

EFFECTS OF HUMAN COMPETENCIES IN THE ADOPTION OF E-COMMERCE STRATEGIES AMONG SMEs IN KENYA

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Abstract

The paper presents findings of a study which sought to determine the effects of Human factors and competencies in the adoption of E-Commerce strategies among Small and Medium Enterprises (SMES) in Kericho - Kenya. Specifically, the discussion focuses on the effect of ICT competencies/knowledge among Managers and employees and their readiness to adopt and use E-Commerce strategies. Further the paper discusses how attitudes, prioritization, level of training and leadership behavior among owners and employees affect the adoption or use of E-Commerce strategies. A sample of 229 respondents interviewed composed of owners, managers and supervisors of SMEs operating in Kericho County. The findings presented show that support from Senior management which is part of the Human resource competencies, influences the adoption of E-Commerce to a large extent. Allocation of funds by the SME leaders was noted to have a significant influence on the adoption of E-Commerce. The study recommends policy realignments by agencies both private and Government dealing with SME growth to help the SMES in the development of E-Commerce. Training for both the SME owners

and their employees could be enhanced through providing support to the computers-for-primary schools programme by the Kenya government. The authors also propose that Community based programmes in conjunction with Institutions of Higher learning could support the development of ICT and E-Commerce Competencies among SMEs.

Keywords: Kenya, Human Competencies, E-Commerce Adoption, Small and Medium Enterprises

INTRODUCTION

The Economic Pillar of Kenya's Vision 2030 is singled out as a crucial driver of growth and development. In the National plan, the Small and Medium Enterprise (SMEs) component forms a key contributor to its realization. The Millennium Development Goals (MDGs) is a UN sponsored development agenda which aims at realizing a global development status by the year 2015. Its goals were officially established and ratified by all 193 United Nations member states (United Nations 2012). As a result countries like Kenya who have ratified these goals must align their national plans to actualize these goals in their countries. These goals cover poverty and hunger, universal primary education, gender equality and empowering women, reducing child mortality rates, Improving maternal health, Combating HIV/AIDS, malaria, and other diseases, ensuring environmental sustainability, and developing a global partnership for development. Kenya's Vision 2030 development blue print, is a national plan to make Kenya a newly industrializing, middle-income country providing a high quality life to all its citizens by the year 2030. It is implemented through its three pillars namely Economic, Social and Political. The SME and ICT sector in Kenya falls under the Economic pillar which seeks to fulfil the MDG's and the Vision's goals through the promotion of Tourism , Agriculture, Wholesale and retail trade, Manufacturing, Business Processes outsourcing and Financial services.

Human Competencies

In this study Human competencies refer to ICT competencies and knowledge among Managers and employees, readiness to adopt and use ecommerce, attitude towards ICT and innovativeness; their commitment to E-commerce adoption, managerial attitudes to new technology and risk, resource allocation and ecommerce projects' prioritization. Level of training in ICT by employees entail training at various levels e.g. Certificate, Diploma, Graduate, Post graduate etc. In this study, leadership behavior which is a Human competency factor was deemed to be directly related to successful strategy implementation. As espoused in the

Technology Acceptance Model (TAM) by Davis (1989), acceptance of a new technology is usually based on perceived usefulness and perceived ease of use. Perceptions by users and especially the decision makers hinge upon knowledge. ICT knowledge among employees further determines adoption since it influences understanding and the perceived benefits envisaged.

Enterprise Resources and Competence development in SMEs

While discussing competence development in SMEs and the role played by internationalization, Katwalo (2009) asserts that internationalization research can only be more comprehensive when internal and external resources available to the SME are identified. Such resources make up the competitive advantage and defines the logic for internationalization. This study considers this aspect to be important since internationalization is among the drivers of E-Commerce adoption and more research studies are proposed. Internal resources are identified in this study as possible determinants of E-Commerce adoption which in itself is an aspect of globalization and internationalization. The World Wide Web upon which E-Commerce rides is an international phenomenon. Concerning the learning process in competence development, he posits that there can only be competence development if the new technologies, new organizational forms, new norms and values that may emerge during the process are linked to or part of the individuals' learning. Such learning by individuals form part of the competencies inherent in the collective Human competencies a variable in this discussion.

