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CUSTOMER ACCEPTANCE OF eBANKING: CUSTOMIZED MODEL FOR eBANKING PRACTICES IN PAKISTAN

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ABSTRACT

Computer-based banking (e & iBanking) is mushrooming around the globe. Both advanced and developing countries are making all out efforts to adopt digital technologies and thereby receive the benefits for their masses in general and banking sector in particular. However, experiences of different countries in taking digital opportunity initiatives (DOI) for this purpose reveal that uptake of information and communication technologies (ICT) is neither automatic nor absolutely technical rather a 'social-process' where several factors play significant role in determining user-acceptance of technologies. This paper develops a customized theoretical model of the issue from the existing research that will be tested empirically.

Keywords: eBanking, iBanking, ICT, DOI.

INTRODUCTION

The application of electronic communication in business dates back than the 1970s. About 1918, the payments between banks were done electronically through telegraph. This use has gradually inflated with the passage of time and currently almost all the payments between banks and other organizations are done electronically (Singh et al., 2002; Siam, 2006). Today, a click of digital button offers the customers with eBanking services by empowering them with extraordinary freedom in choosing vendors for their financial services. The states of the world have no other option than to adopt eBanking because of globalization and high competition (Wahab et al., 2009; Nawaz, 2010; Banan, 2010).

Several studies show that competitive pressure is the principal driving force behind taking digital opportunity initiatives (DOI) for iBanking, ranking ahead of revenue enhancement and cost reduction. By using the internet technology, banks offer iBanking services which serve the needs of the

current customers and magnetize the new ones (Comptroller, 1999:3). Financial institutions have removed the borders between themselves, and introduced innovative products and services and made available the current ones into several packages (Siam, 2006). However successful adoption and use of IS, is vital for the growth and development of financial institutions (Kuppusamy et al., 2009; Wahab et al., 2009).

In contemporary digital banking the customer fidelity can change instantaneously by clicking the computer-button only, therefore, all the banks have to recognize the importance of different factors responsible for the success and failure of modern banking. They must study the role of these factors in the current business environment, so as to manage them successfully to remain in competition in the rapidly changing world (Singh et al., 2002). In addition to these, the banks should attract and stimulate people through extensive advertisement efforts and incentives of cost cutbacks and other ones. According to TAM,

Perceived usefulness of customer about the new technology is essential. Each society that wants to reach its goals in implementing eBanking should pay attention to these issues vigilantly and have a complete program and sufficient investment in this way (Salehi & Alipour, 2010).

E-BANKING: CONCEPTS & PRACTICES

Literature defines eBanking as web-based-banking and it has stayed a high-risk area from the very start of its innovation, for example; in 2001 about \$17 billion was spent on the security of information-related products and services in America (Hertzum et al., 2004). Online banking is based on the Internet gateway, which provides different types of online banking services like payment of utility bills, buying the mobile recharge and investing online. It is thus, necessary for the banks to establish their official websites providing the option for online business (Pikkarainen *et al.*, 2004; Salehi & Alipour, 2010).

In the eBanking powers is delegated to the customers for self-service by satisfying certain banking needs and thereby ease themselves in a number of ways: like they can examine their account histories, pay bills and transfer funds, activate or restore credit card (Amor, 1999). eBanking offers the facility to the customers to access their accounts and carry out transactions in a trouble-free way by visiting the websites of the bank. All the individuals and companies are cutting-back a lot of their time and cost because online banking is proving less costly as compared to the traditional banking transactions (Karjaluo *et al.*, 2002, p.261).

Internet offers a podium for using online banking services from inside and outside the organizations thus, ICT-adoption is steadily transforming businesses from local to global (Polatoglu & Ekin, 2001). According to Giglio (2002) for delivering banking products and services the cheapest delivery channel can be online banking. With the

help of online banking services, the branch networks of banks have condensed and the banking staff as well as the customers are pleased with online banking services as it saves time and effort to carry out transactions (Karjaluo *et al.* (2002).

