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DETERMINANTS OF LEVEL OF CLOUD COMPUTING ADOPTION IN SMALL AND MEDIUM ENTERPRISES IN NAIROBI COUNTY, KENYA

Emily Mworia Chemjor
PhD Candidate, Department of Management Science,
School of Business and Economics. Moi University, Kenya
emiedo98@gmail.com

Charles Lagat
Department of Marketing Management,
School of Business and Economics, Moi University, Kenya

Abstract

Cloud computing offers a new way for business agility and supports a faster time to market by offering ready-to consume cloud-based IT services. However, in Kenya, despite of the government efforts at increasing the competitiveness of SMEs through ICT by enhancing internet infrastructure, lowering cost among others, and adoption of cloud computing has not been satisfactory among SMEs. The study purpose of the paper was to establish the determinants of cloud computing adoption. The Innovation Diffusion Theory provided a theoretical basis for the study. The study adopted explanatory research design. Cluster sampling was employed to select a sample of 398 Small Medium Enterprises in various industries within Nairobi County. A structured questionnaire was used to collect the data. Data was analyzed using multiple regression model with aid of Statistical Package for Social Science (SPSS) and included descriptive and inferential analysis. Results from regression model showed that technological context exhibited a positive and significant effect on the level of adoption of cloud computing ($\beta 1= 0.414$, $\rho<0.05$) and organization context ($\beta 2= 0.262$, $\rho<0.05$) had a positive and significant effect on the level of adoption of cloud computing. However, environmental context had no significant effect on the level of adoption of cloud computing ($\beta 3= -0.033$, $\rho>0.05$. The main implication of the study offers great value to research community,

service providers in formulating better strategies, and enabling SMEs managers to effectively deliver services on cloud computing.

Keywords: Technological Context, Organization Context, Environmental Context, Cloud Computing Adoption

INTRODUCTION

Due to rapid evolvement in the contemporary business market, competition has been at its highest level hence rendering products and skills obsolete (Pauly, 2011). Bandyopadhyay *et al*. (2009) note that cloud computing is an online service model by which hardware and software services are made available to consumers on request upon their needs and pay-per-use without incurring high expenses. Cloud computing is an all-inclusive group of services that offer infrastructure assets using web media and information storage on an intermediary server. It comprises of three scopes known as Software level service, Platform level service, Infrastructure service (Fox, 2009).

Innovation has been the key for any business growth in the current turbulent times. SMEs operate in competitive markets for business growth and sustainability. Information and Communication Technology (ICT) solutions have the ability to enhance SMEs competitiveness hence contributes towards efficiency and effectiveness for business sustainability. The main problem faced by the SMEs when it comes to traditional ERP execution is that their necessities are far much less above provisions of the product offered and especially the cost facet. However, there is need for SMEs to change the way they conduct business by adopting cloud computing services. Cloud computing is a new paradigm shift in which including computing resource services, soft applications of distributed systems and data storage computing world is quickly transforming toward a system of deriving relative applications for millions to extend as a service rather than to run on their personal computers. .

The study sought to examine selected SMEs in different industries in Nairobi, Kenya on adoption of cloud computing. Organisations are most likely to adopt a technology if they perceive the technology compatible with their existing work, not complex to use and has a relative advantage. However, studies on effect of technological context, organization context and environmental context on cloud computing adoption are inconclusive. Environment is the arena in which SMEs conduct business and deals with pressures of competition and trading partners which are major determinants of cloud computing adoption.

Due to the vigorous business environment, businesses are adopting various state-of-the art Information Technologies (IT) such as cloud computing to advance their business operations (Sultan, 2010). Cloud computing has been discussed as a new technology development that can provide several advantages both strategic and operational to its adopters. Additionally, cloud computing adoption rate is not growing as fast as expected (Goscinski and Brock, 2010). However, in Kenya, despite of the government efforts at increasing the competitiveness of SMEs through ICT by enhancing internet infrastructure, lowering cost among others, and adoption of cloud computing has not been satisfactory among SMEs (Makena, 2013).