Purpose of the study

This study sought to fill the knowledge gap relating to the explanatory power of human aspects (knowledge and skills, attitudes, managerial behavior etc) in relation to the adoption or use of E-Commerce as a strategy for SME growth and competitiveness. By establishing the effects of human resource competencies ,the study additionally aspired to offer a contribution towards understanding the dichotomy between Kenya's SME capability of providing 80% employment while contributing dismally(20%) towards GDP growth(African Economic outlook 2011)

LITERATURE REVIEW

Duncombe& Molla(2006) while studying human resource competencies affecting the adoption of E-Commerce assert that the factors that propel change forward arise from either 'agent push' or 'SME pull' forces. SME pull refers to e-commerce adoption driven by a combination of internally perceived benefits and management commitment to change (Daniel, 2003; Mirchandani and Motwani, 2001;Poon and Swatman, 1999). In the SME pull context, SMEs control their own

choices, are knowledgeable enough to understand the potential of e-commerce and have developed a need for specific ecommerce solutions as a route to realizing market opportunities. Katwalo (2009) on emerging themes and cases in internationalization and competence development in SMEs found that there appeared to be a consensus that all SMEs needed to learn; that the learning process was apparent and present throughout the whole process of internationalization. Katwalo (2009) identifies the reliance of competence development on the interplay between people and technology. The present study, has likewise, through empirical reviews established a consistent linkage between people and invariably human resource capacities, knowledge and skills and E-Commerce adoption among SMEs. On Organizational ability Hostager et.al (1998) pin point awareness, knowledge, skill, creative thinking and experience as critical abilities that help businesses to recognize opportunities in the environment. Grewal et.al (2001) defines ability more simply as a two dimensional construct of learning and capability. Atherton and Hannon (2000) argue that SMEs' effectiveness in managing innovation requires the development of internal capabilities related to technical knowhow. Much research into SMEs and adoption of e-commerce technologies has taken a resource based view, stressing the meshing of internal – human, technological and financial resources – leading to the creation of core competencies and competitive advantage in the market place (Caldeira & Ward, 2003; Cobbenhagen, 2000; Yu, 2001; Yap, Soh & Raman, 1992). Kanter (1983) identifies three sets of abilities essential for influencing change effectively. These include: a) persuasive skills to convince others to invest in change initiatives and resources b) participatory management, and c) integrating individual change initiatives to wider organizational orientations. Campbell (1989) on the other hand, argues that the effectiveness of business incubators as change agents depends upon accumulating slack (underused) resources, developing quality management and service provision capability. According to Duncombe & Molla (2006) organizational ability can be considered in three main categories; Organizational readiness defines as readiness as the stock of human, technological and financial resources that an SME or change agent possesses. These resources shape the input based competencies required to create and deliver products and services to customers or clients. Iacovou (1995) uses financial (availability of finance to pay for ecommerce solutions) and technological resources (level of sophistication of ICT usage and ICT management) as two key indicators of organizational readiness affecting use of ecommerce. Organizational readiness can also be expanded to include intangible factors (awareness and commitment) particularly relevant to the uptake of ecommerce in developing country environments (Molla, 2004).

Organizational Capability defined as the relationship between the tangible resources and other intangible resources that give rise to knowhow. Capability emphasizes invisible assets

such as organizational reputation built up over time and embedded in SME routines. Coyne (1986) in Hall (1993) highlights: a) Regulatory capability, which arises from the possession of specific knowledge resources primarily intellectual property rights (IPR), contracts (formal or informal) and trade secrets; b) Positional capability, which refers to the unique positions and reputation developed within commodity chains; c) Functional capability, which relates to the knowhow, skills and experience of employees and other members of the SME or SME network (such as clients and suppliers) to do specific tasks. Fatima Ajmal (2012) on Electronic Commerce Adoption Model for Small & Medium Sized Enterprises in Malaya Malaysia found out that the support and enthusiasm of management are very important for SMEs in successful adoption of e-commerce. Poon and Swatman (1999) and Rashid and Al Qirim (2001) found that manager or CEO's innovativeness, and IT knowledge has a positive effect toward adoption of e-commerce. Individual characteristics such as age, education, experience, and physiological traits of the CEO are essential part toward adoption of internet technology in SMEs. International web use should consist of language and feature that follow according to rules, regulation and culture that cannot be offensive to any web user. Yasin Hassen (2012) found out that according to a manager, businesses in Ethiopia are not catching up with the rest of the world since there are limitations of infrastructure and the services required to utilize the opportunities that could be grasped by utilizing the internet and e-commerce. The manager believes that the opportunities for adopting e-commerce systems are growing very fast in Ethiopia in recent years from the technical as well as banking sector. The remaining step, according to him, is building the infrastructure capacity and introduction of a better policy that allows adoption of online transactions at the same time keeping the intended money flow balance of the country.

