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Factors Constraining Adoption of Project Management Information Systems in Private Healthcare Facilities in Kakamega County, Kenya

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Abstract: **The adoption and application of information technology is essential to reform healthcare and meet the needs of patients in the coming decades.By harnessing the power of information technology for the health care field, we can enhance the effectiveness of the care we provide patient safety, increase workforce productivity and satisfaction, streamline payment-billing and administrative systems, and meet consumer expectations for service and access to information. Based on theories from the technology adoption literature, a conceptual framework for the adoption of information systems in healthcare service delivery has been developed. This study was conducted In Kakamega County. Questionnaires were distributed through drop and pick method to all the participants in the study. The result of this study revealed that the staff information and communication technology literacy significantly influences adoption of information system. The study also revealed that information system characteristics influences information systems adoption. On the influence of the external pressure, the study revealed that external pressure does not influence adoption of information systems adoption. This study recommends that information systems be incorporated in the curriculum for all the courses as it is an important factor that influences information systems adoption. The study further recommends that organizations should continuously train their staff on the emerging technologies as this can help in the adoption of new information systems.**

Keywords: **Adoption, Information, Productivity.**

1. BACKGROUND OF THE STUDY

The term information system is widely used in the whole world today.Businessdictionary.com defines information systems as "A combination of hardware, software, infrastructure and trained personnel organized to facilitate planning, control, coordination, and decision making in an organization."Ouma, Marlien, Herselman and Greunen (2009) explained that "developed countries have embraced the use of information communications technologies (ICT) within the hospitals and health clinics. A few examples of the use of ICT include computerization of medical records, electronic scheduling for appointments, and use of the Internet for the purposes of communication and the use of magnetic cards."

Automated information systems were used in the hospital since the 1970s in the financial department. In the hospital laboratory a standalone system was installed for administrative purposes in the beginning of the 1980s. In 1987 the first 'integrated hospital information system' was installed, based on a turnkey contract with a supplier.

Many hospitals has never had a (large) record of outsourcing IT activities. Organizationally, the IS department had been part of the financial department in the 1970s. In the 1980s the IS department became a department, reporting directly to the hospital board. During the hospital reorganization process operation with local partners and health care providers.

Information Technology (IT) is slightly changed since 1993: management requests have led to new 'island' applications, stand alone, and uncontrolled.

In the rural inhabitants actually receive fewer healthcare services compared to the problems that they have." The healthcare system in Kenya is structured in a step-wise manner so that complicated cases are referred to a higher level.

As outlined in the Kenya Vision 2030, provision of healthcare is key to achieving the millennium development goals. Information Technology has been identified as one of the pillars that will help Kenya achieve its millennium development goal. The ministry of health has identified ICT as one of its reform strategy to ensure they effectively support service delivery.

The Kenya health system faces a challenge in understaffing of medical staff, lack of financing and late reporting and inadequate integration between departments.

STATEMENT OF THE PROBLEM:

Kenya has embarked on a program of implementing vision 2030 that will make it a leading technology solution provider in the region and be part of information age. According to Muathe, Wawire and Ofafa (2013), there is a need for Small and Median Enterprises (SMEs) in Kenya, particularly those in the health sector, to adopt management Information and Communication Technology. The perceived benefits of ICT have motivated Small and Medium Enterprises to adopt and invest in it.

Most health-related SMEs are faced with the critical decision of whether or not to adopt ICT (Payne, 2005). The studies that have been done on the adoption of information systems in healthcare ((Niang, 2009),(Rahimi,Moberg and Timka,2008),(Khoumbati 2005),(Hung,Tsai and Jiang 2010) were done in developed countries which have better information technology infrastructure as Compared to developing countries.Kenya is a developing country and the factors that drive information systems adoption are different from those that drive adoption in developed world and in the spirit of new constitution dispensation. This study was to access constraints hindering adoption of project management information systems in healthcare service delivery in kakamega County.

OBJECTIVES OF THE STUDY:

i. To examine the influence of the staff Communication Technology literacy on adoption of PMIS
ii. To establish the influence of information system characteristics on adoption of information system
iii. To establish the influence other Stake holders on PMIS adoption
iv. To establish the influence of the Management on PMIS adoption

2. LITERATURE REVIEW

A theoretical framework is basically a collection of interrelated ideas based on theories. It is reasoned set of prepositions, derived from and supported by data or evidence. (Kombo and Tromp, 2000)

The Diffusion of Innovation (DOI):

This model suggests that there are three main sources influencing the adoption and diffusion of an innovation, namely perceptions of innovation characteristics, characteristics of the adopter, and contextual factors. DOI theory sees innovations as being communicated through certain channels over time and within a particular social system (Rogers 1995). Individuals are seen as possessing different degrees of willingness to adopt innovations, and thus it is generally observed that the portion of the population adopting an innovation is approximately normally distributed over time (Rogers 1995).

