

## Review

# A conceptual framework of a modified unified theory of acceptance and use of technology (UTAUT) Model with Nigerian factors in E-commerce adoption

Chiemeké S.C.<sup>1</sup> and Ewwiekpaefe A. E.<sup>2\*</sup>

<sup>1</sup>Department of Computer Science, University of Benin, Benin City, Nigeria.

<sup>2</sup>Department of Mathematics/Computer Science, Nigerian Defense Academy, Kaduna, Nigeria

Accepted 19 November, 2011

The conduct of business has advanced from the 'trade by barter' days through the 'commodity money' era to a 'cashless or digital' epoch referred to as electronic commerce (e-commerce) (Ovia, 2008). Nigeria is a country highly dependent on cash for its transactions. Internet utilization is at its infancy in Nigeria despite the liberation of the telecommunication sub-sector in the 1990's. Moreover, there is insufficient research in e-commerce on developing countries like Nigeria and limited understanding of the underlying factors that affect its adoption. Hence, in this paper we propose a conceptual framework of a modified Unified Theory of Acceptance and Use of Technology (UTAUT) model with Nigerian factors towards user adoption of e-commerce in Nigeria. However, the paper's approach is based on an in-depth literature review.

**Keywords:** Adoption, E-commerce, framework, Nigeria, unified theory of acceptance and use of technology (UTAUT) model.

## INTRODUCTION

Advances in Information and Communications Technology (ICT) and the emergence of the internet have revolutionized business activities across the globe (Ovia, 2008). In the early 1990s, the business and consumer world encountered a new way of conducting business, which was named *electronic commerce* (e-commerce). E-commerce refers to the use of communications technology particularly the Internet to buy, sell and market goods and services to customers (Mohammad et al, 2004).

According to Adeyeye (2008) e-commerce is a global trend and can be a viable source of economic reform in a nation. It is an act of conducting transaction via electronic medium. Such electronic media can be TV, Fax, or the internet. With the unraveling evolution of Global System for Mobile Communications (GSM) in Nigeria, e-commerce brings another untapped method of commerce

via mobile devices called m-commerce. Despite these technologies, there are many substandard payment methods in Nigeria with crude ways of handling security issues like authentication and non-repudiation. Nigeria, a third world country is leaving no stone unturned to make life easier and more comfortable in this electronic age. Though developed countries are on the verge of conducting e-commerce securely and comfortably, Nigeria is absorbing techniques involved either by espionage, knowledge transfer or other means. Hence, the need for ensuring effectiveness, awareness among inhabitants, and security of resources involved must be taken into account (Adeyeye, 2008).

In Nigeria, the road to socio-political, economic, and technological development started after the year 1999. The year marked the debut of democratic rule after long years of military dictatorship, characterized by lack of vision, economic depression, looting and inadequate infrastructural development (Ayo et al., 2008). However, electronic banking is one area of e-commerce that has proven successful in Nigeria. Virtually all banks in Nigeria

---

\*Corresponding Author E-mail: [contact\\_abraham@yahoo.com](mailto:contact_abraham@yahoo.com)

offer online, real-time banking services (Economist Intelligence Unit, 2006). Also, the Automatic Teller Machine (ATM) is the most widely used medium of e-payment in Nigeria, which is not very suitable for e-commerce implementation (Ayo et al., 2008).

Moreover, despite the global reach of e-commerce, not all countries have taken advantage of or benefited from e-commerce. There is a big gap in internet and e-commerce adoption between the developed and developing countries (Licker and Motts, 2000); thus creating a digital divide. The main obstacles that prevent developing countries like Nigeria from leveraging the internet are lack of adequate communication infrastructure, technical know-how, and information processing about the economy and environment (Aghaunor and Fotoh, 2006).

Also, Efendioglu et al (2005) noted that differing characteristics of local environments, both infrastructural and socio-economic, have created a significant level of variation in the acceptance and growth of e-commerce in different regions of the world. Their findings show that, even though a developing country government may make the necessary investments in infrastructure (as China has done to a significant degree), unless the e-commerce industry participants understand and address the cultural issues that are unique to that country and relate to off-site transactional process, the large scale diffusion and success of such endeavors will be greatly impeded.

According to Kofi Annan, countries that fail to adopt e-commerce run the risk of being bypassed in social and economic development. E-commerce adoption has been, at the best, sporadic in the developing world. In 2002, while developed countries contributed towards 95% of e-commerce, Africa and Latin America accounted for less than even 1% (UNCTAD, 2002; Datta, 2010). Understanding e-commerce adoption in the developing world has been challenging at the very least (Straub et al., 1997) and often reliant on individual adopters of e-commerce technologies (complementing country-specific factors) observing that for e-commerce technologies to aid development, they must be adopted and practiced in developing countries (Datta, 2010).

