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THE IMPACT OF E-COMMERCE ADOPTION FOR SMALL AND MEDIUM ENTERPRISE IN DEVELOPING COUNTRY: A CASE STUDY UGANDA

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ABSTRACT

In order to attain achievement in this 21st century and capability facing more complex challenges, the small-medium enterprise (SMEs) in developing country needs to progress ideas based on economic and community. E-commerce has many benefits for SMEs in terms of faster communication within the firm and more efficient for managing resources of the firm. SME in developing countries has more challenges than from those developed countries in adopting e-commerce. E-commerce initiation by SMEs is still lesser in a figure, insufficient and only at the initial stages such as having email or website. The aim of this study is to focus on the ability to understand the knowledge regarding the SMEs' adoption of e-commerce in developing countries such as Uganda, and at the same time developing an e-commerce adoption model for SMEs and then validating the model. This study runs into two phases by doing the preliminary study and the survey. During the preliminary study phase, the e-commerce adoption model is developed based on TAM model of perceived ease of use, perceived usefulness, perceived trust and intention to use. While in the survey phase as a quantitative method, the questionnaire is developed and then the sample is identified. After conducting the survey, the questionnaire is analyzed using the multiple linear regression analysis. Multiple linear regression analysis found that the factors of perceived ease of use and perceived usefulness are significantly and positively contributed to the factor of perceived trust. While perceived trust significantly and positively contributed to the factor of intention to use. This shows that perceived trust has great contribution in clarifying intention to use e-commerce in Uganda SMEs. The developed e-commerce adoption model is expected to help the Uganda SMEs towards the developing and accelerating of the ecommerce implementation. Thus, the developing country especially Uganda will be improving in terms of the e-commerce sectors.

Keywords: *E-commerce; small and medium enterprise; adoption model; Uganda.*

1. INTRODUCTION

The appearance of the internet has brought huge benefit for the business. Now the world is a globalized market, and the customers across the world can interconnect with one another conveniently. The web starts playing an essential part in contemporary lifestyle, whereby in 1994 the electronic commerce (E-commerce) started as a procedure of promoting, transferring, buying, or exchange services, information, and goods via the web, [1]. Businesses utilize the web to manage the information of theirs and assimilate e-commerce business process. E-commerce has many benefits for SMEs in the terminology of interaction in the firm faster and would make more effective in management aid of the tight. The seamless feature has been beneficial because when they are sharing information or transferring electronic documents, it increases the business competence [2]. E-commerce creates an important contribution to decrease the cost in business, better quality product/service, the penetration of both customers and suppliers, and new ways of peers or channels paved for product/service delivery. SMEs can be understood the benefits of e-commerce not only for large companies [3].

Challenges have been diverse in SMEs in developing countries than in developed countries, as far as e-commerce adoption is concerned [4]. [2] stated that there is still the issue of scant adoption of e-commerce by SMEs. Current situation of

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SMEs faces many problems. While large companies thinking to expand their internal processes; small companies are more worried about completeness. So, to adopt e-commerce is not easy and it cannot complete once. It requires a slow process that organization moves slowly from a level that is low to the high amount of e-commerce [5]. It is obvious that each company who want to start adoption process of e-commerce will face many difficulties. Thus, managers of those companies need to get solution about those difficulties and realize the opportunities that they would get after adoption process [6], [42].

The small business segments in Uganda, like in other areas of the world, is viewed as an important sponsor in the evaluation of the market economic system, through labor producing and cash flow development. In Uganda, the small company described as an enterprise employing no less than five employees along with a maximum of 50 employees, with annual sales turnover of minimum 360 million Uganda shillings as well as completes property of maximum 360 million Uganda shillings [7]. The information of small businesses is a feasible option for job creation and unemployment which would be a perfect road to point the youth of Uganda. They can begin their own business and create a job as their business growth [8]. Most of the small commerce and business companies in Uganda today take the form of e-commerce.

