcocks and Margetts (1994) the researcher described risk as a susceptibility to elements which hinder a project from some or gaining all of the predictable profits that was caused by unsuitability between the chosen software and hardware; implementation costs which go beyond the financial plan; and technological systems which perform below standard.

### **2.1.3 External Factors Influencing ERP Systems Implementation**

There are few research studies that focus on the ERP business case which are in the significance of business case in IT assets (Al-Twairesh & Al-Mudimigh, 2011). Besides that, studies that focus on the field of Small to Medium-sized Enterprises (SME) ERP business cases are insufficient and therefore, sustain the need for this research. Ruey-Shun *et al.*, (2008) suggests that IT infrastructure comprise the essential requirement for ERP implementation. ERP cuts across several functions, including the internal operations of the company itself and its suppliers, customers, banks, etc. The reliability of the whole infrastructure is essential to facilitate complete value chain management enabled by ERP.

#### **2.1.3.1 Organizational Fit**

Managerial threats initiate from the environment in which the system is implemented (Poba-Nzaou *et. al.*, 2008). Olsen (2007) bring about that the acceptance of a standard Enterprise Research Planning scheme may put into an inflexible arrangement on a company and intimidate the flexible nature of many SMEs. SMEs require reacting faster to the alterations of the environment to obey the rules to the necessities of customers and suppliers (Ojala *et. al.*, 2006). An Enterprises Research Planning system does not work well with the business processes of an SME. And if they happen to work together the SMEs must transform their business processes to fit the ERP system or make the necessary transformation to the ERP system to suit the organization’s business processes (Poba-Nzaou *et. al.*, 2008).

#### **2.1.3.2 Bargaining Power of Supplier**

Most SMEs use raw materials as well as labour, components, and other supplies. This requirement leads to buyer-supplier relationships between the industry and the firms that provide the raw materials (Kelly, 2010). ERP vendors in this case form part of the supply chain given that they engage in the supply of ERP systems. Suppliers, if powerful, can therefore exert an influence the implementation of ERPs, such as selling them at a high price to capture some of the industry's profits. Additionally, other suppliers apart from ERP vendors engage in the supply of supporting facilities like cheque books, furniture, stationeries, among others can give the same analogy. If indeed such supplies are not availed in good time then the implementation of ERP systems will become a challenge (Powers, 2010).

#### **2.1.3.3 Government Policy and Regulation Pressure**

Government can limit or even foreclose entry into industries with such controls as licensing requirements and limits on access to raw materials (Porter, 1998). Influencing major political decisions is part of corporate strategy as long as this is done openly and with integrity. SMEs do not take account of the history and momentum of politics ignores an essential element of the environment (Lynch, 2000).

### **3.0 RESEARCH METHODOLOGY**

The research adopted a descriptive design. The target population was 4560 SMEs in Kenya. A sample size of 87 SMEs was selected. The respondents were identified through probability sampling in the form of stratified sampling. The collection of data was conducted through the use of questionnaires and thereafter data coding was done then followed by data presentation via graphs, tables as well as pie charts. These were then analyzed through both descriptive statistics (frequencies and means as well as inferential statistics (correlations).

### **4.0 RESULTS AND DISCUSSIONS**

#### **4.1 Response Rate**

Table 1 presents the response rate with regards to the number of questionnaires issued and those that were returned.

**Table 1: Response Rate**

<b>Response Rate</b>	<b>Distribution</b>	
	<b>Frequency</b>	<b>Percentage (%)</b>
Questionnaires Returned	80	92
Questionnaires Not Returned	7	8

As shown in table 1, 80 out of the 87 questionnaires issued, were returned, this represents a 92 percent response rate. 7 questionnaires were not returned.

#### **4.2 Background Information**

##### **4.2.1 Gender of the Respondents**

Table 2 provides a summary of the respondents who were engaged in the survey on the basis of their gender.

**Table 2: Gender of the Respondents**

Gender of the Respondents	Distribution	
	Frequency	Percentage
Female	24	30
Male	56	70
<b>Total</b>	<b>80</b>	<b>100</b>

The results of the study as seen in table 2 show that indeed 30 percent of the total respondents were of the female gender, while the remaining 70 percent were of the male gender. This shows that the study was not gender biased. This also implies that the SME sector is mainly dominated by men as compared to their female counterparts.

#### 4.2.2 Age of the Respondents

Table 3 provides the results of the respondents with regards to their age.

**Table 3: Age of the Respondents**

Age of the Respondents	Distribution	
	Frequency	Percentage
20-25 years	32	40
26-30 years	28	35
31-35 years	12	15
Above 36 years	8	10
<b>Total</b>	<b>80</b>	<b>100</b>

The study findings as seen in table 3 show that 40 percent of the respondents were between 20-25 years, 34 percent of the respondents between 26-30 years, 16 percent of the respondents between 31-35 years and the remaining 10 percent of the respondents above 36 years. This is an indication that the SME sector in Kenya is dominated majorly by young people below the age of 40 years.

#### 4.2.3 Level of Education

Table 4 presents a summary of the findings on the level of education of the respondents involved in the study.



**Table 4: Level of Education**

Level of Education of the Respondents	Distribution	
	Frequency	Percentage
None	10	12
Primary	15	19
Secondary	25	32
University	10	12
Others	20	25
<b>Total</b>	<b>80</b>	<b>100</b>

The table 4 reveals that whereas majority of the respondents had low levels of education, a few respondents had however not acquired any formal education. 69 percent of the respondents had post-primary education, with 32 percent of the respondents reporting secondary and 12 percent university education. On the other hand, 19 percent and 25 percent of the respondents reported having acquired primary education and a broad category of education (referred to as others) respectively. This broad category of respondents included certificate, diploma holders including computer studies, industrial training, accountancy holders, just to name but a few. Notwithstanding this, about 12 percent of the respondents had not acquired any formal education at all.

#### 4.3.4 Number of Working Years

Table 5 presents a summary of the findings with regards to respondents' years of work experience. As shown in the table 5 majority of the respondents (90%), have less than 5 years of work experience. Specifically, 45 percent of the respondents have worked between 0-2 years, similar to those who have worked for 3-6 years. On the other hand, 5 percent have 7-10 years of work experience and above 10 years respectively. This finding indeed affirms the findings on the age of the respondents, an indication that indeed most respondents in the SME sector have few years of work experience.

