

Online Banking User Interface: Perception and Attitude

Ojeniyi, A
School of Computing
Universiti Utara Malaysia
go4oje@yahoo.com

Alo, O. K
Mathematic/Statistic Department
Niger State Polytechnic, Zungeru, Nigeria

Oyetade, E. M
Michael Otedola College of Education, Nigeria

Ang, M. T
Management Information System
Universiti Utara Malaysia

Sanusi, Y.K
School of Technology Management and Logistic
Universiti Utara Malaysia

Abstract— Online banking user interface gives customers' the platform to link-up their bank servers and conduct transactions over the Internet. It provides both customers and banks with great opportunities. Security and privacy are one of the big issues that banks are contending with to survive the global competitive banking market. Many technological innovation and solution are being suggested to combat these issues. However, these solutions are making banking user interface more complicated and complex which is affecting the simple and clear natures of an ideal banking user interface. Thus, this paper aim at examining customers' perception and attitude toward the ease of use of online banking interface in Nigeria commercial bank. The study will probe on how advancement on online banking user interface securities feature affect customers' attitude and intention to use the interface. The investigation of this study was done in the light of Technological Acceptance Model (TAM). A survey was carried out on 500 respondents in Nigeria out of which 356 were usable, giving a response rate of 71.2 percent. Data were analyzed by employing descriptive analysis using SPSS. Findings of the study indicates that as banks are providing more security measures on their online banking user interface, similarly attention should be given to ease of use of the interface. Consequently, if banks can ensure that both security and ease of use are integrated on their user interface, customers will have more confidence in adoption and usage of online banking user interfaces without hesitations.

Keywords— Online Banking, User Interface, Ease of Use, Commercial Banks, privacy, security

I. INTRODUCTION

Online banking interface is meant to drive online banking practices in a manner to create competitive advantage to the local bank. This will enable banks meet up with customer demands, improvement in banking practices, image positioning, creation of new distribution network, and costs reduction [1]. This platform provides increment in banking transactions; improve in revenue generation for bank and convenience in baking transaction by customers. This will bring about easy, fast and effective ways of retaining old customers and acquiring new ones when their expectations and needs are met. However, security and trust have being major concern of customers' towards online banking particularly in Nigeria [2]. Findings from a study [3] revealed that Nigeria online banking sector need huge attention due to many cases of cybercrime including financial fraudsters, internet frauds and scams.

Likewise, the country is experiencing inadequate operational facilities like telecommunication and electricity supply. These factors were identified as limitations affecting the development of online banking in Nigeria. Although there have being many researches on how to prevent cybercrimes in online banking sector. For instance, studies [4], [5], [6] and [7] suggested the integration of biometric application with online banking user interface. Also [8] advocated the introduction of android SSL security feature integration with online banking user interface; however, these security features are creating complexity and complication for customers [9], [10] and [11].

Study [9] argued that most customers are not satisfied with the usability of their banks' online use interface due to crowdedness and lack of simplicity. Study [11] maintained that in order for bank administrator to overcome issues with security threats on their online banking, they created a complex and complicated user interface at the end. Therefore this study will explore customers' perception on ease of use of online banking user interface.

II. LITERATURE REVIEW

Design of a banking user interface plays a major role in delivering excellent customer service and customer satisfaction. Layout, navigation mechanisms, graphic appeal and clarity could be highly influential in delivering a better service to users through a website. The role of a user interface designer is critical because its design determines productivity and efficiency to the bank. Therefore, the designer must integrate factors that will enhance quality to the designs. Factors such as functionality, usability, reliability and efficiency have been used by researchers to evaluate the quality of online interface. Value fidelity of the graphics used on the user interface, motion on a dynamic web interface, ability to create greater attention span are some other important qualitative aspects of user-interface development in online banking.

Study [12] explained that user interface is the design of banking websites and mobile application software with the focus on customers' experience and interaction. The goal of user interface design is to make the user's interaction as simple and efficient as possible, in terms of accomplishing user goals which is often called user centred design. Study [13] argued that good user interface design facilitates finishing the task at hand without drawing unnecessary attention to it.