Representatives and African development partners forecast a lot of options in the continent's effort to stop extensive poverty. In Uganda, 80% of SMEs situated in urbanized areas, for example, the capital city of Uganda, Kampala. But fewer SMEs have adopted the e-commerce [7]. SMEs play a crucial role in the improvement of Uganda Economy. The contribution to the gross domestic product (GDP) is more than 50% and 2.5 million people are hired [9] [10]. This indicates the acknowledged role in the economic advancement of Uganda. The problems faced by Uganda SMEs are the cost to access the internet, the language obstacles, and difficulty of understanding electronic commerce procedure and technology needed to use it [11]. SMEs that adopt e-commerce keep on at the initial stage such as having email or website [43]. SMEs have websites which are usually informative but lack cooperating facilities such as online transactions [11], [40], [41]. In Uganda, SMEs' adoption of e-commerce is still scarce- they primarily adopted e-commerce for marketing as as communication purposes via well the construction of a corporate site [10]. Thus, this study was conducted to develop a conceptual model for e-commerce adoption by checking out the existing models and theories and then to validate the conceptual model by doing the multiple linear regression analysis. This study outlines two general questions

1. What factors are affected in the e-commerce adoption model for ICT SMEs?

2. Is the developed model applicable in the developing countries?

The justification for selecting Uganda SMEs for this research is: Uganda is one of the developing countries that have shown some remarkable to develop their ICT. In addition, ICT and/or Ecommerce related studies would be quite exclusive, since such studies are still unfamiliar in African developing countries. This study was further evidence on the fact that gives a huge potential benefit for ICT SMEs from the adoption of new technology. Therefore, the result of this study would give motivation for stakeholders to improve suitable intervention with the possible to improve the acceptance of e-commerce in a cost-effective manner. The outcome of this study would be in form of design model based on e-commerce adoption and that model would be beneficial for academics and students who should find related studies to guide their future research.

Having presented the current state of ecommerce adoption in Uganda, this paper is structured as follows. This section starts by presenting the background of the study. Next, argues the theoretical importance of this study which further develops the research framework for the investigation of the research questions. The third section presents and justifies the research methodology and the data collection process of the study. The final section presents the study results with sections discussing the findings, limitations, future direction, implication and conclusions of the study.

2. RESEARCH MODEL AND HYPOTHESIS TESTING

E-commerce technology from foundation is facilitated by IT. Thus, it's important that explanation of IT adoption models need be performed to help explain e-commerce technology adoption. In general, these models follow three forms, namely a diffusion strategy, a domestication strategy and adoption strategy [39]. These approaches are primarily concerned with explaining personal novel technology adoption. In general,

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these models are called technology adoption models. IT adoption models such as for instance the Theory of Reasoned Action (TRA), Unified Theory of Acceptance, Use of Technology (UTAUT), (DOI) and TAM model.

This study is going to describe the factors of Davis 1989 on TAM model and perceived trust that is used as the mediated role for this study. TAM model describes how to determine variables from the user on the intentions of using the technology, which take up the user behavior to show if the software is accepted or rejected. The primary objective of TAM is presenting strategic consequences of external variables on internal opinions as well as people's motives and perceptions [12]. There are two factors that are vital for validation depends on perceived ease of use and perceived usefulness [13].

Technology acceptance model (TAM) was initially developed by Davis in 1989 according to the theory of reasonable activity [14]. TAM is suggested as it describes and forecasts the behavioral component of behavioral intentions and information technology depending on the use and acceptance of information technology. It models exactly how users accept and adopt certain technology [15]. A lot of researchers applied TAM in numerous various solutions such as e-learning, teleconference, and short message service [16], [17].

This study proposes a conceptual model on e-commerce adoption behavior as its core feature constructed the managers of e-commerce services. The conceptual model can be divided into the perceived usefulness and perceived ease of use factors just as initially thought out by Davis [13]. This study adds perceived trust which defines as how the user evaluate or assesses transaction (e.g., seller) [18]. Perceived trust is also measured as an important component in the success of any business transactions; it reduces uncertainty [19], [20]. One of the most daunting barriers in adopting ecommerce would be the lack of perceived trust [19], [21]. Therefore, this study sheds light on these four factors: perceived ease of use (PEU), perceived usefulness (PU), perceived trust (PT) and intention to use/ adopt (ITU). Based on these variables, the study hypotheses were derived centered on basis and advancement of research model and also those intending factors that could affect e-commerce adoption by ICT SMEs in Uganda.