**Table 5: Years of Work Experience**

Years of Work Experience	Frequency	Percentage
Less than 2 Years	36	45
3-6 Years	36	45
7-10 Years	4	5
11-14 Years	4	5
<b>Total</b>	<b>80</b>	<b>100</b>

#### 4.3.5 Number of Years in Operation

Table 6, provides the study findings with regards to the number of years the business has been in operation.

**Table 6: Number of Years in Operation**

Number of Years in Operation	Distribution	
	Frequency	Percentage
Less than 3 years	30	38
3 – 6 years	27	33
7-10 years	10	13
11- 14 years	8	10
15 years and over	5	6
<b>TOTAL</b>	<b>80</b>	<b>100</b>

The table 6 reveals that majority of the SMEs are less that 10 years old with very few are over 10 years old. Specifically, 38 percent of the organization ages have been in operation in less than 3 years, 33 percent of the respondents have been in operation for 3-6 years, 13 percent of the respondents have been in operation for 7-10 years, 10 percent of the respondents have been in operation for 11-14 years, while 6 percent are more than 15 years. This implies that most SMEs are fairly young, an indication that majority of SMEs rarely survive after they have been started and as such the few that have survived are not very old enough.

#### 4.3.6 Nature of Business

As seen in the table 7 majority of the SMEs were in retail (25%), agriculture, (20%), restaurants and hotels (20%). This was followed by community and social services (5%), construction (5%), manufacturing (5%), business services (2.5%), financial services (2.5%), transport and communication (2.5%). Table 7 presents a summary of the findings with regards to the nature of business.

**Table 7: Nature of Business**

Nature of Business	Distribution	
	Frequency	Percentage
Agriculture	16	20
Business Services	2	2.5
Community and Social Services	4	5
Construction	4	5
Financial Services	2	2.5
Manufacturing	4	5
Restaurants and Hotels	16	20
Retail	20	25
Transport and communication	2	2.5
<b>Total</b>	<b>80</b>	<b>100</b>

#### 4.3.7 Level of ERP knowledge

Table 8 presents a summary of the findings with regards to the level of ERP knowledge by various respondents in the SME sector. As seen in table 8, the majority of the respondents (42 %), had no knowledge of ERP at all. 28 percent of the respondents had basic knowledge of ERP, while 15 percent had average knowledge. Of the remaining, 10 percent had professional knowledge of ERP while 5 percent had expert knowledge

**Table 8: Level of ERP knowledge**

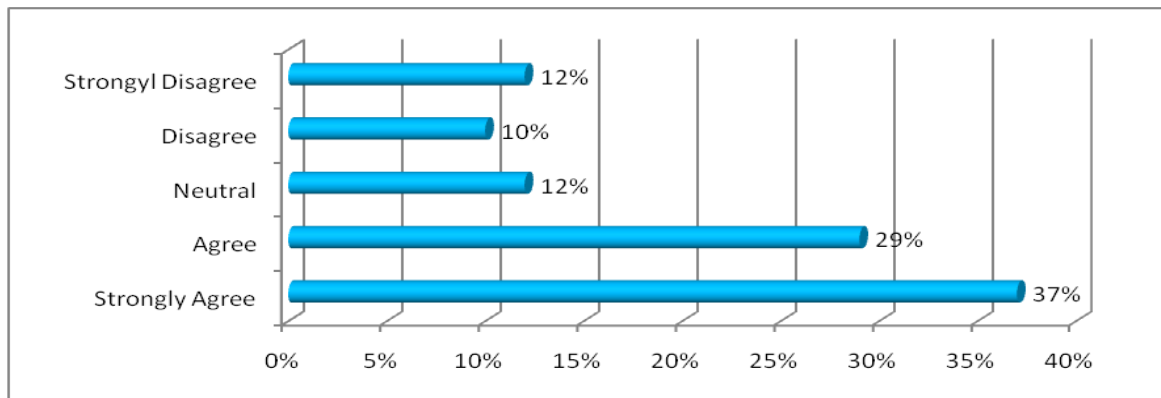
Knowledge Level	Distribution	
	Frequency	Percentage
No Knowledge	34	42
Basic	22	28
Average	12	15
Professional	8	10
Expert	4	5
<b>Total</b>	<b>80</b>	<b>100</b>

#### 4.3 Organizational Characteristics that Influence ERP Systems Implementation

The first objective of the study was to establish the organizational characteristics the influence ERP systems implementation. The following subsection will present findings on these characteristics as articulated by the respondents.

#### 4.4.1 Organization Resource and the Success of ERPS Related Organizational Change

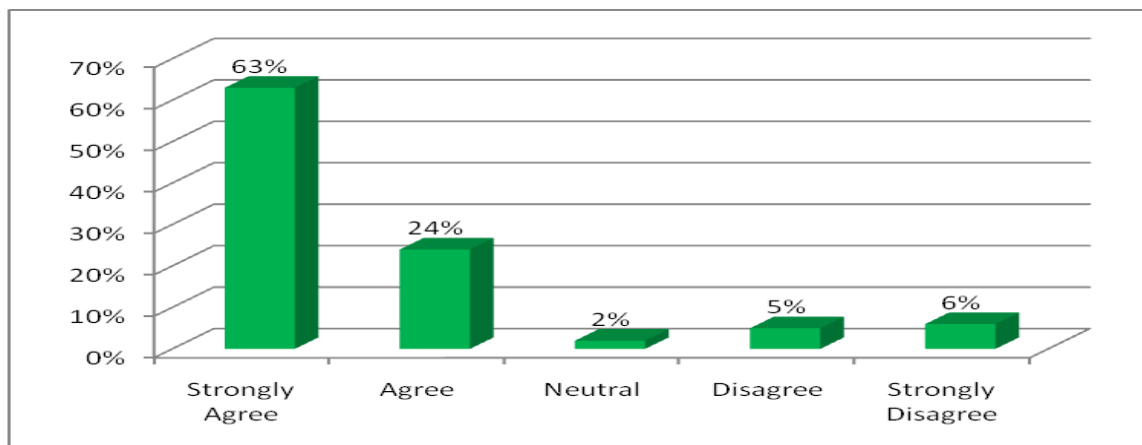
Figure 1 presents a summary of the findings with regards to how organization resources bring about the success of ERP related organization change. As seen in figure 1, 37 percent of the respondents strongly agree, 29 percent agree, 12 percent are neutral that organization resources bring about the success of ERP related organization change. On the other hand, 10 percent disagree, while 12 percent strongly disagreed on this aspect.



