

# An Empirical Analysis of the E-Commerce Adoption Constraints in International Trade among SMEs in Ghana

Anthony Akai Acheampong Otoo<sup>1</sup>, Li Zhiwen<sup>1</sup>, Charles Oduro Acheampong Otoo<sup>1</sup>, Maxwell Opuni Antwi<sup>1</sup>

<sup>1</sup>School of Management, Jiangsu University, 301 Xuefu Road, Zhenjiang, Jiangsu, P.R. China

## ABSTRACT

A number of studies indicate that SMEs are actively looking for suitable solutions and methods of adopting and integrating e-commerce into their business processes. Although there is a growing body of literature dedicated to the analysis of the technical and operational aspect of e-commerce, little empirical research exists on topics relating to the factors that would lead to the successful adoption of this emerging technological innovation and business practice. Similarly, little empirical research has been conducted to examine the success of e-commerce in light of the diversity of the organisational, environmental, and technological factors obtained amongst youth of Ghana and SMEs. This study explores the E-Commerce Adoption Constraints in International Trade among SMEs in Ghana study was further based on the fact that despite the huge potential benefits of SMEs from the adoption of new technology, there is evidence of slow uptake. Results of this study would show that social influence, perceived awareness and experience. Meanwhile facilitating factors does not have direct relationship with the behavioral intention of adopting e-commerce) as suggested by the previous model however, an indirect relationship exist between experience and intention to adopt e-commerce was established.

**Keywords:** International, E-Commerce, Ghana, Barriers, Stakeholders, Model

## INTRODUCTION

Several organizations in the world have embraced electronic ways of doing business. Electronic commerce (EC) growth is rapid and taking place in a lot of directions that learned people in e-commerce are at a loss to find already established business approaches for comparison (Bingi et. al. 2000). The way of transacting business and meeting the expanding demands of buyers for many institutions have been changed by ICT (Boateng and Molla, 2006). E-commerce provides institutions and people the ability to conduct business anywhere and anytime at an affordable cost (Bingi et. al., 2000).

E-commerce and IT are largely utilized in the transformation of transaction processes and creation of new business deals. New and creative opportunities for supply chain management are the result of introduction of applications of internet

business-to-business (Da Silveira and Cagliano, 2006). Various institutions are shifting to e-business with the fast growth of technology in Ghana presently. This also due to the relevance that e-business inculcates into organizational services. The competitive edge of the organization is eventually strengthened (Wiengarten, Humphreys and McKittrick, 2013).

E-business is the fusion of communication technologies with management practices and business techniques via the internet (Turban et al., 2004). Customer needs resulting in customization of products and adoption of product-market solutions are comprehended by firms (Bordonaba et al, 2012). A major advantage of fusing electronic activities in a business is the less difficulty in expressing oneself. It is possible for firms to ensure improvement on the information of marketplace (Boadi et al., 2007).

When timely access to information is obtained by firms, there could be closer facilitation of relationships between customers and traders. A lot of strategic advantages which includes improved satisfaction, reputation and decision making are facilitated by e-business, particularly in critical times (Boadi, Boateng, Hinson and Opoku (2007).

E-commerce was defined by Kalakota and Whinston (1997) as a means of transacting business over the internet. It is not only a creation but a combination of creativities (Prescott and Conger, 1998; Van Slyke, 1997; White et al., 1998). Institutions however have the mandate to choose the kind of e-commerce to be adopted as they are often guided by the perceptions of authors (Frank, 1998; Dosi, 1998). Research that have already been conducted show that online appraisal functions significantly in shopping behavior of consumers (Yin et al., 2014; Mudambi and Schuff, 2010; Zhang et al., 2014). A major advantage of engaging in online business is that it helps to review assistance to obtain information of future customers and also to decrease uncertainties (Dellarocas, 2003). Despite the fact that there is wide recognition of importance of online assessment, there are very few studies on whether online evaluation drives customers to develop impulse buying over the internet or how such people develop the attitude to buy impulsely over the internet. Impulse purchase is the sudden or unplanned purchase behavior of people. This has led to much attention in offline and online contexts of research (Mohan et al., 2013, Hostler et al., 2011).