Furthermore, study [14] maintained that user interface designers should focus more on user usability. Their designs should be more interactive and user friendly. Thus, there is need for improvement on the aesthetic appeal of the design. This is because design aesthetics enhance or detract users' intention to use the interface. The design process must balance technical functionality and visual elements to create a system that is not only operational but also usable and adaptable to changing user needs. This argument support study [15] assertion that interface design is involved in a wide range of projects from computer systems, to cars, to commercial planes; all of these projects involve much of the same basic human interactions yet also require some unique skills and knowledge. As a result, designers tend to specialize in certain types of projects and have skills centred around their expertise, whether those of software, user research, web design and industrial design.

In a major study, [16] mentioned a model for the understanding of the role played by seven user-interface design elements in e-commerce applications, which is popularly known as the 7C Framework. It was used in this study as a framework to analyse the design of bank websites. Elements in the 7C framework include context (how the site is designed), content (what information are presented), community (how users communicate with each other), communication (how the site communicate with the users), connection (how the site is related to the other sites), and commerce (e-commerce functionalities).

Their findings were found to be consistent with study [17] result that proposed an improved design of banking websites. This was done by using the navigation layout, graphic, appeal, and clarity. Also the audio was made less intrusive, and animation flow and file size were improved. The buttons were made more distinctive from other graphics, and bullets were removed to avoid confusion with buttons. Therefore, usability is a big issue when it comes to online banking because it's surrounded by ease of use of the web interface. When customer start exploring the service, it is important that they can access the relevant information they are looking for, easily and efficiently to enable them complete their transaction. This gives the users a feeling that they are in control. The ease-of use is perceived as a sign that their bank understands, cares and respects their customers. Thus, this study will investigate the ease of use of Nigeria commercial bank online user interface.

More recently, study [18] comprehensively analyzed Nigerians' perspective on online banking user interface design using five Nigeria commercial banks namely UBA, First Bank, GT Bank, Zenith Bank, and Stanbic IBTC Bank. Study [18] concluded that customer access online Banking services through the user interfaces via the websites which means that such interface designs should follow best practices and highest standards. Though no singular Internet Banking System may be termed as superior over the rest of the others in the world, it is necessary that system designers should be contemporary, innovative and customer-centric with their designs.

Likewise, study [19] explored the design of a biometric application on Nigerian commercial automated teller

machine (ATM). They suggested that financial cybercrime is increasing in Nigeria; hence there is need for more security measures. Security measures at banks online sector is a critical role that must be played by the bank in preventing attacks on customers. These measures are of paramount importance when considering vulnerabilities and causation in civil litigation and banks must meet certain standards in order to ensure a safe and secure banking environment for their customers.

Similarly, the Advance Fee Scheme or 419, which is one of the most popular of all online frauds, has its origin from Nigeria in the 1980s. Its development and spread follows the path of the developments in information technology. At inception, postal letters were used as key media for committing 419 frauds. Later in the early 1990s, it became integrated into telecommunication facilities such as the telephone and fax. From the late 1990s following the introduction of computers and Internet, 419 crimes became prevalently perpetrated through the use of e-mail and other Internet means. The latest dimension taken by the perpetrators of this crime is the use of fake Internet bank sites, and using that to encourage victims to open accounts with them. The country is currently rated as having one of the highest records of Internet frauds in the whole world. According to study [20], the country is the third highest ranked in Internet 'money offer' frauds. As was reported in one of the national newspapers, frauds and forgeries in Nigerian banks as at June 2005 stood at 329 or N1.15 billion (6.17 million US dollars) monetary equivalents, against 222 cases or N1.47 billion (7.89 million US dollars) monetary equivalents in April that same year. There is even global suspicion that a Nigerian crime syndicate that coordinates global crimes such as money laundering, bank fraud and 419 scams exists even till today. These issues basically defeat the key ingredients of online banking, which includes confidentiality and integrity.