E-BANKING IN PAKISTAN

The development and growth of ICTs is quiet slow in Pakistan as compared to other developing countries. Here, the ePolicies focus to develop the domestic ICT sector for the development of eCommerce in the country. For this purpose, the government of Pakistan has established seven IT universities and one virtual university under the National Information Technology Policy to produce qualified professionals to meet the existing needs of digital society (Khan & Bawden, 2005). Similarly, the National Education Policy (1998-2010) seeks to upgrade the education level in Pakistan by offering IT courses at different levels of education to ensure digital literacy among the youths. Some renowned IT companies of the world like Microsoft, Cisco, and Oracle are also making huge investments in Pakistan for the promotion of ICTs (Shahzada, 2006; Pasquet *et al.*, 2008).

eBanking is becoming attractive to both the banks and the customers because this new technology is increasingly acceptable to them. Similarly, banks are also facing huge competition in the market and they can increase their market shares by offering high quality services to the customers. The ATMs and credit card services were introduced in Pakistan by City Bank in mid 1990s, which was then followed by the domestic banks in the late 1990s (Khan & Bawden, 2005). eBanking is the use of ICTs and other electronic means by a bank to carry out transactions and to maintain interaction with all the stakeholders (Abid & Noreen, 2006; Hasan *et al.*, 2010).

The Government of Pakistan started digital initiatives in early 2000. The banks have got the lead in eCommerce but most of the progress has

been made in eGovernment. Some business to business gateways are available which are designed more for information rather than transactions. The de-regulation policy of the country has encouraged many private and foreign banks to establish strong end user by adopting eCommerce (Ahmed, 2006; Hamzaee & Hughs, 2006). The Ministry of Science & Technology has taken several steps to promote eCommerce and eBanking in the country. In Pakistan, high technological flow has forced essential changes in the financial industry; new business plans have emerged and opened ways for doing business. eBusiness has launched the use of IT for improved internal controls and more complex risk management systems, and this in turn has resulted in improved, high quality, and convenient customer services (Akhtar, 2006).

CUSTOMER ACCEPTANCE

Models (Theories) of Customer Acceptance

It is widely established that customer acceptance is the prime factor in determining the rate of change in the financial sectors (Sathye, 1999; Floh & Treiblmaier, 2006; Abukhzam & Lee, 2010). A number of models have been suggested to examine, recognize and apply strategies for creating user acceptance of new technologies. The most commonly used research models include: TAM (Davis, 1986), TRA (Fishbein & Ajzen, 1975), TRI (Parasuraman, 2000), DI (Rogers, 1962), and TPB (Ajzen, 1985, 1991). These models have been used by several researchers to discover the dynamics of 'user acceptance' of eBanking (see for example, Kuppusamy, et al., 2009; Andoh-Baidoo, & Osatuyi, 2009; Amin & Ramayah, 2010).

a. Technology Acceptance Model (TAM)

TAM was devised to identify a small number of basic factors suggested by earlier research and dealing with the cognitive and affective determinants of computer acceptance (Sathye, 1999). TAM defines the two constructs, that is, perceived usefulness (PU) and perceived ease of use (PEOU) that are of principal importance for

computer acceptance. Perceived usefulness (PU) is defined as the level that using a specific system will increase the job performance while Perceived ease of use (PEOU) refers to the extent to which the user considers that the target system is to be free from effort (Davis et al., 1989). TAM emerged from the theory of reasoned action (TRA) and proved to be the generally accepted model (Jahangir & Begum, 2008).

b. Technology Readiness Index (TRI)

TRI (Parasuraman, 2000) refers to people's inclination to hold and use new technologies for the achievement of their goals. The TRI includes four factors: optimism, innovativeness, discomfort, insecurity. *Optimism* means to what extent the people have positive view of technology for improving their life standards. *Innovativeness* refers to the level of people for becoming pioneers in technology adoption and hence, the thought leaders. *Discomfort* means the extent to which people perceive a lack of control over technology and feel overwhelmed by it; and *insecurity*: is the degree to which people have doubts about technology and are uncertain of its capacity to work properly (Gerrard *et al.*, 2006).

c. The Theory of Reasoned Action (TRA)

