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INFLUENCE OF ORGANIZATIONAL SUSTAINABILITY ON THE ADOPTION OF CLOUD COMPUTING AT THE JUDICIARY IN KENYA

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***Abstract*: The study sought to establish the influence of organizational sustainability on the adoption of cloud computing at the judiciary in Kenya. The study adopted an exploratory research design. This is because there is little known about the antecedents of adoption of cloud computing in the Judiciary. The target population of the study was the 92 ICT staff in the Directorate of ICT in the Judiciary; comprising top-level management; middle-level management and lower-level management within the ICT Directorate. The study employed a census as the research sampling method given that the targeted population was not large. Therefore, the sample size was 92 ICT staff attached to various court stations across the country. Primary data was collected using questionnaires; the data collected was analyzed using SPSS. Both descriptive and inferential statistics were used to analyze the data. The findings revealed that; there is a positive and statistically significant correlation between organizational sustainability and adoption of cloud computing. The study concludes that organizational sustainability is a key factor to consider when adopting cloud computing.**

Keywords: **Organizational Sustainability, Cloud Computing, the Judiciary.**

1. INTRODUCTION

Information and Communications Technology (ICT) is an intentional benefit for companies around the world, shaping business operations, and increasing competitiveness from finance and logistics to customer relations and human resources (Wagner, 2013). Cloud computing refers to a technology model where resources, such as data storage, application software, processing power, backup facilities, development tools, are delivered over the internet as a set of services (Khan, Zhang, Khan & Chen, 2011). Cloud computing is a shift away from computing as a purchased product to computing that is delivered to consumers over the internet as a service from large scale data centers referred to as the clouds (Prathyusha, 2014).The technology is swiftly transforming business processes in emerging markets internationally and locally

Clouds in the computing world provide an infrastructure for IT resources that are easily usable, adaptable, virtually accessible, and salable scalable. These IT resources are not owned by the user entity but are delivered over the internet as a service (Rao, Leelaran & Kumar, 2013).Oncea cloud computing model is adopted; there is absolutely no need to use applications and middleware on users' computers. This is because cloud computing offers a platform, infrastructure, and services to users. The users, therefore, do not have to suffer the cost of hardware and software maintenance and support (Rao, *et al*, 2013).

Currently, ICT is estimated to be based on over 50 percent in the cloud, and it might be an ideal environment for various developing markets. This change allows evolving ICT markets to move from expensive technology barriers by significantly improving productivity and growth. However, in most emerging markets, cloud computing is still in its formative years, butits adoption has become more prevalent (Callon & Latour, 2011). This gradual change to the cloud by

avaried range of institutions has driven the need for cloud service providers to make an investment in cloud infrastructures, new data centers, and services for security management. Cloud deployment has increasingly become the standard in more established markets like the US and the UK and is also gaining a foothold in developing markets with a focus on Singapore and South Africa (Tjikongo & Uys, 2013).

In developing countries like Kenya, cloud computing has the potential to help countries achieve many of their developmental goals while stimulating change and economic growth. According to Thong (2009),this provides access to important opportunities for the development of new services and products in these countries. The global spending on cloud computing is anticipated to increase rapidly as emergent markets may have a simpler task when it comes to switching to the cloud. Singapore, for example, had a swifter move to cloud computing (Bagozzi, 2007). According to Miller (2008), the awareness and acceptance of the necessity for changes in the technological world by the providers and users have made Singapore the third most ready country for cloud computing in the Asia Pacific region which has enhanced trade with other emerging markets.

2. STATEMENT OF THE PROBLEM

Over the years, cloud computing has gained prominence both in the public and private sectors. This is attributed to various benefits that come with moving applications to the cloud and that moving to the cloud, institutions are able to respond swiftly to their needs and enjoy greater operational efficiency (Masood, Bhardwaj & Chaudhary, 2016). However, migration to the cloud is a strategic organizational decision, which requires strategic planningto enable the management to mitigate the risks that may arise in the cloud computing technology (Gangwar, Date & Ramaswamy, 2015). Unfortunately, there is scarcity of empirical literature on factors that determine successfuladoption of cloud computing at the Kenyan Judiciary for successful adoption of cloud computing, yet there is a need for the technology to solve the current challenges.