**Figure 1: Organization Resource and ERPS Related Organizational Change**

#### 4.3.2 Organization Culture and the Adoption of ERP Systems

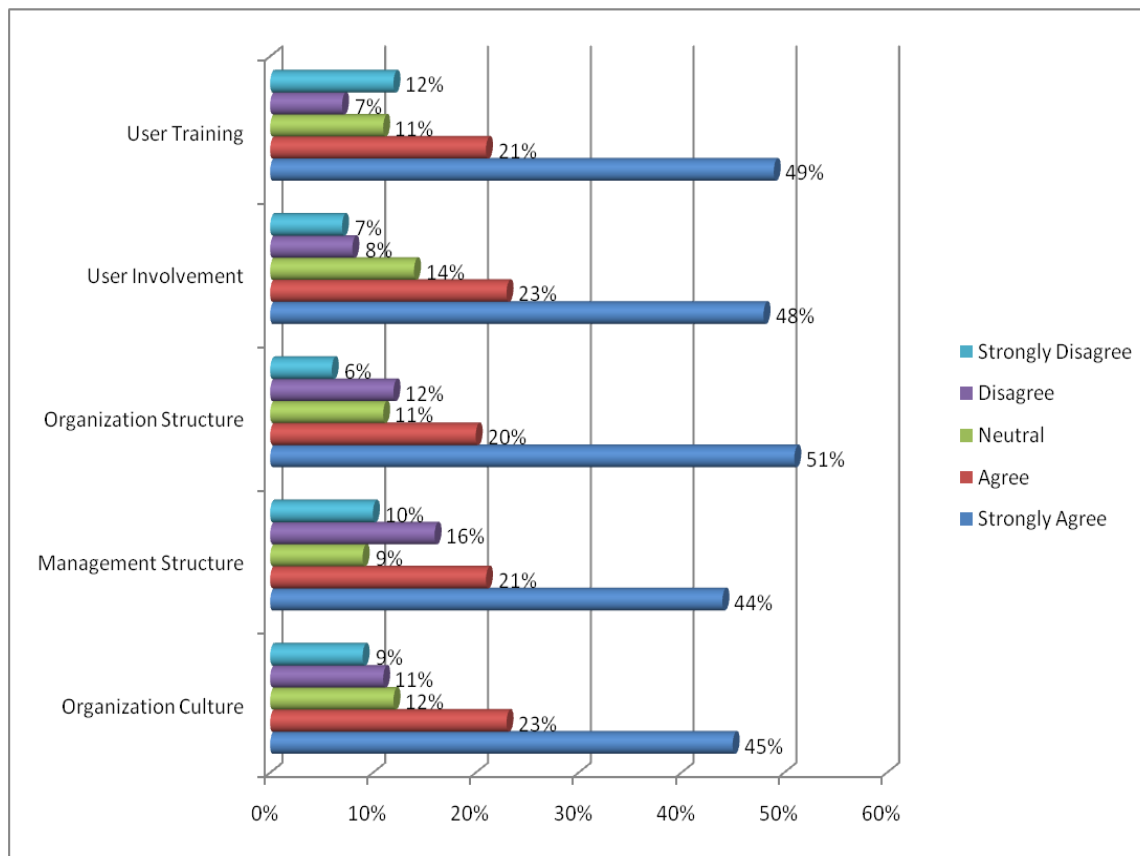
The study sought to establish the organization factors affecting the adoption of ERP systems. Figure 2 presents a summary of the findings based on how the respondents regarded the influence of organization culture on the adoption of ERPs. As seen in figure 2, 63 percent of the respondents strongly agree, 24 percent agree, while 2 percent are neutral on how the organization culture influences the adoption of ERPs, while 5 percent disagree as 6 percent strongly disagreed.



**Figure 2: Influence of Organization Culture on the Adoption of ERPs**

#### 4.4.3 Organization Factors affecting Successful Implementation of ERP Systems

Figure 3 presents a summary of the findings with regards to the factors affecting successful implementation of ERP systems. As seen in figure 3, the majority of the respondents (68%) agreed that organization culture influences the implementation of ERPs. Similarly, 65 percent of the respondents agreed that the management structure influences the implementation of ERPs. While 71 percent of the respondents were in agreement that the organization structure influences the implementation of ERPs. Additionally 71 of the respondents were in agreement that user involvement influences the implementation of ERPs, while 70 percent, of the respondents agreed that user training influences implementation of ERPs. These findings indicate that indeed the implementation of ERP is influenced by the organization culture, management structure organization structure, user involvement as well as user training.



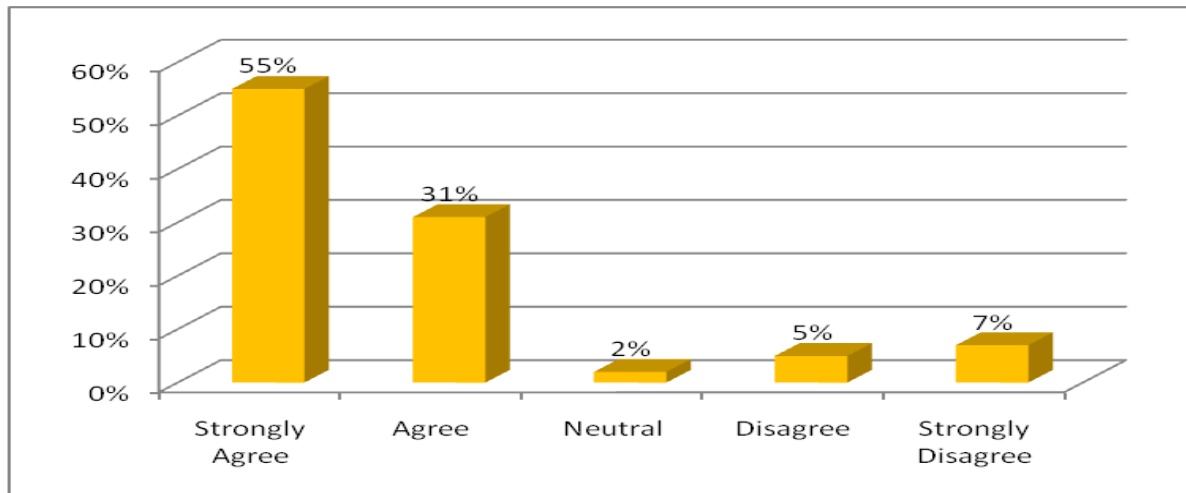
**Figure 3: Organization Factors Affecting Successful Implementation of ERP systems**