Therefore, this paper proposes a conceptual framework based on a modified Venkatesh et al. (2003) Unified Theory of Acceptance and Use of Technology (UTAUT) Model with Nigerian factors to examine individual adoption of e-commerce in Nigeria.

## Theoretical Background

E-commerce is still a new concept to developing countries like Nigeria despite the fact that e-commerce has been around for some time (Aghaunor and Fotoh, 2006). The UTAUT model, an improved TAM model, suggests that when users are presented with a new technology, a number of factors influence their decision

about how and when they will use it (Moosdijk, 2008).

Also, the objective of this research is to investigate individual adoption (or acceptance) of e-commerce in Nigeria. The UTAUT Model proposed by Venkatesh et al., (2003), incorporates eight famous Models/Theories in the diverse discipline. The idea behind the unifications of these Models/Theories is to arrive at the unified view of user acceptance of e-commerce in Nigeria (Venkatesh et al., 2003; Abdulwahab and Dahalin, 2010).

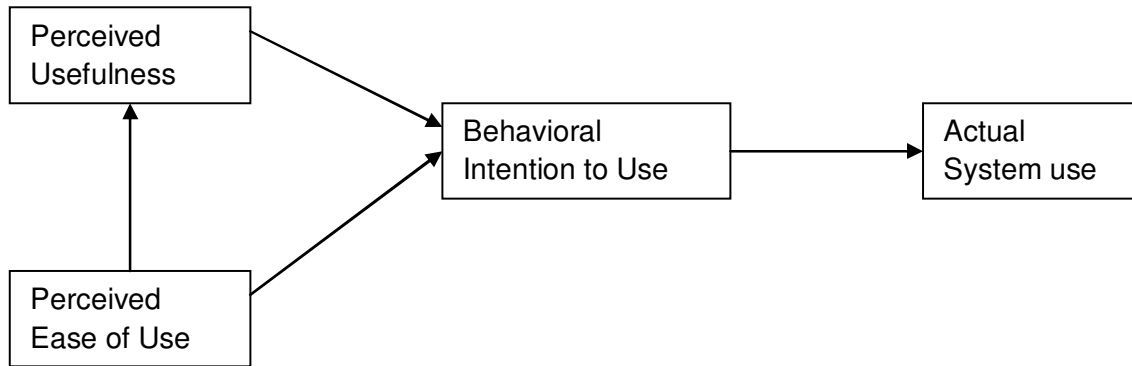
A lot of literature exists in understanding technology acceptance in general (Abdulwahab and Dahalin, 2010), but there is limited research on e-commerce in developing countries particularly in Africa and Nigeria with a population of about 150 million is a potentially lucrative market for e-commerce services (Aghaunor and Fotoh, 2006).

## The Unified Theory of Acceptance and use of Technology (UTAUT) Model

A number of theoretical models have been proposed to facilitate the understanding of factors imparting the acceptance of information technologies (Davis, 1989; Chau, 1996; Venkatesh and Davis, 2000). Among these models, the Technology Acceptance Model (TAM) is one of the most influential and robust in explaining information Technology(IT)/ Information System(IS) adoption behavior (Marchewka, Liu and Kostiwka, 2007). Also, with regard to the study of "technology acceptance behavior", TAM mainly offers a basic framework so as to explain the influence of external variables towards behavioral idea (Davis, 1989). Technology Acceptance Model (TAM) was initially developed by Davis to provide an explanation of the determinants of computer acceptance. In general it is capable of explaining user behavior across a broad range of end-user computing technologies and user populations theoretically justified (Davis, 1989). TAM is based on the following core concepts:

- Perceived usefulness, which has been defined as a user's subjective perception of the ability of a computer to increase job performance when completing a task, and
- Perceived ease-of-use, which is a person's subjective perception of the effortlessness of a computer system, which affects the perceived usefulness thus having an indirect effect on a user's technology acceptance. See figure 1.