The above situation constitutes the environment upon which Internet banking has emerged in Nigeria. Although the level of the adoption and practice of Internet Banking has remained quite insignificant, global projections still remain that the Internet would continue to play a revolutionary role in the development and delivery of banking products and services all over the world. In effect, it is this projection that has raised pertinent regulatory questions concerning Internet banking, especially in Internet fraud-infested countries like Nigeria. One key issue here borders on how to handle the rising level of frauds and forgery prevalent in the entire banking system; and how to make Internet banking fit well in the banking structure of a country so notoriously identifiable with criminal use of Internet access. These have led Nigerian commercial banks to tighten securities on their online user interface to prevent against crimes. However, scholars have argue that when security is too tight then it have a negative effect on its ease of use [21] and [22]. Hence, perceived interface security is a variable that need to be further explored on customers' ease of use of online banking user interface. Therefore, this study will examine how the preventive securities features on online banking user interface of Nigeria commercial banks affect customers' ease of use.

III. METHOD

The most used research method recommended for studies investigating perception, attitude, opinion and behavioural intention is quantitative survey method with questionnaire as instrument [23], [24] and [25]. The questionnaire will be developed using the 7-Point Likert-type Scale (1-Strongly Disagree, 2-Disagree, 3-Slightly Disagree, 4 Neutral, 5-Slightly Agree, 6-Agree and 7-Strongly Agree). In conducting this study, the Technology Acceptance Model (TAM) was expanded to incorporate perceived interface security. The questionnaire was designed with structured questions and was distributed by the researcher to 500 respondents. The target respondents of this study were bank customers and convenience sampling was used for sample selection.

This study is very sensitive because it involves banking issues which is considered personal. Hence, the researcher ensured that a high ethical standard is maintained by following strict ethical procedures and guidelines. All respondents for this study were on a voluntary basis. Each respondent was provided with a research study information sheet that will show the nature of this research. Also, respondents' confidentiality was ensured by not taking their names, identities and bank details.

The instrument was subjected to a reliability and validity test using both IT and academicians. This study reliability analysis was based on study [27]. This was achieved on the Cronbach's alpha which is the representation of a lower level of internal consistency with its supposition of parallel measures. Based on [28] 0.50 can be regarded as a significant value of measure. The reliability analysis is present in Table I

TABLE I
COMPOSITE RELIABILITY OF VARIABLES

Variable	Number of Items	Composite Reliability
Perceived Usefulness	4	0.79
Perceived Ease of Use	4	0.89
Perceived interface Security	4	0.91
Attitude	4	0.87
Intention to Use	3	0.84

Factor analysis was conducted to test how well the instrument developed measures the actual proposed measurement. This is to ensure that the principle of validity and reliability of items are well met. This is also done by looking at the loadings to their individual variables as present in Table II. It could be seen that the percentage variance is above 50% therefore the variables are valid for the measurement.

TABLE II
FACTOR ANALYSIS MEASUREMENT

Variable	Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
Perceived Usefulness	2.47	61.77	61.77
Perceived Ease of Use	2.99	74.72	74.72
Perceived Interface Security	3.13	78.19	78.19
Attitude	2.85	71.36	71.36
Intention to Use	2.29	76.31	76.31

IV. RESULTS AND FINDINGS

Based on survey research method, 500 questionnaires were distributed to respondents. A total of 356 questionnaires were returned. Attempts were made to explain and clarify verbally with respondents that their identities and banking details were not needed for the study. This is to gain the confidence and trust of respondents to ensure their cooperation in participating in the study. The response rate is 71.2% and is considered good return rate compared with previous studies in the same field. This is supported by study [26] argument that 20% and above can be considered as good return rate with survey research method. The demographic information is presented in Tables III. The items were found to be reliable and valid (as extracted and shown in Table II) and were used to compute the mean for each of the items measuring the variables. Table IV shows the mean composite factor of the variables.