Most businesses engage in commercial activities over the internet, hence the internet is used as a means of conducting business in this computer age (Corbitta et al., 2003). A major characteristic attributed to online shopping could be impulsive buying. Impulsive buying could be said to be one of the characteristics associated with online shopping which reflect tendencies to act on felt urges with unconsciousness and sudden urges to do on the spot buying (Liu et al 2013). Online shopping is known to present an untouched platform for behaving impulsively when it is compared to traditional strategies (Liu et al 2013). Buying impulsively is a purchase behavior that is not planned (Mohan et al., 2013).

Customers often purchase products online without planning after exposure to price promotion and attractive appearance of products. Buying impulsively is viewed to be grouped into 3 main features which includes unplanned. Decided on the spot and result of an exposure to a stimulus (Piron, 1991). This attitude of buying is common in online settings, especially among internet shoppers, and also common in built stores (Donthu and Garcia, 1999).

An estimation made by Hausman (2000) was that, about 30–50% of all retail sales originate from impulsive attitude of buyers while about 90% of customers render impulsive purchasing an occasional event. He went further to say that 40% of all money that is spent on sites that engage in e-commerce is associated with purchasing impulsively (Verhagen, 2013).

In conventional offline frameworks, earlier study shows that social factors can be vital movers affecting impulse behavior of consumers (Luo, 2005). Impulse buying is increased when people shop with friends and colleagues. Social influence is known to play an important role in offline impulse purchase (Cheng et al., 2013). Scientifically, it has been proven that oral discussions over the internet directly influences customer decision making (Cheung and Thadani, 2012; Blazevic et al., 2013). In light of this, there is therefore the need to ensure an examination of the influence of online evaluation in perspectives of impulse behavior.

Impulsive attitude is usually perceived to be a negative practice and an abnormal one other than planned purchase. Certain benefits like emotion contentment is achieved by buying impulsively. A realistic and conscious buying can however be viewed as a duty (Beatty and Ferrell, 1998).

Many people in academia have produced a wide range of thoughts to impulsiveness of buyer behavior in the angles of traditional purchasing and online shopping (Wells *et al.* (2011). Hence transacting business online is affected by behavior which adds to the notion of buying products over the internet (Zhang *et al.*, 2006). Nonetheless, willingness to conduct business impulsively is an absurd feeling which can be expressed as a motive to purchase on impulse. According to Beatty and Ferrell (1998), when consumers buy, they are sometimes irrational. They do not know whether they need the item or do not. This eventually results in impulsive buying behavior (Verhagen and Van Dolen, 2011). This kind of behavior is related to purchase that is done without thinking as well as that which is conducted with strong emotions backing it (Rook, 1987).

E-commerce advancements is dependent on progress of websites. This is because websites are the proper media for conducting e-commerce activities. The growth of the number of websites across the world is strong sign of e-commerce transaction. As at 2004, over 51, 635, 000 websites existed globally (I-Ways, 2005). An important antecedent to the triumph of e-commerce is ardent interaction of internet actions by a lot of people. Usage of the internet is prevalent among developed nations. Due to this, there is much

influence of internet on third world countries (UNCTAD, 2004).

E-readiness forms the ability of countries to create, accept, strew and utilize a number of constituents of economy that is networked. E-readiness survey is now a strong yardstick for nations who yearn to explore the ability to make their business active (Lane et al., 2004). Elements of e-readiness include, business environment, legal and policy environment, connectivity and technology infrastructure, consumer and business adoption, supporting e-services and social and cultural infrastructure (Economist Intelligence Unit, 2006).

E-readiness is low in African countries (Mutula and Brakel, 2006). Dada (2006) arrived at a conclusion that procedures of e-readiness focus on the broad society while discarding the level of organizations. Adoption of e-commerce is largely affected by factors of companies other than those of the environment. The number of people who patronize products online are rising quickly, thus, profits of e-tailors are steadily moving rapidly. Since e-commerce provides a wider range of chances with higher opportunities, there are 24hour chances for a customer to continue accessing online products (Kim, 2002). There is no limitation in e-commerce as there is in conventional shopping (LaRose, 2001). There are no hardships and no pressure of delivery in engaging in e-commerce. This therefore encourages consumers to act impulsively (Verhagen and Van Dolen, 2011). Currently, purchasing online has received attention. Considerable studies in academia have been conducted to identify online impulsive buying behavior (Dawson and Kim, 2009; Verhagen and Van Dolen, 2011; Wells et al., 2011; Park et al., 2012). Some studies have resulted in accepting that emotions dominate process and behavior of buying impulsively (Yu and Bastin, 2010). The reasons that influence buying impulsively include marginal need for product, low price, emotions and spontaneous behavior. When this happens, the individual does not consider financial consequences (Stern, 1962; Sharma et al., 2010). Impulsiveness is a fundamental trait of humans despite the fact that, a shopping environment is used frequently to determine impulse buying (Silvera et al. 2008). Buying impulsively is a fundamental feature of customers (Rook and Fisher, 1995). There is also strong proof that shows that tendency of consumers to buy on impulse varies from person to person (Dittmar and Drury, 2000; Hausman, 2000; Verplanken and Herabadi, 2001). The relevance of electronic business in third world countries like Ghana cannot be underestimated. E-commerce is a beneficial development instrument which has been largely acknowledged as a revolution

