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Determinants of Enterprise Resource Planning System Projects Implementation in Kenyan State Agencies: A Case of Tanathi Waterworks Development Agency

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Abstract

Enterprise Resource Planning (ERP) Systems are managerial tools that improve organizational performance. ERP automates key functions such as Finance, Accounting, Human resource and procurement. Implementation of the Enterprise Resource Planning is normally done in facets depending on the organization's size and structure. ERP projects are capital intensive and different methodologies are adopted in implementing ERP systems. The implementation of the ERP systems comes with various challenge sand the ability of an organization to overcome the challenges determines the success of the project. This study thus, aimed to investigate the determinants of enterprise resource planning system projects implementation in Kenyan State Agencies in a case of Tanathi water works development agency. The study was guided by the following objectives: To establish how finance availability, capacity development, management commitment and Existing ICT Technology determine Enterprise Resource Planning System Implementation. The study used a descriptive research design with a target population of 58 respondents that was drawn from Tanathi top managers, middle and other Key departments. The study sampled 48 respondents through the purposive method. Data was collected through the use of questionnaires. Data were analyzed using Statistical Package for Social Sciences. All the questionnaires received were referenced and items in the questionnaire were coded to facilitate data entry. After data cleaning which entailed checking for errors in the entry, descriptive statistics such as frequencies, percentages, mean score and standard deviation were estimated for all the quantitative variables. Inferential data analysis was done using multiple regression analysis. The data was presented in form of tables. The study found that ERP was an added advantage and value for money and that ERP does not improve financial control and better accuracy. The research also found that training development determines enterprise resource planning system projects implementation in the Tanathi Water Works Development Agency. The research found that management shows commitment to programs on the implementation of ERP and the managerial staff was committed to ERP system continuous improvement. The research further found that LAN/WAN determines enterprise resource planning system projects implementation in the Tanathi Water Works Development

Agency. The study concluded that capacity development was the greatest determinant of enterprise resource planning system projects implementation in Tanathi Water Works Development Agency, followed by financial availability, then existing ICT Technology while management commitment was the last determinant. The study recommended that timelines should be realistic. The scheduled time for implementation and cost is inevitable to ensure that the desired results are obtained as agreed in the contract. The Tanathi Water Works Development Agency should carefully assess and select ERP software.

Keywords*:* *Financial, Capacity development, management commitment, Existing ICT technology and Enterprise Resource Planning System Projects Implementation*

1.1 BACKGROUND OF THE STUDY

Enterprise Resources Planning (ERP) system is a software package that manages and integrates all the information of establishment flowing through departmental areas in the organization. It is an Information Communication and Technology(ICT) function, that is achieving higher growth in Malaysia. Furthermore, it is helping in economic growth and IT infrastructures in SMEs are upgraded to adopt Information Technology (Shahawai, 2014). Also, Bhavan (2014), encouraged SMEs to draw attention towards ERP implementation by offering services to alleviate cost from vendors. Studying the performance ways in SMEs might boost better results while deciding to execute ERP (Bhavan, 2014). Although most of the companies in the developed world easily adopt new technological innovations, similar organizations in the developing world face numerous challenges due to constraints related to the nature of available information and communication technology (ICT) infrastructure (Zimbrao, 2013). Information Communication Technology (ICT) has become very critical and has changed business models. It comes with more expectation of high quality and efficiency of information sharing and service delivery in organizations (Bhatnargar & Apikul, 2006).

Organizations sought technology to innovate, automate, empower, and collaborate to stand out against competitors. The idea of adopting information technology (IT) for competitive business advantage is nowadays a public platitude. The benefit of using information technology differs from having improved efficiency and effectiveness in carrying out commercial duties to significant replacements in the organizational design. Chung, Hsu, Tsai, and Huang (2012) proposed that major changes in job type and business design are required for proper implementation of information technology. High Implementation of IT is a key factor in creating an efficient and effective business performance management system (Chung et al., 2012). The adoption of Information Communication and Technology (ICT) for business goes beyond simply buying an office computer and connecting it to the internet. It is more beneficial to set up integrated information systems to support business functional areas. These areas include operations and management of accounting, finances, manufacturing, production, transportation, sales, distribution, human resource, supply chain, customer relationship, and e-business. An example of such a system is the Enterprise Resource Planning (ERP) Software (Torach, 2011).

Tadjer (2010) emphasizes that ERP systems are one database, one application, and a unified interface across the entire enterprise. ERP systems offer unique benefits to the organizations implementing them. They improve the decision-making process of organizations by providing appropriate and timely information (Hunton et al., 2012). Globalization has necessitated most

companies to standardize processes and learn the best practices embedded in ERP systems, ensuring quality and predictability in their global business interests by reducing cycle time from order to delivery (Ross, 2013). With the evolvement of ERP systems, there is increased efficiency in performance and great impact.