The current infrastructure at the Judiciary in Kenya is cumbersome, unreliable and prone to risks such as fire outbreak. Besides, the retrieval of information is difficult and time-wasting. This has been a major problem in the judicial system in Kenya due to bureaucratic bottlenecks and resistance to change which has opposed attempts to improve. These challenges have had legal implications such as delayed justice as a result of case backlogs. For instance, by 30thJune 2013, there were a total of 426,508 pending cases in courts, 332,430 of which were civil and 94,078 were criminal. 311,852 of the cases were more than one year old forming 73 percent of the total backlog (Republic of Kenya, 2017).

There are various studies on the adoption of cloud computing (Weinhardt et al., 2009; Buyya, Yeo & Venugopal, 2009; Armbrust *et al*., 2009). However, the models are complicated to understand hence cannot be effectively applied in real-time organizational cloud computing. Besides, there are insufficient details on how institutions should adopt cloud computing and when they adopt, the required issues and priorities aninstitution should be aware of (Chang, Walters & Wills, 2015). In addition, some studies have focused on factors affecting the adoption of cloud computing. Bannerman (2013) studied the risks of cloud computing adoption in Australia. The study used secondary data published between January 2009 and September 2010. Convenience sampling was used to sample 109 items from 302 items. The study concluded that cloud computing has great potential to benefit institutions but there are significant risks and challenges which affect adoption. The study recommended that practice and research need to work together to mitigate the risks so as to enjoy the benefits of cloud computing.

Alshamaila, Papagiannidis, and Feng (2013) studied "the process of cloud computing adoption by SMEs in the North East of England". The study adopted a qualitative exploratory design and used semi-structured interviews to collect data from 15 SMEs and service providers. The findings identified various factors that play an essential role in the adoption of cloud computing by SMEs including; uncertainty, relative advantage, geo-restrictions, top management support,size, compatibility,innovativeness, trialability, prior experience, external computing support,supplier efforts, and market scope.

Locally, Munguti and Opiyo (2018) studied "the factors that influence the adoption of cloud computing in software development companies in Kenya". The study used a sample size of 283 software development companies and used questionnaires to collect data. The study found that top management commitment, right skills, worker attitude,trading partner pressure, industry competition, perceived benefits,complexity, and compatibility affect the adoption of cloud computing. Bitta (2012) worked on a framework to guide companies on the adoption of cloud computing technologies.

The study found that SMEs perceived cloud computing to be useful and are prepared to face the challenges that affect its adoption. Although a number of studies have been conducted focusing on the usage of cloud computing as a key strategy in organizations, factors that hinder adoption, there is no study conducted about the antecedes ofadoption of cloud computing in the Judiciary. Therefore, there this study sought to fill this gapinthe literature by studying antecedents of cloud computing adoption at the Judiciary in Kenya

3. LITERATURE REVIEW

Organizational sustainability refers to the achievement of success today without compromising the needs of the future generation (Boudreau & Ramstad, 2005). There are three major dimensions that are used to measure the sustainability of an organization. They include; economic sustainability, environmental sustainability, and social sustainability. Cloud computing allows payment per-use which allows payment for the amount of resources and period used. This does not call for extra-contractual costs or the need to buy and maintain servers. This leads to cost reduction enabling organizations to save money from IT operations, and the opportunity to scale down IT expenditure (Owen & Dave, 2012).

Organizational sustainability has been defined differently by various authors. According to Colbert and Kurucz (2007) defined organizational sustainability as to "keep the business going" or *"future-proofing"* of organizations. Boudreau and Ramstad (2005) defined organizational sustainability as "achieving success today without compromising the needs of the future". Currently, there are limited studies on how organizational sustainability influences the adoption of cloud computing (Melville, 2010; Bengtsson & Agerfalk, 2011). As a result, most studies have focused on the roles of ICT in supporting organizational sustainability and some on the impact of ICT and the internet on sustainability.

Rivera and Kurnia (2015) studied the roles of ICT in supporting sustainability practices. The study explored how ICT can be employed by institutions to support sustainability initiatives. Specifically, the researcher examined how a leading organization in Australia deploys Internet-of-Things to support various sustainable initiatives. The study used case study methods and collected data from secondary sources. The study findings indicated that Internet-of-Things plays a significant role in enhancing organizational sustainability. The findings were categorized based on the dimensions of sustainability namely; economic, environmental, and social.