for conducting business across the globe (Saffu et. al., 2007). Development of e-commerce is growing at a rapid rate in Ghana, with a lot of businesses migrating gradually to online platforms. This is however because companies aim to be firm-specific. Businesses generally move from offline to online businesses in order to facilitate business process. Customers make unplanned purchases on the internet sometimes. It is therefore the interest of the researcher to identify the reasons for impulsive buying behavior among people in Ghana. Companies must be interested in comprehending the roles of online reviews and browsing behavior in ensuring contribution to impulsive buying behavior. We specifically address the question relating to the barriers and constraints in International Trade among SMEs in Ghana. In the remaining sections of the paper, we explain the methodology of the research and then follow it up with the analytical process and conclusions of the research.

## **METHODOLOGY**

This study incorporated a purposive sampling procedure to select a sample that represents the intended population. A purposive sampling procedure involves the hand-picking of SMEs on the basis of certain specific characteristics in Ghana. In recognition that purposive samples are not easily defensible as being representative of populations due to the potential subjectivity of researcher, the study saw it fit to entertain a snowball sampling procedure where initial subjects with desired traits or characteristics provide names of further appropriate subjects. This provides for a reasonable counterbalance on the potential subjectivity of the researcher from the earlier sampling technique. According to Watson (2001), an appropriate sample size is based on a number of accuracy factors brought about in a five step process: 1.) Determine goals, attributes or concepts to be measured and estimate the size of population; 2.) Determine desired Precision of results as would be informed by the accepted margin of error. In this study, a  $\pm 3\%$  would be as the accepted margin of error; 3.) Determine the confidence level though a 95% level is the standard for most social sciences. This level corresponds to a value of 1.96 in a two tailed z - score tables of standard normal probabilities. This two tailed test allows for the possibility that a difference may occur in either direction; 4.) Estimate the degree of variability in terms of how the attribute or concept being measured is distributed in the population. Mobile telephony penetration rates provide an insight into the degree of distribution of ICTs as it accommodates the most youth at about 86%; and

finally 5.) Estimate the Response Rate. This is critical in the readjustment of the base sample size to accommodate the potential non-responses. The response rate would be informed by previous studies undertaken within Nakuru County by T. Oyugi (2012) and L. Muchiri (2010).

Chaleunvong (2009) opined that data-collection techniques allow us to systematically collect information about the subjects of study (people, objects, phenomena) and about the settings in which they occur. In the conduct of this study, two major instruments of data collection were used: written questionnaires and interviews. A written questionnaire (also referred to as self-administered questionnaire) is a data collection tool in which written questions are presented that are to be answered by the respondents in written form. These written questionnaires shall be administered to respondents via hand-delivery and collect them later. Questionnaires, incorporating both open-ended and closed-ended questions items were used to gather the necessary data to conduct this study. According to Cooper and Emory (2008), the questionnaire is conveniently used because it is cheaper and quicker to administer, it is above researcher's effect and variability, and is highly convenient for the respondents as they could fill them during free times or when workloads are manageable. Also incorporated in the data collection instruments is a Likert scales to measure perception, attitude, values and awareness. A quantitative researcher attempts to delimit phenomena into measurable or common categories that can be applied to all of the subjects in the wider population (Winter, 2000). In these attempts, Patton (2001) postulates that the researcher's methods involve the "use of standardized measures so that the varying perspectives and experiences of people can be fit into a limited number of predetermined response categories to which numbers are assigned". Thus, a quantitative researcher needs to construct an instrument to be administered in a standardized manner according to predetermined procedures. But the question remains as to whether the measuring instruments measures what they are supposed to measure in order to ensure the replicability of the results. This brings into focus the pertinent need to devise a test that checks the validity and reliability of the instruments of data collection. Validity of the findings is defined as to the extent to which data collection methods