Mwangangi *et al* (2014) cites management and employee knowledge and skills as a factor in e-commerce adoption; that because of the low staff complement, and inadequate specialized skills like in ICT, SMEs should consider outsourcing these tasks to specialized third party organizations. This would ensure cost effectiveness in the provision of ICT services while at the same time enabling the firms to concentrate on their core businesses activities. Irefin's study (Irefin *et al* 2012) of Nigerian SMES confirms that management support has a positive relation to the adoption of ICT in SMEs.

Human Competencies include Management which refers to senior-level leaders including presidents, owners, and other high ranking executive and senior-level managers. Several researchers have emphasized the effect of management on strategy implementation (Hrebiniak & Snow, 1982; Smith & Kofron, 1996; Schmidt & Brauer, 2006; Schaap, 2006). Most of them point out the important figurehead role of management in the process of strategy

implementation. Schmidt and Brauer (2006), for example, take the board as one of the key subjects of strategy implementation and discuss how to assess board effectiveness in guiding strategy execution. Hrebiniak and Snow (1982) find that the process of interaction and participation among the top management team typically leads to greater commitment to the firm's goals and strategies. This, in turn, serves to ensure the successful implementation of the firm's chosen strategy (cited in Dess&Priem, 1995). Smith and Kofron (1996) believe that top managers play a critical role in the implementation – not just the formulation of strategy. This is in agreement with Yang *et al* (2008) who outline that Managerial attitudes indeed play a critical role in decision-making. Even if two firms have the same level of resources and operate in the same context, they might make different adoption decisions. Here top managers exert a tremendous influence (Molla and Licker, 2005). Early adopters are often headed by risk-taking CEOs and they often hold positive attitude toward new technology. Wang and Cheung, 2004 and Schaap 2006 carried out an empirical study and has tested the following hypotheses: effective senior-level leadership behaviors will be directly related to successful strategy implementation. This hypothesis, however, has resulted in mixed support; those senior-level leaders who have been trained in or studied strategic planning and implementation are more likely to meet the performance targets set for the company. This hypothesis also resulted in a weak confirmation. More empirical research is needed to clarify the role of top management for strategy implementation. Accordingly, this study seeks to determine the relationship between E-Commerce adoption and Human resource factors which managers form part of.

Chong (2006) in her study among Australian SMEs makes the observation that E-Commerce adoption seems to be more of a management issue than a technical one (Corbit *et al* 2007). Many researchers have found that if there is a lack of support amongst top executives, technology cannot be successfully adopted (Corbitt *et al*, 1997, Cooper R and Zmud R, 1990, Grandon and Pearson 2003, Lertwongsatien C, Wongpinunwatana N, 2003 and Premkumar, k Ramamurthy 1995).

The characteristics of senior management play an important part in the level of e-commerce adoption (Al-Qirim, 2003). The involvement and interest of senior management in e-commerce initiatives would lead to the deployment of additional resources devoted to e-commerce implementation (Al-Qirim, 2003). Issues considered by SMES to be strategically important have been assessed (Quayle, 2002). Issues of marketing, leadership and waste reduction have been given highest priority, while supplier development, financial management, time to market and supply chain management have a medium priority. Perhaps unsurprisingly, the lowest priority was given to technology, research and development and customer management – all closely related to e-commerce. From Chong's (2006) study several factors