2.1 Perceived Ease of Use Factor

Perceived ease of use is the main variable in the TAM [23]. In addition, to clarify the adoption of IS in organizations, perceived ease of use was also measured very important in some other studies [24], [25]. Therefore, it is predictable that perceived ease of use would be one of the most important variables in explaining technology adoption and individual intentions on internet-based E-commerce services [26]. Several scholarly articles exposed that perceived ease of use and perceived usefulness are latent indicators of user acceptance, adoption, and motivation to use web services. A number of researchers extended TAM and also describe in their studies that there is a relationship between perceived ease of use and perceived trust. Perceived ease of use does positively affect perceived trust [27], [28], [29] and [30]. Therefore, perceived ease of use is a crucial factor that affects perceived trust in the adoption of e-commerce technologies. Based on the above-stated relationship of effect among perceived ease of use and perceived trust, it is hypothesized:

H1: PEU positively affects PT towards using e-commerce.

2.2 Perceived Usefulness Factor

Perceived usefulness as "the degree a person believes that using a specific system would improve job performance" [13]. Perceived usefulness to be a straight forecaster of the behavioral intention to use as hypothesized [16]. Moreover, a study conducted in Palestine on ecommerce services came up with the result that perceived usefulness is a major influencing factor on perceived trust [30]. In addition, several researchers, conveyed that perceived usefulness positively impact perceived trust in e-vendors [28], [29]. Thus, perceived usefulness is taken as an important factor that affects perceived trust in ecommerce technology adoption as hypothesized:

H2: PU positively affects PT towards using e-commerce.

2.3 Perceived Trust Factor

According to earlier studies, there is exists a good relationship between perceived trust and intention to use of e-commerce. Thus, perceived trust is regarded as a factor which considerably predicts a user's goal to accept the usage of ecommerce services. A Previous analysis found that perceived trust become the primary component that influences subscribers to recognize e-commerce [31]. [32] identified perceived trust in their study like a psychological state comprising the intent to <u>30th September 2018. Vol.96. No 18</u> © 2005 – ongoing JATIT & LLS

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recognize vulnerability primarily based upon good expectations of the motives or maybe actions of someone else. Thus, following these actions, perceived trust is an important factor that effects the intention to use e-commerce technologies. Among these studies, perceived trust has positively affected on intention to use e-commerce technology. Therefore, the researcher considers perceived trust as a factor that has a relationship with intention to adopt/use e-commerce. Thus, it is hypothesized:

H3: PT positively affects ITU towards using e-commerce.

Therefore, the conceptual model for the ecommerce adoption is developed as in Figure 1.



Figure 1: The conceptual model

3. RESEARCH METHOD

3.1 Sample and Data Collection

The probability sampling method was used in this study, which based on random selection sample. The total of ICT enterprises in Uganda which has the right postal address is 112 [33]. According [34], the sample size must be 86 respondents out of the population size which is around 112 ICT SMEs. The respondents selected come from different ICT SMEs, which seems to be sufficient to satisfy the needs of this study. To solicit information from respondents, this study utilized the survey questionnaire method for the method of research. Respondents were asked about their perception of the study variables to highlight existing relationships within variables of the survey. The efficiency, accuracy, and promptness to assess information on the perception of the population were a major reason for this method adopted.

3.2 Measuring Instrument

The questionnaire of this study was captured from previous researches and revised by expertise. The experts were checked based on their knowledge and experience for e-commerce issues. The questionnaire is divided into two sections. The first section is general questions that were designed to get the respondents information. It contains gender, age, working experience, number of employees, e-commerce usage, and e-commerce terms.

Section B measures the factors of adoption. The questions were designed as closeended form to collect data and to make easy and understandable for the respondents. Section B contains four factors which are perceived ease of use, perceived usefulness, perceived trust and intention to use. Each factor contains five questions for e-commerce adoption. The items selected for constructs were taken from prior studies to ensure the validity of information [35]. A five-point Likert scale (5 = strongly agree and 1= strongly disagree) were adopted in the study for an interval scale used to measure the variables.

3.3 Reliability and Validity of the Data

By calculating the Cronbach's alpha coefficient worth of a pair of items, the reliability amount of scale to be utilized in the questionnaire is verified as indicated by [36], [37]. The alpha coefficient ranges and their strength suggests that all items must have a value above 0.7. Thus, the Cronbach's alpha of this study is as in Table 1. All the values were above 0.8. Therefore, it was concluded that the measurement tool is usable, reliable, and consistent with the survey data collection.