accurately measure what is intended to measure (Saunders et. al., 2003). There are two major forms: external and internal validity. There are a number of steps taken to ensure the validity of the study: Data

was collected from reliable sources, and from respondents who have at one time or more interacted with the ICTs and electronic commerce applications at the commercial/ transactional level in business. Questionnaires were pre-tested by six managers of SMEs who are successfully in Ghana. The six were also taken through the interview schedule to reliably gauge the relevance of the questions there-in in capturing the information pertinent to this study. The pre testing mechanisms and peer reviews of the questionnaires and interview schedule allowed for the refinement of said instruments before use in the actual study. Data was collected throughout a period of four weeks; a short frame is deemed critica during that period.

## RESULTS

### Hypothesis

Hypothesis	Relationship Tested	Results
H1	Social Influence is positively related to intention toward using e-commerce	Null hypothesis is Supported (p>.05)
H2	Voluntariness of Use is positively related to intention toward using e-commerce	Alternate hypothesis is Supported (p<.05)
H3	Perceived Benefit is positively related to intention toward using e-commerce	Alternate hypothesis is Supported (p<.05)
H4	Perceived Challenges is positively related to intention toward using e-commerce	Alternate hypothesis is Supported (p<.05)
H5	Perceived awareness/education is positively related to intention toward using e-commerce	Null hypothesis is Supported (p>.05)
H6	Performance Expectancy is positively related to intention toward using e-commerce	Alternate hypothesis is Supported (p<.05)
H7	Experience is positively related to intention toward using e-commerce	Null hypothesis is Supported (p>.05)
H8	Experience is positively related to Voluntariness of Use	Alternate hypothesis is Supported (p<.05)

Source: Author

### Confirmatory Analysis

The confirmatory test for Convergent validity and Discriminant validity results obtained from the data constructs are summarized in the tables below:

Convergent Validity	(EAS)	(VU)	(PB)	(SI)	(PE)	(PC)
$AVE = \frac{\sum \lambda_i^2}{N}$ Value>.5	.602	.596	.588	.495	.564	.683
$CR = \frac{\sum (\lambda_i)^2}{(\sum (\lambda_i)^2 + \sum \delta)}$ Value>.7	.882	.898	.811	.740	.864	.915
Convergent Validity	Established	Established	Established	Partial	Established	Established

### Convergent Validity

Source: by the author

From table 4.9 above, it can be seen that our constructs do in fact have convergence validity except for social influence (SI) which is slightly below the minimum in the average variance extracted (AVE).

### Discriminant Validity

Construct Correlation	Factor Correlation	Correlation Squared	AVE 1 (AVEs be>r <sup>2</sup> )	AVE 2 should	Discriminant Validity
EAS <-> VU	.738	.544	.602	.596	Established
EAS <-> PC	.364	.132	.602	.683	Established
EAS <-> SI	.360	.130	.602	.495	Established
EAS <-> PE	.537	.288	.602	.564	Established
PB <-> EAS	.493	.243	.588	.602	Established
VU <-> PC	.328	.146	.596	.683	Established
VU <-> SI	.395	.156	.596	.495	Established
VU <-> PE	.505	.255	.596	.564	Established
PB <-> VU	.590	.348	.683	.596	Established
PC <-> SI	.334	.112	.683	.495	Established
PC <-> PE	.444	.197	.683	.564	Established
PB <-> PC	.341	.116	.588	.683	Established
SI <-> PE	.521	.271	.495	.564	Established
PB <-> SI	.774	.599	.588	.495	Failed
PB <-> PE	.704	.496	.588	.564	Established

Source: Author

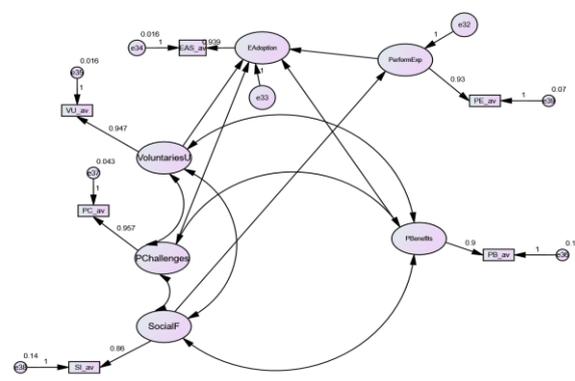
It can be seen from table 4.10 that the discriminant validity is good in other words apart from the context of PB <-> SI, there was no violation of discriminant validity. That is, both AVE estimates have to be greater than the shared variance estimate, not the average of the AVE estimates, as argued by (Bove et al. 2009). Hence, the (PB) latent variable ( $\xi_1$ ) explains more of the variance in observed variable items Q46, Q56 and Q52 than the (SI) latent variable ( $\xi_2$ ), despite the fact that Q46, Q56 and Q52 are supposed to be measures of (SI) (not (PB)).