#### 4.3.4 The Monitoring of an ERP requires Special skills after Implementation

Figure 4 presents a summary of the findings with regards to how monitoring of an ERP requires special skills after implementation. As seen in the figure 4, 55 percent of the respondents strongly agree, 31 percent agree, 2 percent are neutral on how monitoring of an ERP requires special skills



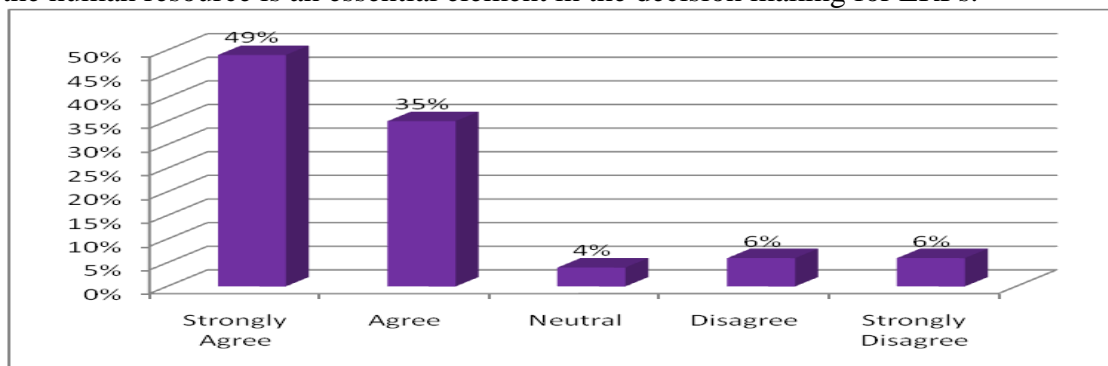
after implementation. 5 percent disagree while 7 percent strongly disagree. This implies that indeed for one to effectively monitor the ERP system special skills are required once implementation has been done.



**Figure 4: Monitoring of an ERP requires Special skills after Implementation**

#### 4.3.5 The human Resource needs to be involved in Decision Making for ERPS

Figure 5 presents a summary of the findings with regards to how the human resource needs to be involved in decision making for ERPs. As seen in figure 5, 49 percent of the respondents strongly agree, 35 percent agree, 4 percent are neutral on human resource needs to be involved in decision making for ERPs. 6 percent disagree while 6 percent strongly disagree. This implies that indeed the human resource is an essential element in the decision making for ERPs.

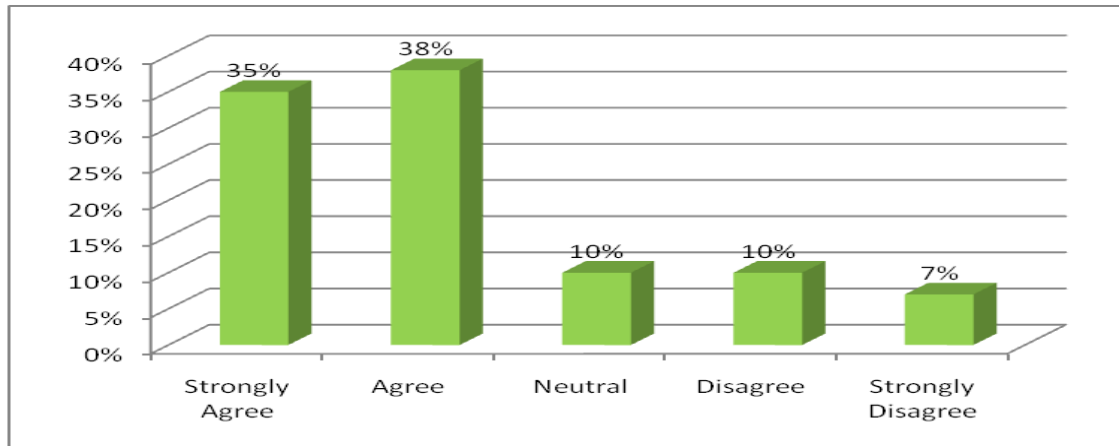


**Figure 5: The Human Resource needs to be involved in Decision Making for ERPS**

#### 4.3.6 New Changes Which Come With an ERP System Can Bring User Resistance

Figure 6 presents a summary of the findings with regards to how new changes which come with an ERP system can bring about user resistance. As seen in figure 6, 35 percent of the respondents

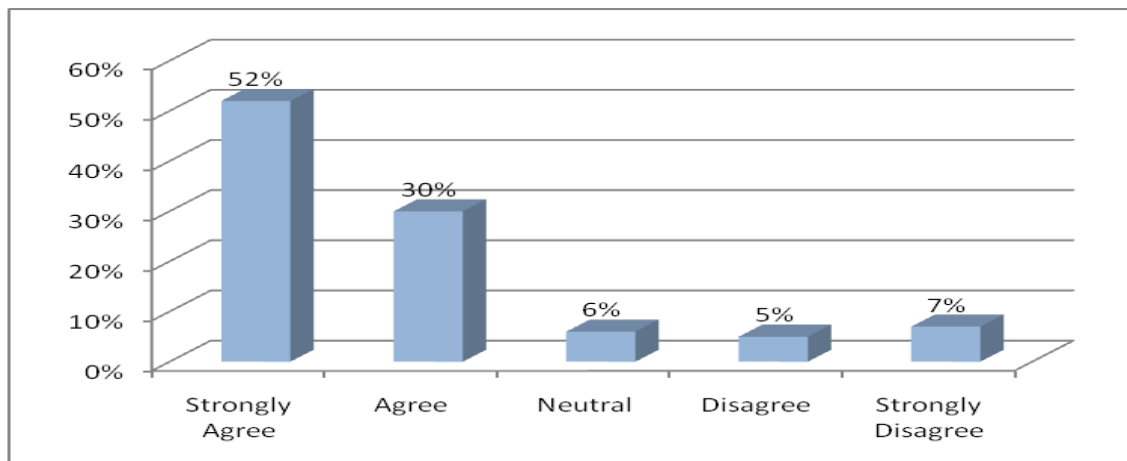
strongly agree, 38 percent agree, 10 percent are neutral on how new changes which come with an ERP system can bring user resistance. 10 percent disagree while 7 percent strongly disagree. This implies that indeed ERP systems if newly implemented can bring about user resistance among members of the organization.