Previous studies found that Technology Organisational Environmental (TOE) context are useful in understanding critical factors of IT adoption in a given organisation (Tornatzky and Fleischer, 1990). However, results findings have been consistent and inconsistent depending on different scholars and environment. In addition, Previous studies have shown inconsistent results on determinants of cloud computing (Tan *et al*., 2008; To and Ngai, 2006; Wang *et al*., 2010). Moreover, insignificant results on the effect of complexity and compatibility on cloud adoption was inconsistent with previous studies (Oliveira and martins, 2010; Wang *et al*., 2010); but consistent results with those of Lin and Lin (2008).

Kituku (2012) observed cloud computing is still new to both academia and commerce in Kenya. Despite the great advantage of cloud computing many research discoveries are in the developed countries (Osterman, 2012) and very few in the developing countries. Focus has been on the single relationship between Technology Organisational Environmental context and cloud computing adoption. This study sought to address the research gap by analyzing the determinants of cloud computing adoption. The study hypothesized that:

H_{01} *There is no significant relationship between technology context (relative advantage, compatibility, complexity) and cloud computing adoption*

H_{02} *There is no significant relationship between organisation context (Top management support, firm size, technology readiness) and cloud computing adoption*

H_{03} *There is no significant relationship between environmental context (trading partners, competitive pressure) and cloud computing adoption*

THEORETICAL REVIEW

The Innovation Diffusion Theory provided a theoretical basis for the study. The theory was developed by E.M. Rogers in 1962. Diffusion is the procedure by which a development is embraced by individuals from a specific group. Research on diffusion of innovation has been generally connected in sectors, for example, education, sociology, communication, agriculture, marketing and data innovation (Rogers, 1995; Agarwal et al, 2000). Rogers (1995) notes that an

innovation is a thought practice, or element that is seen as new by an individual or another unit of adoption. Rogers (1995) also notes that diffusion is not a solitary, general hypothesis, yet rather a few hypothetical points of view that identify with the general idea of diffusion, that is, it is a meta-hypothesis. On the other hand, diffusion is the procedure by which an innovation is imparted through specific channels after some time among the individuals from a social framework (Rogers, 1995). Accordingly, Agarwal (2000) points out that the IDT hypothesis contends that potential clients settle on choices to receive or dismiss an innovation in view of convictions that they shape about the innovation. According to Rogers (1995), four variables impact the reception of an innovation by individuals from an organization: (1) the innovation itself, (2) the correspondence channels used to spread data about the innovation, (3) time, and (4) the nature of the group to which it is presented.

As indicated by Rogers (1995), there are two noteworthy hypothesis that deal with the dissemination of innovation particularly for reasons for embracing ICT for organizations like SMEs. These are: (1) the individual innovativeness hypothesis, (2) the hypothesis of perceived properties. The Individual Innovativeness Theory depends on who embraces the innovation and when. With an innovator who is daring and pioneers driving the way, they can receive regardless of a high level of vulnerability about the innovation at the season of adoption, and will acknowledge an incidental difficulty when another thought demonstrates unsuccessful.

Business visionaries and managers of SMEs constitute the adopters who at their own particular volition and relying upon the apparent expenses and benefits decide to adopt information and communication technology. Diffusion hypothesis gives a structure that comprehends why ICT is adopted by a few people and not by others. This hypothesis can clarify, anticipate, and represent elements that expand or obstruct the dispersion of innovations. Reviews on ICT appropriation have by and large adopted three conceivable strategies: a diffusion approach, an adoption approach and a domestication approach (Pedersen, 2003).

Roger's Diffusion of Innovation hypothesis (referred to by Van Akkeren and Harker, 2003) contends that media and interpersonal contacts give data that impacts an individual's supposition and judgment. The hypothesis involves four components: creation, diffusion through the informal organizations, time and results. Data channels through the systems and relying upon the way of the systems and the parts of its supposition pioneers, innovation are either embraced or dismissed. Opinion leaders impact a group of people through individual contact while mediators, for example, change operators and guardians additionally add to the procedure of diffusion.

