Impact of Information Technology on E-Banking: Evidence from Pakistan's Banking Industry

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Abstract

Information and Communication Technologies (ICT) has revolutionized and transformed the business operation trends, and it has become a strategic marketing tool to enhance the competitive edge. Banking traditional operations has totally emerged with the use of ICT and replace with Electronic Banking concepts. E-Banking bringing too many challenges to the managers in achieving their customer satisfaction and leading to over all objectives. This research study aims to collect and investigate the impact of IT towards the E-Banking Usefulness, Ease of Use and customer satisfaction in Pakistan banking industry. Pakistan top five banks were selected, and data was collected from 251 E-Banking customers to judge their views regarding IT Usage, Ease of Usefulness and Ease of Use in the context of Customer satisfaction in order to investigate its parameters to make significant managerial decisions.

Key words: Information Technology Usage, Customer Satisfaction, Ease of Use, Ease of Usefulness, and E- Banking

Information Technology modernized the banking sector and connected all the national and global stakeholders via motor way of high bandwidth information exchange. Banking has become a vital

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subdivision for every business enterprise either conducting business nationwide or globally, and for an individual customer as well, nobody can manage his affairs unless they have developed a relationship with a bank. Online systems of banking in Pakistan and all over the world has changed the conventional concept of banking sector, that was used for deposits and saving warehouses, while now the banking sector has become essential for cash flow and transaction processing of all the enterprises and individual customers. A single click may complete your deal with the rest of the world via using IT & Telecommunication technologies and thus the concepts of E-Commerce emerged.

"In last two decades, E-Commerce has obtained prominent importance and considered a key dimension to a firm value, and use as a strategic marketing tool to achieve and enhance competitive advantages" (M.Jehangir,Dominic & A.G Downe 2011).

E-Banking (Electronic Banking), also known as cyber banking, virtual banking, home banking, and online banking, includes various banking activities conducted from home, business or on the road, instead of at a physical bank location. E-banking has capabilities ranging from paying bills to securing a loan electronically. It started with the use of proprietary software and private networks but was not particularly popular until the emergence of the Web. E-Banking saves time and money for users. For banks, it offers an inexpensive alternative to branch banking a chance to enlist remote customers. Many banks are beginning to use home banking, and some use EC (Electronic Commerce) as a major competitive strategy (Efraim Turban 173-74).

As researchers persists that "The rapid advancement in electronic distribution channels has produced tremendous changes in the financial industry in recent years, with an increasing rate of change in technology,

competition among players and consumer needs (Hughes 2001). Increasing competition among banks and from non-bank financial institutions also raises concerns as to why some people adopt on distribution channel and others do not, and identifying the factors that may influence this decision is vital for service providers. New services are difficult to evaluate where the quality of trustworthiness dominates (Patricio, 2003 cited & Abstracted from Ahmed Kaleem 2008). It is important to study the perceptions of bankes and customers towards the technological based transactions and its impacts on its behaviors (Lymperopoulos, and Chaniotakis, 2004). According to Barnes & Howlett (1998) that Information Technology based transactions sometimes reduce personal contacts between service providers (Bankers) and customers that's why the traditional system of banking has been replaced and thus the relationships are reduced as compare.

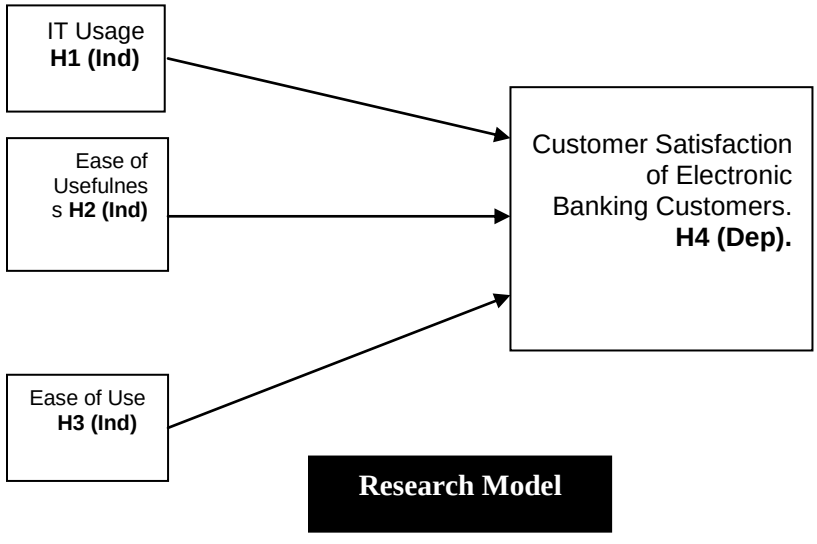
Employees are the internal customers for any organization and management should focus on their satisfaction and retention for the achievement of high level of customer satisfaction and retention as well (Berry 1984).