**Figure 6: New Changes of ERP System Can Bring User Resistance**

#### 4.4.7 ERP Implementation faces Failure Risk due to Poor Communication

Communication is the key to the implementation of ERPs. Figure 7 presents a summary of the findings with regards to how ERP implementation faces failure risk due to poor communication. As seen in the figure 7, 52 percent of the respondents strongly agree, 8 percent agree, 6 percent are neutral on how ERP implementation faces failure risks due to poor communication. 5 percent disagree while 7 percent strongly disagree. This implies that indeed ERP systems if organizations do not effectively communicate to its employees about ERPs, then the implementation process is likely to fail.



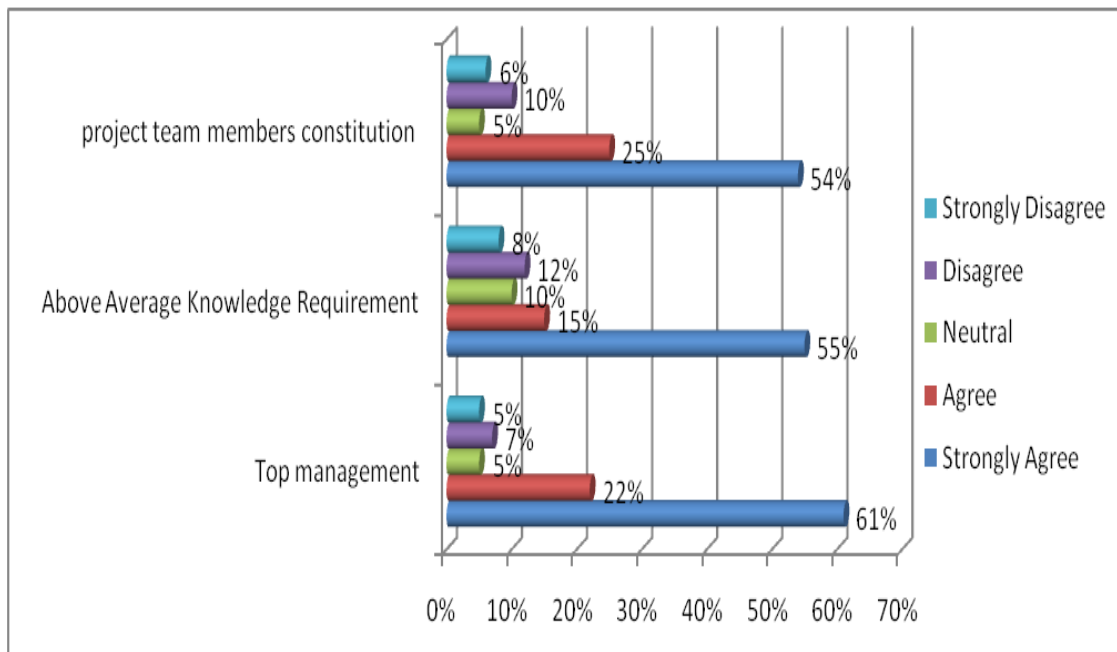
**Figure 7: ERP Implementation faces Failure Risk due to Poor Communication**

**4.4 Internal factors influencing ERP Systems Implementation in SMEs**

The second objective of the study was to establish the internal factors influencing ERP systems implementation in SMEs. The following subsection presents the findings with regards to the respondents’ views on how various internal factors affect ERP systems implementation among SMEs in Kenya.

**4.4.1 Internal factors influencing ERP Implementation**

The study first respondents’ views on how various internal factors influence the adoption of ERP systems. Figure 8 is a presentation of what the respondents had to say. As seen in figure 8, the majority of the respondents (83%) agreed that top management influences the adoption of ERPs. Similarly, 66 percent of the respondents agreed that above average knowledge requirement is thus key to the adoption of ERPs, while 79 percent, of the respondents, were in agreement that the constitution of project team members influences the adoption of ERPs. These findings imply that indeed the internal factors influencing the adoption of ERPs in SMEs in Kenya include; the top management of SMEs, project team constitution as well as the above average knowledge requirements.