EMPIRICAL REVIEW

The determinants of cloud computing adoption in this review depend on the TOE structure which distinguishes three setting groups: technological, organizational, and environmental. Tornatzky and Fleischer (1990) note that these three settings display both requirements and chances for technological innovation. These components impact the firm's level of technological development. The technological setting alludes to inner and outside innovations appropriate to the firm (Oliveria and Martins, 2011). Organizational setting alludes to a few files with respect to the beginning, for example, firm size and extension, centralization, formalization, and multifaceted nature of administrative structure and the nature of human resource (Hong and Zhu, 2006; Oliveira and Martins, 2010). Environmental setting alludes to an organization's industry, rivals and government approach (Oliveira and Martins, 2010).

Technology Context

Baker (2011) notes that technological setting speaks to the inner and outer advancements identified with the firm; both advances that are as of now being used at the firm and in addition those that are accessible in the market yet not at present being used. These advancements may incorporate either equipment or practice. The normal advantages of inserted cloud computing services incorporate the accompanying: speed of business correspondences, productive coordination among firms, better client interchanges, and access to market data preparation (Armbrust *et al*., 2010). Cloud computing has advantage over different innovations, for example, decreased cost, versatility, portability and shared assets. Feuerlicht and Govardhan (2010) note that cloud computing offers leased services on pay-as-you-utilize premise which prompt to changing the level of utilization as indicated by the present needs of the firm. The likelihood of reception will increase when organizations see a relative preferred standpoint in an innovation (Thong *et al*., 1994; Thong, 1999; Lee, 2004).

In this way, Sokolov (2009) comments that relative focal points of cloud computing are shown even from ICT capability-ties viewpoint. In any case, Buyya *et al*. (2009) point out that firms might not have trust in a cloud computing framework since it is generally new to them. It might require clients a long investment to comprehend and execute the new framework. Subsequently, many-sided quality of an innovation can go about as a hindrance to usage of new innovation; unpredictability component is typically adversely influenced (Premkumar *et al*., 1994).

Rogers (1983) notes that similarity alludes to how much innovation fits with the potential adopter's current qualities, past practices and current needs. Similarity has been viewed as a fundamental component for adoption of innovation (Wang *et al*., 2010). At the point when

innovation is perceived as good with work application frameworks, firms are generally prone to consider the adoption of new innovation. At the point when innovation is seen as fundamentally contrary, significant modification in procedures that include impressive learning are required. The impact of similarity was observed to be noteworthy in connection to PU (Chau and Hu, 2001).

Organizational Context

Top management assumes an imperative part since cloud computing usage may include reconciliation of assets and reengineering of procedures. Some experimental reviews have shown that there is a positive relationship between top management support and adoption of new innovation (Pan and Jang, 2008). Top management support and mentalities towards change have impact towards adoption of technology innovation (Daylami *et al*., 2005). Gray (2006) notes that SMEs owner managers with specialized and professional qualifications will probably participate in more adoption exercises that incorporate ICT adoption and improvement of e-business. Furthermore, entrepreneurs with fitting capabilities and ICT abilities are more development oriented while those without these essential qualities will probably be development disinclined.

Further audit of literature uncovered that age and experience of owner managers are a portion of the particular qualities which impact innovation adoption in independent companies (Manueli *et al*., 2007). In this way, regarding age Beckinsale and Ram (2006) note that the second era (Youthful) entrepreneurs will probably be responsive to innovation adoption than their original (elderly) partners. Notwithstanding, monetary assets are among key authoritative qualities that impact innovation adoption in small companies (Manueli *et al*., 2007). Likewise, SMEs adopt an innovation because of the diminishing expense and accessibility of programming and in addition the general advantages and openings brought by innovation adoption (Seyal and Rahman, 2003). For SMEs, cloud computing guarantees to convey substantial business benefits, regularly at much lower cost as they pay for the assets required, offering great profit for investment of their constrained assets. As a result, SMEs concentrate just on what conveys an incentive to their clients and business, consequently results to competitive advantage. Some past reviews (Bandiera and Rasul, 2002) contended that SMEs which pick not to adopt innovation do as such in light of the fact that they might be new to the innovation and need organizational preparation (Zappala and Gray, 2006).The organizational status can be reflected in the size, sort, nature of business and also innovation mastery and perceived benefits maintained by the management and workers (Gibbs *et al*., 2007).Also, past

research has found that the measure of a firm is one of the real determinants of IT innovation (Pan and Jang, 2008).