ERP system implementation is a big investment and requires thorough strategic thinking for adoption. It comes with many benefits because companies can understand their business processes better. ERP system is a software package that needs to be customized to meet the particular business needs. The information made available through an ERP system provides visibility for Key Performance Indicators (KPIs) required for meeting corporate objectives and goals. ERP software applications are used to manage product planning, purchasing, inventories, interacting with suppliers, providing customer services, tracking orders and deliveries. In most times, ERP can also include application modules for the finance and human resources aspects of a business. Typically, an ERP system uses or is integrated with a relational database system (Haag, et al. 2014).

At the core of ERP is a well-managed centralized data repository which acquires information from and supply information into the fragmented applications operating on a universal computing platform. Information in large business organizations is accumulated on various servers across many functional units and sometimes separated by geographical boundaries. Such information islands can service individual, organizational units but fail to enhance enterprise-wide performance, speed, and competence. For a software system to be considered ERP, it must provide a business with a vast collection of functionalities supported by features like flexibility, modularity & openness, widespread, most profitable business processes, and global focus. Kleijnen (2003) argues that the key objective of an ERP system is to integrate information and techniques from all functional divisions of an organization and merge it for effortless access and structured workflow. There is integration accomplished by constructing a single database repository that communicates with multiple software applications, providing different organization divisions with various business statistics and information.

ERP is designed to support medium and large business applications and processes. ERP systems work as the backbone of IS and promise to solve the fragmented information by providing seamless integration of all the data flowing through the company across the different functional and business units, across organizational units, and geographical locations in the world. Companies in Africa have historically been slower off the mark in using IT to automate business processes. They are fast catching up and those still relying on manual systems are no longer competitive. The ERP requirements of companies in Africa are mostly consistent with those of businesses in the world (Marketos, 2010). Enterprise Resource Planning (ERP) systems have transformed the way organizations go about providing information systems. They offer an off-the-shelf solution to organizations' information needs in Kenya (Otieno, 2008). In Kenya, supermarket chains have adopted an ERP system to manage their product planning, purchasing, inventory management, supplier integration, customer service, finance, human resource management, and order tracking. ERP systems have gained a competitive advantage and reduced costs by improving overall efficiency in managing inventory and sales (Shah, 2011).

ERP has helped alleviate the arduous job of supporting inflexible systems that, in most cases, result in cost increases, data redundancy and inaccuracy, and above all, various inefficiencies

(O'Leary, 2000). Ideally, ERP is a computer system that keeps managers informed about what is happening in real-time throughout a corporation and its global connections (Jacobs et al., 2000). The use of ERP increases visibility into the complete procurement process, a total spend and procurement analysis, supplier performance analysis, supplier payables analysis, and employee expense analysis. Through a complete end to end process, an organization can reduce costs, enhance profitability, and increase customer satisfaction and gain competitive advantage. ERP helps an organization gain a holistic view of procurement, identifying opportunities for consolidation, and cost reduction (Thomas and Jajodia, 2004).

Enterprise Resource Planning is considered to be a type of Information System which is adequate for today's business organizations due to the increasingly more complex business world and more demanding market. By using an ERP system, the user gains total control of all the processes in a company. The ERP system can be divided into several modules, which have different functionalities which correspond to different processes involved in business organizations. Different ERP systems have different modules, depending on the type of business that the company drives (Beynon and Davies, 2002). ERP-systems have integrated modules that can interact with each other, which gave the system great flexibility and structure. Instead of having small independent systems designed for controlling and supporting different departments of a company, an ERP system function as a unit. However, they have controlled data access mechanisms that ensure data dependence and integrity. Data and information can be shared by different sub-systems in one system. This is because an ERP system has a centralized database of the organization's data (Beynon Et al.2002).

Government Agencies have many manual processes with so much paperwork doing their work. There is always an effort to automate the processes. It has become advisable to implement Management Information Systems (MIS) to achieve paperless processes. Enterprise Resource Planning (ERP) is a software developed to consolidate and integrate organizational processes. Common data is shared and used to process workflows. A common database is developed, leading to different modular development of different Modules serving different departments. Many benefits are realized, and organizations are willing to development of ERP systems.

TANATHI Water Works Development Agency (TAWWDA) transformed from Tanathi Water Services Board (TAWSB) via Legal notice no.27 in the Kenya Gazette Supplement no.59 of 26th.April 2019. It is one of the Eight Water Works Agencies serving various areas of its jurisdiction in our Country. Tanathi Water Works Development Agency covers Kitui, Makueni, Kajiado, and Machakos. It was created to provide bulk water and sewerage infrastructure in the said Areas. In terms of section 68 of the Water act 2016, the powers and functions of Tanathi Water Works Development Agency are; undertake the development, maintenance, and management of national public waterworks within its areas of jurisdiction through providing technical services and capacity building to County governments and Water Service Providers.