Venkatesh, et al (2003) developed the Unified Theory of Acceptance and Use of Technology (UTAUT) model to consolidate previous TAM related studies. The UTAUT aims to explain user intentions to use an IS and subsequent usage behavior. The theory holds that four key constructs (performance expectancy, effort expectancy, social influence, and facilitating conditions) are direct determinants of usage intention and behaviour (Venkatesh et al., 2003). Gender, age, experience, and voluntariness of use are posited to mediate the impact of



**Figure 1.** Technology acceptance Model (TAM)  
**Sources:** Davis(1989), Venkatesh et al. (2003)

the four key constructs on usage intention and behavior (Venkatesh et al., 2003). The theory was developed through a review and consolidation of the constructs of eight models that earlier research had employed to explain IS usage behaviour. The eight models are Technology Acceptance Model (TAM) (Davis, 1989; Davis, Bagozzi and Warshaw, 1989) Innovation Diffusion Theory (IDT) (Rogers, 1995) the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975) the Motivation Model (MM) (Davis, Bagozzi and Warshaw, 1992) the Theory of Planned Behavior (TPB) (Ajzen, 1991); the Combined TAM and TPB (Taylor and Todd 1995); the Model of PC Utilization (MPCU) (Thompson, Higgins and Howell 1991; Triandis 1977); and Social Cognitive Theory (Bandura 1986; Compeau and Higgins, 1995; Compeau, Higgins and Huff, 1999). Subsequent validation of UTAUT in a longitudinal study found it to account for 70% of the variance in usage intention (Venkatesh et al., 2003). Thus making the UTAUT model a broad, robust and powerful model in information System (IS) adoption.

### **Factors of Unified Theory of Acceptance and use of Technology (UTAUT)**

#### **Performance expectancy**

Performance expectancy is defined as the “degree to which an individual believes that using e-commerce will help him or her attain gains in job performance” (Venkatesh et al. 2003). Many users of electronic think that the new system is troublesome and is not helping individuals to improve their performance. Performance expectancy is adapted from the UTAUT model (Venkatesh et al., 2003; Davis, 1989; Compeau and Higgins, 1995; Wang, 2003; Chang et al., 2005; Hung et al., 2006; Gefen and Straub 2000; Jack et al., 2007; Kholoud, 2009).

#### **Effort expectancy**

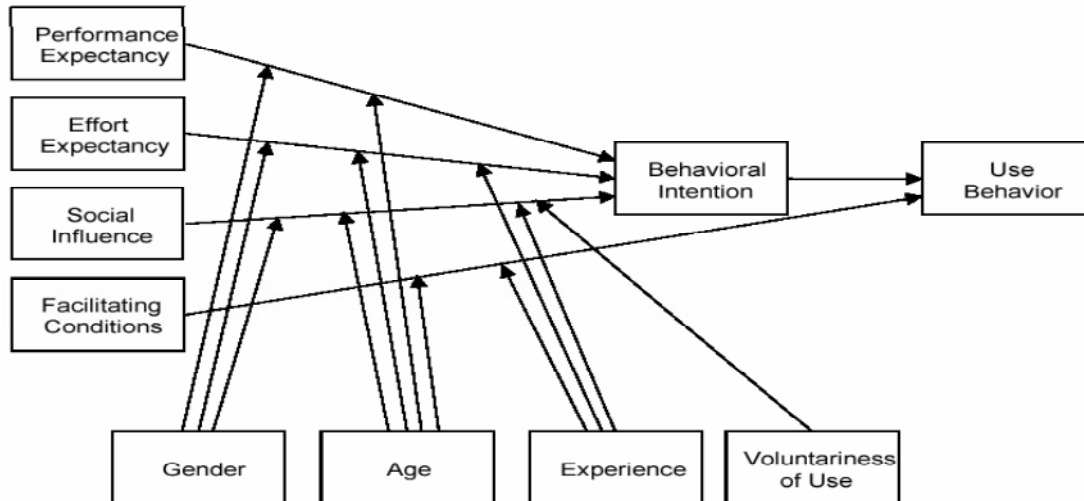
Effort expectancy is defined as the degree of ease associated with the use of e-commerce. This factor refers to the perceived amount of effort that the user needs to put to learn and operate e-commerce. Effort expectancy has been adopted from the UTAUT model (Venkatesh et al., 2003; Davis, 1989; Compeau and Higgins, 1995; Wang, 2003; Chang et al., 2005; Hung et al., 2006; Fu et al., 2004; Gefen and Straub, 2000; Jack et al., 2007; Kholoud, 2009).

#### **Social influence**

This factor is defined as the degree to which an individual perceives that important others (such as bosses, peers, subordinate, etc.) believe that he or she should use e-commerce. Social influence construct has been used in UTAUT model (Venkatesh et al., 2003) and model of PC utilization (Thompson, Higgins, and Howell, 1991; Ajzen, 1991; Heintze and Bretschneider, 2000; Ho and Pardo, 2004; LaPorte, Demchak, and de Jong, 2002; Brown and Brudney, 2003; Edmiston, 2003; Holden, Norris, and Fletcher, 2003; Hung et al., 2006; Mahotra and Galletra, 1999; Jack et al., 2007; Kholoud, 2009).