On the economic dimension, the findings indicated that ICT (IoT) enhance sustainability by reducing costs as a result of efficient use of resources, reduced maintenance costs and adequate server management. Environmentally, the study found that IoTs influence organizational sustainability by reduction of air pollution and carbon dioxide emissions. On social dimensions, the findings indicated that IoTs enhance sustainability by facilitating collaboration within the company by engaging employees in the manufacturing network as well as by creating awareness and alert managers on potential issues that may arise in the data center (Rivera & Kurnia, 2015). While this study used IoT as one of the ICT applications, the current study will focus on the adoption of cloud computing and how it is influenced by sustainability.

Souter and MacLean (2012) studied the impact of ICTs and the internet on sustainability. The findings indicated that while ICTs positively influence sustainability through its numerous benefits, there are also new challenges for sustainability. They noted that despite the fact that some of the social and economic effects of ICTs that positively affect sustainability, they also have unfavourable effects that adversely affect sustainability. For instance, technologies have increased the use of non-renewable resources and facilitating the exploitation of finite natural resources, however, ICTs becomes a significant source of environmental harm. This implies that ICTs have a positive influence on organizational sustainability, but it also has a negative effect on sustainability due to e-waste, which significantly affects environmental sustainability. This study focused on ICTs in general and its influence on organizational sustainability, the current study investigates how sustainability influence the adoption of cloud computing.

4. METHODOLOGY

The study adopted an exploratory research design. This is because there is little known about the antecedents of adoption of cloud computing in the Judiciary. The target population of the study was the 92 ICT staff in the Directorate of ICT in the Judiciary; comprising top-level management; middle-level management and lower-level management within the ICT Directorate. The study employed a census as the research sampling method given that the targeted population was not large. Therefore, the sample size was 92 ICT staff attached to various court stations across the country. Primary data was collected using questionnaires; the data collected was analyzed using SPSS. Both descriptive and inferential statistics were used to analyze the data.

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5. FINDINGS

The researcher analyzed the collected data on organizational sustainability. The results are presented in Table 1:

Table 1

Statement	Strongly Disagree	Disagree	Neither agree nor disagree,	Agree	Strongly Agree	Mean	Standard Deviation
Cloud computing should be adopted to reduce the costs of operations	4.6	3.1	12.3	41.5	38.5	4.09	1.13
Cloud computing enables institutions to satisfy all the stakeholder through improved service delivery	4.6	6.2	12.3	29.2	47.7	4.06	1.03
Cloud computing enhances service delivery to the public	4.6	3.1	13.8	46.2	32.3	3.99	1.01
Cloud computing minimizes transportation hence reduced air pollution.	4.6	3.1	33.8	18.5	40	3.86	1.13
Cloud computing leads to efficient resource consumption	4.6	9.2	12.3	35.4	38.5	3.94	1.14
Cloud computing enhances community relations and communication	7.7	9.2	18.5	27.7	36.9	3.77	1.26
Cloud computing facilitates Collaboration within an organization	4.6	6.2	15.4	36.9	36.9	3.95	1.10
Cloud computing contributes to employee satisfaction and wellbeing	9.2	6.2	21.5	24.6	38.5	3.77	1.28
Aggregate Scores						**3.93**	**1.14**

The findings of descriptive statistics for organizational sustainability revealed that the aggregate mean score was 3.93 which is skewed toward agree on the Likert scale. On the other hand, the aggregate standard deviation was 1.14, implying high variation in responses. The majority of the respondents were in agreement that cloud computing should be adopted to reduce the costs of operations as indicated by 41.5 percent who agreed and 38.5 percent who strongly agreed. However, 4.6 percent of the respondents strongly disagreed, 3.1 percent disagreed, while 12.3 percent neither agreed nor disagreed that cloud computing should be adopted to reduce the costs of operations.

The majority of the respondents were in agreement that cloud computing enables institutions to satisfy all the stakeholders through improved service delivery as indicated by 47.7 percent who strongly agreed and 29.2 percent who agreed. On the other hand, 4.6 percent strongly disagreed, 6.2 percent disagreed, and 12.3 percent neither agreed nor disagreed that cloud computing enables institutions to satisfy all the stakeholders through improved service delivery. The majority of the respondents (46.2 percent) agreed and 32.3 percent strongly agreed that cloud computing enhances service delivery to the public. However, 4.6 percent strongly disagreed, 3.1 percent disagreed, while 13.8 percent neither agreed nor disagreed that cloud computing enhances service delivery to the public.