The Agency aims to develop water coverage to 70% and 40% coverage in sewerage and sanitation in line with vision 2030 in its area of jurisdiction, covering a population of six million and an area of 65, 88km^2. For this to be realized, the Agency depends on the financial support from the Government of Kenya-GOK and other stakeholders approved and assented by the GOK in line with the GOK's policy guidelines. There is, therefore, a great exchange of data and information with all the stakeholders. There should be online information about the

projects either proposed, completed and ongoing. There is also the element of good service delivery to people in adherence to modern technology and stakeholders' exception. The need to have an automated process therefore becomes crucial.

1.2 Statement of the Problem

According to Morris and Venkatesh (2010), ERP systems attempt to incorporate all business procedures into one enterprise-wide solution to enhance data uniformity and a combination of linked applications. To handle challenges encountered by various transactional systems within an organization, a common course of action has been the adoption of Enterprise Resource Planning (ERP) system. The challenge most government's agencies run into is in consolidating ERP systems perfectly. Several establishments prefer a system platform that would provide integration for processes throughout the organization's divisional systems to replace the previous transactional systems.

According to annual reports from Agriculture Development Corporation, they implemented an ERP system to streamline its support departments' operations with the eventual goal of efficiency in running its core business of revenue collection. Their sole purpose for ERP was to modernize the Finance department, Human Resource department, Procurement, and Supplies department for efficiency. This Implementation has been marked by a mixture of successes and challenges. Reports on the adoption, state that customization of the ERP software from the vendors to Kenya Revenue Authority business operations have been limited. The ERP system has also been very expensive. ERP implementation is considerably also more difficult and politically charged because the organization is structured in such a way that there are independent support departments, each responsible for their reports because they each have different processes, rules, data semantics, authorization hierarchies and decision centers (KRA 2017).

Many studies have been conducted on ERP particularly on organizational performance. Globally, a study by Poston and Grabski (2011) analyzed four financial performance measures before and after implementing ERP systems using univariate tests, and their results show that adoption of ERP leads to efficiency. Hunton et al. (2010) also researched the impact of ERP systems implementation and overall organizational performance using financial ratios, and their results fail to indicate a performance improvement for ERP adopters.

State agencies is an entity incorporated under the Companies Act that is solely or partly owned by the national government for commercial purposes and a subsidiary as a company in which a government-owned entity has a controlling interest. (Republic of Kenya-RoK 2014) under ideal situations whilst enabling states achieve the above goals, state corporations play a major role in enabling a social and economic transformation of the economies in which they operate, improve public service delivery, and they have been variously applied to the creation of good and widespread employment opportunities in various jurisdictions and are useful for the targeted and careful building of international partnerships. (RoK, 2013).It is because of this background that TAWWDA sought to establish, Determinants of Enterprise Resource Planning System Projects Implementation in Kenyan State Agencies: A Case of Tanathi Water Works Development Agency.

1.3 Research Objectives

The study was guided by four objectives;

i. To establish how Financial Availability determines Enterprise Resource Planning System Projects Implementation in Kenyan State Agencies: A Case of Tanathi Water Works Development Agency.

ii. To evaluate how capacity Development, determine Enterprise Resource Planning System Projects Implementation in Kenyan State Agencies: A Case of Tanathi Water Works Development Agency.

iii. To assess how Management commitment determines Enterprise Resource Planning System Projects Implementation in Kenyan State Agencies: A Case of Tanathi Water Works Development Agency.

iv. To examine how Existing ICT Technology determines Enterprise Resource Planning System Projects Implementation in Kenyan State Agencies: A Case of Tanathi Water Works Development Agency.

2.0 LITERATURE REVIEW

2.1 Empirical Review

2.1.1 The Concept of Enterprise Resource Planning Systems Projects

Currently, an ERP system is the most advanced software solution for firms. In the integrated ERP solution, data relating, among others, customers, suppliers, products, orders, and deliveries are stored and managed. Thus, all available data is always consistent and up to date. The number of firms that have implemented an ERP system has increased in the recent, approximately twenty years (Madapusi & D'Souza, 2012). The rise of the use of ERP systems has a tremendous impact on the way that firms deal with data.

Rashid, Hossainand Patrick (2002) argued that ERP systems are not invented from one day to another, but that the development of the ERP system began with inventory control systems in the 1960s. In the 1970s, material requirements planning (MRP-1) systems were developed, which are used to plan the parts required according to the production schedule. Subsequently, manufacturing resources planning (MRP-2) systems were introduced in the 1980s. These systems go further by including the machines, times and people in the planning. In the late 1980s and the first years of the 1990s, ERP systems appeared for the first time, and these systems are a substantial extension of MRP-2. Compared to earlier systems, ERP systems distinguish themselves by their information commonality and integration, causing that firms are allowed to use only one information system (Davenport, 2000). In the last two decades' multiple vendors added more and more modules and functions as "add-ons" (Rashid et al., 2002). In accounting literature, several ERP definitions are being used. Aernoudts, Boom, Pijl, and Vosselman (2005) argued that an ERP system can be characterized as an information system that is made up of different modules, each supporting the business processes. The modules are integrated and all gathered data is stored in a central database.