This theory was developed by Fishbein & Ajzen (1975) and improved afterwards by experimental facts to hold up its strength and consistency. It was assumed that an individual's behavioral intention is the instant determinant of behavior, his/her attitude and subjective norms are mediated through behavioral intention and their behavioral and normative beliefs are mediated through attitude and subjective norm (Ajzen & Fishbein 1980). Subjective norm is beliefs about what others will consider about the behavior; in other words, the perceived influences of social pressure on an individual to perform or not to perform the behavior (Sadeghi & Farokhian, 2011).

d. The Theory of Planned Behaviour (TPB)

After recognizing some problems with the Theory of Reasoned Action, it was designed specifically a modified model: Theory of Planned Behavior

(TBP) to predict and explain behavior based assumption “person’s volitional control” to influence the adoption of new technology (Ajzen & Madden 1986:457). TRA was expanded by adding another construct called Perceived Behavioral Control (PBC), which refers to an individual’s perception of the presence or absence of required resources and opportunities to carry out the specific behavior (Ajzen, 1991).

The TPB presume that “the behavior is determined by the intention to perform the behavior (Benham & Raymond, 1996)” and this intention is determined by three factors: attitude, subjective norms and perceived behavioral control. Each factor consists of a number of beliefs and related evaluations (Mashadi et al., 2007). Plenty of experiential proof proposes the TPB capacity to effectively explain one’s intentions and behavior in accepting new information technologies. TAM based on Theory of Reasoned Action (TRA), and afterwards was developed to be the Theory of Planned Behavior (TPB) (Kasemsan & Hunngam, 2011).

e. The Diffusion of Innovations (DI)

The theory of DI (Rogers, 1995) explains diffusion of innovations as: “... the process by which an innovation is communicated through certain channels over time among the members of social systems. It is a special type of communication, in that the messages are concerned with new ideas”. A decision to adopt an improvement purely depends on the perceived characteristics of innovations, i.e., compatibility, relative advantage, trialability, and observability are to be considered (Al-Hajri, 2008).

The increased use of integration of services around digital networks (ISDN) and electronic data interchange (EDI) protocols are fundamental in the new distribution channels such as smart cards, telephone transfer systems (TTS), and electronic fund transfer at point of sale terminals (EFTPOS). Card technology such as VISA and Master Card International Networks is evolving to offer customers with border-free services (Kuppusamy

et al., 2009). The modern distribution channels permit banks to offer more services and consequently have great effects in the banks’ cost structures (Kasemsan & Hunngam, 2011).

Factors of Customer Acceptance

Issue-Related Variables

a. Government ePolicies (GEP)

The IT policy (ePolicy) plays dominant role in determining the prospects of eBanking in any country including Pakistan (Zarmeene, 2006). Consistent policies with due support of the government helps in the promotion of IT culture in the country and stimulates eBusiness. Pakistan is confronted with numerous challenges in IT adoption (Kundi & Shah, 2009). Similarly, legal support has a huge impact on users’ iBanking acceptance as responsibility must be fixed when financial losses happen in Internet transactions (Kasemsan & Hunngam, 2011).

b. Quality of Internet (QOI)

eBanking uses the web browser for the user interface and the Internet for data transfer and software download, and so has an advantage of cost-reduction and speedy transmission of information (Hertzum et al., 2004). From a technological and cost-driven perspective it may appear quite logical for the banks to switch over to online however, at the same time the problem of how to foster customer loyalty arises when the connection between the bank and the user becomes virtual (Floh & Treiblmaier, 2006). Thus, the overall quality of eBanking has captured greater attention of bank managers and researchers due to its sturdy impact on customer loyalty, customer satisfaction, costs, profitability, and business performance (Sadeghi & Farokhian, 2011).

c. eBanking Awareness (EBA)

The researchers tell that there is a significant statistical relationship between awareness, access to Internet facility, length of banking relationship, people working in the iBanking, education level and the income level with the usage of iBanking (Padachi et al., 2007). A research tells that the

main reason why customers are unwilling to use iBanking is information diffusion between the banks and their customers. This problem was articulated this way “the youth are more likely to use iBanking than the older citizens because they are more familiar with the Internet but for older customers, there is a need to entice them through Internet awareness programs” (Andoh-Baidoo, & Osatuyi, 2009).

d. Perceived Usefulness (PU)