V. DISCUSSION

From Table IV, the value for perceived usefulness is at 6.27 which connotes that many of the respondents agreed that the usage of Nigerian commercial bank online user interface is useful both for personal banking and cooperate transaction. Whereas an opposite values 3.06 and 3.06 respectively were obtained for perceived ease of use and perceived interface security compare with perceived usefulness. This implies that respondents agreed that online user interface is useful and advantageous to their online banking experience

However, they slightly disagreed that their bank users' interface is easy to use. This finding support studies [29] and [30] however the finding contradict study [31] which discovered that 57 percent of the customers in the developed countries (Scandinavian) who visited physical bank branches frequently claimed that it was easier to complete banking transactions in the traditional way, not via the Internet. The customers perceived no urgent need for Internet banking services and felt cumbersome to learn the Internet banking system repeatedly every time they need to use it.

Surprising, respondents slightly disagreed on their bank online users' interface security. This implies that they felt that the interface is not too secure and safe for their transaction however, they still considered it useful and advantageous. Also, the values for both perceived ease of use and perceived interface security were same (3.06) which implies that respondents have the same perception toward both. These values connotes that respondents slightly disagree on the ease of use and security of online banking users' interface in Nigeria commercial banks.

TABLE III
OVERVIEW OF DEMOGRAPHIC INFORMATION

	Frequency	Valid %
Respondent's Age		
<18	54	15.2
19 – 30	228	64.0
31 – 45	69	19.4
46 – 60	5	1.4
Total	356	100.0
Respondent's Gender		
Male	222	62.4
Female	134	37.6
Total	356	100.0
State of Origin		
Delta State	13	3.7
Ekiti State	8	2.2
Imo State	6	1.7
Kogi State	5	1.4
Kwara State	26	7.3
Lagos State	27	7.6
Niger State	9	2.5
Ogun State	59	16.6
Ondo State	23	6.5
Osun State	80	22.5
Oyo State	90	25.3
Others	10	3.5
Total	356	
Respondent's Level of Education		
un schooled	3	.8
primary	23	6.5
secondary	24	6.7
university	306	86.0
Total	356	100.0
Respondent's Marital Status		
single	278	78.1
married	78	21.9
Total	356	100.0
Respondent's Occupation		
civil servant	40	11.2
student	246	69.1
trader	33	9.3
teachers	6	1.7
others	31	8.7
Total	356	100.0
Respondent's Bank		
Access Bank Plc	35	9.8
Citibank Nigeria Ltd	26	7.3
Diamond Bank Plc	19	5.3
First Bank of Nig Plc	33	9.3
Guaranty Trust Bank	161	45.2
Skye Bank Plc	23	6.5
United Bank For Africa	14	3.9
Wema Bank Plc	13	3.7
others	28	9
Total	356	100.0

TABLE IV
MEAN COMPOSITE FACTOR

Variable	Mean	Standard Deviation
Perceived Usefulness	6.27	1.43
Perceived Ease of Use	3.06	1.81
Perceived Interface Security	3.06	1.81
Attitude	5.10	1.63
Intention to Use	5.18	1.71

Similarly, the findings indicate that respondents have high attitude toward the usage of online banking user interface. This is because the values for both attitude and intention to use were 5.10 and 5.18 respectively. These values connote that respondents have high attitude and intention to use the interface whereas they slightly disagreed on the ease of use of the interface. The results in this study reveal that respondents' attitude is high on interface usage. This implies that if respondents have high attitude, they will feel more confident about its usage and encourage huge transaction on it. This result is in line with study [32] that pointed out that high attitude leads to intention to use. Also it is consistent with study [33] who found out that Perceived Ease of Use does not impact on Attitude towards intention to use.

In addition, with a value of 3.06 for user interface security, it suggested that respondents slightly disagree on the safety and security on the usage of the interface however they have high attitude and intention to use the interface. This implies that despite the fact that they have concern and worries toward the safety and security of their operations on the interface, yet they maintain a high attitude and intention to use it. This position also indicates that if their worries should increase on the security and safety of the interface then it might reduce their attitude and intention to make use of the interface too low. Also it can be deduced that respondents do not have strong confidence in online banking in Nigeria because they perceived it to be a threat to their privacy and personal information. This finding strengthens previous literature that security concerns deflect customers' intention to use a system [34] and [35].