Problem Statement & Research Objectives: Information technology and telecommunication has revolutionized the banking sector in delivering there service most effectively to their customers with the very lower cost and time. Therefore, this study will dig out the relationship of customer perception regarding Information Technology usage, Ease of Usefulness and Ease of Use in banking sector and its impact on customer satisfaction.

This study will answer and prove the following research questions:

- Does Information Technology Usage have positive impact on Customer Satisfaction?
- Does Ease of Usefulness have positive impact on Customer Satisfaction?
- Does Ease of Use have positive impact on Customer Satisfaction?

Research Model & Hypothesis Development



Research Model

E Banking in Pakistan: As Pakistan is a developing country most of the banks were privatized during in 1991-93, as a part of the government's general program to economic liberalism and the privatization of state enterprises, now 9483 branches are operating in the country which

consists 7036 branches are Real Time Online Branches (RTOB), (SBP Report 2010).

E-Banking Systems Summary Statistics

Table 01.

(Amount in Million Rupees)

Products/Transaction Type	July- September 2010		October- December, 2010		Growth %	
	Number	Amount	Number	Amount	Number	Amount
Interbank Fund Transfer (IBFT)	47,465	6,418,883	55,459	7,566,928	16.84%	17.89%
eBanking (Financial Transactions)	52,584,716	4,650,172	56,423,217	5,462,428	7.30%	17.47%
ATMs	30,934,413	262,524	32,656,538	287,492	5.57%	9.51%
Points of Sale (POS)	3,426,865	15,757	3,618,228	19,747	5.58%	25.32%
Call Centre (IVR) Phone Banking	214,584	1,848	199,359	1,703	7.10%	7.84%
Internet	871,776	39,183	979,965	44,753	12.41%	14.21%
Real Time Online Branches (RTOB)	6,727		7,036		4.59%	
Automated Teller Machines (ATMs)	4,562		4,734		3.77%	
ATMs Cards	693,233		718,339		3.62%	
Credit Cards	1,676,691		1,564,246		-6.71%	
Debit Cards	8,697,049		10,910,372		25.45%	
Registered Users Internet	704,349		752,275		6.80%	

(State Bank of Pakistan ePayment System Report Dec 2010, Report was condensed for Analysis Purposes).

Above trends show that the E-Banking concepts in Pakistan are emerging and shows the significant upward movement. These trends must have impacts on productivity and growth in the banking sector and Customer attitude towards the adoption of E-Banking attributes in Pakistan.

Review of the Related Literature: Level of Information Technology and Banking: Before starting the brand new maxim concluded from our research it is very necessary to touch the ideas of previous researchers relating to the topic. Information technology has brought about revolutionary changes in the world and the business environment mostly the banking sectors which have become technology dependent. The value of information technology to the banking sector is almost undesirable (Boothroyd, 1998 Cited in Andrew Musiime & Fayth Biyaki, 2010).

Information technology as a term used to cover abroad spectrum of computing and communication devices that capture data (input) processes and covert data, store data and present data (output) James A O' Brien (2004).

Electronic Commerce is an emerging concept that describes the process of buying and selling or exchanging of products, services, and information via computer networks including the internet (Efraim Turban). Recent advance changes in communication technology, including the development of more powerful computers, are paving the way for new banking products and services, changing the way that traditional banking is done. Technology has added a new dimension to the competitive pressure that is already reshaping the financial services industry (Boon and Yu 2000).

Internet banking has increased the customer satisfaction as Moutinho and Phillips (2002) resulted that Scottish bank managers considered efficiency and enhancement of customer service to be two perceived advantages of internet banking. Faster easier, and more reliable service for customers, and improvement of the banks competitive

position to be the most important drivers of online banking among bank and IT managers in Kuwait (Aladwani 2001).

