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ERP ADOPTION IN KENYAN CHARTERED UNIVERSITIES; A MOTIVATING ROLE OF ISO CERTIFICATION -CASE STUDY OF PUBLIC UNIVERSITIES IN KENYA

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ABSTRACT

Automation in Kenyan public Universities has become a new normal where ERP is used to manage both administrative and academic processes. The implementation of the ERP has come with fair share of challenges which vary from one university to the other. With all this universities being ISO certified, the purpose of this survey paper is to identify the role ISO certification process play in accelerating the rate of ERP adoption in Kenyan Public Universities. The findings will give insights to university stake holders, Investors, University Administrators and Vendors on the successful strategy for the implementation of ERP in Kenyan Public Universities with ISO certification as a stimulant.

KEY WORDS: *ERP, Critical Success factors, Kenyan Public Universities, ERP adoption, ISO, Certification*

1.0 INTRODUCTION

Higher education sector has turned to Enterprise Resource Planning (ERP) systems in the hope of helping them to cope with the changing environment. For these institutions, ERP system implementation has been a daunting task, often taking a number of months to complete and costing more than the price of the hardware and system involved(Wanjau 2020).

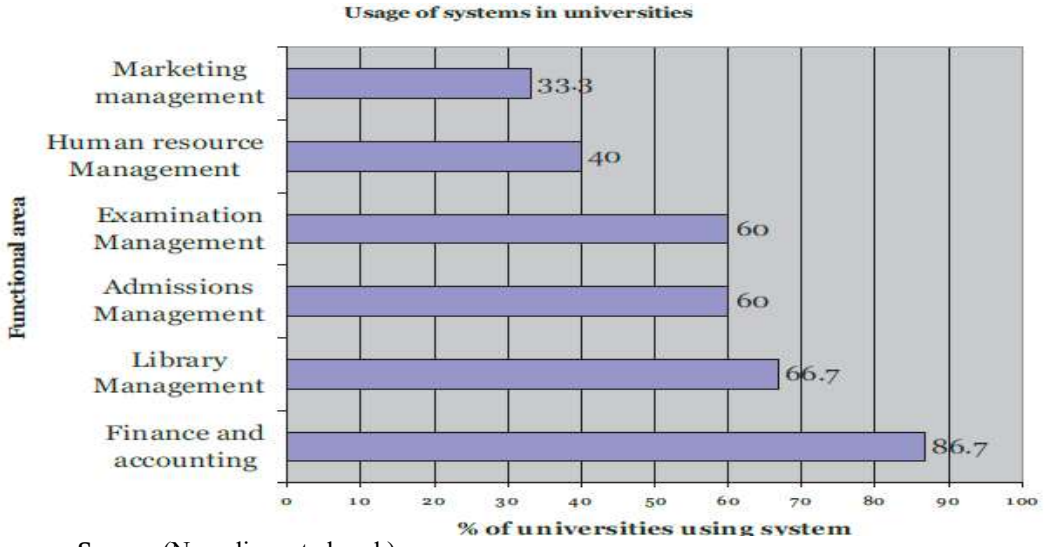
According to (Gupta 2008) Enterprise Resource Planning (ERP) systems have gained widespread appeal in the 21st century owing to their "do it all" approach to organizational management. With more users seeking to link application systems to departmental processes, large and medium size businesses have sought to integrate their operations in a bid to cut on operational costs, offer timely response to their clients and interact with their stakeholders effectively. However, there are challenges expressed by growing stakeholder needs in public universities in Kenya. To meet these requirements, public universities in Kenya have resorted to use of ERP systems to automate their operations on a standardized platform in line with their strategic plans(Orwa and Ndung'u 2021).

Enterprise systems enhance standardization, streamlining of operations, and integration of business processes as a large number of stand-alone applications are replaced by one system that is comprehensive and on a single information and technology architecture.(Nyandiere et al. n.d.) .
However, this has come with a myriad of challenges right from the availability of resources to purchase the systems, the selection the ERP systems and the implementation of the systems to the extent that has led to most universities not fully utilizing the potential of automation using ERP(Seo n.d.).