Dechow and Mouritsen (2005) use an almost similar definition: "an ERP system attempts to integrate all corporate information in one central database, they allow information to be retrieved from many different organizational positions, and in principle they allow any organizational object to be made visible" (p. 692). All three above mentioned definitions of

ERP note that "seamless integration of all the information flowing of all organizational areas through the firm" (Davenport, 1998, p. 121) is a central issue to reach. According to Davenport, ERP systems give firms the possibility to store all process-related business data in one information system and hereby, for example, managers can retrieve information easily from different departments or subsidiaries. ERP systems replace many separated applications used in a firm and integrate different systems.

In the past decade, nearly all literature on ERP focused on reasons for implementation and on the challenges of the implementation project itself. Recently, several distinct research streams on ERP are observed in the literature. Some research on the effects of ERP systems on financial performance has found some evidence supporting the claim of ERP systems enable companies to achieve a faster return on investment. Poston and Grabski (2001) analyze four financial characteristics before and after ERP adoption. Their results indicate that ERP adoption leads to efficiency increase in terms of a reduction in employee numbers and the ratio of employees to revenues for each year following the ERP implementation. Nicolaou et al. (2003) compare financial data of companies adopting enterprise-wide systems and of a matched control group of firms.

The results from an analysis of performance differences across periods show that firms adopting enterprise systems have significantly higher differential performance in their second year after the completion of the system than the control group. More recently, some researchers have turned their attention to the contribution of ERP systems to supply chain coordination, when the supply chain is composed of several legal entities, such as in virtual enterprises or an international context. Although there is no analytical framework for measuring the contributions and the effects of ERP systems on SCM performance, Byrd and Davidson (2003) have examined how the antecedents, IT department technical quality, IT plan utilization, and top management of IT positively affected the supply chain. Wade and Hulland (2004) provide an overview of the literature on IT-related resources and their effect °n firm strategy and performance. Akkermans et al. (2003) studied the future effect of ERP systems on supply chain management. One of their main findings is that the panel experts saw a role for ERP in improving future supply chain effectiveness and a clear risk of ERP limiting progress in SCM. Moreover, they identified key limitations of current ERP systems in providing effective SCM support chain management.

2.1.2 Financing Availability and Enterprise Resource Planning System Projects Implementation in Kenyan State Agencies

Financial resources have always been one of the theoretical factors in implementing an information system (Tarhini, Ammar & Tarhini, 2015). Park, Ahmad, and Ruighaver (2010) identified the budget as a success factor for information systems implementation. The cost of implementing a system can include the cost of the acquisition of applications, the installation (including configuration), operation and maintenance, administration (including upgrading) and recovery from any incidents (Al-Tameem, Zairi & Kamala, 2009).

According to Almajali, Masa'deh and Tarhini (2016), funding of ERP implementation activities is a crucial determinant of a successful ERP system. Effective MIS implementation efforts require multi-year financial commitments to acquire hardware, software, and professional staff. Where implementations have been successful, there must have been a long-term commitment from top management for the stable funding of MIS development activities. Disbursement of funds for ERP to the state Agency is very critical. It is the basis of keeping on scheduled milestones and activities into measurable outputs and tangibles (Ahsan & Kumar, 2018). Funds disbursement for ERP system implementation is very critical for purposes of execution of all

activities as planned. Therefore, all decisions made during implementation invariably have financial implications hence the need for utmost care and diligence in arriving on the same (Hassan, 2017). Therefore, funds have to be set aside for the achievement of ERP implementation stages.

2.1.3 Capacity and Development and Enterprise Resource Planning System Projects Implementation in Kenyan State Agencies

Users both technical and end-users need to understand the new ways and methods of doing work brought by the new system. Training is one of the most cited Critical Success Factors (CSFs) in Enterprise Resource Planning (ERP) implementation projects (Bancroft et al., 1998). To realize significant benefits from ERP systems, a considerable amount of training is required (Wortmann, 1998). There must be a training plan, and it should consider both technical staff and end-users, with its scope depending on the type of implementation approach selected. Some case studies of ERP implementations have shown the importance of effective training at all levels (Kale, 2000).

Cohen (2010) pointed out that implementation and training are the cruces of an ERP system and businesses and that if not supported the users developed a sense of negative perception of the system. Summers (2010) said that 90% of ERP implementation in public institutions failed because companies did not choose the right business partner and thus lacked the support, consultancy, and training critical to the process. Koch (1996) mentioned that "without proper training, about 30 to 40 per cent of front-line workers will not be able to handle the demands of the new system". Hence, ERP systems are complex and demand rigorous training. As Bingi et al. (1999) say "it is difficult for trainers or consultants to pass on the knowledge to the employees in a short period." Coombs (2007) recommended that all employees be trained on the new technology, even if it is easy to use. Employees should be provided with handouts to enhance post-training results. Managers should also organize a group of employees who support the new technology and spread the word about the new tool's benefits. Coombs further mentions that administrators should also provide employee incentives. Incentives will help employees realize that the change is not just one person's idea and that administrators expect everyone to use the new technology.