It is frequently announced that extensive firms have a tendency to embrace more innovations, generally because of their more prominent adaptability and capacity to risk (Pan and Jang, 2008). It is regularly contended that bigger firms have more assets, aptitudes, experience and capacity to survive disappointments than smaller firms. Then again, on account of their size, small firms can be more imaginative, they are sufficiently adaptable to adjust their activities to the speedy changes in their surroundings (Jambekar and Pelc, 2002),contrasted with larger firms, which have numerous levels of organization and this can drag basic leadership forms (Oliveira and Martins, 2011).

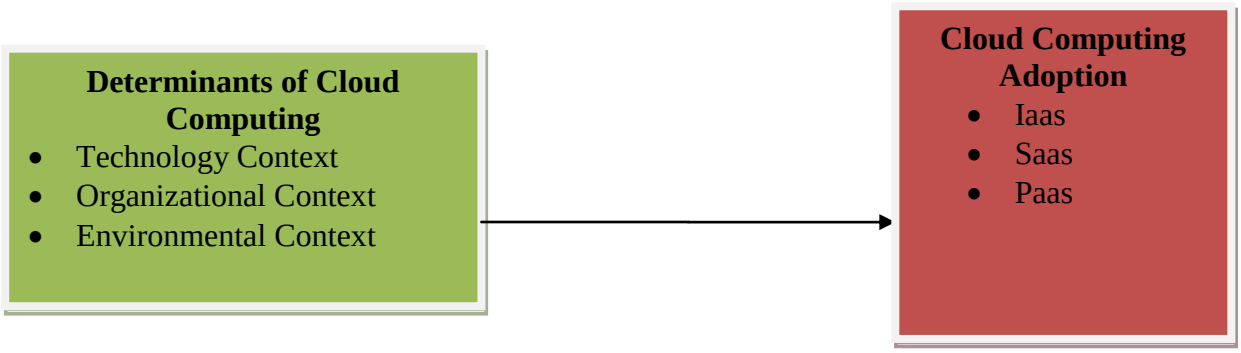
Environmental Context

Environmental setting alludes to the field in which a firm leads its business; it can be identified with encompassing components, for example, industry, rivals and the nearness of technology service providers. Competitive and trading partner pressure assume a noteworthy part in deciding cloud computing reception in the environmental setting. Competitive pressure alludes to the level of pressure felt by the firm from rivals inside the business (Oliveira and Martins, 2010).

Experience of serious rivalry is a critical determinant of IT adoption (Zhu *et al*., 2004). As cutting edge industry have the attributes of quick changes, firms confront pressure and turn out to be progressively mindful of and take after their rivals' adoption of new technologies. With regards to private ventures, competitive pressure was an essential determinant of adoption (Premkumar and Roberts, 1999). By adopting cloud computing, Misra and Mondal (2010) point out that firms benefit significantly from better comprehension of market perceivability, more noteworthy operation effectiveness, and more exact information gathering. Moreover, Pan and Jang (2008) note that many firms depend on trading partners for their IT plan and implementation assignments. Some experimental research studies have proposed that trading partner pressure is an essential determinant for IT adoption and utilization (Chong and Ooi, 2008).

TOE hypothetical structure; Technological, Organizational and Environmental settings are imperative determinants of cloud computing adoption. As shown in Figure 1 joining of the three settings. The model holds that technological, organizational and environmental setting applies impact on SMEs cloud computing adoption.