that influence the adoption of innovation are deduced since E-Commerce in this study is an innovative business practice. Of most commonly investigated characteristics that promote the adoption of innovation, the best known may be those developed by Rogers (1995). These innovation factors have also been the key feature to several other IT adoption studies (Iacovou et al 1995), (Kwon and Zmud 1987), (More and Benbasat 1991), (Tornatzky and Klen 1982). In her study, they are adapted as follows: perceived relative advantage (i.e. the perceived EC benefits and impact relative to its existing practice or system), compatibility (how well EC fits in both technical and organizational processes), trialability (the degree to which EC can be pilot tested or experimented without high start-up costs), complexity (ease of use or the ease with which EC can be learned) and observability (the extent to which EC advantages or gains are visible to firms).

While discussing organizational factors in their study, Uzoka and Seleka (2007) underline the following Organizational factors as major determinants in a firm's decision to adopt e-commerce. Variables such as level of funding available for retail development on the Internet, senior management's level of commitment to e-commerce, company's Internet development strategy, level of human resources available, web design skills of company personnel, management vision of the usefulness of the Internet and conviction about the benefits of e-commerce are key organizational issues identified to affect e-commerce adoption. Knowledge therefore is a factor which affects the use and the decisions to migrate to ICT enabled business systems. In line with Fatima Ajmal (2012) people are considered the most important part toward adoption of e-commerce in SMEs. The individual factors consist of customer, staff, and management of business as they are the ones greatly affected by the adoption of e-commerce. The education and awareness of these people consider being most important, before and after implementation of e-commerce. Many organizations delay the adoption of e-commerce because lack of internal enterprise training (Tan and Teo 1999). Therefore, education and awareness along with IT skill and expertise is necessary for any organization toward adoption of e-commerce as implementation of new techniques may need a change in employees work attitude, qualification, performance, knowledge of e-commerce. If employees have already known about e-commerce, the organization will be more disposed to adopt e-commerce (Thong 1999).

METHODOLOGY

The study used stratified random sampling to identify and interview 229 respondents who were owners, managers or supervisors in SMEs operating in Kericho county Headquarters. The population of this study comprised of SMEs in Agribusiness, Education, Wholesale trade and

retail, Transport and Health. The particular SMEs were those who were duly licensed by the county Government. The margin of error set was 0.05 and a confidence level of 95%.

A five point Likert scale was used to elicit ratings-based responses. This is in line with Letting and Letangule (2012) who used a similar method while studying the Effects of Performance Contracts on Organizational Performance in Kenya. The study aimed at establishing the level of agreement on various statements that related to the effect of Performance contracting on performance.

Empirical Results and Discussions

Results were presented using descriptive statistics and inferential statistics. The population of the study comprised of SMEs in Agribusiness, Education, Wholesale trade and retail, Transport and Health in Kericho - Kenya.

Table 1 indicates that a majority of the respondents 89.1% had a Secondary school certificate and College Diploma as their highest levels of education. The results show that a majority of them were aged between 18-35 years. This establishes their level of understanding and ability to provide reliable responses. These findings are in tandem with the results of Wanjau et al 2012 in a study of E-Commerce adoption among Tour firms in Kenya. The study established that age and level of education have a relationship with the levels of ecommerce adoption in the sense that the younger members of the population in Kenya tend to adopt the use of the internet and invariably e-commerce faster than the older generation. This also indicates that the SMEs under study are owned by or employ relatively younger employees who are more likely to embrace emerging technologies including Ecommerce.

Table 1: Age and Highest level of Education

Age /Level of Education	Secondary Certificate	College Diploma	Higher Diploma	Bachelors	Masters	PhD	Total
18-25	19.2%	16.6%	3.5%	7.9%	3.5%	0.9%	52.4%
26-35	14.0%	10.9%	5.2%	3.9%	2.2%	0.4%	36.7%
36-45	3.5%	3.1%	1.3%	0.4%	0.9%	0.0%	9.2%
46-55	0.9%	0.0%	0.0%	0.4%	0.4%	0.0%	1.7%
Total	37.6%	30.6%	10.0%	12.7%	7.0%	1.3%	100.0%

Levels of Management

Table 2 shows the levels of Management held by the specific respondents; a cumulative percentage of 56.8 are Directors and owners of the SMEs .The majority 39.3 % are Directors an aspect that builds in to the reliability of the study's findings. It also bolsters any recommendations made especially given that the Directors and managers will be instrumental in implementing the recommendations based on the findings of the study. Further, this agrees with the findings of Fatima Ajmal (2012) who while studying an Electronic Commerce Adoption Model for Small & Medium Sized Enterprises in Malaya, Malaysia found out that the support and enthusiasm of management are very important for SMEs in successful adoption of E-Commerce.