According to Wee (2000), support to an organization is critical to meet user's needs after installation. The fact that organizations demand a customized ERP system, brings a total overhaul of the existing system without a fixed schedule (Xue et al., 2005). So, the enterprises face the problem of the systems‟ re-adjustment. The employees need to understand the procedure logic that the whole ERP operates through continuous training. Coulson et al, (2003) propose a training model that is based on the whole ERP concepts. They emphasize the operators have to understand the entire "Blue Print" of the system continuously so that it can make the quality of the entire ERP usage and efficiency reach to the optimization. Training is therefore critical for a successful ERP development. Agencies need to identify key system champions with the institution to support the system at all levels. After the changeover, training in form of handholding is necessary to make the users adjust to the new changes

2.1.4 Management Commitment and Enterprise Resource Planning System Projects Implementation in Kenyan State Agencies.

Top Management Support is the willingness of top management to provide the necessary resources and authority/power for project success. As noted by Ihuah, Kakulu and Eaton (2014), management support for projects, or indeed for any implementation, has long been considered of great importance in distinguishing between their ultimate success and failure. Lee, Shiue and Chen (2016) sees successful system implementation as not only dependent on

top management for authority, direction, and support, but as ultimately the conduit for implementing top management's plans, or goals, for the organization.

Further, Sun, Ni and Lam (2015) shows that the degree of management support will lead to significant variations in the clients' degree of ultimate acceptance or resistance to that product. Top Management Support refers to both the nature and amount of support the manager can expect from management both for himself as a leader and for the project. Management's support of the project may involve aspects such as allocation of sufficient resources (financial, manpower, time, etc.) as well as the project manager's confidence in their support in the event of crises.

Shao, Feng, and Hu (2016) argued that top management support and user involvement/participation measure the operational aspect of the project. Top management support is critical to all major IS initiatives and has been noted for its importance in (Almajali, Masa'deh & Tarhini, 2016; Johnson, 2015). According to Nizamani, Khoumbati, Ismaili and Basir (2015) alignment of and support from leadership was the third most mentioned strength that institutions indicated would be helpful when implementing their ERP system. Leadership buy-in and ongoing support are critical components in any successful change effort.

Leaders should take responsibility for determining, clarifying, and communicating a consistent message of support for the initiative as well as reinforcing the need. Also, especially with large-scale changes or projects like an ERP implementation, leadership must recognize the volume of work involved in implementing the change and the impact upon the various functions of the organization (Almajali, Masa'deh & Tarhini, 2016). To implement an ERP system successfully, management should monitor the implementation progress and provide a clear direction of the project. They must be willing to allow for a mindset change by accepting that a lot of learning has to be done at all levels, including themselves (Bhatti, 2005).

For the good of the employees and the organization, managers must learn to facilitate the introduction of changes into the workplace (Sheth, 1981). Al-Mashari et al (2000) assert that effective implementation of ERP requires establishing core competencies, among which is the use of change management strategies to promote the infusion of ERP in the workplace. Communication can be used as a major strategy in changing the attitude of the potential users. Top management can create more effective awareness for the ERP system by communicating its benefits to the workers. In many cases, ERP implementation failed because of a lack of communication (Al-Mashari et al, 2000). The most frequently discussed CSF, identified by most of the researchers is that a successful ERP implementation requires top management support because an implementation involves a significant change to existing business processes as well as a significant amount of capital investment, therefore, gaining the required amount of support from top management becomes paramount (Wong et al., 2007) Top management support is needed throughout the implementation. Generally, ERP systems bring so many changes in operations of Agency. Many misconceptions about the whole processes lead to resistance to new changes. This is a big impediment to ERP progress. Therefore, top management support is needed to dispense off any fears, to motivate and at times enforce various implementations.

2.1.5 Existing ICT Technology Enterprise Resource Planning System Projects Implementation in Kenyan State Agencies.

ERP systems automate manual processes and focus on the technological direction is very important. Government Agencies are not technologically at the same level in terms of ICT infrastructure and ICT personnel. The success of an ERP System in a given Agency depends on its technological advancement. The technology should have both forward and backward

compatibility. The adopted technology should not be obsolete within the ERP implementation cycle. ICT environment dictates in an Enterprise affects the number of resources required too.

According to Bhatti (2005) adequate IT infrastructure, hardware and networking are crucial for an ERP system's success. ERP implementation involves a complex transition from legacy information systems and business processes to an integrated IT infrastructure and common business process throughout the organization. The concept of task-technology fit (Goodhue and Thompson 1995) can be identified as one possible measure for assessing the suitability of a system for a user's job tasks. This measure describes the correspondence between task requirements and functionality of the technical solution. If the correspondence is perceived high, a user of such a technical solution should be relatively satisfied with the solution (and vice versa). Information systems involve different logic and ways of achieving certain goals. ERP systems are rich in functionality for managing functionally different sorts of tasks and activities almost in all kinds of businesses (Davenport, 1998).