TABLE 1: CRONBACH'S ALPHA FOR THE FACTORS

Factors	Cronbach's alpha
Perceived ease of use (PEU)	0.864
Perceived usefulness (PU)	0.852
Perceived trust (PT)	0.904
Intention to use (ITU)	0.810

4. RESULT

4.1 Data Analysis

The demographic factors for this study are shown in Table 2.

TABLE 2: DESCRIPTIVE SUMMARY OF DEMOGRAPHIC FACTORS

Demographic factor	Category	Frequency	Percentage
Gender	Male	60	69.8
	Female	26	30.2
	Total	86	100
Age	20-30 years old	34	39.5
	31-40 years old	39	45.3
	Above 40	13	15.1

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	years old		
	Total	86	100
	1000		
Educational level	High school	19	22.1
	College degree	30	34.9
	Master	13	15.1
	Other	24	27.9
	Total	86	100
Working experience	0-5 years	42	48.8
-	5-10 years	20	23.3
	Above 10 years	24	27.9
	Total	86	100
Number of employees	Mei-20	12	14
	20-35	12	14
	35-50	37	43
	Above 50	25	29.1
	Total	86	100
E-commerce usage	Yes	84	98%
-	No	2	2%
	Total	86	100
E-commerce terms	Email	82	29.60%
	Website	69	24.90%
	Database	66	23.80%
	Online transactio n	60	21.70%
	Total	277	100.00%

As shown in Table 2, the majority (69.8%) of ICT SMEs managers in Uganda are male, while 30.2% were female. Most (45.3%) of the managers were between 31-40 years old. While 34.9% of the managers were college degree holders which indicate that most of the owners/managers in ICT SMEs in Uganda had different levels of tertiary or higher education. Most (48.8%) of the respondents are working their position between 0-5 years. 43% of the respondents revealed that their number of employees were between 35-50 employees. The majority (97.7%) of the respondents use ecommerce technology in their companies, whereas only 2.3% of the respondents did not use ecommerce technology in their companies. An assessment of the e-commerce technology terms in Uganda ICT SMEs is categorized into four ecommerce terms. Respondents can choose more than one term (e.g. Email and website). 29.6% of the respondents were using emails in their companies, 24.9% have websites, whereas 23.8% use database and lastly 21.7% of the respondents use online transaction.

The analysis is interested to assess the contribution of each independent variable in the model. To evaluate the regression type of perceived ease of use, perceived usefulness and perceived trust, the first step of the investigation is to analyze the regression model (as shown in Table 3). The two independent variables perceived ease of use and perceived usefulness, have a positive and significant relationship to the perceived trust, (F=11.565 and p<.001.) confirming that it is statistically significant. This implies that there is a statistically significant relationship between the independent variables and perceived trust.

TABLE 3: REGRESSION ANALYSIS OF VARIANCE

M	odel	Sum of Squares	Df	Mean Square	F	Sig.
	Regre ssion	50.225	2	25.113	11. 565	.000 ^b
1	Resid ual	136.805	63	2.172		
	Total	187.03	65			

The final analysis type of regression in this study is to evaluate the linear regression between perceived trust and intention to use (as indicated Table 4). There is a highly significant relationship between perceived trust and intention to use. The F value of (F = 10.067 and p <. 002.) implies that there is a statistically significant relationship between the perceived trust and intention to use e-commerce.

TABLE 4: REGRESSION ANALYSIS OF PERCEIVED TRUST (PT)

М	lodel	Sum of Squares	Df	Mean Square	F	Sig.
1	Regre ssion	44.868	1	44.868	10. 067	.002 ^b
1	Resid ual	285.253	64	4.457		
	Total	330.121	65			

As in Table 5, the hypotheses have been tested to look at the relationship between perceived ease of use, perceived usefulness, and perceived trust. Also, the influence of perceived trust on intention to use e-commerce technology in Uganda ICT SMEs. The results of the findings relate to the strength of relationships supported or not supported

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within stated hypotheses, are discussed in the following section.

Hypo- theses	Standa rdized coeffi cient (β)	Sig.	T- statistics	Supported or not supported
H1	0.324	.006 (p<.05)	2.826	Supported
H2	0.307	.009 (p<.05)	2.677	Supported
Н3	0.367	.002 (p<.05)	3.173	Supported

 TABLE 5: REGRESSION RESULT FOR EACH HYPOTHESIS

5. DISCUSSIONS

As mentioned introduction, the purpose of this study is to develop and validate a model for ecommerce adoption among ICT SMEs in developing countries. This study concentrated on Uganda, as an instance of developing countries, to check out the effect of perceived ease of use and perceived usefulness of perceived trust in ecommerce technology adoption among ICT SMEs sector.