Figure 1. Conceptual Framework Determinants of Cloud Computing Adoption



RESEARCH METHOD

This study is in line with positivism approach. This study utilized a descripto-explanatory cross-sectional survey research design as the study sought to explain the phenomena under study by testing hypotheses by measuring relationships between variables. The study population comprised of SMEs managers drawn from estimated 102,963 registered SMEs within Nairobi County (Nairobi County, Ministry of Trade, 2015). All the SMEs that had not adopted cloud computing were excluded from the study population in light of cloud computing service provider, hence the review focused on 82,821 SMEs.

Sampling

The study employed cluster-sampling technique in selecting a sample from the target population. From a total population of 82821. A sample size, calculated within the clustered regions with the help of the formula Fluid Survey (2015) a sample size calculated using a sample of 398 employees. The study adopted primary data that was collected from IT managers, managers or entrepreneurs through pre-tested structured questionnaires.

Measurement of Independent, Dependent

A dependent variable is a procedure result that is predicted. In this review the dependent variable is adoption of cloud computing. Cloud computing will be measured in three diverse service models; Infrastructure as a service (IaaS), Platform as a Service (PaaS) and Software as a service (SaaS) (fox 2009).

The independent variables are the components of TOE context, which include relative advantage, complexity, compatibility, Top management, Firm size, Technology readiness, competitive pressure, trading partner pressure. The measurement tool of relative preferred standpoint is embraced from Feuerlicht and Goverdhan (2010) and Jain and Bhardwaj (2010).

Complexity tool was adopted from Premkumar *et al*. (1994), Gardner and Amoroso (2004). Compatibility tool was adopted from Wang *et al*. (2010). Top management tool was adopted from Wang *et al*. (2010. Firm size was adopted from Damanpour (1992). Technology readiness was adopted from Huang (2004), Yang (2007) and Tan *et al*. (2007). Competitive and trading partner pressure was adopted from Lin and Lin (2008), Pan and Jang (2008).

Reviewed literature demonstrates constructs testing for reliability accomplished by ascertaining the Cronbach's alpha coefficient. Further, to accomplish construct validity, convergent and discriminant validity were set up. The relationship grid and between construct connection were examined for joined and discriminant validity.

Data Analysis Approach

Information gathered on demographic variables was handled and detailed in percentage through descriptive analysis. The study employed inferential statistics in the form of multiple regression and Pearson correlations analyses. Regression was used to test the degree to which the independent variables predict the dependent variable and correlations was used to test for the statistical relationship between variables. The independent variables are technological context, organizational context and environmental context and were tested independently to determine if they are unique predictors of cloud computing adoption. The generated multiple regression model that cloud computing adoption could be predicted using the following hypothesis.

RESULTS

A total of three hundred and ninety eighty respondents were selected for the study. From the data gathered, out of the 398 questionnaires administered to the respondents, 322 were filled and returned meaning a response rate of 82.8%. in this study Mahalanobis D2 measure was employed to identify and deal with multivariate outliers. Additionally, handling multivariate outliers will take care of univariate outliers. Given that 4 items were used, 3 represent the degree of freedom in the Chi-square Table with $p < 0.001$, (Tabachnick&Fidell, 2013). This means that any case with a probability Mahalanobis D2 value of less than 0.001 is a multivariate outlier and should be removed. Hence, cases with a value of less than 0.001 were excluded from further analysis.

Descriptive Statistics

The results on relative advantage summed up to a mean of 4.0541, standard deviation of 0.52369.From the foregoing, the relative advantage of cloud computing are self-evident. The

results on the compatibility of cloud computing summed up to a mean of 3.8381, standard deviation of 0.57663. Compatibility is therefore one of the significant aspects affecting the adoption of cloud computing among the selected SMEs in Nairobi County. The mean of 3.88298 indicates that the respondents were in agreement with items on complexity. This infers that there is smooth interaction with cloud computing. The standard deviation values of 0.7131 indicate that there was less variation in the responses