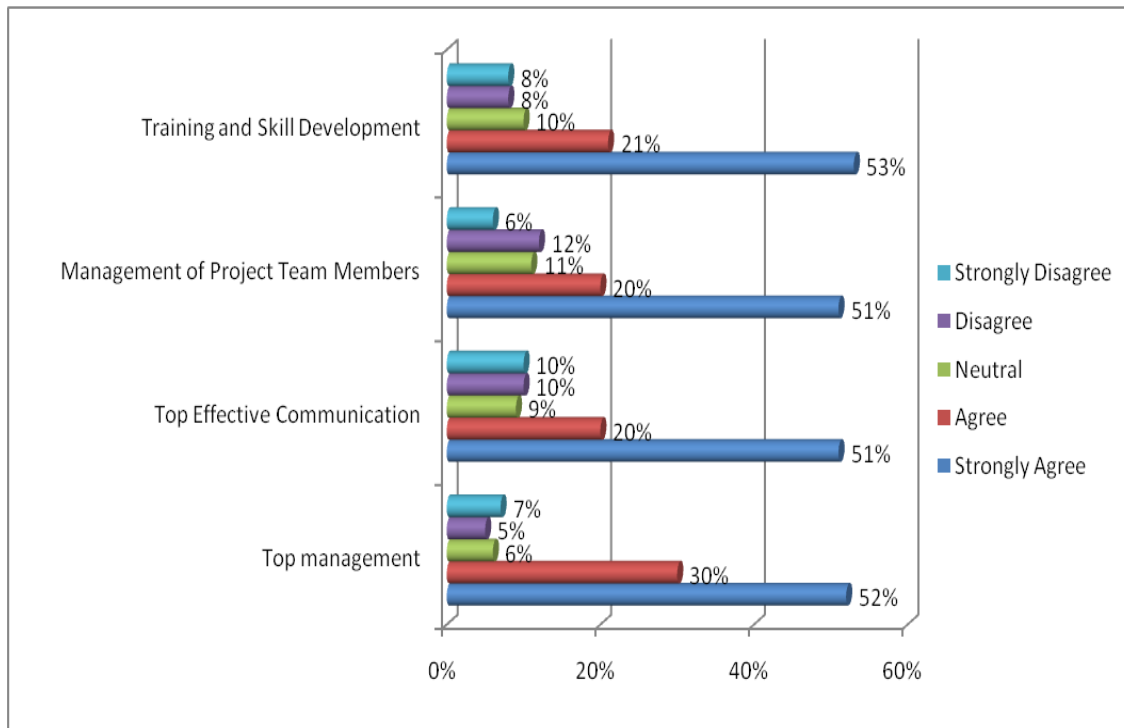


**Figure 8: Internal factors influencing ERP Adoption**

**4.4.2 Internal factors influencing ERP Implementation**

The study first respondents’ views on how various internal factors influence the implementation of ERP systems. Figure 9 is a presentation of what the respondents had to say. As seen in figure 9, the majority of the respondents (82%) agreed that top management influences the implementation

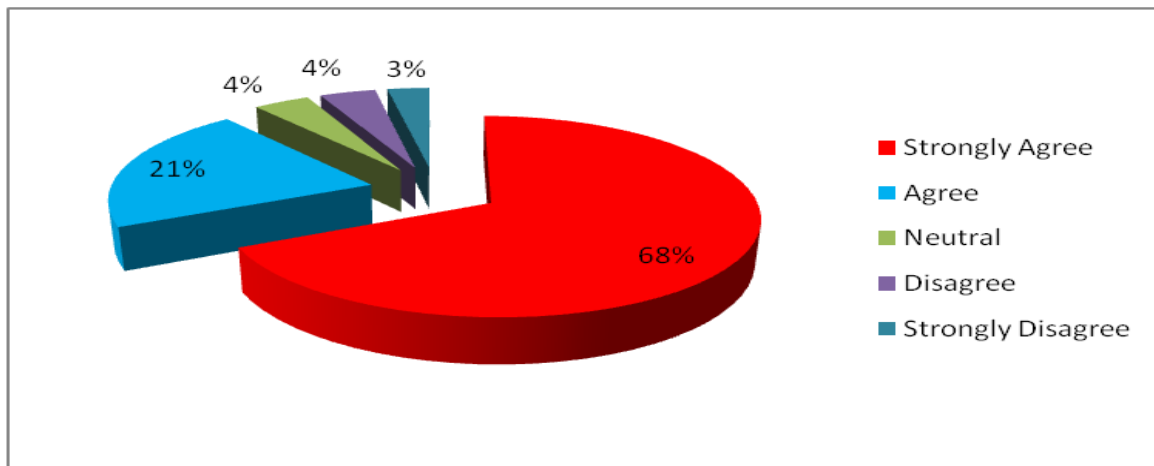
of ERPs. Similarly, 71 percent of the respondents agreed that top effective communication influences the implementation of ERPs while 71 percent of the respondents were in agreement that the management of project team members influences the implementation of ERPs. Additionally, 74 percent of the respondents were in agreement that training and skill development influences the implementation of ERP. These findings imply that indeed the internal factors influencing the implementation of ERPs in SMEs in Kenya include; the top management of SMEs, top effective communication, management of project team members as well as training and skill development.



**Figure 9: Internal factors influencing ERP Implementation**

#### 4.4.3 ERP System Implementation Has a Cost Implication Attached To It

Figure 10 presents a summary of the findings with regards to how ERP implementation has costs attached to it. As seen in figure 10, 68 percent of the respondents strongly agree, 21 percent agree, 4 percent are neutral that ERP implementation has a cost implication attached to it. 4 percent disagree while 3 percent strongly disagree. This implies that indeed ERP systems implementation comes with costs attached to it. It follows therefore that organizations seeking to implement ERPs need to brace for the cost implications of ERPs.



**Figure 10: ERP System Implementation Has a Cost Implication Attached To It**

#### **4.5 External Factors influencing ERP systems Implementation in SMEs**

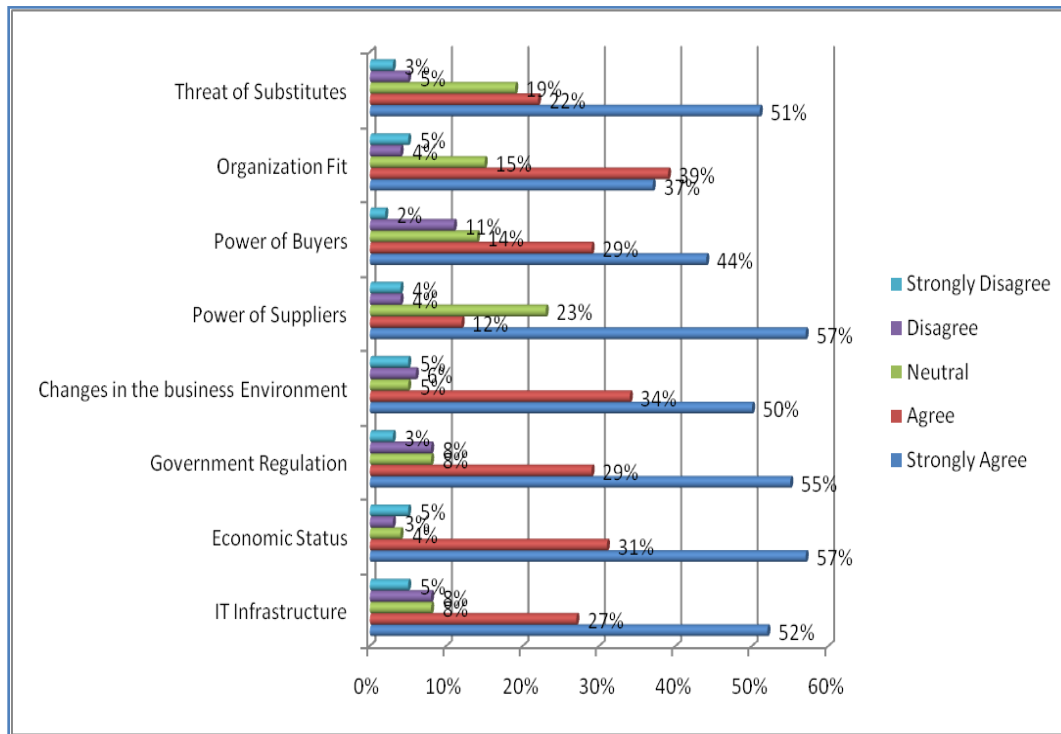
The third and final objective of the study was to establish the external factors influencing ERP system implementation. This subsection will present findings on the various external factors that come into play in the process of ERP system implementation as per the respondents' views.