Therefore, this discussion focuses on the research gap affecting to the perceived ease of use, perceived usefulness and perceived trust in ecommerce technology adoption and proposes adoption model for e-commerce technology in Uganda ICT SMEs sector. The literature review showed that there's no enough exploration on perceived ease of use (PEU) and perceived usefulness (PU) that affect perceived trust (PT) in e-commerce technology. In perspective of this issue, [29] reported that regardless of the essential developments in investigation on perceived trust. Perceived trust in the circumstance of e-commerce transactions has gained somewhat interest. Thus, it absolutely was a strong need to look at the outcome of perceived ease of use (PEU) & perceived usefulness (PU) factors on perceived trust (PT) in e-commerce technology adoption in the context of Uganda ICT SMEs sector.

In checking out the hypothesis connected to the relationship between perceived ease of use, perceived usefulness and perceived trust for ecommerce adoption, it was discovered that there is a significant and positive relationship between the two variables and perceived trust in e-commerce adoption. Perceived ease of use has the highest contribution to perceived trust among perceived usefulness, which is (β =.324). Perceived usefulness also significantly and positively contributed to the perceived trust (PT) (β =.307) which is suitable and assistance with previous research findings conducted. Perceived ease of use specifically enhanced perceived trust in e-commerce [29]. This essentially implies perceived ease of use supports owners/managers to use an online business. Thus, they noticed that e-commerce technologies can assist in completing their business transactions faster, easy to use, easy to discover how you can perform it, easy to enhance skilled at practicing it, and moreover, it is versatile to work together with. [29] also discovered that perceived usefulness directly enhanced perceived trust in e-commerce. They realized that e-commerce technologies are able in making the company transactions faster, improves the overall performance, improves the service quality, and additionally contribute a beneficial service since it seems that perceived usefulness affect perceived trust in e-commerce.

This study also checks out the effect of perceived trust on intention to use e-commerce technology among ICT SMEs sector. The result supports the hypotheses of intention to use for e-commerce within ICT SMEs owner/managers. Perceived trust in e-commerce had a strong positive relationship with the intention to use for e-commerce ($\beta = 36.7$, p <.002), that is suitable and support with previous research findings conducted by [32], [38], and [31]. They discovered that perceived trust in e-commerce positively affected intention to use. Therefore, higher levels of perceived trust in e-commerce were related to greater intention to use of e-commerce technology.

Therefore, this study proposes that Uganda ICT SMEs owner/managers could practice and employ these factors when they are applying ecommerce technologies.

6. CONCLUSION

This study highlighted that the developed model can help ICT SMEs managers/owners in making decisions for e-commerce technology adoption. Combined with existing material flow adoption models, it is expected that the result of this study may be used by managers/owners in making an effective and holistic choice pertaining. Also, this study attempted the gap in previous research through its investigation perceived trust factor as information technology adoption factors that influence owners/managers to adopt ecommerce technology in ICT SMEs sector within the context of Uganda as one of the developing countries.

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The implications of utilizing e-commerce adoption model based on perceived ease of use (PEU), perceived usefulness (PU), perceived trust (PT) and intention to use (ITU) factors will indorse the implementation of e-commerce and improve the organizational performance in SMEs sector in Uganda or other developing countries with the same conditions.

7. LIMITATION AND FUTURE RESEARCH

However, the study was constrained to ICT sector SMEs; thus, the conclusions drawn from this research might have a possible situation on generalizability. Hence, the findings of this study may not apply to SMEs operating in different sectors. Therefore, future research would conduct the study in different sectors taking the number of samples based on SMEs-population.

The developed model and the results are limited to small and medium-sized organizations, particularly for Uganda SMEs. A model developed for an industry in a particular country may not be suitable for application in another country but provides a guideline for such a study and the model. Nevertheless, the current study could be replicated in the other African or developing countries and the result could be compared too. The participants in the current study were owners/managers of ICT SME. This trend was indicated by most previous studies, arguing that the decision makers who have the most impact in such projects are the owner/managers of SMEs, therefore, this limitation can be resolved by focusing in the future studies on the participants who have an impact on the implementation of the policy makers and could help better predict the adoption of e-commerce technology.

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