It is natural that if a human being considers a technology valuable, he/she gets mentally prepared to learn about even by taking pains. The user resistance to change is reduced due to the positive effects of the modern digital devices. Perceived usefulness is the extent to which an individual considers that using a particular system would improve his performance (Al-Hajri, 2008). It is also correct that perceived usefulness depends completely on the level of customer awareness about the features and functions of new technologies. If they have inadequate information about the utilities provided by the new devices, it is very much possible that users may misjudge the usefulness of eBanking (Riyadh et al., 2009).

e. Perceived Ease of Use (PEU)

It is commonly acknowledged that user acceptance is radically related with the ‘perceived ease of use and usefulness of modern technologies. If users value them negatively, their attitude towards change will also be negatively prejudiced. Moutinho & Smith (2000) studied the behavior of bank customers and concluded that simplicity of banking operations and convenience are the two important expectations. Furthermore, the variety of eBanking users and the lack of any special training to ensure ease of use are the important concerns to successfully implement the eBanking strategies (Hertzum et al., 2004). From the viewpoint of technology, ease of use is usually regarded as an important quality characteristic in computer services (Floh & Treiblmaier, 2006; Shih, 2007; Al-Hajri, 2008; Riyadh et al., 2009; Amin & Ramayah, 2010; Adesina & Ayo, 2010).

g. Security & Privacy (S&P)

People understand about the risks but they have pessimistic view regarding protection from iBanking risk. It has been found that customers have confidence on the bank but not sure about the security and privacy of their confidential information (Roboff & Charles, 1998). The researchers have also found that though the customers’ confidence on the bank was strong but they were having weak confidence on the technology (Howcroft et al., 2002). eBanking must be safe, secure and easy to use. Automation, instruction, and understanding can be recognized as three approaches to practical security. Instruction is the main approach of the systems evaluated; automation ease the user from taking part in security, at a possible level; and understanding goes beyond step-by-step commands, to permit users to act proficiently and securely (Hertzum et al., 2004).

h. Trust of the Customer (TOC)

In order to examine the significance of eLoyalty, the identification of factors influencing recurring purchasing behavior and word-of-mouth suggestion is a crucial area of research. The extensive adoption of online banking services calls for research to investigate the factors which determine eBanking customers’ loyalty. The most imperative factors affecting eLoyalty are unavailability of infrastructure, lack of trust on technology, service charges and security and privacy (Padachi et al., 2007). In response to these demands banks attempt to enhance the satisfaction of customers by offering improved products and services at reduced operating costs. Thus, customer trust plays a central role for eReadiness to use eServices (Wahab et al., 2009).

i. Quality of eBanking Services (QOS)

The internet infrastructure plays a very important role in eBanking and some grave steps should be taken for the development of internet. If we compare the current infrastructure with the five years before, we observe that a great many technological advancements have been made

especially in the private sector and the credit of all this goes to the Government of Pakistan for fostering the privatization of banks in Pakistan (Pauline, 2001). This has resulted in the development and increase of IT infrastructure, online branches, ATM machines, ePayment systems, and eTransactions (State Bank of Pakistan, 2003).

Demographic Factors

Customer demographics play an important role in shaping their behaviors towards new technologies. There is a series of research studies on the measurement of demographic implications on the users of computer based information systems including eBanking (see for example, Ramayah et al., 2003; Shih, 2007; Padachi et al., 2007; Yang & Ahmad, 2009; Adesina & Ayo, 2010; Amin & Ramayah, 2010). Demographics have been identified as the intervening and/or moderating variables in affecting the relationships between the determinants of customer acceptance in case of using eBanking (Tat et al., 2008; Wahab et al., 2009).