#### **Facilitating conditions**

This is a provision of support for users in terms of computer hardware and software necessary to work on e-commerce, e-commerce compatibility with the other systems and the users who are using e-commerce is also covered. The “facilitating condition” variable has been used in UTAUT model (Venkatesh et al., 2003) and model of PC utilization (Thompson et al., 1991; Hung et al., 2006; Chau and Hu, 2001; Anderson and Schwager,



**Figure 2.** Unified Theory of Acceptance and Use of Technology (UTAUT) Model  
**Source:** Venkatesh et al., (2003)

2004; Klopping and McKinney, 2004; Jack et al., 2007; Kholoud, 2009).

### Nigerian Factors Used to Modify Utaut Model

#### Cultural/Language Factor

There are currently more than 250 ethnic tribes in present-day Nigeria. The three largest and most dominant ethnic groups are the Hausa, Yoruba, and Igbo. English is the official language of Nigeria used in all government interactions and in state-run schools. English is the only language common to most people (Curry, 2010). The dominant indigenous languages of Nigeria are Hausa, Yoruba and Igbo. Pidgin, a mix of African languages and English, also is common throughout southern Nigeria (Curry, 2010). Generally, the internet and e-commerce is text based and usually in English language. This of course, makes language a barrier that could hinder e-commerce adoption if not adequately addressed.

#### Trust/Security

Trust is a willingness to be vulnerable to the actions of another person or people (Mayer et al, 1995). This is based on expectations that the other person will behave in a responsible manner (Pavlou 2003) and will not take advantage of a dependence upon him or her (Gefen and Straub, 2003). Trust is perhaps a critical component in building economic relationships in an online environment such as e-commerce due to a greater perception of risk

and uncertainty. Unless individuals trust the technology, in which this negative possibility will not occur, it is more likely that the technology will not be adopted (Nor, 2007).

Security is defined as the extent to which consumers believe that his or her payment online is free from unauthorized access, use, alteration, and destruction (Olusegun, 2006). This may be due to a higher threat of possible inappropriate behaviors such as security lapses where vital private information can be stolen by hackers (Suh and Han, 2002). The security lapses may result in financial losses to the users or adopters of the technology. Nigeria, from the survey conducted for Cyber Source Corps (Nasdaq:CYBS), was chosen as the country posing the highest risk of online fraud (31%). From these, many Nigerians believe that their credit card information is not secured on internet (Olusegun, 2006)

#### Cost

Cost is used to describe charge of the e-commerce services to users via transactional charges and savings derived from e-commerce efficiencies, financial incentives, etc. The cost of a transaction in an e-commerce system, to both the customer and the merchant, should be low, especially if micro payments are supported. The transaction cost should be very inexpensive and should depend on the number of transactions being made. Also, many Nigerians believe that the cost of implementing e-commerce (internet connection) is too high (Olusegun, 2006). Where available, the cost of ICT is a critical factor relative to per capital income. This makes the cost of entry higher compared to developed countries (Dankwambo, 2009).

### **Public education and awareness**

Awareness is defined as the state of consciousness or quality of being aware of a product, brand name, company, new concept or trademark. In Nigeria there is also the issue of awareness, because the e-commerce is still new, the needed awareness is not there. Out of 140 million Nigerians, how many have cards? The acceptability deserves to be a function of education, people need to be educated on how to use it. (IT News Africa, 2009). Also The Economist Intelligence Unit, 2006 noted that the introduction of e-commerce services is hampered by a lack of public awareness on how to use the technologies. GSM phone technology (introduced in August 2001), however, is gradually drawing consumers, and there has been a rapid growth in electronic-cash-transfer services such as Western Union, Moneygram and Travelex in recent years.

### **Reliability**

This refers to individuals' perception of the ability of e-commerce to perform its required functions as stated without failures (Gholami and Ogun, 2009). Also, there is the ability of company to rely on the transfer of its confidential and critical data over the internet, these can be caused by the existence of outdated web server or application that were not carefully installed initially (Soliman and Janz, 2004 cited in Olusegun 2006). Nigeria as a developing country still suffer from good communication network (Olusegun, 2006)

### **Power Supply**

According to Akintola et al, 2011, the internet is permeating public and commercial transactions in Nigeria with much speed. The study noted that the first priority area is government intervention in ecommerce by solving the problems presently confronting e-commerce in Nigeria. This they observed, can be achieved by government providing regular power supply as no industry can survive either electronic business or the brick and mortar business without adequate power supply. Also, Onyema (2011) observed that Nigeria faces severe problems and hurdles in becoming a part of the global e-commerce experience noting that power supply amongst several other factors have contributed to the underdevelopment of e-commerce in the country.