For instance, in Australia, as identified by study [34], 20 percent of online banking users' experienced electronic attacks through unauthorized access to their accounts, 45 percent of them experienced virus or worm infections, 21 percent experienced non self-propagating trojan or rootkit infections and 18 percent experienced both virus/worm and trojan/rootkit infections. In United States, more than 5 million of the online users lost money to phishing attacks, nearly 40 percent increase compared to one year ago, as identified by study [36]. Unfortunately, study [37] revealed that only 16 percent of the banks in both countries enforced password that combines digit and alphabet and 8 percent of users' interface imposed mandatory periodic changes of password. These alarming statistics could possibly raise the concerns of respondents in the United States and Australia over the safety of their Internet banking passwords and personal information. The same scenario is being experienced in Nigeria where security of privacy, personal information and cybercrime are limiting the usage of online banking user interface.

Consequently, the results also provide statistical evidence

showing that perceived ease of use, perceived usefulness and perceive security will determines customer's attitude and intention to use the user interface. The results illustrate that Nigeria banks should ensure that their online banking user interface are always reliable; secured, accessible, easy to use and trustworthy. These results put together imply that as banks are providing more security measures on their online banking user interface, similarly attention should be given to ease of use of the interface. For if banks can ensure that both security and ease of use are integrated on their user interface then customers will have confidence in usage and adoption of online banking user interfaces without hesitations.

VI. CONCLUSION AND FUTURE-WORK

This study contributes to the existing literature on online banking user interface using TAM to measure perception and attitude of users toward ease of use and intention to use the interface in Nigeria's commercial banks. The results of this study show that for developing countries like Nigeria where internet fraud and cybercrime is on the increases, there is need to pay more attention to both online security and ease of use of online application. This will make customers have confidence in the adoption and usage of such online banking application without hesitations. Future studies can explore a generic model of online banking user interface that will promote ease of use and a strong security protection. This is important because online banking is a global service hence banks should implement and promote strong online banking security measures to their user interface while equal attention should also be given to its usefulness and ease of use.

ACKNOWLEDGMENT

The authors would like to thank Miss Bukola Latinwo of Computer Science and Engineering department, Ladoko Akintola University of Technology, Ogbomoso, Oyo State, Nigeria for her effort on this study. Also, special thanks to Dr. Norani Nordin of School of Technology management and logistic, Universiti Utara Malaysia and Mrs Aisha Adebisi Abdulrauf-salau of University of Ilorin, Kwara State, Nigeria for their scholarly contributions toward this study.

APPENDIX I

	Frequency	Valid Percentage
Industry of Cooperate		
MANUFACTURING	24	6.7
RETAILING	78	21.9
IT RELATED	32	9.0
TELECOM	14	3.9
BANKING	20	5.6
FINANCIAL INSTITUTION	34	9.6
TOURISM	2	.6
BUSINESS OWNER	30	8.4
TRADER	27	7.6
OTHERS	95	26.7
TOTAL	356	100.0

USING BANKING SERVICES		
ENQUIRY	61	17.1
DEPOSIT	263	73.9
LOAN	15	4.2
EXPORT FINANCING	9	2.5
IMPORT FINANCING	1	.3
FIXED INCOME	1	.3
COOPERATE FINANCE	1	.3
PRIVATE BANKING	4	1.1
ASSET MANAGEMENT	1	.3
TOTAL	356	100.0
USING INTERNET AT HOME		
NO	123	34.6
YES	233	65.4
TOTAL	356	100.0
INTERNET AT WORK		
NO	149	41.9
YES	207	58.1
TOTAL	356	100.0
RESPONDENT BANK INTERFACE		
OCCASIONALLY		
USUALLY	174	48.9
TOTAL	182	51.1
	356	100