Table 2. Levels of Management

Level of Management	Frequency	Percent	Valid Percent	Cumulative Percent
Director/owner	90	39.3	39.3	39.3
Manager	40	17.5	17.5	56.8
Supervisor	41	17.9	17.9	74.7
Supervisor	57	24.9	24.9	99.6
Others specify	1	.4	.4	100.0
Total	229	100.0	100.0	

Duration of Operation in the Industry

As shown on table 3 a majority of the respondents 50.7 %who were mostly Directors and managers had operated in the industry for between 1-5 years. The period is long and adequate in building experience, capacity and expertise to reliably respond to issues regarding the effects of enterprise resources in the adoption of E-Commerce.

Table 3. Duration of operation in the industry

	Frequency	Percent	Valid Percent	Cumulative Percent
less than a year	37	16.2	16.2	16.2
1-5 years	116	50.7	50.7	66.8
6-10 years	56	24.5	24.5	91.3
11-15 years	12	5.2	5.2	96.5
15 years and above	8	3.5	3.5	100.0
Total	229	100.0	100.0	

Effects of Human Resource Competencies and behaviour

Table 4 shows the responses of the effect of Top management support in the level of adoption of Ecommerce. A cumulative percentage of 62 shows that top management support influence the adoption of Ecommerce in a great to very great extent. This could largely be attributed to the fact that the Top management forms the key decision making unit in SMEs as confirmed by Poon and Swatman (1999) and Rashid and Al Qirim (2001) who found that a manager or CEO's innovativeness, and IT knowledge has a positive effect toward adoption of E-commerce. Individual characteristics such as age, education, experience, and physiological traits of CEO are essential part toward adoption of internet technology in SMEs. International web use should consist of language and features that follow according to rules, regulation and culture that cannot be offensive to any web user.

Table 4. Effect of Top Management Support in the level adoption of E-Commerce

	Frequency	Percent	Valid Percent	Cumulative Percent
Very great extent	88	38.4	38.4	38.4
Great extent	54	23.6	23.6	62.0
Moderate extent	64	27.9	27.9	90.0
Low extent	17	7.4	7.4	97.4
None	6	2.6	2.6	100.0
Total	229	100.0	100.0	

Table 5 shows that allocation of funds influences the introduction of E-Commerce in a great to very great extent with a cumulative percentage of 56.3. This funds form part of the enterprise resources and hence signifies the objective of the study. This resonates well with Irefin's study (Irefin et al 2012) of Nigerian SMES who confirms that management support has a positive relationship with the adoption of ICT in SMEs.

Table 5. Effect of Allocation of funds on Levels of E-commerce Adoption

	Frequency	Percent	Valid Percent	Cumulative Percent
Very great extent	64	27.9	27.9	27.9
Great extent	65	28.4	28.4	56.3
Moderate extent	43	18.8	18.8	75.1
Low extent	27	11.8	11.8	86.9
None	30	13.1	13.1	100.0
Total	229	100.0	100.0	

As shown in table 6 the purchase of ICT hardware and software influences the introduction of E-Commerce to a very great extent giving a cumulative percentage of 50.2. The purchased ICT products form the enterprise's resources which signify the objective of the study; to determine their effect on adoption of E-commerce. It has been established empirically that there is a strong positive relationship between management and strategy implementation (Hrebiniak & Snow, 1982; Smith & Kofron, 1996; Schmidt & Brauer, 2006; Schaap, 2006). Most of the studies point out the important figurehead role of management in the process of strategy implementation.