### **Accessibility**

Olusegun (2006) defined accessibility as the extent to which the needed technology for e-commerce are available for individuals to use. Also, how easy and often

citizens of Nigeria have access to all the technology needed for e-commerce like internet, credit cards, etc.

### **Regulatory and Legal Issues**

Dankwambo (2009) observed the inexistence of proper legal and regulatory framework in the Nigeria's electronic commerce system. As such it is apparent that electronic commerce would be severely hindered without this bill.

### **Control Factors of the UTAUT Model**

Four moderating or control factors—gender, age, experience, and voluntariness of use—were discussed in UTAUT (Venkatesh et al., 2003).

#### **Gender**

Generally, previous studies confirmed that women are more driven by ease of use and subjective norms while men are more driven by usefulness.

#### **Age**

Basically, old users refer to subjective norms more than young users, and are more likely to be driven by ease of use. Young users, however, are more "realistic." Actually, age is considered to moderate almost all the relationships within UTAUT (Venkatesh et al., 2003). The constructs of user acceptance models are different between young and old users considering the influence of age.

#### **Experience**

Effort is expected to be more important in the early stages of new behavior (Mark, 2006). Generally, research has shown that experienced users are driven by usefulness and inexperience users are more likely to pay attention to ease of use. Moreover, after obtaining some experience with the technology, users will turn to explore the benefits of it.

#### **Voluntariness of Use**

Few researchers explore the voluntariness of use. Venkatesh and his colleagues proposed the moderating effect of voluntariness in TAM2 and UTAUT (Venkatesh and Davis, 2000; Venkatesh et al., 2003). This factor deals with the degree to which use of the system is perceived as being voluntary and the users are encouraged to use the system in a non-mandatory

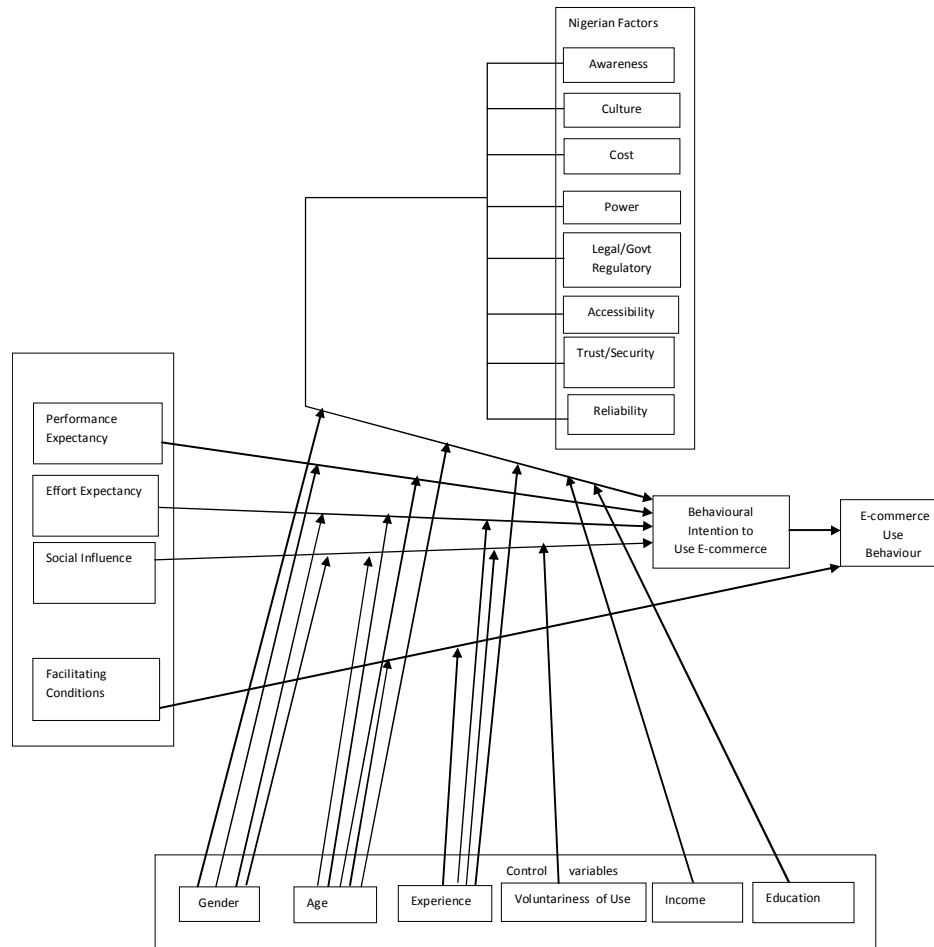


Figure 3. The Proposed Conceptual Framework

environment. Originally this construct was used in innovation diffusion theory (Moore and Benbasat, 1996). Subsequently, Venkatesh et al. (2003) used this construct as a moderating factor for the social influence and behavior intention.