The studies all the public universities and six private universities indicated that they have ICT strategic plans which include such ingredients as: ICT infrastructure acquisition (100%); technology platform and ICT department staffing, 11 (84.6%); ICT financing, 10 (76.9%); service delivery and ICT replacement policy, 9 (69.2%); and ICT staff skills development 6 (46.2%). Contents of the strategic plans vary significantly across the years of existence with universities in the age bracket of 1-10 years emphasizing ICT infrastructure acquisitions (5/13),and ICT staff skills development (4/13)(Nyandiere et al. n.d.),and the percentage usage of the ERP in universities is as shown

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Table 1Percentage use of ERP Modules in Kenya Universities



Source (Nyandiere et al. n.d.)

From the principal component extraction the communalities for systems for admission management (92.8%), examinations management (90.9%), library services (86.1%), finance and accounting (75.6%) are high indicating that the systems are of critical and used in the institutions. Table 1 provides outcomes of factor analysis on the rating for systems in the universities.(Nyandiere et al. n.d.).

The varied studies have also drowned recommendations on probable ways of utilizing the enterprise systems not only to overcome existing management challenges but also improve service delivery in line with respective institutional strategic objectives. From the findings of the studies, most of the implementation projects had been abandoned or stalled altogether(Wang n.d.). Challenges associated with institutional connectivity, Vendor employee turnover, institutional culture and limited skilled expertise to drive the implementation processes were highlighted as leading influencers of implementation processes in respective public universities(Wang n.d.).

This survey paper seeks to build a case on the role ISO certification on the rate of ERP systems adoption and implementation by reviewing the studies that have been done and the literature relating to ERP systems adoption in Kenyan public Universities. The survey study limits to the researches done in the Kenyan public Universities only.

1.1 Problem Statement

At the beginning of the year 2020 learning in all Kenyan universities was disrupted by the COVID 2019 pandemic as it was realized that most learning institutions lacked the capacity to conduct online learning(Department of Marketing, Comilla University, Cumilla, Bangladesh et al. 2022) and conduct any other administrative functions which lead to disrupted learning due to lack of online infrastructure and each university had to find a way of content delivery to students and have away in which their normal operations continue without any interruptions on the ERP and LMS for their operations(Owidi et al. 2023).In Kenya there we have limited literature on ERP adoption and the experience in Kenyan public Universities the existing literature is more focused on manufacturing sector. This study therefore was prompted by the need to unearth the researches done on factors affecting implementation of ERP in public universities in Kenya.(Orwa and Ndung'u 2021) and whether there is a role and impact of ISO certification influencing its rate of adoption.

1.2 Objectives of the study

- To identify key success factors influencing ERP adoption in Kenya Public Universities.
- To determine the relationship between ISO-certified public universities and ERP implementation success.

1.3 Research Questions

- What are the Critical Success factors for ERP adoption and Implementation in Kenyan Universities?
- To what extent does ISO processes affect the Critical Success factors for ERP adoption and Implementation in Kenyan Universities?

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1.4 Hypothesis of the study

- All public universities in Kenya are ISO certified.
- ERP systems have been implemented in all public universities in Kenya to serve all academic and administrative processes.

1.5 Scope of the study

The study focuses on the research that have been done on ERP adoption in Kenyan public universities that are ISO Certified.