REFERENCES

- [1] A.M. Aladwani, (2001). Online banking: a field study of drivers, development challenges, and expectations. *International Journal of Information Management*, 21(3), 213-225.
- [2] E. M Agwu and A. L. Carter (2014). Mobile phone banking in Nigeria: benefits, problems and prospects. *International Journal of Business and Commerce*, 3(6), 50-70
- [3] S. A. Ojeka and O. A. Ikpefan (2012). Electronic commerce, automation and online banking in Nigeria: Challenges and benefits. *International Journal of Innovation in the Digital Economy (IJIDE)*, 3(1), 11-26.
- [4] A.Varghese and D. Mathews (2014). Securing SMS-based approach for two factor authentication. *IJRCCCT*, 3(3), 025-028.
- [5] A.Plataux, P. Lacharme, A. Jøsang, and C. Rosenberger (2014). One-Time Biometrics for Online Banking and Electronic Payment Authentication. In *Availability, Reliability, and Security in Information Systems* (pp. 179-193). Springer International Publishing
- [6] A Abayomi-Alli, E.O. Omidiora, S.O. Olabiyisi, J.A Ojo (2012) Enhanced e-banking service with match on card fingerprint authentication and multi account ATM. *Journal of Computer Science and its application*. Vol 9 (2) pp 14-22
- [7] A.Fatima, (2011). E-banking security issues–Is there a solution in biometrics. *Journal of Internet Banking and Commerce*, 16(2), 2011-08.
- [8] Fahl, S., Harbach, M., Muders, T., Baumgärtner, L., Freisleben, B., & Smith, M. (2012, October). Why Eve and Mallory love Android: An analysis of Android SSL (in) security. In *Proceedings of the 2012 ACM conference on Computer and communications security* (pp. 50-61). ACM.
- [9] L.H. Yaya, F. Marimon and M. Casadesus, (2014). Customer Satisfaction and the Role of Demographic Characteristics in Online Banking. *Evaluating Websites and Web Services: Interdisciplinary Perspectives on User Satisfaction*, IGI Global, 138-154.
- [10] S.Nahta, V. Mohindra and D. Jain, (2014, November). Determinants of Consumer Acceptance of M-Banking. In *Conference proceedings at the International Conference ICRSB*.