Information technology has reduced the total overhead charges of banking industry, as stated by Daniel (1999) that the banking sector subjected to tremendous changes because of the new technology leading to the reduction of costs associated with the management of information by replacing paper based and labor intensive methods with automated process.

Some introduction is necessary to be discussed that are replaced the traditional methods of banking industry, e-banking are footed using the following incredible technological items.

Automatic Teller Machines (ATMs'): An automated teller machine (ATM) is a computerized telecommunication device that is being provided to the customers a financial institution with access to financial transactions in a public space without the need for a human clerk or bank teller.

The first ATMs in the world were introduced to the public in the United Kingdom by Barclays Bank in1969. Cash is obtained from these machines by inserting a plastic card (Cash Cards) and entering a personal identification number (PIN). The PIN acts as a password which is checked against the number securely encoded on the magnetic strip on the back of the card. By 1979, these ATMs machines were upgraded to provide additional services (Olu Fasan).

ATMs are known by various casual terms including automated banking machine, money machine, bank machine, cash machine, hole-in-the-wall and cash point as well.

ATMs are normally connected directly to their ATM Controller via either a dial up modem (not using normally now) over a telephone line or

directly via a leased line. Lease lines are preferable because they require less time to establish a connection (John Wiley, 1997). According to Jane Blake (2000), Customer is identified by inserting a plastic ATM Card with a magnetic stripe or a plastic smartcard with a chip that contains a unique card number and some security information, such as an expiration date. Security is provided by the customer entering a personal identification number (PIN). ATMs are now days placed not only near or inside the bank premises, but also in locations such as shopping centers/malls, airports, hospitals, grocery stores, petrol/CNG Gas stations, restaurants. These represent two types of ATM installations: on and off premise.

ATMs are the most frequently used electronic distribution channel that allows bank customers to perform their main banking transactions, such as access their bank accounts in order to make cash deposits and withdrawals, as well as fund transfer for paying of bills and other shopping 24 Hours 7 days.

Magnetic Ink Character Recognition Machine (MICR) are magnetic ink characters that make Cheque encoding possible for computers, thus information can be read at very high speeds. As a result, millions of Cheques can processed without the need for tens of thousands of staff. Nowadays, the volume of Cheques could not be handled cost effectively without the use of MICR machines, 140,000 Cheques can be processed per hour (Olu Fasan).

Telephonic Banking is a service provided by the bank to their customers to generate transactions over the telephonic line. Normally customer registered telephone or cell number is authorized to perform a transactions. A customer is assigned a Telephonic Personal Identification Number (T-Pin), after entering that PIN he is verified and authorized to

perform a transaction (Olu Fasan). Telephonic banking service provides balance enquiry, transaction scroll of specified period, transfer of funds detail from and to the customer account also to transfer funds from the customer accounts (Davies, Moutinho and Curry 1996).

Internet Banking: Now a days bank customer can use internet such as web sites of the banks like a virtual branch, and you can perform all most of the activities that a customer perform into the bank premises, a customer transfer his funds to others, issue demand drafts, pay their credit card and utility bills, purchase mobile prepay cards and even shop directly from his account using bank websites.

Technology restyles the services of banking industry, new products and services are offered through the internet (Ndubisi et al., 2003). Today banking sector compel to adopt the new innovations of the market to compete the new challenges emerging from information technology in the banking industry, according to John Wiley (1997), internet banking is the newest delivery channel to be offered by retail banks in many developed countries.

PIN/TAN System: According to Cronin Mary J. (1997), there are basically two different security systems using in online banking system, the PIN and TIN system, PIN (Personal Identification Number) represents a password used for login for an online transaction, while TANs representing one-time password to authenticate transactions. TANs can be distributed in different ways like postal email and personal generating etc.

The most secure way of using TANs to generate them by need using a security token (Mukherjee and Nath, 2003).