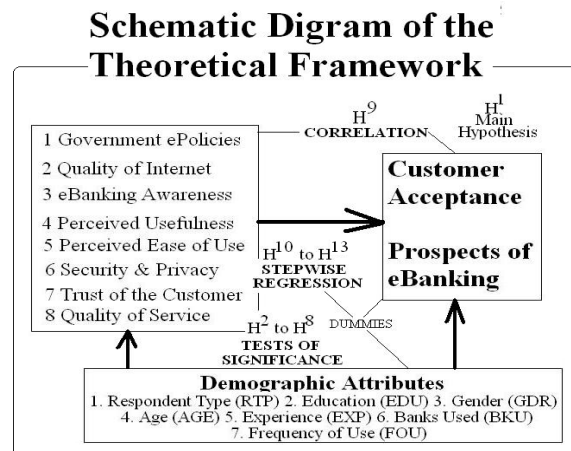
Similarly the researchers have explored and tested several demographic characteristics however some of these are very frequently used in researches on eBanking. These characteristics include: Gender,

education, marital status, position (Ramayah et al., 2003); Gender, age, involvement, seeking behavior and technophobia (Floh & Treiblmaier, 2006); age, education, and income (Padachi et al., (2007); experience with eBanking, experience of using Internet, and frequency of use at least once a week (Shih, 2007); Gender, marital status, education level, and religion (Amin & Ramayah, 2010). In this research we have used the following demographics for analysis: Education, Gender, Age, Experience with eBanking, eBank(s) used, and Frequency of Use.

Factors of Customer Acceptance

From the literature review (presented above) a customized conceptual model (Figure 1) has been constructed which is grounded in the literature on one hand and reflects the current environment in Pakistan’s eBanking and iBanking industry on the other hand. The hypotheses emerging from the model have been identified which will be tested in the field surveys to be conducted by the researchers in near future.

Figure 1 Schematic Diagram of the Theoretical Framework



DISCUSSIONS

All businesses are the recipients of eBanking, irrespective of their size or physical locations. Internet has made it possible to perform all types of commercial transactions on an electronic medium without geographical restrictions (Yang & Ahmed, 2009). The banks have been proved as the principal user of ICTs for many years because the use of IS helps in cost reduction, mainly due to the reduction of bank branches and their staff. The understandings and control of operational risks has also become easier for the banks using the modern Information Systems. Moreover, the successful use of Information System enable banks to process credit card and loan applications speedily, without wasting time in too many formalities (Wahab et al., 2009).

There is a massive gap between developed and developing countries in terms of development and growth of eBanking services. The developed countries are far ahead in the adoption and use of leading-edge technologies in business and commerce, whereas the developing countries are mainly lacking the modern technology infrastructure, and where it is available, a large number of people are not familiar with the use of technology and thus, not using it (Pasquet et al., 2008). The banking industry has made substantial progress and the use of Internet technology has turned out to be a strong force changing the very core of conventional banking. So, technology is no doubt a single most leading strategic issue that has created regulatory challenges for eBanking (Banan, 2010).

Investments of an organization in IS creates different problems, such as hardware and software inappropriateness, information overload, and feelings of job insecurity among staff members who fear that they will be replaced by machines. These problems may have unfavorable effects on productivity as well as lessen the growth and use of other IS applications (Kuppusamy et al., 2009). Least-developed countries are facing a shortage of

quality IT professionals to design, develop, and operate eBanking systems. A short term solution to this problem is to launch, on emergency basis, the high quality training programs for IT professionals to foster the development of eBanking applications, but the development of modern high quality higher education institutions, to promote the educational standard of masses would be a real long-term solution (Hasan et al., 2010).

CONCLUSION

Currently the customers in the developed countries like UK, USA, Sweden, and Denmark are enjoying the benefits of eBanking but Pakistan is still lagging far behind due to several factors (Shahzada, 2006). For example, in Pakistan the acquisitions, installation, use, and maintenance of eBanking technologies along with user training are big issues. Similarly, due to below standard and poorly established IT education institutions, the developing countries are facing serious shortages of qualified IT professionals to meet their national requirements of eBusiness (Kundi & Shah, 2009). When asked about the key challenges and complexities of existing eBanking operations, fifty percent people argued for the lack of in-house IT professionals. The small banks have outsourced the development of their website design and eBanking service operations but they suffered from delays and slow responses of outside IT professional (Yang et al., 2005; Hamzaee & Hughs, 2006). IS-savvy customers refer to the customers' understanding and acceptance of eBanking services. Although the Banks' web traffic statistics indicate rise in the number of web visitors due to anytime, anywhere convenience of eBanking, but this increase in visitor traffic is not matched by a related increase in iTransactions. Regardless of the increase in online visitors and use of the website, just a mere tenth of households have used Internet for their financial transactions (Kuppusamy et al., 2009). This is due to the fact

that today's world has not only made remarkable developments in every field and has created exciting opportunities for the people and organizations, but has also caused general uncertainty, which is often a great concern of eBanking users (Banan, 2010).