##### **4.5.1 External Factors influencing ERP Implementation**

Figure 11 presents the findings with regards to the various external factors that influence the implementation of ERP systems. As seen in figure 11, the majority of the respondents (79%) agreed that IT infrastructure influences the implementation of ERPs. Similarly, 88 percent of the respondents agreed that economic status influences the implementation of ERPs while 84 percent, of the respondents, were in agreement that the government regulation influences the implementation of ERPs. Additionally, 84 percent of the respondents were in agreement that changes in the business environment influence the implementation of ERP. Additionally, 80 percent of the respondents agreed that the power of suppliers' influences implementation of ERPs, 73 percent also agreed that the power of buyers influences ERP system implementation. As well 76 percent of the respondents, agreed that organization fit influences ERP implementation, same to 73 percent of the respondents who agreed on the influence of threat of substitutes.

These findings indeed indicate that ERP implementation is influenced by the following external factors to the organization: IT infrastructure, economic status, government regulation, changes in the business environment, power of buyers, the power of suppliers, organization fit as well as the threat of substitute products.





**Figure 11: External Factors influencing ERP Implementation**

#### 4.6 Regression Results

Linear regression was conducted to determine the relationship between, organization factors, internal factors, and external factors, and ERP implementation.

**Table 9: Model Summary**

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	.487	.671	.683	.476

Predictors: (Constant), internal factors, external factors,

**Table 10: Correlation Model**

The study revealed that the impact of overall all the variables on ERP implementation was statistically significant at  $p < 0.001$ . The overall model explained 67.1 percent of variance in ERP implementation, which was revealed to be statistically significant. This shows therefore that there is a relationship between organization factors, (beta .573), internal factors, (beta .473), external factor (beta, .611) and ERP implementation (.497)

Model	Unstandardized Coefficients		Standardized	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.587	0.057		.	.0026
Organization Factors	.573*	0.086	.4331	..211	.005
Internal Factors	.473	0.028	.597	.309	.004
External Factors	.611	0.019	.588	.345	.001
ERP Implementation	.497	0.079	.435	.328	.001

## 5.0 FINDINGS CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Summary of Findings

#### 5.1.1 Organizational Characteristics Influencing ERP Systems Implementation

The findings revealed that organization resources bring about success of ERP related organization change. On the other hand, it was revealed that organization culture influences the adoption of ERPs. Additionally, it was revealed that the implementation of ERP is influenced by the organization culture, management structure organization structure, user involvement as well as user training.

The study established that organization resources influence the implementation of ERP. This is in line with Hammer and Champy (2009), who argue that managing people is a major contributing factor to the success of ERPS related organizational change. In a discussion of the causes of re-engineering failure, Albano and Pino (2009) refer to the inadequate treatment of the human aspect when implementing ERPS-related change.

It was also established that organization culture influences ERP implementation. Indeed, the adoption and implementation of ERPS is influenced a lot by culture because culture affects not only human relationships at the work place but also their attitude towards change which in itself is the central theme of ERPS.

The workers' awareness of an organizational background in human relations values and open systems values would be associated with heightened levels of readiness for change which, in turn, would be predictive of change implementation success. The findings is in agreement with the hypothesis by Wilmot (2008). Similarly, they predicted that reshaping capabilities would lead to change implementation success, via its effects on employees' perceptions of readiness for change. This school of thought is consistent with Temponi (2008) whose empirical research in 44 Estonian organizations indicated the impact of institutional environments on how orientations of organizational culture influence organizational learning and employee attitudes toward change.

The study further established that the management structure influences ERP implementation. The finding confirms that indeed it is common practice to form a project team and assign decision rights to specific individuals with particular knowledge and skills. However, a lack of proper monitoring and enough controls over this increased responsibility to project managers and the project team in organization processes may impose a potential business risk (Grabski, et. a., 2001; Poba-Nzaou et. a., 2008). Lack of competence in negotiating a contract to acquire an ERP system

(Ojala *et. al.*, 2006) and misunderstandings between the buyer and the supplier (Iskanius, 2009) are some of the problems organizations acquiring ERP systems face.

It was also established that user involvement influences the implementation of ERP systems. This finding indeed shows that other risks related to users identified in the literature are ineffective communication; insufficient training; users unable to realize the benefits of the new ERP system; a lack of personnel commitment; a lack of sensitivity to user resistance; failure to emphasize reporting to users (Huang *et. al.*, 2004; Ojala *et. al.*, 2006; Sumner, 2000) and loss of skills (staff turnover) (Grabski *et. al.*, 2001).

### **5.1.2 Internal factors influencing ERP Systems Implementation in SMEs**

The findings on the influence of internal factors on ERP system implementation revealed that indeed the internal factors influencing the adoption of ERPs in SMEs in Kenya include; the top management of SMEs, project team constitution as well as the above average knowledge requirements. Additionally, the internal factors influencing the implementation of ERPs in SMEs in Kenya include; the top management of SMEs, top effective communication, management of project team members as well as training and skill development.