Customer Satisfaction: Customer satisfaction is typically defined as being the result of an evaluative process that contrasts pre-purchase expectations with the perceptions of performance during and after consumption experience (Meuter et al., 2000). Customer satisfaction is basically defined it self as the full meeting one's expectations relating to the product used by the customer, these are the total feelings and sentiments about the product used by the customer (Jamal Naser 2003). Customer satisfaction is the most important theoretical as well as practical issue for the most marketers and researchers (Churchill and Suprenant 1982). Satisfied customers are become loyal for the organization and tell others their favorable experiences and thus engaged in positive word of mouth advertising (File and Prince 1992). Oliver in 1980 identifies that customer satisfaction model explains that when the customer compares their perceptions of actual products/services performance with the expectations, then the feelings of satisfaction have arisen, and any discrepancies between the expectations and the performance create the disconfirmation.

The banking industry strives to succeed by putting the topic of rapid and changing customers needs to their agenda; this is achieved in form of good customer care and offering attractive services or products that other competitors may not offer (Dabholkar, 1994). When the series of transaction takes place between customer and bank it transforms to the relationship step by step, being a result of social exchange between the client and bank (Giese and Cote, 2000). The seller (Bank) in the banking sector could benefit more from knowing about his buyer's (Customer) habits, behaviour and visions, therefore, the offering of banking services could be better suited to the market and the demand of

particular products could be projected (Parasuraman et al., 1991 cited in Andrew Musiime & Fayth Biyaki 2010).

E-Banking Usefulness: According to Davis (1989), ease of usefulness means "the degree to which an individual believes that using a particular system would enhance his/her job performance". The importance of perceived usefulness has widely been recognized in e-banking all over the world, they described that using of technology the user can improve the way of use and complete the given task well (Guriting and Ndubisi, 2006; Jaruwachirathanakul and Fink, 2005; Polatoglu and Ekin, 2001; Liao and Cheung, 2002). Ease of handling has significantly affected the perception and attitude of the customer regarding usage of electronic banking. At the same time, behavioral intention to use internet banking is highly related to attitudes; and perceived usefulness (Sohail & Shanmughan, 2003).

Accuracy and security expectations are the key quality attributes of perceived usefulness (Howcroft et.al., 2002; Hamlet & Strube, 2000; Liao & Cheung, 2002; Sathye, 1999). According to Pikkarainen et. al 2004 found that perceived usefulness and the information availability to the customer were the most dominant factors explaining the use of electronic banking.

Most of the previous studies found positive significant linkage with the technology adoption (Pikkarainen Karjaluoto & Pahnila, 2004; Eriksson, Kerem & Nilsson, 2005; Yiu, Grant & Edgar, 2007; Gounaris & Koritos, 2008; Ozdemir & Trott, 2009; Malek & Nik 2011), while one study found insignificant effect (Yu & Lo, 2006). Hence this study found

Ease of Use of E-Banking: Zeithaml et. al (2002), found perceived ease of use as the degree to which an innovation easy to understand and thus considered as perceived ease of use, Mathieson (1991) found that perceived ease of use is the consumer's perception about banking on internet involves minimum efforts in use. Perceived ease of use is the ability of consumer to try out the new innovation and evaluate its benefits and qualities easily; he also found that perceived ease of use is the driving force of electronic banking because it provides convenience, secure, standardized and easy access to the operations of banking via using internet technologies (Mathieson, 1991). According to Davis (1989) "perceived ease of use means "the degree to which an individual believes that using a particular system would be free of physical and mental effort".

Sample Size, Data Collection and Demographics: Data have been collected from 251 electronic banking customers of five top commercial banks in 4 districts of Khyber Pakhtoon Khwa (KPK), Pakistan. At least 10 customers were selected randomly on convenient sample basis from each of the branch among these five banks, total 270 questionnaire were distributed, 09 questionnaires were not returned and 10 were incomplete thus 251 questionnaires were used for data analysis, thus the rate of return was 93% and rejection rate is 7%, 184% of the total collected are males 161% are married, 114% are between the age of 20-30, 77% are Master level and 76% are intermediate level customers are the most prominent that are using E-Banking, demographic profile is shown as follows in Table 02.