According to Luo et al, (2004) organizations may be overwhelmed by the required organizational changes to fit the system and dealing with ever-changing ERP technology and its infrastructure. Further, any successful ERP implementation requires a fit between the ERP system and the organizational processes it supports. As technology advances, aspects of systems security emerge and especially the security and privacy of the organization's system. Information security contains a set of principles, regulations methodologies, techniques, and tools. Henderson et al (1999) indicate the emerging importance of privacy and its implications to Information Systems managers. According to Marianne et al (1996), security benefits have both direct and indirect costs to the organization.

Direct costs include purchasing, installing and administering security measures. Security measures can also affect system performance, employee morale, or retraining requirements. System security includes an operating system, authorization, network equipment, access, applications, access system functions, data access, virus prevention, intrusion monitoring, tracking data changes, the security of data backup and archiving, security management regulations of the host room and so on. Thus, in the implementation of ERP systems, there is a widespread phenomenon of no great importance to system security such as users do not pay attention in keeping their password confidential, sharing of passwords, many super-users' authorization and so on. A direct consequence of the lack of safety awareness in the security design of the system is that there are loopholes and shortcomings. In recent years, there have been newspaper reports that banks or corporate computer systems have been illegally invaded the news, this wake-up call to the enterprises (Henderson et al., 1999)

Despite increasing investment in information security and its strategic role in today's business success, effective implementation of information security strategy remains one of the top challenges facing global organizations (PricewaterhouseCoopers, 2008). Businesses have been urged to make information security, a strategic issue for organizations to compete and survive in this era of the global economy and ever-changing enterprise risk (Amaio, 2009). Success in such demanding business environments depends in large part on implementing an effective information security strategy to protect information and information assets. Recent information security literature recommends organizations employ an overall information security strategy that integrates "people, processes, technology, and operations capabilities" to ensure effective defenses across the organization (Allen, 2005).
Information Technology Infrastructure- IT has been a key issue for both researchers and other stakeholders in the Industry. The establishment’s IT infrastructure integrates technology components to give support in doing efficient business transactions. The definition of IT

infrastructure encompasses a variety of components. Based on previous studies, Ajamieh, Benitez, Braojos, and Gelhard (2016) stated that IT infrastructure includes a group of shared, tangible IT resources that provide a foundation to enable present and future business applications. These resources include; computer hardware and software (e.g., operating systems); network and telecommunications technologies; key data; core data-processing applications; as well as shared IT services. Therefore, dynamics in technology can affect the ERP implementation.

3.1 RESEARCH METHODOLOGY

The study used a descriptive survey design. Secondary data from Tanaathi offices indicate that there are 58-Employees in respective departments including management. The sample size was obtained through random and purposive techniques. Thus, 10 Top Management 19 Corporate Department, 8 Middle-Level Management, 1I CT Section Head, 4 Financial Officers and 6 ICT system developers, totaling to 48 informants were used as the target population.

4.0 RESEARCH FINDINGS AND DISCUSSION

4.1.1 Descriptive statistics on how Financial Availability on Implementation of Enterprise Resource Planning System Projects.

The respondents were required to indicate their level of agreement with the extent to which the statement about the influence of financial availability on Implementation of Enterprise Resource Planning System Projects in Tanathi Water Works Development Agency. By using scale of 1-5 where 1= strongly disagree, 2= disagree, 3= Neutral, 4= Agree, 5= strongly agree. The findings were displayed in Table 1.

Table 1: Level of Agreement with Statements on the Influence of Financial Availability on Implementation of Enterprise Resource Planning System Projects

	Mean	**Std. Dev.**
Timely financing determines Enterprise Resource Planning System Projects Implementation	4.658	0.669
Timely planning determines Enterprise Resource Planning System Projects Implementation	2.632	0.739
Timely payment determines Enterprise Resource Planning System Projects Implementation	4.474	0.559
Timely control measure determines Enterprise Resource Planning System Projects Implementation	4.026	0.762
Composite mean and Std. DeV	**3.95**	**0.68**

From the findings in Table 1, the respondents strongly agreed that timely financing determines enterprise resource planning system projects implementation as shown by a mean of 4.658. The respondents also agreed that timely payment determines enterprise resource planning system projects implementation as shown by a mean of 4.474, and timely control measure determines enterprise resource planning system projects implementation as shown by a mean of 4.026. The respondents were neutral on whether timely planning determines enterprise resource planning system projects implementation as shown by a mean of 2. 632. On the other hand, the composite mean of 3.95 = Std. Dev 0.68 implies that the construct leaned towards agreed.