Table 6. Effect of Purchase of ICT hardware and software on E-Commerce adoption

	Frequency	Percent	Valid Percent	Cumulative Percent
Very great extent	58	25.3	25.3	25.3
Great extent	57	24.9	24.9	50.2
Moderate extent	50	21.8	21.8	72.1
Low extent	29	12.7	12.7	84.7
None	35	15.3	15.3	100.0
Total	229	100.0	100.0	

Table 7 shows the responses to the question of the extent to which training in E-Commerce and ICT contributes in the introduction of E-commerce in the SMEs. The majority of the respondents indicate that this activity influences adoption of E-commerce in a moderate extent, at a percentage of 25.8. This is followed closely by the respondents who feel that training does not contribute in any way in the introduction of E-commerce in their enterprises at 22.3%. These responses could be due to the fact that this activity of ICT and E-commerce training is a rare activity carried out in the SMEs under study. The decision to train staff being a management matter the present study conforms to findings of Molla and Licker 2005 who posit that top managers exert a tremendous influence. According to Schaap (2006) effective senior-level leadership behaviors will be directly related to successful Strategy implementation.

Table 7. Effects of ICT Training on E-Commerce adoption

	Frequency	Percent	Valid Percent	Cumulative Percent
Very great extent	38	16.6	16.6	16.6
Great extent	40	17.5	17.5	34.1
Moderate extent	59	25.8	25.8	59.8
Low extent	41	17.9	17.9	77.7
None	51	22.3	22.3	100.0
Total	229	100.0	100.0	

Table 8 shows the responses based on how the priority of E-commerce projects by Management influences the adoption of E-commerce in the enterprises under study. The majority of the respondents at 31.4% gave a response that this priority for E-commerce projects does not in any way contribute to the introduction of E-commerce. This response could be attributed to the low priority given by the SMEs Management to E-commerce projects. This is supported by findings on table 4.6.2 whereby the use of E-commerce projects are ranked to a low extent. In Sandy Chong's study among Australian SMEs she makes this observation; another recurrent observation is that E-Commerce adoption seems to be more of a management matter than a technical one (Corbit et al 2007). Researchers have found that if there is a lack of support amongst top executives, technology cannot be successfully adopted (Corbitt et al, 1997,Cooper R and Zmud R,1990,Grandon and Pearson 2003,Lertwongsatien C,Wongpinunwatana N, 2003 and Premkumar, K Ramamurthy 1995).

Table 8. Effect of Priority for E-Commerce projects on the adoption of E-Commerce

	Frequency	Percent	Valid Percent	Cumulative Percent
Very great extent	34	14.8	14.8	14.8
Great extent	40	17.5	17.5	32.3
Moderate extent	48	21.0	21.0	53.3
Low extent	35	15.3	15.3	68.6
None	72	31.4	31.4	100.0
Total	229	100.0	100.0	

Table 9 shows how the levels of ICT knowledge among employees have influenced the introduction of E-commerce in their enterprises. A cumulative percentage of 87.8 responded that the level of ICT knowledge among employees influences in a moderate to a very great extent in the introduction of E-commerce. This could be why the majority of the employees in

these SMEs under study are the youth aged between 18-35 years since they possess better skills and knowledge in ICT as compared to the older respondents as shown in Table 9.

Table 9 Effect of Level of ICT knowledge among Employees

	Frequency	Percent	Valid Percent	Cumulative Percent
Very great extent	69	30.1	30.1	30.1
Great extent	61	26.6	26.6	56.8
Moderate extent	71	31.0	31.0	87.8
Low extent	18	7.9	7.9	95.6
No extent	10	4.4	4.4	100.0
Total	229	100.0	100.0	

Table 10 shows the influence of ICT knowledge among employees in relation to the qualifications held. The employees under the Graduate level have the highest influence with a mean of 1.3493. This is followed by the employees under the Diploma level having a mean of 1.5590 and lastly those employees whose highest level of education is the Certificate level having a mean of 1.7555. This indicates that the higher the level of education attained, the greater the influence of ICT knowledge in E-commerce adoption in the enterprises under study.