The Technology Acceptance Model:

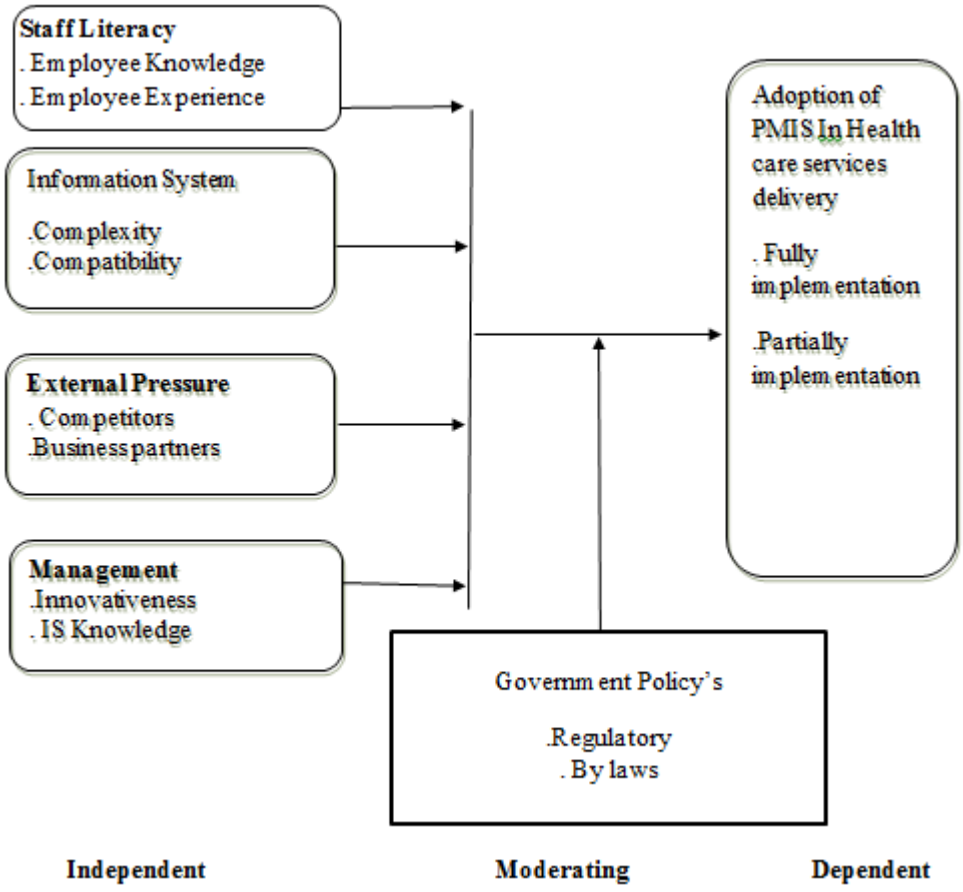
(TAM) has also been used by researchers to explain why a particular system may or may not be acceptable to users (Davis et al., 1989). It hypothesizes that there are two beliefs, perceiving usefulness and perceiving ease of use, which are variables that primarily affect the user acceptance. The TAM suggests that these external variables indirectly affect individuals' attitude toward technology acceptance by influencing perceived usefulness and perceived ease of use. External variables might include individual user attributes, social factors or those related to their job tasks.

Contingency Theory of Organizations:

Tornatzky and Fleischer (1990) developed a framework for organizational adoption based on Contingency Theory of Organizations. This theory postulates that an effective organization should have a structure which is consistent with its environmental needs.The effectiveness of an organization is based upon its fitness towards both internal and external factors such as environment, organization size, and organization strategy and technological factors to make a decision. In this framework, three key determinants were identified (Donaldson, 2001

Conceptual Framework:

A conceptual framework refers to the conceptualization of the relationships between variables in the study and it shows the relationship graphically or diagrammatically. It is a hypothesized model identifying the concepts under study and their relationship (Mugenda and Mugenda 2003).



3. RESEARCH METHODOLOGY

Introduction:

This chapter covers the research design that was be adopted for the study ,target population for the study, sampling techniques and sample size, data collection techniques ,pilot testing and procedures for data analysis and presentation. It discuss the methodology used to investigate effect of rewards system

Research design:

A case study method was used during the research. A case study is an in-depth study of a particular research problem rather than a sweeping statistical survey. It is an exploratory research technique that intensively investigates one or a few situations similar to the researchers' problem situation.

Target Population:

The target population where the private healthcare institutions in Kakamega County that are already using information

systems in the healthcare service delivery. This was approximately 800 private healthcare institutions in Kakamega County that have adopted PMIS information systems in the delivery of services.

Sample and Sampling Techniques :

The sampling frame for this study will consist of all the licensed Private Health centres in operations in the County as at 31st Dec 2015 as they appear In the Licensed Board of Business in the County and also in the department of Health in the County

Data Collection Instruments:

The study will use questionnaires to obtain qualitative data for analysis which was further validated from analysis results from secondary data quantitative analysis.Data will be collected through the use of questionnaires administered in the field to the sampled respondents and an interview schedule.