Table 02. Demographic Profile

[N=251]

Gender	Freq	%	M.Status	Freq	%	Age	Freq	%	Qualification	Freq	%
Male	184	73.3	**Single**	90	35.9	**18-20**	2	8.00	**Matriculation**	29	11.60
Female	67	26.7	**Married**	161	64.1	**20-30**	114	45.40	**Intermediate**	76	30.30
Total	**251**	**100.0**	**Total**	**201**	**100.0**	**30-40**	105	41.80	**Graduation**	54	21.50
						Above 40	30	12.00	**Master**	77	30.70
						Total	**251**	**100.0**	**MS/Phd or Above**	15	6.00
									Total	**251**	**100.0**

Analysis and Discussions: For statistical analysis of collected data from 251 E-Banking customers SPSS (Statistical Package for Social Sciences) version 16 is used to test the hypotheses testing and statistical analysis. Reliability, Means and Standard Deviation are listed in Table 03, Nunnally (1978) suggested that for any research at its early stage minimum reliability score or alpha would be 0.60 or above is sufficient (Cited in Nadim Jahangir & Noor Jahan Begum 2008). Items those were deleted having alpha value less than 0.60, items value less than 0.30 might affect the consistency of the results for further analysis and those items having alpha value over 0.90 might added repeatedly or more than was required such items is also deleted because of getting better results (cited in W.Michael Olatokun & L.J Igbinedion 2009). Table 04 shows alpha above standards being from .613 to .808.

Means score were computed from the five point scale, the high mean score (4.130, SD=0.6172) for Ease of usefulness which indicates

that customers feel the usefulness of E-Banking by IT Usage as shows its result as 4.020 second in Means and High SD=0.79787 in Table 04.

The Mean score of Ease of Use resulted 3.912 and SD=.66190, customers using E-Banking may fell some easiness than traditional operations of banking.

Mean Score (3.636) of Customer Satisfaction shows customers are satisfied with the use of IT, Ease of Use and Usefulness SD=71.201 second in rank in Table 04 shows the significant customer satisfaction for E-Banking transactions.

Table 03 Reliability Tests, Mean and Standard Deviation of Variables

Variables	Cronbach's Alpha	No. of Items	Mean	S.D
Customer Satisfaction	.808	7	3.636	.71201
IT Usage	.748	4	4.020	.79787
Ease of Use	.684	6	3.912	.66190
Ease of Usefulness	.613	3	4.130	.61721

Table 04 Correlation Matrix

Variables	IT Usage	Customer Service	Ease of Usefulness	Ease of Use
IT Usage	1	.552(**)	.325(**)	.322(**)
Customer Service	.552(**)	1	.286(**)	.252(**)
Ease of Usefulness	.325(**)	.286(**)	1	.700(**)
Ease of Use	.322(**)	.252(**)	.700(**)	1

N=251 P.C=Pearson Correlation is significant at the 0.01 level (2-tailed).**

A correlation matrix analysis was conducted among all the variables to explore the relationship of these variables. The Bivariate

Correlation two tailed analysis were used to judge the relationship of variables, there are two different levels highly Significant (** p<.01) and Significant (*p<.05), the results in Table 04 shows all the results highly significant (**p<.01).

The variables are significantly and positively correlated with the Customer Satisfaction as IT Usage shows highest correlations results (r= .552, p<.01), Ease of Usefulness (r= .286, p<.01), and Ease of Use (r= .252, p<.01).

Table 05: Model Summary (I)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.564(a)	.318	.309	.59171

a Predictors: (Constant), Ease of Use, IT Usage, Ease of Usefulness

ANOVA (b) (II)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	40.259	3	13.420	38.329	.000(a)
	Residual	86.480	247	.350		
	Total	126.739	250			

a Predictors: (Constant), Ease of Use, IT Usage, Ease of Usefulness

b Dependent Variable: Customer Satisfaction

Coefficients (a) (III)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	1.250	.279		4.482	.000
	IT Usage	.458	.050	.513	9.134	.000
	Ease of Usefulness	.133	.086	.115	1.544	.124
	Ease of Use	.007	.080	.006	.087	.930

a Dependent Variable: Customer Satisfaction

Table 05 (I) to (III) shows the Coefficient and ANOVA (Analysis of Variance) analysis, in Table 06 (I), showed that R Square value for Model Summary 31.8% variance is predicted from the independent variables.