Table 10. Effect of ICT knowledge among Employees

	N	Minimum	Maximum	Mean	Std. Deviation
Certificate	229	.00	4.00	1.7555	1.08883
Diploma	229	.00	4.00	1.5590	1.14795
Graduate	229	.00	4.00	1.3493	1.44801
Valid N (listwise)	229				

Table 11 shows how experience in ICT usage influences E-Commerce adoption. Experience of five years and above in ICT usage has the greatest influence in adopting E-Commerce with a mean of 1.3799. This is followed by 3-4 yrs experience with a mean of 1.4716 and then 1-2yrs experience with a mean of 1.5633. These results establish that the higher the experience in ICT usage, the greater is the influence on E-Commerce adoption. Sandy Chong (2006) cites Rogers theory where new innovations are based on perceived relative advantage (i.e. the perceived EC benefits and impact relative to its existing practice or system), compatibility (how well EC fits in both technical and organizational processes), trialability (the degree to which EC can be pilot tested or experimented without high start-up costs), complexity (ease of use or the ease with which EC can be learned) and observability (the extent to which EC advantages or

gains are visible to firms).The perceptions referred are most likely ,according to his theory based on a person's experience in ICT usage referred to as relative advantage, compatibility, trialability and observability.

Table 11. Effects of Experience in ICT usage on the level of Adoption of E-Commerce

	N	Minimum	Maximum	Mean	Std. Deviation
Effect of 1-2yrs Experience	229	.00	4.00	1.5633	1.23957
Effect of 3-4yrs Experience	229	.00	4.00	1.4716	1.17553
Effect of Experience of 5yrs and above	229	.00	4.00	1.3799	1.55308
Valid N (listwise)	229				

Chi –Square statistic: Effect of Human Resource aspects on the level of Ecommerce Adoption

A Chi-Square test (X^2) is a test used to establish how confident a researcher can be concerning a relationship between variables.(Bryman and Bell 2011).The relationship to be tested is based on a set level of significance(degree of risk).In the study the level of statistical significance is $p < 0.05$. It is notable in Table 12 that the level of significance is below the threshold and hence we reject the null hypothesis that Human Resource competencies do not have a statistically significant effect on the level of E-Commerce adoption by SMEs in Kenya. This is in agreement with the rest of the findings that Human resource competencies have a significant effect on the adoption of E-Commerce and therefore play a role in any decision and implications in the future development of E-Commerce strategy among SMEs.

Table 12 Chi Square test Statistic –Effect of Human Resource aspects

	T M	LB&A F	LB PH&S	LB&EC	LB&PECP	LICT K Cert	LICT Dip	LICT K Grad.	Exp 1-2 yrs	Exp 3-4yrs	Exp 5yrs and above
Chi-Square	100.279 ^a	28.620 ^a	15.083 ^a	6.961 ^a	21.415 ^a	93.293 ^a	74.122 ^a	72.900 ^a	45.520 ^a	62.245 ^a	110.367 ^a
Df	4	4	4	4	4	4	4	4	4	4	4
Asymp. Sig.	.000	.000	.005	.138	.000	.000	.000	.000	.000	.000	.000
	.000 ^b	.000 ^b	.013 ^b	.122 ^b	.000 ^b	.000 ^b	.000 ^b	.000 ^b	.000 ^b	.000 ^b	.000 ^b
Lower Bound	.000	.000	.000	.080	.000	.000	.000	.000	.000	.000	.000
Upper Bound	.013	.013	.028	.165	.013	.013	.013	.013	.013	.013	.013

KEY:TM –Top management effects.LB&AF-Leadership Behavior and Allocation of Funds.LBPH&S-Leadership Behavior and Purchase of Hardware and Software. LB&PEC P- Leadership Behaviour and Priority for E-Commerce projects. LICT K-Level of ICT Knowledge- Certificate..LICTKDip-Level of Knowledge - Diploma. LICTK- Grad- Level of ICT Knowledge Graduate.Exp1-2yrs- Experience

One-Sample Kolmogorov-Smirnov Test-Human Resource Factors

Human Resource factors in the present study relate to those aspects about people in the SMEs be they Senior Management, the ICT skills held, Experience , behavior and attitude towards decisions to adopt E-Commerce strategies among SMEs. The one K-S test show a significance which is below $p < 0.05$ meaning that the null hypothesis regarding Human Resources is rejected.