Data Analysis:

The study will use both descriptive and inferential statistics in analyzing the data. Descriptive statistics such as mean score, frequencies and percentages for each variable was calculated and tabulated using frequency distribution tables, or pie charts and/or bar charts. In order to test the relationship between the variables the inferential tests including the Pearson Product- Moment Correlation Coefficient and regression analysis was used. The regression model that will be evaluated will be represented as follows:

$$Yi = \alpha 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon t$$

Data Presentation:

Data will be presented in the form of tables and charts.

4. RESEARCH FINDINGS AND DISCUSSION

Here presents data analysis, presentation and interpretation of the data on the study. It will focus on the response rate and the factors influencing the adoption of information systems in healthcare service delivery which will be organized according to research questions.

Questionnaire Response Rate:

Out of the 310 questionnaires distributed 239 were correctly filled and returned. In addition, 1 hospital administrator interviewed, which represents a response rate of 70 percent. Mugenda and Mugenda (2003) argued that a response rate of 50 percent is adequate, a response rate of 60 percent is good, and a response rate of 70 percent is very good. Therefore, the 70 percent response rate reported for this study formed an acceptable basis for drawing conclusions.

Demographic Characteristics of the respondents:

This section focuses on the gender, participants job title, years worked, number of beds in the hospital the participant works, location of the hospital and number of employees in the facility the participant works.

Influence of staff on ICT literacy on use of PMIS healthcare service delivery:

To achieve this objective, the participants were asked to react to several statements which were about the influence of information and communication technology literacy on the adoption of information systems. Every respondent was requested to indicate whether each of the statement was extremely likely, likely, moderately likely, slightly likely or not likely to influence adoption of information system. The responses were rated on a five point scale.

Influence of Staff Information and Communication Technology literacy

Responses	Frequency	Percentage
11 - 21	12	17.1
22 - 32	11	15.7
33 - 43	35	50.0
44 - 55	12	17.1
Total	**70**	**100.0**

The research revealed that majority of the respondents scored between 33 and 43 as shown by 50.0%. Thus majority of the respondents perceived staff ICT literacy as moderately likely to influence the adoption of information system.

This therefore means that staff information and communication technology literacy is an important factor in the adoption of information system. Staff with ICT skills easily learn how to work with new information systems and also makes implementation faster and more successful thereby making the organization to start realizing the benefits of information systems early.

Influence of the top Management on adoption of PMIS:

The study also sought to establish whether top managements characteristics influences adoption of information system. To do this, the researcher requested the respondents to react to several questions that were about the influence of the top managements characteristics on information systems adoption.

Influence of Top Management on PMIS adoption

Responses	Frequency	Percentage
9 - 17	0	0.0
18 - 26	0	0.0
27 -35	37	52.9
36 -44	21	30.0
45 - 53	12	17.1
Total	**70**	**100.0**

The results of the findings revealed that 52.9% of the respondents scored between 27 and 35. This means that they perceived top management's being moderately, 30% of the respondents scored between 36 and 44, this shows that they perceived the top management are likely to influence adoption of information system while 12% of the respondents perceived top managements characteristics as extremely likely to influence adoption of information systems. This means that 100% of the respondents perceived the top management's characteristics as likely to influence adoption of information systems.

… If a hospital failed to adopt information system, there must be some problem with their hospital executives, if you have strong executive commitment, you normally will be able to do this…"

This means that organizations whose top managements are innovative and are knowledgeable on information systems are more likely to adopt information systems. This therefore shows that all the respondents indicated that top managements are an important factor in the adoption of information systems.

5. CONCLUSION

The purpose of this research was to identify the factors influencing the adoption of information systems in healthcare service delivery in Kakamega County. A review of prior information systems adoption literature provided support for the proposal of an empirical model of information systems adoption, and this model has been empirically verified by the results of a survey of 25 private hospitals in Kakamega County. The findings revealed that three factors; Staff ICT literacy, information systems characteristics and top management characteristics significantly influences adoption of information systems in healthcare service delivery. One factor the external pressure was found to have no significant influence on the adoption of information system. The factors identified by this research can hopefully provide substantial help to the hospital managements and academics.

The results of this study have implications for information systems adoption in hospitals. First, the study highlights the importance of raising the information systems literacy of the organizations employees, employees who understands information systems easily learn new information systems and are able to work with it with ease. Second, the information system must offer a better alternative to existing practices in the organization. If the information system is not perceived as beneficial to the small business, there is no reason to adopt them. Thirdly, having innovative and is knowledgeable top management. An organization whose top managements understands the benefits of information systems adoption and is willing to invest scarce resources in the information systems project will be able to take advantage of the promised benefits of information systems adoption.

Recommendations of the study:

Based on the findings, this research recommends that

- Healthcare facilities should train their employees on the information systems prior to their adoption. This will ensure that the staff will easily understand the functionality of information systems and will also serve to reduce resistance to information systems.
- That it is important for the government to incorporate information systems training in all courses as it is an important factor that facilitates adoption of information technology.
- Government formulates a policy of assisting small healthcare facilities who may not have adequate finances for adopting information systems, this will go down well in improving the quality of healthcare service delivery to all citizens.

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