### Model Identification – Composite Scale indicators

Convergent Validity	(EAS)	(VU)	(PB)	(SI)	(PE)	(PC)
CR	.882	.898	.811	.740	.864	.915
Factor Loadings $\sqrt{(CR)}$	.939	.947	.900	.860	.930	.957
Error Variance (1-CR)	.016	.053	.100	.140	.070	.043

Source: Author

### The Composite model and their loadings with covariance suggestions



Source: by Author

The composite model modifications however caused only slight changes in the model fit indices so there seem to be no significance in the two measures.

CMIN	GF I	NF I	RM R	CF I	TL I	RMSE A
185.727	.901	.809	.101	.811	.290	.173

Source: Author

Some of the model fit indices obtained as shown in the table 4.12 above includes Normed Fit Index (NFI), Goodness of Fit Index (GFI), root mean square residual (RMR) , Non-Normed Fit Index (NNFI, also known as TLI (Tucker–Lewis index)), Incremental Fit Index (IFI), and root mean square error of approximation (RMSEA). Hu and Bentler (1999) suggested that for continuous data—RMSEA < .06, TLI > .95, CFI > .95, NFI > .90 and standard root mean square residual (SRMR) < .08. It appears only GFI, NFI is a good fit (Hair et al. (2010)) even NFI > .90 is satisfactory and SRMR are good fits and however our RMSEA, CMIN, TLI and CFI are less than the minimum limits.

### CONCLUSIONS

In this research, we proposed a framework for defining and describing the adoption of e-commerce using the survey method. This framework will prove important and useful to organizations and individuals that are using or considering using e-commerce. This paper investigated the model and proposed an adaptation particularly with regards to the e-commerce in Ghana. Results of reliability test in exploratory analysis of the model in this study shows that all constructs are reliable and adequate. This is indicated by their Cronbach’s-alpha values ranging from 0.729 of Social Influence to 0.912 of Perceived Challenges. The values for the factor loadings on each of the constructs was higher than our set recommended benchmark of 0.6 and also in the reliability test on the constructs. Following results from the regression analysis, the study concluded that Voluntariness of Use (VU), Perceived Challenges (PC), Social Influence (SI), Performance Expectancy (PE), Perceived Awareness (PA), Experience (E), and Perceived Benefits (PB) affect e-commerce adoption in different ways.

The study found out that Social influence, Perceived Awareness and Experience (as our objective one (Facilitating factors) does not have direct relationship with the behavioral intention of adopting e-commerce) as suggested by the previous model (fig. 1). However, an indirect relationship between Experience and intention to adopt e-commerce was established. Also, significant positive relationship can be seen between Voluntariness of Use (VU) [as a

main measure of impulse buying influence], Perceived Benefit (PB), Performance Expectancy (PE) and Perceived Challenges (PC) in influencing e-commerce adoption in Ghana. Results of the regression analysis have only 44% supported for the model. This is a reasonable support for the model. Perceived Awareness (PA) and Experience (E) have been excluded from the structural equation modelling with Amos due to their very poor contribution to the default model. Validity test in confirmatory analysis (CFA) and structural equation modelling (SEM) shows that the Social Influence failed to achieve the minimum threshold for AVE in the measure of convergent validity and also the variance between Perceived Benefit and Social Influence also fell below the minimum required in their measure for discriminant validity. However, Voluntariness of Use (VU), Perceived Benefit (PB), Performance Expectancy (PE) and Perceived Challenges (PC) showed very good validity results both convergent and discriminant validity test. These also confirms their similar influence on e-commerce adoption as obtained from exploratory factor analysis (EFA). Hence we conclude that Voluntariness of Use (VU), Perceived Benefit (PB), Performance Expectancy (PE) and Perceived Challenges (PC) have positive influence on intentions to adopt e-commerce in Ghana.

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