Table 05 (II) ANOVA (Analysis of Variance) presents the general significant of the models, and all the predictors have impact collectively on dependent variable showed as (F= 38.329; p=<.01), Table 05 (III) showed the Standardized Beta Coefficient that represents the contribution of each variable in the model and the t values showed the impact of independent variables on the dependent variable (Cited in W.Michael Olatokun & L.J Igbinedion, 2009). The highest standardized beta in Table 05 (III) for IT Usage (.513) showed that IT Usage, Ease of Usefulness second in rank (.115), and Ease of Use (.006) third in rank have significant impact on Customer Satisfaction individually to each variable.

The impact of independent variables on the dependent variable showed as t in Table 05 (III) IT Usage had (9.134), Ease of Usefulness (1.544) and Ease of Use (.087).

The highest betas standardized and unstandardized were resulted from IT Usage.

Test of Hypotheses

Table 06 **Variable Values Summary**

Variables	**Beta**	**P**
IT Usage	**.513**	**P<0.01**
Ease of Usefulness	**.115**	**P<0.01**
Ease of Use	**.006**	**P<0.01**

H1: Information Technology Usage (IT Usage) in the banking sector was found to have a significant positive impact on the customer satisfaction as showed in result in above Table 06 IT Usage have highly ranked Beta (β= .513, p<0.01), it clearly indicates that E-Banking customers are highly satisfied with the use of IT in the operations of banking transactions, and having Positive impact on customer satisfaction.

H2: Ease of Usefulness has a significant impact on customer satisfaction, witnessed in the above Table 06 (β=.115, p<0.01). E-Banking customers are satisfied with ease of usefulness.

H3: Relatively hypotheses H1 and H2 Ease of Use of E-Banking have relatively least impact (β= .006, p<.01) on Customer Satisfaction but although it is positive. The result implied that E-Banking is relatively complicated for some customers.

Discussion and Future Studies: This study presents the introduction, theoretical and research framework that Information Technology Usage, Ease of Usefulness and Ease of Use of E-Banking have positive and significant impact on Customer Satisfaction in Pakistan Banking Industry. This research would help out the decision and policy makers to keep into consideration the IT Usage, Ease of Usefulness and Ease of Use in E-Banking operations in the context of customer satisfaction.

In this study, it has become clear that customers are satisfied with the use of IT and its usefulness but there are still some complexities in E-Banking adoptions because of Use. E-Banking interfaces and operations would be designed in user friendly interfaces that E-Banking customers should understand and use it easily.

In future it would dig out other issues relating to E-Banking attributes like service delivery effectiveness and security matters. Study should also be in focus in future on prospective and non-users that why they are not using E-Banking.

References

Hughes T. 2001, "Marketing Orientation and the response of UK Financial Services Companies to change in marketing conditions as a result e-commerce", International Journal of Banking Marketing, Vol 19 No.6, pp 222-31.

Patricio, L., Fisk, R., Falcao e Cunha, J. (2003), "Improving satisfaction with bank service offerings: measuring the contribution of each delivery channel", Managing Service Quality, Vol. 13 No.6, pp.471-83.

Lymperopoulos, C., and Chaniotakis, E. (2004), "Branch employees' perceptions towards implications of e-banking in Greece", International Journal of Retail & Distribution Management, Vol. 32, No. 6, pp. 302-311.

Barnes, J.G., Howlett, D. M. (1998), "Predictors of equity in relationships between financial services providers and retail customers", *International Journal of Bank Marketing*, Vol. 16 pp.15-23.

Berry, L.L. (1984), "The employee as customer", in Lovelock, C. (Eds), Services Marketing, Kent Publishing, Boston, MA, pp.271-8..

State Bank of Pakistan Annual Reports Year Ended 2010 "Payment Systems Quarterly Review" Karachi Pakistan.

Andrew Musiime & Fayth Biyaki (2010), "Bank Clients` Perception of Information Technology Usage, service Delivery and Customer Satisfaction: Reflections on Uganda`s Banking sector" International Trade & Academic Research Conference (ITARC) - London 2010, page 1-33.

Boon, O.H., and Yu, C.M., (2000). Success factors in e-channels: The Malaysian banking scenario. International Journal of Bank Marketing. 21 (6), 369-77.

Moutinho, L., Phillips, P.A. (2002), "The impact of strategic planning on the competitiveness, performance and effectiveness of bank branches: a neural network analysis", International Journal of Bank Marketing, Vol. 20 No.3, pp.102-10.