The study established that the support by top management influences the implementation of ERP systems. This finding affirms that the most important factor when adopting and implementing ERPS is the top-level management's commitment to the strategic direction itself. Hammer (2008) believes that reengineering must be driven from the topmost level. The primary ingredient for project success is top leadership, either the CEO or someone in a position to compel the compliance of all parties involved in reengineering. Line responsibility is said to be the key, and reengineering is top-down, autocratic rather than through a democratic process. This is undoubtedly a prerequisite for strategy implementation. Therefore, top managers must demonstrate their willingness to give energy and loyalty to the performance management implementation process (Grint, 2011).

The finding on how employee involvement as well as effective communication and how they influence ERP implementation affirm that indeed some key constructs in managements are employee involvement, communication, and leadership nature management should provide employees with channels of communication and improve their ability of understanding each other. (Motwani *et. al.*, 2008). Top managers should drive the changes by providing vision (shared vision). Employees should become more responsive. Other members in the ERPS team should understand the process. Top Effective communication is vital to organizational decision making (Grint, 2011). To empower employee and cooperate in a new system, top management should establish inter- and intra-organizational confidence and trust. The chains' interactions reflect the organizational ability in adapting changes. In addition, groupware techniques significantly decrease the time required for performing the analysis phases of ERPS (Crowe *et. al.*, 2010).

The study also established that ERP system implementation has cost implications attached to it. Considering that ERPs are expensive (Yang *et. al.*, 2010) and SMEs undergo from economic restrictions, the equipped and economic risks become more obvious than the advantages. Direct

expenses are those that are openly associated with the implementation of a system (Love *et. al.*, 2004). Direct expenses for implementing an ERP system recognized in the literature include license costs, update costs, IT infrastructure, hardware costs and software costs (Haddara, 2011). It was further established that employee training was key to ERP implementation. In ERPs adoption and implementation process training is crucial because it enables employees to acquire skills they need to perform their jobs. It consists of those activities, which are designed to improve individual performance in a currently held job or one related to it. It is thus aimed at helping employees to do their present jobs effectively. Training and development programmes are designed to educate employees beyond their requirements of their current position so that they are prepared for a broader and more challenging role in the organization. Training includes in house courses, coaching, seminars, job rotation and professional programmes. The ultimate aim is to enhance the future performance of the organization itself. The general training programme consists of assessing the company's needs, appraising the employee performance and the actual training itself (Vega *et. al.*, 2010).

### **5.1.3 External Factors Influencing ERP Systems Implementation**

The findings on the influence of external factors influencing ERP implementation revealed that ERP implementation is influenced by the following external factors to the organization: IT infrastructure, economic status, government regulation, changes in the business environment, power of buyers, power of suppliers, organization fit as well as the threat of substitute products.

The study established that the IT infrastructure influences ERP implementation. This is in line with Ruey-Shun, *et. al.*, (2008), who proposed that IT infrastructure comprises the basic requirements for ERP implementation. ERP bring about numerous roles, including the internal processes of the company itself and its suppliers, customers, banks, etc. The reliability of the entire infrastructure is required to assist in completing assessment sequence running enabled by ERP. According to Kansal (2006) although these are changing historically, ERP solutions have had greater role in manufacturing areas. While service industries have begun to join this market, firms with traditional manufacturing powers are more expected to implement ERP.

It was also established that the organization fit influences ERP implementation. This result verifies that really an ERP system rarely fits absolutely into the business procedures of an SME. The SMEs have to modify their business procedures to fit the ERP system or make the essential transform to the ERP system to suit the organization's business procedures (Poba-Nzaou *et. al.*, 2008). as well, there is a danger of obtaining off-the-shelf software with overlapping system component which are likely to do related tasks (Iskanius, 2009).

It was also established that government regulation plays a major role in ERP implementation. Due to the size and lack of resources SMEs need the government to be committed to facilitating removal of obstacles and deregulating the business in favor of ERP implementation. The regulations may set back or foster the ERP implementation in organizations running in the country's markets. The research shows that this external factor influences stimulation of IT infrastructure and could help energize faster technology diffusion (lynch, 2000). Deregulation has proven to be a pro-competitive force in the airline, banking, natural gas, telecommunications and electric utility

industries. Governments can therefore influence competitive changes by opening their domestic markets to foreign participation or closing them to protect domestic companies.

The study further established that supplier buying power influences ERP implementation. This finding shows that indeed most SMEs use raw materials as well as labour, components, and other supplies. This requirement leads to buyer-supplier relationships between the industry and the firms that provide the raw materials (Kelly, 2010). ERP vendors in this case form part of the supply chain given that they engage in the supply of ERP systems. Suppliers, if powerful, can therefore exert an influence the implementation of ERPs, such as selling them at a high price to capture some of the industry's profits.

## **5.2 Conclusions**

The study concludes that indeed organization resources bring about the success of ERP related organization change. On the other hand, it is concluded that organization culture influences the adoption of ERPs. Additionally, it was revealed that the implementation of ERP is influenced by the organization culture, management structure organization structure, user involvement as well as user training.

The findings on the influence of internal factors on ERP system implementation lead to a conclusion that indeed the internal factors influencing the adoption of ERPs in SMEs in Kenya include; the top management of SMEs, project team constitution as well as the above average knowledge requirements. Additionally, the internal factors influencing the implementation of ERPs in SMEs in Kenya include; the top management of SMEs, top effective communication, management of project team members as well as training and skill development.

The findings on the influence of external factors influencing ERP implementation lead to a conclusion that ERP implementation is influenced by the following external factors to the organization: IT infrastructure, economic status, government regulation, changes in the business environment, power of buyers, power of suppliers, organization fit as well as the threat of substitute products.

## **5.3 Recommendations**

The study recommends that SMEs in Kenya need to put into consideration, continuous introduction of ERP systems. This will help them to advance economies and financial liberalization and thus bring about the adoption of and implementation of ERP systems. Additionally, the study recommends that the government regulations, as well as the other external factors should be aligned in a way that ensures that there is room for companies to explore means of adopting and implementing ERP systems so as to be able to attain sustainable competitive advantage.

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