The majority of the respondents were in agreement that cloud computing minimizes transportation hence reduced air pollution as indicated by 40 percent of who strongly agreed and 18.5 percent who agreed. On the other hand, 4.6 percent of the respondents strongly disagreed while 3.1 percent disagreed. However, Quite a number of the respondents (33.8 percent) neither agreed nor disagreed. Most of the respondents were in agreement that cloud computing leads to efficient resource consumption as indicated by 38.5 percent who strongly agreed, 35.4 percent who agreed. However, 4.6 percent strongly disagreed, 9.2 disagreed, while 12.3 percentneither agreed nor disagreed that cloud computing leads to efficient resource consumption.

The majority of the respondents were in agreement that cloud computing enhances community relations and communication as indicated by 36.9 percent who strongly agreed and 27.7 percent agreed. However, 7.7 percent of the

respondents strongly agreed, 9.2 percent agreed, and 18.5 percent neither agreed nor disagreed that cloud computing enhances community relations and communication.The majority of the respondents were in agreement, where 36.9 percent strongly agreed and 36.9 percent agreed that cloud computing facilitates Collaboration within an organization, but 4.6 percent strongly disagreed, 6.2 percent disagreed, while 15.4 percent neither agreed nor disagreed. Besides, the majority of the respondents were in agreement that cloud computing contributes to employee satisfaction and wellbeing as indicated by 38.5 percent who strongly agreed and 24.6 percent who agreed. However, 9.2 percent of the respondents strongly disagreed, 6.2 percent disagreed while 21.5 percent neither agreed nor disagreed that cloud computing contributes to employee satisfaction and wellbeing.

Further, the study sought to find out the respondent's opinion of whether organizational sustainability is a consideration when adopting cloud computing technology. The results are presented in Table 2.

Table 2: Respondents opinion whether organizational sustainability is considered when adopting cloud technology

Do you think organizational sustainability is a consideration when adopting cloud computing technology?	Frequency	Percentage
Yes	65	100
No	0	0
Total	**65**	**100**

The results revealed that organizational sustainability is a consideration when adopting cloud computing technology. All respondents (100 percent) indicated yes indeed organizational sustainability was a consideration when adopting cloud technology. The researcher also sought to know the respondent's opinion on how the adoption of cloud computing affects organizational sustainability. The respondents had varied opinions. However, the majority based their opinion of the fact that adoption of cloud computing reduces operational and maintenance costs, reduce the cost of infrastructure and improve efficiencies in service delivery. Other responses were based on efficient resource allocation, confidentiality, value for money and return on investment. Some of the responses included;

"*Adoption of cloud computing ensures efficient resource utilization thus promoting organizational sustainability"*

Adoption of cloud computing enhance confidentiality in the organization bearing I mind Judiciary handles sensitive cases and information. Subjecting them to a third party client is risky and may affect sustainability of the Judiciary"

"Adoption of cloud computing ensures value for money thus facilitating organizational sustainability".

"Adoption of cloud computing ensures efficient resource utilization, return on investments in terms of ICT resources thus ensuring organizational sustainability"

"Adoption of cloud computing provide secure storage for the data stored in the cloud"

The results of correlation analysis revealed that there is a positive and statistically significant correlation between organizational sustainability and adoption of cloud computing at the Judiciary. This implies that organization sustainability is a key factor to consider when adopting cloud computing.It aswell implies that ICT plays an important role in enhancing sustainability, which is in line with previous findings by Rivera and Kurnia (2015) who found that ICT, and in particular Internet of Thing plays a significant role in enhancing organizational sustainability.

6. CONCLUSION AND RECOMMENDATION

The findings revealed that there is a positive and statistically significant correlation between organizational sustainability and adoption of cloud computing at the Judiciary. Therefore, the study concludes that organizational sustainability is a key factor to consider when adopting cloud computing. Besides, organizational sustainability positively influences the adoption of cloud computing in the Judiciary. This implies that a sustainable organization is more likely to adopt cloud computing than an unstable organization.

It is recommended that the Judiciary should strive to maintain itself as an independent and sustainable institution in its quest to implement cloud computing technology.

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