### Additional Control Variables

Jayasingh and Eze (2009) in analyzing the attitude and behavioral intentions of consumers toward m-coupons in Malaysia using an extended technology acceptance model (TAM) used household income as a control variable. According to Kirkman et al., 2002; Kalathil and Boas, 2003; Datta 2010, society-related facilitation defines national adoption behaviour by considering demographics, education and training. Also, the International Telecommunications Union (ITU, 2005) noted that ecommerce adoption is more positive for younger people, especially males, with higher income living in mostly urban areas observing that the educated tech-savvy population in countries such as India,

Argentina, Malaysia, and China has adopted ecommerce technologies faster than the population in countries such as Bolivia, Nigeria, and Bangladesh where skilled technology professionals are few with little or no training and support. Here again income and education are described as strong control variables affecting the adoption of ecommerce in developing countries like Nigeria. Again, Gholami and Ogun (2009) observed that it is a common proposition that age, sex, education levels, occupation and financial income are critical factors that affect the adoption of technology. Based on the reviews above, two additional control variables: *income* and *education* were added to our proposed conceptual model as shown in Figure 3 Above.

### The Proposed Conceptual Framework

A research model based on a modified Venkatesh et al. (2003) Unified Theory of Acceptance and Use of Technology Model (UTAUT) with Nigerian factors is proposed in order to examine the factors affecting

individual acceptance of e-commerce in Nigeria. The research model is designed to test the effects of awareness, culture, cost, power, government regulation, accessibility, trust and security and reliability on intention to adopt e-commerce. See the proposed framework in figure above.

## CONCLUSION

Ecommerce in developing countries especially Africa has not been sufficiently researched (Molla and Licker, 2005; Aghaunor and Fotoh, 2006). Considering this rarity of research in ecommerce especially with the use of the Unified Theory of Acceptance and Use of Technology (UTAUT) model, this paper investigates the UTAUT model and proposed a modification specifically with regards to the Nigerian factors and the need for the integration of these constructs into the UTAUT model in context of e-commerce.

However, the research presented is limited being that, the proposed framework is only based on literature review. The paper simply proposes a conceptual framework for examining user adoption of e-commerce in Nigeria. Consequently, further research would focus on empirical validity and reliability of the conceptual framework.