The findings on top management support summed up to a mean of 3.9153, standard deviation of 0.48656. On the whole, the respondents were agreeable to the items on top management support. The standard deviation is indicative of less variation on the responses. On the other hand, the skewness and kurtosis values are within the range of 1.96 to +1.96 hence there was normal distribution of the responses. The findings are as presented in Table 1. The results on the firm size summed up to a mean of 3.73, standard deviation of 0.897From the foregoing, the size of the SMEs has been growing over time. This is evidenced by the increase in the number of the employees as well as its branches in other parts of the country. the results on technological readiness summed up to a mean of 3.589, standard deviation of 0.652, Skewness of -0.15 and Kurtosis of 0.197.The results infer that the respondents were generally agreeable on the item. Moreover, the skewness and kurtosis values are within the range of -1.96 to +1.96 hence there was normal distribution of the responses. The results of the findings are presented below in Table 1.

Results on competitive pressure summed up to a mean of 3.3887 indicating that the respondents were not entirely in agreement. The standard deviation of 0.87805 indicated fewer variations in the responses. The results on trading partners' pressure summed up to a mean of 3.7464, SD of 0.855, Skewness -0.555 and Kurtosis 0.36. From the foregoing, the respondents only affirmed that there are trading partners making use of cloud services. Pressure from trading partners and service providers is undefined. Table 1 highlights the results. The results on SAAS summed up to a mean of 3.71 and standard deviation of 0.894 an indication that the email application is accessible anywhere anytime. It is therefore convenient for the SMEs since they can effectively interact with their customer base. The results on Platform as a Service summed up to a mean of 3.58, standard deviation of 0.79549.This infers that most of the respondents were agreeable and there is less variation in the responses. The results summed up to a mean of 4.01 and standard deviation of 2.186.

As shown in Table 1, the Cronbach alpha test showed values ranging from a low of 0. 693 to a high of 0.838. These findings were in line with the benchmark suggested by Hair, *et al*. (2010) where coefficient of 0.60 is regarded to have an average reliability while coefficient of 0.70 and above indicates that the instrument has a high reliability standard. Although most

researchers generally consider an alpha value of 0.70 as the acceptable level of reliability coefficient, lower coefficient is also acceptable (Nunnally, 1978; Sekaran & Bougie, 2010). Thus, it can be concluded that data collected from the pilot study were reliable and have obtained the acceptable level of internal consistency. Therefore, all items were included in the survey instrument. Report findings shown in Table 2 below.

Table 1. Scored Mean and Reliability Results

	N of Items	M	SD	Cronbach's Alpha
Relative Advantage	7	4.0541	0.52369	0.693
Compatibility	8	3.8381	0.57663	0.742
Technology Readiness	6	3.9153	0.48656	0.792
Competitive pressure	3	3.9153	0.48656	0.838
Top Management Support	7	3.9153	0.48656	0.763
firm size	3	3.7308	0.89653	0.733
Complexity	5	3.589	0.652	0.777
Competitive Pressure	4	3.3887	0.87805	0.865
Trading Partners Pressure	3	3.7464	0.85513	0.725
Saas	6	3.6957	0.73143	0.746
Platform as a Service	4	3.58	0.79549	0.793
Infrastructure as a Service	4	3.64	0.806	0.84

Factor Analysis

The researcher ran a principal component analysis to identify patterns in data, and to express the data in such a way as to highlight their similarities and differences. Besides having data set items reduced to manageable level while retaining as much of the original information it helped in identifying groups or clusters of variables. Researcher found varimax rotation appropriate because of its ability to maximize the dispersion of loadings within factors as a result; it loads smaller numbers of variables onto each factor (Field, 2012). On the basis of the criterion of Kaiser (1960), the researcher retained all factors with Eigen values greater than 1. The criterion was based on the idea that the Eigen values represent the amount of variation explained by a factor and that the Eigen value of 1 represents a substantial amount of variation. Sampling adequacy was tested using the Kaiser- Meyer- Olkin Measure (KMO measure) of sampling adequacy. As evidenced in Table 2 below, KMO was greater than 0.5. The KMO Measure is an

index for comparing the magnitude of the observed correlation coefficients to the magnitude of the partial correlation coefficients.