4.1.2 Capacity Development and Enterprise Resource Planning System Projects Implementation

The results of level of agreement with statements on the influence of capacity development on implementation of enterprise resource planning system projects is depicted in Table 2

Table 2: Level of Agreement with Statements on the Influence of Capacity Development on Implementation of Enterprise Resource Planning System Projects

	Mean	Std. Dev.
Capacity building determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency.	4.316	0.472
Training development determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency.	4.763	0.675
Continuous improvement determines Enterprise Resource Planning System Implementation in Tanathi Water Works Development Agency.	2.105	0.534
Team building determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency.	3.553	0.519
Composite mean and Std. DeV	**3.68**	**0.55**

The findings as presented in Table 2 revealed that the respondents strongly agreed that training development determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency as shown by a mean score of 4.763. The respondents agreed that capacity building determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency as shown by a mean score of 4.316, and team building determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency as shown by a mean score of 3.553. The respondents disagreed that continuous improvement determines Enterprise Resource Planning System Implementation in Tanathi Water Works Development Agency as shown by a mean score of 2. 105. That the Composite mean was 3.68 = Std. Dev of 0.55 the construct leaned between Agreed and Neutral.

4.1.3 Management Commitment and Enterprise Resource Planning System Projects Implementation.

The level of agreement with statements on the influence of management commitment on implementation of enterprise resource planning system projects is illustrated in Table 3

Table 3: Level of Agreement with Statements on the Influence of Management Commitment on Implementation of Enterprise Resource Planning System Projects

	Mean	Std. Dev.
Clear set goals determine Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency.	4.526	0.746
Resources provision determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency.	3.763	0.714
Leadership competence determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency.	4.026	0.545
Staff motivation determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency.	3.842	0.905
Composite mean and Std. DeV	**4.04**	**0.73**

As per the results in Table 3, the respondents agreed that clear set goals determine Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency as illustrated by an average of 4.526; leadership competence determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency as illustrated by an average of 4.026; staff motivation determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency as illustrated by an average of 3.842, and resources provision determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency as illustrated by an average of 3.763. With the composite mean of 4.04 =Std. Dev 0.73, the statements leaned to agreed implying management commitment has influence.

4.1.4 Existing ICT Technology and Enterprise Resource Planning System Projects Implementation

The level of agreement with statements on the influence of existing ICT technology on implementation of enterprise resource planning system projects is depicted in Table 4

Table 4: Level of Agreement with Statements on the Influence of Existing ICT Technology on Implementation of Enterprise Resource Planning System Projects

	Mean	Std. Dev.
Availability of software determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency.	2.395	0.742
LAN/WAN determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency.	4.658	0.847
Staff & ICT experts determine Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency.	4.579	0.606
Modern hardware determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency.	3.921	0.773
Composite mean and Std. DeV	**3.89**	**0.74**

The results as depicted in Table 4 revealed that the respondents strongly agreed that LAN/WAN determines Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency as shown by a mean of 4.658. The respondents agreed that staff & ICT experts determine enterprise resource planning system projects implementation in Tanathi Water Works Development Agency as shown by a mean of 4.579, and modern hardware determine Enterprise Resource Planning System Projects Implementation in Tanathi Water Works Development Agency as shown by a mean of 3.921. The respondents were neutral on whether the availability of software determines enterprise resource planning system projects implementation in Tanathi Water Works Development Agency as shown by a mean of 2.395. The variable Composite mean of 3.89 = Std. Dev 0.74 < than 1 implied the respondents leaned towards agreeing.

4.2 Multiple Regression

In statistical modelling, regression analysis is a statistical process for estimating the relationships among variables. The study used a regression model to establish the relationship between financial availability, capacity development, management commitment and resources endowments and of enterprise resource planning system projects implementation in Tanathi Water Works Development Agency. The findings are presented in Table 5,6 and 7.

The model summary is presented in Table 5

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. The error of the Estimate
1	0.896	0.802	0.779	1.251

Table 5 reveals that R-Square value (coefficient of determination) is 0.779, which indicates that the independent variables (financial availability, capacity development, management commitment and existing ICT Technology) explain 77.9% of the variation in the dependent variable (enterprise resource planning system projects implementation in Tanathi Water Works Development Agency).

Further, the results of the analysis of variance is summarized in Table 6

Table 6: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	228.81	4	57.203	33.517	3.40E-11
	Residual	56.32	33	1.707		
	Total	**285.13**	**37**			

The results in Table 6 reveal that the model had predictive value and thus it was significant. This was because its p-value (3.40E-11) was less than 5% and F calculated (33.517) was significantly larger than the critical F value (2.6589).

Model coefficients provide unstandardized and standardized coefficients to explain the direction of the regression model and to establish the level of significance of the study variables. The results are captured in Table 7.