## REFERENCES

- Abdulwahab L Dahalin ZM (2010). A Conceptual Model of Unified Theory of Acceptance and Use of Technology (UTAUT) Modification with Management Effectiveness and Program Effectiveness in Context of Telecentre. *Afr. Sci.* 11 (4):1595-6881.
- Adeyeye M (2008). "e-Commerce, Business Methods and Evaluation of Payment Methods in Nigeria." *The Electronic Journal Information Systems Evaluation* 11 (1): 1 – 6, available online at [www.ejise.com](http://www.ejise.com).
- Aghaunor L, Fotoh X (2006). "Factors Affecting Ecommerce adoption in Nigerian Banks", Jönköping Int. Bus. School, Jönköping University.
- Ajzen I (1991). Theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2): 179-211.
- Akintola KG, Akinyede RO, Agbonifo CO (2011). Appraising Nigeria Readiness for Ecommerce towards: Achieving Vision 20: 2020. *IJRRAS* 9 (2). Available @ [www.arpapress.com/Volumes/Vol9Issue2/IJRRAS\\_9\\_2\\_18.pdf](http://www.arpapress.com/Volumes/Vol9Issue2/IJRRAS_9_2_18.pdf).
- Anderson JE, Paul HS (2004). SME Adoption of Wireless Lan Technology: Applying The Utaut Model, Proceedings of the 7th Annual Conference of the Southern Association for Information Systems.
- Ayo CK, Adebisi AA, Fatudimu IT, Uyinomen OE (2008). "A framework for e-commerce implementation: Nigeria a Case Study", *Journal of Internet Banking and Commerce*, 13(2) (<http://www.arraydev.com/commerce/jibc/>)
- Bandura A (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Brown MM, Brudney JL (2003). Learning organizations in the public sector? A study of police agencies employing information and technology to advance knowledge. *Public Administration Rev.* 63(1): 30-43.
- Chang IC, Li YC, Hung WF, Hwang HG (2005). An empirical study on the impact of quality antecedents on tax payers' acceptance of Internet tax-filing systems. *Government Information Quarterly*, 22(3): 389-410.
- Chau PYK (1996). An empirical assessment of a modified technology acceptance model. *J. Manage. Information Systems*, 13(2):185-204.
- Chau PYK, Hu PJ (2001). Information technology acceptance by individual professionals: A model comparison approach. *Decision Sci.*, 32(4): 699-719.
- Compeau DR, Higgins CA (1995). Computer Self-Efficacy: Development of a Measure and Initial Test. *MIS Quarterly*, 19: 189-211.
- Compeau D, Higgins CA, Huff S (1999). Social cognitive theory and individual reactions to computing technology: A Longitudinal Study. *MIS Quarterly*; ABI/INFORM Global, 23 (2): 145.
- Daily Trust (2009). "Nigeria: E-payment, E-problem". Available @ [allafrica.com](http://allafrica.com)
- Dankwambo (2009). "Understanding the e-Payment System", Office of the Accountant-General of the Federal, Nigeria 2009.
- Davis FD (1989). "Perceived Usefulness, Perceived Ease Of Use, And User Acceptance of Information Technology", *MIS Quarterly*; 13(3): 319-340.
- Davis FD, Bagozzi RP, Warshaw PR (1989). User Acceptance of Computer Technology: a Comparison of Two Theoretical Models. *Management Sci.* 35(8):982-1003.
- Davis F, Bagozzi R, Warshaw P (1992). "Extrinsic and Intrinsic Motivation to Use Computer in the Workplace" *J. Appl. Social Psychol.* 22: 1111-1132
- Economist Intelligence Unit (2006). "Country Commerce Nigeria".
- Edmiston KD (2003). State and local e-government: Prospects and challenges. *American Review of Public Administration*, 33(1): 20-45.
- Efendioglu AM, Vincent FY, William LM (2005). University of San Francisco "E-Commerce In Developing Countries: Issues And Influences".
- Fishbein M, Ajzen I (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- Folorunso O, Awe OG, Sharma SK, Jeff Z (2006). Factors affecting the adoption of Ecommerce: A study in Nigeria. *J. Appl. Sci.* 6(10): 2224-2230.
- Fu JR, Chao WP, Farn CK (2004). Determinants of taxpayers' adoption of electronic filing methods in Taiwan: An exploratory study. *J. Gov. Infor.* 30(5-6): 658-683.
- Gefen D., and Straub, D. W. (2000). "The Relative Importance of Perceived Ease of Use in IS Adoption : A Study of E-Commerce Adoption, *Journal of the Association for Information Systems*, 1(8), 1-28.
- Gefen D, Straub DW (2003). "The Relative Importance of Perceived Ease of Use in IS Adoption : A Study of E-Commerce Adoption, *J. the Association for Info. Systems*, 1(8): 1-28.
- Heintze T, Bretschneider S (2000). Information technology and restructuring in public organizations: Does adoption of information technology affect organizational structures, communications, and decision-making? *J. Public Admin. Res. and Theory*, 10(4): 801-830.
- Ho J, Pardo TA (2004). Toward the success of e-government initiatives: Mapping known success factors to the design of practical tools. Paper presented at the 37th Hawaii International Conference on System Sciences (HICSS), organized by the College of Business, University of Hawaii at Manoa.
- Holden SH, Norris DF, Fletcher PD (2003). Electronic government at the local level: Progress to date and future issues. *Public Performance and Management Review*, 26(4): 325-344.
- Hung SY, Chang CM, Yu TJ (2006). Determinants of user acceptance of the e-government services: The case of online tax filing and payment system. *Government Information Quarterly*, 23(1): 97-122.
- International Telecommunications Union.(2005). ITU, Annual Report. ITNewsAfrica (2009). IT news, Telecom news and Mobile news from an African perspective. Available @ [www.ITNewsAfrica.com](http://www.ITNewsAfrica.com).
- Jack TM, Chang L, Kurt K (2007). An Application of the UTAUT Model for Understanding Student Perceptions Using Course Management Software, *Communications of the IIMA*. 7 (2).
- Jarno van de M (2009). Acceptance of electronic payment systems. Assignment for the course ICT and Company Practice, part of the master System and Network Engineering of the University of Amsterdam.
- Kalathil S, Boas TC (2003). *Open Networks, Closed Regimes: The Impact of the Internet on Authoritarian Rule*. Carnegie Endowment for International Peace- Washington, DC, USA.