- [11] S.M.C. Loureiro, H. R. Kaufmann and S. Rabino, (2014). Intentions to use and recommend to others: An empirical study of online banking practices in Portugal and Austria. *Online Information Review*, 38(2), 186-208.
- [12] K.Sousa, H. Mendonça, J. Vanderdonckt, E. Rogier, and J. Vandermeulen, (2008). User interface derivation from business processes: a model-driven approach for organizational engineering. In *Proceedings of the 2008 ACM symposium on Applied computing* (pp. 553-560). ACM.
- [13] J. Nielsen, (1993). Iterative user-interface design. *Computer*, 26(11), 32-41.
- [14] S.B. Shneiderman and C. Plaisant, (2005). Designing the user interface 4 th edition. ed: *Pearson Addison Wesley, USA*.
- [15] J. Johnson, (2010). *Designing with the mind in mind: Simple guide to understanding user interface design rules*. Morgan Kaufmann.
- [16] R.A.K. Ranawaka, (2008). Comparing the User-Interface Design of Banking Websites; A Survey on the Sri Lankan Banking Sector. In *Information and Automation for Sustainability, 2008. ICIAFS 2008. 4th International Conference on* (pp. 157-162). IEEE.
- [17] T. Brinck, and D. Gergle, (1998). The design of banking websites: lessons from iterative design. In *Computer Human Interaction, 1998. Proceedings. 3rd Asia Pacific* (pp. 386-391). IEEE.
- [18] M. Eze, (2014). Internet Banking User Interface Design: A Comparative Trend Analysis of Nigeria Perspective. *International Journal of Computer Science and Telecommunications*. 5 (3), 13-20
- [19] O.A. Ibidapo, Z. O. Omogbadegun, and O. M. Oyelami, (2010). Towards Designing a Biometric Measure for Enhancing ATM Security in Nigeria E-Banking System. *International Journal of Electrical & Computer Sciences IJECS-IJENS*, 10(06).
- [20] National Consumers League (2002), Internet Fraud Statistics, (www.nclnet.org/shoppingonline)
- [21] M. Hertzum, N. Jørgensen and M. Nørgaard (2007). Usable security and e-banking: Ease of use vis-a-vis security. *Australasian Journal of Information Systems*, 11(2).
- [22] W.D. Salisbury, R. A. Pearson, A. W. Pearson, and D. W. Miller, (2001). Perceived security and World Wide Web purchase intention. *Industrial Management & Data Systems*, 101(4), 165-177.
- [23] L. Gao, and X. Bai, (2014). A unified perspective on the factors influencing consumer acceptance of internet of things technology. *Asia Pacific Journal of Marketing and Logistics*, 26(2), 211-231.
- [24] A.Duane, P. O'Reilly, and P. Andreev, (2014). Realising M-Payments: modelling consumers' willingness to M-pay using Smart Phones. *Behaviour & Information Technology*, 33(4), 318-334.
- [25] S. Y. Hung, J. C.A. Tsai, and C. C. Chuang, (2014). Investigating primary health care nurses' intention to use information technology: An empirical study in Taiwan. *Decision Support Systems*, 57, 331-342.
- [26] M. K. Malhotra, and V. Grover, (1998). An assessment of survey research in POM: from constructs to theory. *Journal of operations management*, 16(4), 407-425.
- [27] O. Götz, K. Liehr-Gobbers, and M. Krafft, (2010). Evaluation of structural equation models using the partial least squares (PLS) approach. In *Handbook of partial least squares* (pp. 691-711). Springer Berlin Heidelberg.
- [28] F. Hair, F. Joseph, C. William J. Black, J. Barry, J. Babin, E. Rolph, and E. Anderson (2010), *Multivariate Data Analysis*, Englewood Cliffs, NJ: Prentice Hall
- [29] R. Guttman, (2003) “*Cybercash: the coming era of electronic money*”. *New York: Palgrave Macmillan*.
- [30] K. Eriksson, K. Kerem, and D. Nilsson, (2005). Customer acceptance of internet banking in Estonia. *International Journal of Bank Marketing*, 23(2), 200-216.
- [31] H. M. Vainio, (2006). *Factors influencing corporate customers' acceptance of Internet banking: Case of Scandinavian trade finance customers*. Unpublished M.Sc. Thesis in Accounting. The Swedish School of Economics and Business Administration.
- [32] Al-Somali, S. A., Roya Gholami, & Ben Clegg. (2012). Internet Banking Acceptance in the Context of Developing Countries: An Extension of the Technology Acceptance Model. <http://www.scribd.com/doc/77515106/1-Internet-Banking-Final-Copy>
- [33] S. Liu, D. Tucker, C. E. Koh and L. Kappelman, (2003). Standard user interface in e-commerce sites. *Industrial Management & Data Systems*, 103, 600-610. <http://dx.doi.org/10.1108/02635570310497648>
- [34] P. Ruddock and K. Zuccato, (2006). *2006 Australian computer crime and security survey* (1st ed.). Australian government's Attorney-General's Department: Australian Computer Emergency Response Team (AUSCERT).
- [35] H. White and F. Nteli, (2004). Internet banking in the UK: Why are there not more customers? *Journal of Financial Services Marketing*, 9(1), 49–56.
- [36] Entrust. (2009). *Fighting fraud in today's connected world* [Online]. Available: [http:// www.entrust.com](http://www.entrust.com) [2009, August 29].
- [37] Professional Information Security Association. [PISA]. (2003). *Hong Kong e-commerce security 2003* [Online]. Available: [http:// www.pisa.org.hk](http://www.pisa.org.hk)