Table 2. Factor analysis

Total Variance Explained						
	Total	% of Variance	Cumulative %	KMO	Bartlett's Test Chi-Square	Sig.
Technology context	1.997	28.54	28.54	0.662	518.8	0
	1.845	26.36	54.9			
	1.139	16.27	71.17	0.693	669.7	0
Organization context	2.125	30.36	30.36	0.588	558.8	0
	1.697	24.25	54.61			
	1.184	16.91	71.51			
Environment context	2.133	35.55	35.55	0.672	699.8	
	2.041	34.01	69.56			
Adoption of cloud computing	2.594	43.23	43.23	0.787	1057	0
	2.052	34.19	77.42			
Environment context	1.795	44.87	44.87	0.461	242.3	0
	1.055	26.38	71.24			

Hypothesis Testing

$H_0$1 There is no significant relationship between technology context and cloud computing adoption. However, based on the findings in Table 3 technology context had significant and positive relationship with cloud computing adoption. This infers that technology context exhibited a positive and significant effect on level of adoption of cloud computing 0.414, $\rho<0.05$). Thus, the hypothesis was rejected. This indicates that there is a change of cloud computing adoption by 0.414 units with an increase in the technology context. . Based on the above observations it can be inferred that the findings validate the conceptual framework developed in this study as they shed light on the link between technological context and adoption of cloud computing among SMEs. Based on study findings, whenever cloud computing is recognized as compatible with the work application system, there is a higher likelihood of adoption of the technology by SMEs. In the event that it is incompatible, cloud service providers' offer integrated services. In line with the results; the extant literature has indicated that compatibility is an essential factor for innovation adoption (Wang *et al*., 2010). Increase of cloud computing due to increase in compatibility is supported by Rogers (2003) argument that rapid adoption rate for technology usually occurs if organizations recognize that it is compatible with their needs and existing

practice. Similarly, in the Zhu *et al*. (Zhu *et al*., 2006a) study, compatibility was considered one of the most significant drivers in the post-adoption stages of innovation diffusion.

$H_0$2 There is no significant relationship between organization context and cloud computing adoption. Nonetheless, results revealed that organization context has a positive and significant effect on the level of adoption of cloud computing (β2=0.262, ρ<0.05).This implies that there is a change in the level of adoption of cloud computing by 0.262 units with an increase in organization context. As evidenced in the previous chapter, top management support is key to the successful integration of cloud computing in SMEs. The findings are supported by the argument that top management support ensures the sufficient resources are allocated for adopting the new technologies in question (Annukka, 2008) thus, top management support is essential to maintain the importance of possible change through an articulated vision for the organization, and by sending significant signals of the new technology to other members of the firm (Thong, Low *et al*., 2011). The findings with Eder and Igbaria (2001) and Daylami *et al*., (2005) stipulate that technology innovation adoption can be influenced by top management support and attitudes towards change. In their review of the predictors and biases in IT, Jeyaraj *et al*. (2006) found that top management support is considered as the main link between individual and organizational ICT innovation adoption. Consequently, top management support is considered to have an impact on ICT innovation adoption (Wilson *et al*., 2008).

$H_0$3: There is no significant relationship between environmental context and cloud computing adoption. However, the hypothesis was accepted since environmental context had no significant effect on the level of adoption of cloud computing (β3= -0.033, ρ>0.05).This implies that independent variables technology context, organizational context and environmental context explains 41.8% of variation of cloud computing adoption. (R2=.418). The F value of 47.097 indicates that the regression model is significant and has some explanatory value. This is a clear indication that there is a significant relationship between the predictor variables technology context, organizational context, environmental context and overall cloud computing adoption. It implies that the independent variables combined do influence cloud computing adoption among Small Medium Enterprises (SMEs). Findings that competitive pressure was an important determinant of adoption. Also, empirical research studies have suggested that trading partner pressure is an important determinant for IT adoption and use (Chong and Ooi, 2008). The results on trading partners' pressure had no significant effect on cloud computing adoption. Findings disagreed on some studies that trading partners' pressure positively effect on adoption intentions (Teo *et al*., 2009and Low *et al*., 2011). The findings also contradict with Gutierrez *et al*., (2015) trading partner can have an effect on the decision of whether to adopt a new

Information Technology innovation or not. The findings show that trading partner power is neither convincing nor compulsory.