Table 7: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.123	0.217		5.175	.000
Financial availability	0.783	0.249	0.760	3.145	.003
Capacity development	0.817	0.281	0.792	2.907	.006
Management commitment	0.661	0.196	0.641	3.372	.002
Existing ICT Technology	0.746	0.334	0.724	2.234	.031

Regression model;

$$\mathbf{Y= 1.123 + 0.783X_1+ 0.817X_2+ 0.661X_3+ 0.746X_4}$$

The findings showed that if all factors (financial availability, capacity development, management commitment and existing ICT Technology) were held constant at zero, enterprise resource planning system projects implementation in Tanathi Water Works Development Agency will be 1.123. The findings presented also show that taking all other independent variables at zero, a unit increase in the financial availability would lead to a 0.783 increase in the scores of enterprise resource planning system projects implementation in Tanathi Water Works Development Agency. This variable was significant since 0.003<0.05. Therefore, the hypothesis that there is a positive relationship between financial availability and Implementation of Enterprise Resource Planning System Projects in Kenyan State Agencies was accepted. The findings also show that a unit increase in the scores of capacities development would lead to a 0.817 increase in the scores of enterprise resource planning system projects implementation in the Tanathi Water Works Development Agency. This variable was significant since 0.006<0.05. Therefore, the hypothesis that there is a positive relationship between capacity development and implementation of Enterprise Resource Planning System Projects in Kenyan State Agencies was accepted. Further, the findings show that a unit increases in the scores of management's commitments would lead to a 0.661 increase in the scores of enterprise resource planning system projects implementation in the Tanathi Water Works Development Agency. This variable was significant since 0.002<0.05. The hypothesis that there is a positive relationship between management commitment and implementation of Enterprise Resource Planning System Projects in Kenyan State Agencies was accepted.

The study also found that a unit increase in the scores of existing ICT Technology would lead to a 0.746 increase in the scores of enterprise resource planning system projects implementation in the Tanathi Water Works Development Agency. This variable was significant since 0.031<0.05. The hypothesis that there is a positive relationship between existing ICT Technology and Implementation of Enterprise Resource Planning System Projects in Kenyan State Agencies was accepted. As per the findings, at 95% confidence level, all the variables were significant as the p-value was less than 0.05. The study infers that capacity development was the greatest determinant of enterprise resource planning system projects implementation in Tanathi Water Works Development Agency, followed by financial availability, then existing ICT Technology while management commitment was the last determinant.

5.1 CONCLUSION

The study concluded that there was a positive and significant influence of the ERP system on financial availability. The study deduced that ERP was an added advantage and value for money; and that ERP does not improve financial control and better accuracy. Besides, the study concluded that capacity development significantly influences the enterprise resource planning system projects implementation. The study concluded that managers and departmental staff have training on the use of ERP that has enhanced efficiency. On the third objective, the research concluded that management commitment determines enterprise resource planning system projects implementation in the Tanathi Water Works Development Agency. The study concluded that management commitment determines enterprise resource planning system projects implementation significantly.

Furthermore, the research concluded that management shows commitment to programs on the implementation of ERP, and the managerial staff was committed to ERP system continuous improvement. On the fourth objective, the study concluded that existing ICT technology determines enterprise resource planning system projects implementation in the Tanathi Water Works Development Agency significantly. The research concluded that the organization experienced persistent temporary system downtimes, and ICT technology was of great concern to ERP System.

6.1 RECOMMENDATION

The study recommended that timelines should be realistic. The scheduled time for implementation and cost is inevitable to ensure that the desired results are obtained as agreed in the contract. For the implementation of the ERP to be successful, a better understanding of what is involved and the expectations of all stakeholders should be made clear in the initial stages, even as the project progresses. Successful ERP project implementation needs a match between the organizational processes and the ERP system. Therefore, the Tanathi Water Works Development Agency should carefully assess and select ERP software. The selection of a suitable ERP system is an important step but time-consuming and challenging. Companies intending to select ERP software must have detailed requirements plan. A thorough assessment of the ERP system features is necessary before selecting the ERP vendor. The main criterion for choosing ERP software is that which fits well with local requirements. The ERP system should be compatible with existing business processes to minimize the need for EPR

The various governmental regulations and the legal context of countries oblige companies to have country-specific requirements. ERP vendors should prepare themselves to deal with problems of the environment in which their ERP software is implemented. International ERP vendors should localize their ERP systems to reflect the characteristics of local management. Localization of ERP software means that development of the system fits the requirements of the user's context. The requirements usually depend on country, language, and cultural codes

The Tanathi Water Works Development Agency staff should sufficiently learn how to interact with ERP and business processes, as ERP will affect the entire organization's operations. Inadequate user training and lack of understanding of how ERP changes the existing business processes are impediments to a successful ERP implementation. The way an organization can ensure they have the necessary technical skills within the staff is to regularly hold training sessions which will highlight the importance of IT literacy, and the impact this can have on the work. The organizations may at one point in time be faced with the challenge of whether the

existing staff are competent to work in the ERP project, this can be due to adaptability of the ERP processes by the staff. In this case, the organization may have to replace the staff for the benefit of implementing the project. Expectations from management at every level of the organization need to be communicated to ERP implementation partners. It is also recommended that the top management should be at the forefront in championing the implementation process by providing leadership motivating employees and ensuring that all legal and other regulations are adhered to.

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