2.0 LITERATURE REVIEW

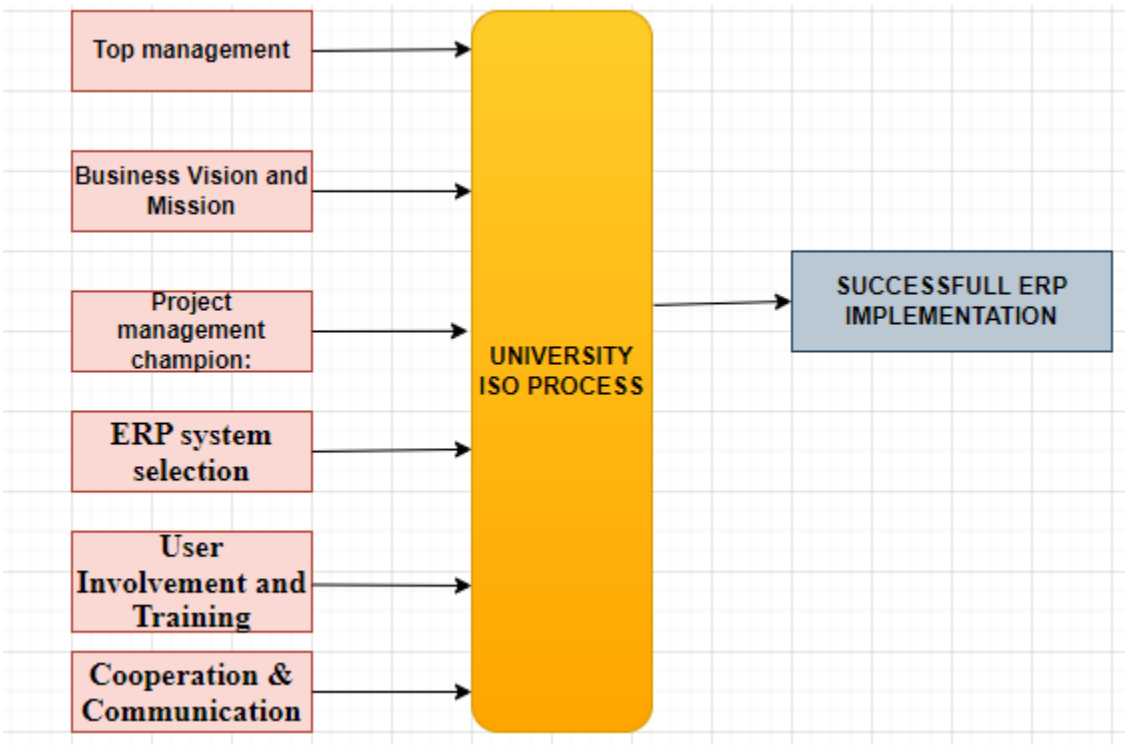
Technology adoption and usage have been an area of interest for both researchers and scholars for the last twenty years, where these researchers have mostly been having a keen interest toward examining the acceptance of technology in general. The models summarized below on the technology adoption can relate to how factors affecting the adoption of ERP in Kenyan public universities and how these can have a bearing on how ISO certification can be integrated.

Table 2 ERP Adoption Theories Analysis.

No	Theory Name	Description
1	Innovation Diffusion Theory (IDT)	Has a contrary approach to study changes that is diffusion of innovations perceives that it is not people who change, but the innovations themselves. On the other hand, diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system (Wani and Ali n.d.). It analyzed the process of diffusion, and mapped the impact of a combination of social, economic, and technical forces on that process(Alwahaishi and Snášel 2013)
2	Theory of Reasoned Action (TRA)	An individual's behavior under the condition that behavior relates to volitional control, in which the individual has free will to determine to perform or not perform a behavior. If the behavior is not under volitional control, failure shall happen because the intention has changed. Noted as theory for use analyzing the rate of adoption of technology in most institution especially the Kenyan public Universities(Sira and Oloko 2018). It describes behavioral intention caused by two determinants: attitude towards behavior and subjective norm intended to perform or not perform the behavior.(Prachaseree, Ahmad, and Isa 2021)
3	Technology Acceptance Model (TAM)	According to TAM, ease of use and perceived usefulness are the most important determinants of actual system use. These two factors are influenced by external variables. The main external factors that are usually manifested are social factors, cultural factors and political factors. Political factors are mainly the impact of using technology in politics and political crisis. Behavioral intention is the measure of the likelihood of a person employing the application and the model has been designed to show how users come to accept and use a technology(Surendran 2012)
4	Unified Theory of Acceptance and Use of Technology (UTAUT)	The UTAUT aims to explain user intentions to use an Information system (IS) and subsequent usage behavior. The theory holds that four key constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions) are direct determinants of usage intention and behavior (Venkatesh et al, 2003). Gender, age, experience, and voluntariness of use are posited to mediate the impact of the four key constructs on usage intention and behavior (Venkatesh et al, 2003). UTAUT is considered as an improvement on the TAM models when evaluating end-user acceptance of ERP systems because it purports to consider the mandatory nature of ERP systems(Seymour, Makanya, and Berrangé 2007).