Today in a highly competitive economy, banks are investing huge sums of money on ICTs to meet the growing demands for eBanking and they are also well aware of the fact that failure to do so will lead to their demise (Kuppusamy et al., 2009). Banking sector has achieved substantial growth and the Internet technology has turned out to be a strong force shifting the pattern of banking from conventional banking to eBanking. Therefore it can be claimed that technology is the single most leading strategic weapon that has created paramount challenges for the banking sector (Banan, 2010).

REFERENCES

1. Abid, H. & Noreen, U. (2006). Ready to E-bank: An exploratory research on adoption of eBanking and e-readiness in customers among commercial banks in Pakistan. *Spider*, 31 (2): 1-31.
2. Abukhzam, M. & Lee, A. (2010). Factors affecting bank staff attitude towards e-banking adoption in Libya. *Electronic Journal of Information Systems in Developing Countries*, 42(2):1-15.
3. Adesina, A.A. & Ayo, C.K. (2010). An Empirical Investigation of the Level of Users' Acceptance of E-Banking in Nigeria. *Journal of Internet Banking and Commerce*, 15(1).
4. Ahmed, A. (2006). Policies & Regulations for Expanding e-banking to the Poor. *The First Micro Finance Bank Ltd*, 24 (1):1-8.
5. Ajzen, I. & Madden, T. (1986). Prediction of Goal-Directed Behavior: Attitudes, Intentions, and Perceived Behavioral Control. *Journal of Experimental Social Psychology*, 22: 453-474.
6. Ajzen, I. & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*. Engle wood Cliffs, New Jersey: Prentice Hall.
7. Ajzen, I. (1985). *From Intentions to Actions: A Theory of Planned Behavior*, New York, 11-39.
8. Ajzen, I. (1991). *The Theory of Planned Behavior*. *Organization Behavior and Human Decision Processes*, 50(2), 79-211.
9. Akhtar, S. (2006). Financial sector of Pakistan- the roadmap. *Bank of International Settlements Review*, 42 (1):1-5.
10. Al-Hajri, S. (2008). The Adoption of e-Banking: The Case of Omani Banks. *International Review of Business Research Papers*, 4 (5):120-128.
11. Amin, H. & Ramayah, T. (2010). SMS banking: explaining the effects of attitude, social norms and perceived security and privacy. *Electronic Journal of Information Systems in Developing Countries*, 41(2):1-15.
12. Amor, D. (1999). *The E-business Evolution*. 2nd Ed. New York: Prentice Hall.
13. Andoh-Baidoo, F.K. & Osatuyi, B. (2009). Examining Online Banking Initiatives in Nigeria: a value network approach. *Electronic Journal of Information Systems in Developing Countries*, 38(1): 1-14.
14. Banan, M.R. (2010). E-banking and Managerial Challenges. *Georgian Electronic Scientific Journal: Computer Science and Telecommunications*, 1(24): 13-23.
15. Benham, H. C. & Raymond, B. C. (1996). *Information Technology Adoption: Evidence from a Voice Mail Introduction*. In: *ACM SIGCPR Computer Personnel*, 17(1): 3 – 25.
16. Comptroller. (1999). *Internet Banking: Comptroller's Handbook*. Comptroller of the Currency Administrator of National Banks.
17. Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1989). "User Acceptance of Computer Technology: A Comparison of Two