Aladwani, A.M. (2001), "Online banking: a field study of drivers, development challenges, and expectations", International Journal of Information Management, Vol. 21 No.3, pp.213-25.

Daniel, E., (1999). Provision of electronic banking in the UK and the republic of Ireland, International Journal of Bank Marketing. 17 (2), 72-82.

Olu Fasan- http://www.tesionline.com/intl/glossary.jsp?id=4051

John Wiley (1997) Banking and Finance on the Internet.

Jane Blake (2000) ATM Security Measures

Davies, F., Moutinho, L., and Curry, B., (1996). ATM users Attitudes: a neural network analysis. Marketing Intelligence & Planning. 14 (2), 26-32.

Cronin, Mary J. (1997) Banking and Finance on the Internet

Mukherjee, A., Nath, P., Pal, M. (2003), "Resources, service quality and performance triad: a framework for measuring efficiency of banking service", Journal of the Operational Research Society, Vol. 54 pp.723-35.

Meuter, M., Ostrom, A., Roundtree, R., Bitner, M. (2000), "Self-service technology: understand customer satisfaction with technology-based service encounters", Journal of Marketing, Vol. 64 No.3, pp.50-64.

Jamal, A., Naser, K. (2003), "Factors influencing customer satisfaction in the retail banking sector in Pakistan", International Journal of Commerce & Management, Vol. 13 No.2, pp.29-53

Surprenant, C. and Churchill, G. (1982) An investigation into the determinants of customer satisfaction. Journal of Marketing Research. 19(4), 491.

Kazi Omar Siddiqi 2010, Interrelations between service qualities attributes, customer satisfaction and customer loyalty in the retail banking sector in Bangladesh, International Trade & Academic Research Conference (ITARC) - London 2010 page 01-26.

Surprenant, C. and Churchill, G. (1982) An investigation into the determinants of customer satisfaction. Journal of Marketing Research. 19(4), 491.

File, K. M. and Prince, R. A. (1992) Positive word of mouth: Customer Satisfaction and buyer behaviour. International Journal of BankMarketing. 10(1), 25-29.

Oliver, R. (1980) A cognitive model of the Antecedents and consequences of satisfaction decisions. Journal of Marketing Research. 17(4), 460.

Dabholkar, P. (1994), "Technology based service delivery", Advances in Service Marketing and Management, Vol. 3 No.1, pp.241-71.

Giese, J., Cote, J. (2000), "Defining consumer satisfaction", Academy of Marketing Science, Vol. 1.

Andrew Musiime & Fayth Biyaki 2010, “Bank Clients` Perception of Information Technology Usage, service Delivery and Customer

Satisfaction: Reflections on Uganda`s Banking sector", International Trade & Academic Research Conference (ITARC) - London 2010 page 01-17-33.

"Electronic Commerce A Managerial Perspective International Edition" Efraim Turban, Jae Lee, David King and H.Michael Chung page 4 &173-74

Sathye M (1999). Adoption of Internet banking by Australian consumers: an empirical investigation, Int. J. Bank Mark. 17(7): 324- 334.

Patricio, L., Fisk, R., Cunha, J. (2003), "Improving satisfaction with bank service offerings: measuring the contribution of each delivery channel", Managing Service Quality, Vol. 13 No.6, pp.471-82.

Roboff G, Charles C (1998). Privacy of financial information in cyberspace: banks addressing what consumers want. J. Retail Bank. Servic. XX (3): 51-56.

Muhammad Jehangir, P.D.D. Dominic and Alan G.Downe, Business Resources Impact on E-Commerce Capabilities and E-Commerce Value: An Empirical Investigation. Trends in Applied Sciences Research 6(9):1063-1070, 2011.

Wole Michael Olatokun & Louisa Joyce IgbinedionIssues in Informing Science and Information Technology Volume 6, 2009. "The Adoption of Automatic Teller Machines in Nigeria: An Application of the Theory of Diffusion of Innovation". (382) 373-393.

Nadim Jahangir* and Noorjahan Begum "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 Vol.2 (1), pp. 032-040, February, 2008 Available online at http://www.academicjournals.org/AJBM ISSN 1993-8233 © 2007 Academic Journals