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2.1 Theoretical Framework



The framework above illustrates how the dependent variable being the successful erp implementation and business Vision and mission, Project management, ERP Selection, User Involvement and training and Cooperation and communication as dependent variables. The university ISO process being the Universities alignment to ISO Objectives and ISO process compliance in system acquisition, deployment and maintenance of the ERP.

3.0 METHODOLOGY

Most research studies that have been done to analyze the rate of adoption of the ERP in government institutions in Kenya adopted a descriptive research design where primary data was gathered from research papers done, some obtained from white-papers, Journals and e-books as this would provide comparative perspectives to the study. The choice of descriptive research design was to provide a comparative approach to the use of enterprise resource planning systems in integrating management of public universities in Kenya against a backdrop of other success cases in developing and developed nations. This also helped in using comparative statistical methods to analyze the subject in the targeted public universities.(Orwa and Ndung'u 2021).

4.0 RESEARCH FINDINGS AND ANALYSIS

This study aims to identify the factors affecting the adoption of ERP in public universities in Kenya and assess the role ISO certification in accelerating the ERP adoption. The studies that have been done narrowed the factors to:

Top Management

Top management support in providing leadership and providing the necessary resources: This comes in providing a clear ERP objective to the employees and making ERP implementation a corporate strategy, with ISO certification in place there will be proper guidelines and procedures provided to guide the top management communication and resource allocation for the ERP implementation. Top management commitment acts as catalyst in the progress of ERP implementation, Management active role keep the progress at pace and involve all team members and stakeholders. Supportive policies are crucial for the achievement of implementation(Owiti 2018).

Top management support does not end with initiation and facilitation, but must extend to the full implementation of an ERP system. Furthermore, top management support should provide direction to the implementation teams and monitor the progress of the project(Al-Fawaz, Al-Salti, and Eldabi 2008).

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Business Vision and Mission

Most Universities should have clear implementation matrix that should be discussed, agreed and communicated to all that are involved in ERP implementation. There should be clear ISO documented process to guide in the adherence of the matrix and if there would be any variance to the matrix then documented process should be followed to prevent the project from stalling.

Project Management Champion

It's noted that project champion is one of the most important factors in the implementation of ERP systems. Project champions should own the role of change champion for the life of the project and understand the technology as well as the business and organizational context(Al-Fawaz et al. 2008). The role of the project champion is to ensure that there is positive attitude towards the ERP and should stop the users from going back to their old process or going back to the old systems change in the old system. With ISO certification the project champion should ensure compliance to the standards, policy guidelines and other regulation during the ERP implementation. The project plan will provide a clear guidance to the project team which will help them to concentrate on the project goals and will avoid any misunderstanding of the project requirements and that eventually lead to successful ERP system implementation(Shatat and Dana 2016).

ERP System Selection

The Selection of an ERP is normally a time consuming and a tiresome process right from the need to identify the needs of the company, identify the gaps, build capacity for the roll out. A team should be selected based on the competencies to identify a suitable ERP for deployment. Vendor identification based on the set criteria should be done and vendor due diligence should be done to confirm the suitability of the vendor to finish the project. With the correct ISO processes and guidelines, the ERP system selection could be an easy process.