- Theoretical Models," *Management Science* 35(8): 982-1002.
18. Davis, F.D. (1986). A technology acceptance model for empirically testing new end-user information systems: Theory and results. Sloan School of Management, MIT, Cambridge, MA.
 19. Fishbein, M. and Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Addison-Wesley, Reading, MA.
 20. Floh, A. & Treiblmaier, H. (2006). What keeps the e-banking Customer Loyal? A Multi group Analysis of the Moderating Role of Consumer Characteristics on e-loyalty in the Financial Service Industry. *Journal of Electronic Commerce Research*, 7(2).
 21. Gerrard, P., Cunningham, J.B. (2006). The diffusion of Internet banking among Singapore Consumers, *International journal of Bank Marketing*, 21 (1): 16-28.
 22. Giglio, V. (2002). Privacy in the World of Cyber Banking: Emerging Legal Issues and How you are Protected. *The Secured Lender*, 14 (3): 48-60.
 23. Hamzaee, R.G. (2006). Modern Banking and Strategic Portfolio Management. *Journal of Business & Economics Research*, 4 (11): 85-96.
 24. Hasan, A.H.M.S. Baten, M.A. Kamil, A.A. & Parveen, S. (2010). Adoption of e-banking in Bangladesh: An exploratory Study. *African Journal of Business Management*, 4(13): 2718-2727.
 25. Hertzum, Morten., Jørgensen, Niels. & Nørgaard, Mie. (2004). Usable Security and E-Banking: Ease of Use vis-à-vis Security. *Australasian Journal of Information Systems*, 11, special issue (2004): 52-65.
 26. Howcroft, B., Hamilton, R. and Hewer, P. (2002). Consumer Attitude and the Usage and Adoption of Home-based Banking in the United Kingdom. *International Journal of Bank Marketing*, 20(3): 111-121.
 27. Jahangir, N. & Begum, N. (2008). The Role of Perceived Usefulness, Perceived Ease of Use, Security and Privacy, and Customer Attitude to Engender Customer Adaptation in the Context of Electronic Banking. *African Journal of Business Management*, 2 (1): 32-40.
 28. Karjaluo, H., Mattila, M. and Pentto, T. (2002). Factors underlying attitude formation towards online banking in Finland. *International Journal of Bank Marketing*, 20(6): 261-272.
 29. Kasemsan, M.L.K. & Hunngam, N. (2011). Internet Banking Security Guideline Model for Banking in Thailand. IBIMA Publishing, *Communications of the IBIMA*, Vol. 2011 (2011).
 30. Khan, N.S. and Bawden, D. (2005). Community Informatics in Libraries in Pakistan: Current Status, Future Prospects. *New Library World*, 106 (11):532-540.
 31. Kundi, G.M. & Shah, B. (2009). IT in Pakistan: Threats & Opportunities for e-business. *The Electronic Journal on Information Systems in Developing Countries*, 36(8): 1-31.
 32. Kuppusamy, M., Raman, M., Shanmugam, B., Solucis, S. (2009). A Perspective on the Critical Success Factors for Information Systems Deployment in Islamic Financial Institutions. *Electronic Journal of Information Systems in Developing Countries*, 37(8): 1-12.
 33. Mashadi, M.M. Tofighi, M. Nasserzadeh, M.R. & Mashadi, M.M. (2007). Determinants of E-Banking Adoption: The Case of E-Banking Services in Tehran. *IADIS International Conference e-Society 2007*: 320-324.
 34. Moutinho, L. and Smith, A. (2000). Modeling Bank Customers' Satisfaction through Mediation of Attitudes towards Human and Automated Banking. *International Journal of Bank Marketing*, 18(3): 124-34.