Table 3. Direct Effect

	Unstandardized Coefficients		Standardized Coefficients			Correlations	Collinearity Statistics	
	B	**Std. Error**	**Beta**	**t**	**Sig.**	**Zero-order**	**Tolerance**	**VIF**
(Constant)	0.604	0.224		2.692	0.007			
Technology context	0.513	0.07	0.414	7.349	0.000	0.576	0.572	1.748
Organization context	0.302	0.072	0.262	4.192	0.000	0.551	0.464	2.155
Environment context	-0.028	0.044	-0.033	-0.643	0.52	0.294	0.702	1.425
R	*.653*							
R Square	*0.427*							
Adjusted R Square	*0.418*							
Std. Error of the Estimate	*0.45306*							
R Square Change	*0.427*							
F Change	*47.097*							
df1	*5*							
df2	*316*							
Sig. F Change	*0*							
Durbin-Watson	*1.096*							

CONCLUSION AND RECOMMENDATIONS

In conclusion, technology context (relative advantage, compatibility and complexity) significantly influence cloud computing. Specifically, relative advantage as a component of the technology context exhibited a positive and significant effect on the level of adoption of cloud computing among the SMEs. Also, compatibility is an essential component of cloud computing adoption and SMEs will be more likely to adopt if cloud computing is compatible with the existing systems in the organization. Additionally, in order to enhance the adoption of cloud computing, SMEs require new skills and expertise to manage cloud solutions.

Top management support is considered crucial in the adoption of cloud computing by SMEs. Support from the top management sends signals of the importance of cloud computing to the other members of the organization hence enhancing its adoption. Further on the

organization context, the study has revealed that the firm size has a significant effect on the adoption of cloud computing. In terms of a firms' size, the extant literature has indicated that larger firms are more likely to adopt because of their vast resources which makes it easier for them to take risks. Smaller firms also boast of greater flexibility and coordination which makes it relatively easier to adopt new technology. Additionally, technology readiness is of essence in the adoption of cloud computing. Existence of knowledgeable personnel and sufficient technological resources are added advantages in the adoption of cloud computing in SMEs.

The study has indicated that top management support is key to the successful integration of cloud computing in SMEs. Top management support is therefore utmost necessary since it ensures that sufficient resources are allocated for adopting cloud computing. Moreover, the results of the study have indicated that technology readiness has a significant effect on cloud computing adoption. It is therefore necessary for SMEs to hire highly specialized or knowledgeable personnel for cloud computing. Also, there is need to allocate sufficient technological resources to implement cloud computing.

This finding also provides support for the Innovation diffusion theory (IDT), theory of planned behavior and TOE framework. TOE framework serves as an important theoretical perspective for studying contextual factors (Tornatzky & Fleischer, 1990). The TOE framework identifies three aspects that may influence organizational usage of a technological innovation: technological context describes the existing technologies in use and relevant technical skills available in the organization; organizational context refers to internal measures of the organization such as its size, top management support; and environmental context as the external arena in which a company conducts its business, its industry, competitors and trading partners (Tornatzky& Fleischer, 1990).

Integrating TOE framework in our theoretical development, helps in incorporating TOE contexts and strengthens what has been generally neglected in the IDT theory – specific technological and organizational circumstances of a potential adopter and its industry. According to Rogers (1995), its stipulated that technology with a relative advantage, compatible with existing technology and not complex to use has an effect on cloud computing adoption. Therefore, the IDT theory argues that "potential user make decisions to adopt or reject an innovation based on beliefs that they form about the innovation" (Agarwal, 2000)

This study expands our knowledge on the determinants of cloud computing adoption in selected SMEs in Nairobi, Kenya. Though this study has fulfilled its aim and objectives, there are a number of areas for additional studies and empirical research, given the limitations of the research.

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