User Involvement and Training

All the ERP users should be involved right from the initial process of the functional needs requirements of the ERP to the training on the use of the system. This will greatly assist in easing resistance during the role out of the ERP. Training should cut all the sections in the university right from management to the junior staff in the university with institution that are ISO certified.

Cooperation & Communication

Cooperation and communication is considered as essential to the success of implementing ERP system (Shatat and Dana 2016). Effective communication should take place at all stages of implementing ERP system so that employees could be aware of the progress and understand the benefits of having enterprise system in place(Shatat and Dana 2016). Its important to note that seamless communication flow happens with institutions that are ISO certified where communication guidelines and procedures are adhered to.

Vendor support

The universities that are ISO certified have guidelines and standards that guide in the choice of the vendor subsequently how it will relate with the vendor during the implementation life cycle of the ERP will significantly have a higher adoption rate. Vendor support is a complex multi-faceted phenomenon that is very critical for the successful implementation of ERP and from the researches done it was composed of three variables: vendor training, vendor project management and vendor post implementation support. These factors were positively and significantly relevant in explaining the influence of successful ERP implementation.

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Table 3 ERP Critical Success Factors CSFs and their importance

ERP Perspectives	Critical Success Factors (CSFs)	Importance
STAKEHOLDERS	Top management commitment	H
	Project champion	H
	Execution team	H
	External advisory support	M
	vendor partnership	L
	Total end-user involvement	L
PROCESS	Business process design	H
	Customization approach	M
	Performance measurement and control	L
TECHNOLOGY	Package requirements and selection	M
	System testing	L
ORGANIZATION	Change management	H
	Business vision goals and objectives	H
	Training and education	M
	Organisational structure and culture	L
Project	Project management	H
	Budget – Cost parameters	L
	Time	L

Source: Al-Fawaz et al.2010
(Nyandiere et al. n.d.)

Observations from the table above

Table 4 CSFs mean ranking based on the degree of importance in the ERP Implementation

Critical Success Factors	Mean	Std. Dev.	Phases
1. Top Management Support	4.51	1.24	1,2,3
2. Teamwork & Composition	4.39	1.18	1,2,3
3. Project Champion	4.23	1.44	1,2,3
4. Project Management	4.05	1.08	1,2
5. Business Plan & Vision	4.01	1.13	1
6. Vendor Support	3.89	1.21	2,3
7. User Involvement / Training	3.74	1.71	2,3
8. Change Management	3.51	1.63	2,3
9. Business Process Reorganization	3.33	1.09	1,2,3
10. Cooperation & Communication	3.17	1.92	2,3

Phases: 1= Pre-Implementation, 2= Implementation, 3= Post-Implementation

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CSTF-Critical Success Factors

Top Management Support, Teamwork & Composition, and Project Champion were observed as the most CSFs by the university stakeholders in the three phases of the ERP implementation. Vendor Support, User Involvement & Training, and Change Management are very critical factors during the implementation and post-implementation stages as stated by the university key stakeholders. Business Process Reorganization perceived as less important than the other factors but it must be considered across the three stages of the ERP system implementation. Cooperation & Communication factor viewed as the least important factor among the top ten CSFs and it should be considered mostly in the last two stages of the ERP system implementation(Shatat and Dana 2016).

5.0 CONCLUSION AND RECOMENDATION

For Kenyan Universities to adopt to the challenging and competitive business environment, adoption of ERP has been made mandatory. This enables them to plan and integrate resources across the entire enterprise, leading to shorter lead times and increased responsiveness to customer demands. The paper was to review the ERP literature and examine the factors affecting the rate of adoption of ERP implementation and the role ISO certification plays in accelerating the rate of adoption. The paper highlights the most commonly cited success factors in the literature and unfortunately there was less emphasis on their significant importance of ISO certification on the factors affecting the ERP implementation and future studies should be carried out on the role the specific certification and its affects the rate of adoption of ERP based on the Critical success factors identified above

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