- Khalil Md. N, Michael PJ (2007). "The Influence of Trust on Internet Banking Acceptance", *J. Internet Banking and commerce*, 12(2). Available @ [www.Arraydev.com/commerce/jibc](http://www.Arraydev.com/commerce/jibc).
- Kholoud Ibrahim Al-Qeisi (2009). *Analyzing the Use of UTAUT Model in Explaining an Online Behaviour: Internet Banking Adoption*. A thesis submitted for the degree of Doctor of Philosophy
- Kirkman GS, Osorio CA, Sachs JD (2002). The networked readiness index: measuring the preparedness of nations for the networked world. *The Global Infor. Technol. Report*, 2001–2002.
- LaPorte TM, Demchak CC, de Jong M (2002). Democracy and bureaucracy in the age of the Web: Empirical findings and theoretical speculations. *Admin. and Society*, 34(4): 411-446.
- Licker P, Motts N (2000). Extending the benefits of e-commerce in Africa: Exploratory phase. *Proceedings of the First Annual Conference of the Global IT Management Association*, Memphis, Tennessee, USA, pp. 115-118.
- Malhotra Y, Galletta DF (1999). Extending the Technology Acceptance Model to Account for Social Influence: Theoretical Bases and Empirical Validation. *Proceedings of the 32nd Hawaii Int. Conference on System Sci.*
- Mark JM (2006). *College student's acceptance of Tablet Personal Computers: A Modification of the Unified Theory of Acceptance and Use of Technology Model*. A Dissertation Presented in Partial Fulfillment Of the Requirements for the Degree Doctor of Philosophy. Capella University.
- Mayer RC, Davis JH, Schoorman FD (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3): 709-734
- Mohammad T. provide names of the other authors (2004). "Problems and Prospects of Internet Marketing", *Journal of Internet Banking and Commerce*, 9 (1) available @ <http://www.arraydev.com/commerce/JIBC/0402-02.htm>.
- Molla A, Licker PS (2005). eCommerce adoption in developing countries: a model and instrument. *Infor. and Manage.* 42: 877-899.
- Moore GC, Benbasat I (1996). Integrating diffusion of innovations and theory of reasoned action models to predict utilization of information technology by end-users. In K. Kautz and J. Pries-Hege (Eds.), *Diffusion and adoption of information technology* London: Chapman and Hall, pp. 132-146.
- Onyema A (2011). *Internet infiltration to Nigeria: burden of cyber-crime to e-commerce*. Internet and Society: Technol. and Pol. of Control.
- Ovia J (2008). *The role of banks in promoting e-commerce in Nigeria*. Internet Group Seminar. Golden Gate Restaurant, Lagos, Niger.
- Pavlou PA (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. *Int. J. Electronic Commerce*, 7(3): 101-134.
- Pratim D (2010). "A preliminary study of ecommerce adoption in developing countries", Blackwell Publishing Ltd, *Infor. Systems J.* 21: 3–32
- Rogers EM (1995) "Diffusion of innovations: 4th edition", New York: Free Press, pp. 518.
- Roya G, Augustine O (2009). "Factors Affecting e-Payment Adoption in Nigeria", Operations and Information Management Group, Aston Business School, UK
- Straub D, Keil M, Brenner B (1997). "Testing the technology acceptance model across cultures: a three country study". *Infor. and Manage.* 33: 1–11.
- Sudarsan J, Uchenna CE (2009). "An Empirical Analysis of Consumer behavioral Intention Toward Mobile Coupons in Malaysia", *Int. J. Bus. and Infor.* 4 (2).
- Suh B, Han I (2002). Effect of trust on customer acceptance of Internet banking. *Electronic Commerce Res. and Appl.* 1: 247-263.
- Taylor S, Todd P (1995). "Assessing It Usage: The Role of Prior Experience", *MIS Quarterly*, 19(2): 561-570.
- Thompson RL, Higgins CA, Howell JM (1991). Personal computing: Toward a conceptual model of utilization. *MIS Quarterly*, 15(1): 124-143.
- Tim C (2010). "Countries and Their Cultures", available @ <http://www.everyculture.com/Ma-Ni/Nigeria.html>. Accessed August, 2010
- Triandis HC (1977). *Interpersonal Behavior*. Vol. Monterey, CA.: Brooke Cole.
- United Nations Conference on Trade and Development (UNCTAD) (2002). *E-commerce and development report*. United Nations. [WWW document]. URL [http://www.unctad.org/en/docs/ecdr2004overview\\_en.pdf](http://www.unctad.org/en/docs/ecdr2004overview_en.pdf)
- Venkatesh V, Davis FD (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Manage. Sci.* 46(2) : 186-204.
- Venkatesh V, Morris M, Davis G, Davis FD (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3): 425-478.
- Wang YS (2003). The adoption of electronic tax filing systems: An empirical study. *Gov. Infor. Quarterly*, 20(4): 333-352.