Table 13. KS Test –Human Resource factors

	TM	LB&AF	LBPH&S	E&ICT	T LB&P ECP	L ICT K	L ICT K	L ICTK- Dip	L ICT K- Grad	1-2yrs Exp	3- 4yrs Exp	5yrs and over Exp
Mean	229	229	229	229	229	229	229	229	229	229	229	229
Std. Deviation	1.1223	1.5371	1.6769	2.1179	2.310	1.2969	1.7555	1.5590	1.3493	1.5633	1.379	1.379
Absolute	.233	.217	.190	.140	.193	.180	.240	.250	.244	.175	.289	.289
Positive	.233	.217	.190	.132	.141	.180	.202	.250	.244	.163	.289	-187
Negative	-.170	-.128	-.112	-.140	-.193	-.169	-.240	-.152	-.176	-.175	-.187	4.371
K-S Z	3.523	3.289	2.880	2.126	2.922	2.718	3.624	3.786	3.685	2.645	3.515	.000
Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000 ^c
Monte Carlo Sig. (2-tailed)	.000 ^c	.000 ^c	.000 ^c	.000 ^c	.000 ^c	.000 ^c	.000 ^c	.000 ^c	.000 ^c	.000 ^c	.000 ^c	.000
95%CI	Lower Bound	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.013
	Upper Bound	.013	.013	.013	.013	.013	.013	.013	.013	.013	.013	.013

Key: TM –Top management effects. LB&AF-Leadership Behavior and Allocation of Funds. LBPH&S-Leadership Behavior and Purchase of Hardware and Software. LB&PEC P- Leadership Behaviour and Priority for E-Commerce projects. L ICT K-Level of ICT Knowledge- Certificate..L ICTKDip-Level of Knowledge - Diploma. L ICTK- Grad- Level of ICT Knowledge Graduate.Exp1-2yrs- Experience

CONCLUSIONS

Summaries are made and conclusions drawn on the relationships noted relating to the data analyzed on the basis of the purpose of the study.

Human Competencies and Levels of E-Commerce adoption

From the findings, support from senior management which is a part of the Human Resource competencies was found to influence the adoption of E-Commerce to a large extent. This could largely be attributed to the fact that the Senior Management forms the key decision making units among SMEs. Additionally, allocation of funds by the SME leaders influences the introduction of

E-Commerce to a very great extent. Notably the study established that Priority for E-commerce projects by managers does not in any way contribute to the adoption of E-commerce. This could be attributed to the low priority given by the SMEs Management to E-commerce projects.

Policy and practical Implications

The study recommends that policies should be formulated to promote the usage of E-Commerce among SMEs especially considering that Human Resource aspects have a significant influence on the adoption of E-Commerce. This is so since E-Commerce improves communication, money transfer, competitiveness, productivity and growth among SMEs thus reducing the levels of unemployment, enhancing food security and generally improving the quality of life of the business owners , their employees and the general society.

At the industry level, the agencies both private and Government dealing with SME growth could help the SMEs in the development of E-Commerce through funding and provision of subsidies in training and awareness creation in E-Commerce benefits and usage strategies in line with the County and National Governments needs to provide ICT centres and internet hotspots where SMEs can benefit from free or subsidized training and internet access. To the SME owners the study recommends that the County Government should facilitate Strategic management studies and specifically E-Commerce strategy crafting and deployment for SME owners and their employees. Training for both the SME owners and their employees as a strategic initiative to ensure that their collective knowledge and skill is enhanced to facilitate further deployment of enterprise resources in the development and usage of E-Commerce in their SMEs. The Counties can integrate backwards and support the National Government's Computer training for primary schools programme to prepare future SME owners and employees to operate computers and participate in earnestly in E-Commerce. SME owners should be assisted to source and recruit qualified staff with skills in ICT adequate enough to enable them delve seriously into the use of Electronic Commerce.

The researcher recommends the establishment of Community based programmes in conjunction with Institutions of Higher learning to support SMEs in nurturing Strategic leadership skills in the deployment of E-Commerce Strategies among SMEs in the counties. This is because Higher learning Institutions would provide the expertise required in Strategic Leadership and E-Commerce within the enterprises.

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