35. National Education Policy (1998-2010) Pakistan.
36. Nawaz, A. (2010). Using eLearning as a tool for 'education for all' in Developing States. *International Journal of Science and Technology Education Research*, 1(6).
37. Padachi, K. Rojid, S. & Seetanah, B. (2007). Analyzing the Factors that Influence the Adoption of Internet Banking in Mauritius. *Proceedings of the 2007 Computer Science and IT Education Conference*: 559-574.
38. Parasuraman, A. (2000). Technology Readiness Index (TRI): A Multiple-Item Scale to Measure Readiness to Embrace New Technologies. *Journal of Service Research*, 2(4):307-320.
39. Pasquet, M., Alimi, V., Vernois, S., & Rosenberger, C. (2008). An eBanking platform for collaborative work between Education, Industry and Research. Published in "International Symposium on Collaborative Technologies and Systems (CTS), United States.
40. Pauline, R. (2001). Electronic Commerce Adoption in Australia and New Zealand. *Malaysian Journal of Computer Science*, 14(1):1-8.
41. Pikkarainen, T., Pikkarainen, K. Karjaluo, H. and Pahlila, S. (2004). Consumer Acceptance of Online Banking: An Extension of the Technology Acceptance Model. *Internet Research*, 14(3):224-235.
42. Polatoglu, V.N. & Ekin, S. (2001). An Empirical Investigation of the Turkish Consumers Acceptance of Internet Banking Services. *International Journal of Bank Marketing*, 19(4):156-165.
43. Ramayah, T. Jantan, M. Noor, M.N.M. & Ling, K.P. (2003). Receptiveness of Internet Banking by Malaysian Consumers: The Case of Penang. *Asian Academy of Management Journal*, 8 (2): 1-29.
44. Riyadh, Al Nahian., Akter, Md. Shahriar. & Islam, Nayeema (2009). The Adoption of e-banking in Developing Countries: A Theoretical Model for SMEs. *International Review of Business Research Papers*, 5(6): 212-230.
45. Roboff, G. and Charles, C. (1998). Privacy of Financial Information in Cyberspace: Banks Addressing what Consumers Want. *Journal of Retail Banking Services*, 20(3):55- 59.
46. Rogers, E.M. (1962). *Diffusion of innovations*. 1st ed. New York: Free Press.
47. Rogers, E.M. (1995). *Diffusion of innovations*. 5th ed. New York: Free Press
48. Sadeghi, T. & Farokhian, S. (2011). The Role of Behavioral Adoption Theories in Online Banking Services. *Middle-East Journal of Scientific Research*, 7(3): 374-380.
49. Salehi, M. & Alipour, M. (2010). E-Banking in Emerging Economy: Empirical Evidence of Iran. *Interantional Journal of Economics and Finance*, 2 (1): 201-209.
50. Sathye, M. (1999). Adoption of Internet Banking by Australian Consumers: An Empirical Investigation. *International Journal of Bank Marketing*, 17(7):324-34.
51. Shahzada, A.M. (2006). Country Report of Pakistan on Initiatives of Information Society by Pakistan Telecommunication Authority.
52. Shih, Ya-Yueh (2007). The Study of Customer Attitude toward Internet Banking Based on the Theory of Planned Behavior. This research was supported in part by the National Science Council of the Republic of China under the grant NSC 94-2416-H-159-004 and NSC 95-2416-H-216-009.
53. Siam, A.Z. (2006). Role of the Electronic Banking Services on the Profits of Jordanian Banks. *American Journal of Applied Sciences*, 3 (9): 1999-2004.
54. Singh, S. Chhatwal, S.S. Yahyabhoy, T.M. & Heng, Y.C. (2002). Dynamics of Innovation in E-Banking. *ECIS 2002*, June 6-8, Gdańsk, Poland: 1527-1537.

55. South Africa: A Preliminary Assessment. *International Review of Business Research PaperS*, 2(2): 72-79.
56. State Bank of Pakistan (2003). Annual Reports of State Bank.
57. Tat, H.H. Nor, K.M. Yang, E.T. Hney, K.J. Ming, L.Y. & Yong, T.L. (2008). Predictors of Intention to Continue Using Internet Banking Services: An Empirical Study of Current Users. *International Journal of Business and Information*, 3 (2): 233-244.
58. Wahab, S. Noor, N.A.M. & Ali, J. (2009). Technology Trust and E-Banking Adoption: The Mediating Effect of Customer Relationship Management Performance. *The Asian Journal of Technology Management*, 2 (2): 1-10.
59. Yang, J. & Ahmed, K.T. (2009). Recent Trends and Developments in E-banking in an Underdeveloped Nation – An Empirical Study. *International Journal of Electronic Finance*, 3 (2): 115-132.
60. Yang, J. Whitefield, M. & Bhanot, R. (2005). E-Banking in Rural Area - Recent Trend and Development: A Case Study. *Communications of the IIMA*, 5(4): 63-72.
61. Zarmeene, S. (2006). Phone Crazy: The Ubiquitous Cell Phone can do so much more than just make a Phone Call. *Spider*, 8(89):40-43.