

# Customers Perception towards Internet Banking in Bangladesh: Analysis made by using Technology Acceptance Model (TAM)

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**Abstract**— Internet banking, popularly known as online banking is modern technology based computerized system of providing banking systems to client with low cost and quick services. Banking industries all over the world tries to use latest technologies to provide customers high quality banking services. Bangladesh was comparatively a late adoptee and since 2005 it started through Standard Chartered Bank and Dutch Bangla Bank modestly and then spreaded quickly and now almost all the banks in Bangladesh use internet banking though services offered and extent of use differ from bank to bank. But what is striking is the lack of comprehensive study of internet banking covering organizational and operational sides and exhaustive study as to problem and prospects. Considering the importance of internet banking this study was taken up. The main objectives of this study were to evaluate internet banking structure, operations and to examine the customers perception towards using internet banking in Bangladesh. There are 25 banks were selected for intensive study. As to user respondents i.e. internet banking customers, 250 respondents taking 10 respondents from each bank were selected for interview. This research work used extended form of commonly applied and empirically supported Technology Acceptance Model (TAM) of information technology adoption to achieve this objective

**Index Terms**— Internet Banking, Customers Perception, TAM, Bangladesh.

## I. INTRODUCTION

In Bangladesh e-banking provides various services like online banking, debit card and credit card services, ATM services, home banking, internet banking, telebanking, mobile banking etc. Though many different e-banking channels are in practice, here author has concentrated on main e-banking channel which is called internet banking and model used for the study is Extended Technology Acceptance Model (ETAM) [1]. Computer network particularly Internet is one of the vital element for internet banking but study reveals that the price of the Internet connection in Bangladesh is higher as compared to the neighboring countries and the bandwidth also sometimes not sufficient to complete the internet banking transactions. Speed and safety is not up to the mark. Cyber laws are not really in well practiced; as a consequence internet

banking users do not feel secure. In the course of the study a number of challenges were also identified in adaptation and operation of the internet banking in Bangladesh. The major challenges of internet banking in Bangladesh identified are i) weak organizational and policy matters, ii) inadequate infrastructure, iii) lack of security, safety and secrecy, iv) weak awareness service and v) weak legal framework. As to the challenges, the study stresses that internet banking requires skilled, trained people in one hand and motivational and policy support from top management and policy makers on the other. The awareness service is a weak field and is a challenge for expected expansion and success of internet banking in Bangladesh. Bank should consider launching campaigns to demonstrate the impact of internet banking and its usefulness and benefits. Easy access, high speed internet, guarantee of completion of transactions with accuracy, receiving adequate information etc. are essential element for success and expansion of internet banking. Security is also a major concern and challenge of internet banking adoption in Bangladesh. Banking is highly regulated business but in the context of internet banking in Bangladesh, adequate legal framework, policy directions are found lacking.

Internet banking is gaining momentum in Bangladesh. But the customers' perception on different aspects of internet banking is not satisfactory. Customers perceive that security, awareness, quality of internet connection, trust and privacy is in a poor condition. However, they conceive that benefits and usefulness is at a satisfactory stage. Internet banking is now a world wide accepted phenomena and its development is striking. Bangladesh can not remain isolated nor can it slow down its pace in the growth, development and advancement in internet banking. Thus, challenges need to be identified, addressed timely so that in global arena in business and banking Bangladesh can be one of the leading partners.

## II. LITERATURE REVIEW

The Technology Acceptance Model was developed by Davis with the objective to provide an explanation of user's acceptance and usages behavior across a variety of end-user computing technologies [2]. The summary of the different studies on internet banking, online banking, internet banking in Bangladesh and other countries that could be made available is as follows:

In Malaysia Hari Mohan et al. [3], conducted a study and used Technology Acceptance Model (TAM) and considered factors were performance expectancy, effort expectancy, social influence, facilitating condition, trust, behavioral intentions. The study showed that self-efficiency and trust are not related positively with the intention towards online banking while perceived ease of use influences the intention towards online banking.

Manuscript received Feb 23, 2015

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Chibueze, et al. [4] in Nigeria showed that electronic banking has improved returns on the equity of Nigerian banks. The study revealed that the adoption of electronic banking has positively and significantly improved the returns on equity (ROE) of Nigerian banks. On the other hand, it also revealed that internet banking has not significantly improved the returns on assets (ROA) of Nigerian banks.

In India Kaur, Jasveen and Kaur, Baljit, [5] in a study shows that there is no significant difference in facilities determining the customers' usage of internet banking services of Public-sector, Private-sector and Foreign Banks in India.

Kartik Chandra Mondal, Anup Kumar Saha [6] pointed out clients are satisfied with the bill payment and fund transfer service, while they are quite concerned and worried about the availability of internet and electricity for using it.

Irteza Hoque [7] made an analysis of the customer satisfaction of internet banking in Bangladesh with a focus on Citibank N.A. The study shows that around 70% users have a positive attitude towards internet banking.

Rahman., et al. [8] pointed out that e-banking has become a necessity for banks. It offers the major opportunities in terms of competitive advantages and operational effectiveness within the company and develops a stronger and more durable business relationship with its customers.

Geetha K, et al. [9] in a study in India determines the factors influencing the consumer's adoption of e-banking in India and hence investigates the influence of perceived usefulness, perceived ease of use and perceived risk on use of e-banking. The results have supported the hypothesis that banks need to highlight the benefits of e-banking, make it easy to use, and enhance its security to improve consumers' trust.

Chian Son Yu [10] in a study in Taiwan cited that fast advances in the wireless technology and the intensive penetration of cell phones have motivated banks to spend large budget on building mobile banking systems, but the adoption rate of mobile banking is still underused than expected.

Bahl Sarita, [11] in a work in India determined that security and privacy issues are the big factors in e-banking. If security and privacy issues are resolved, the future of electronic banking can be very prosperous.

Singh [12] conducted a study in Singapore and mentioned that Singapore is known as the fastest growing telecommunications nation in Asia. The result shows that customer attitude (CA), perceived usefulness (PU) and perceived ease of use (PEOU) are critical factors that affect the user acceptance.

Mohamed Osman Shereif Mahdi [13], in a research study conducted in Saudi Arabia examined trust in e-banking services comprising ATMs, credit cards, telephone banking, mobile SMS, and internet banking services in Saudi banks. The findings suggested how males have high trust in both the credit cards and the internet banking services compared with their counterpart the females' respondents.

Isaiah Lule et al. [14], in a study in Kenya applied Technology Acceptance Model to examine the factors that influence the adoption of M-banking in Kenya. The analysis revealed that Perceived Ease of Use, Perceived Usefulness, Perceived Self Efficacy and Perceived Credibility significantly influenced customers' attitude towards usage of M-banking.

Mihir Kumar Roy et al. [15] mentioned in a research that the study investigates into online banking acceptance in the light

of the traditional technology acceptance model (TAM), which is leveraged into online environment. The main findings are the perceived ease of use, security and privacy, and online information are significantly correlated with online banking uses of the customers.

Sohel Ahmed [16] in a study found out the problems and prospects of mobile banking in Bangladesh. As to adoption, about 55% people feel they should use it and 45% people don't feel to use mobile banking according to the survey.

Hasan, et al. [17] conducted an exploratory research and it finds that as a developing country, Bangladesh is far behind to reach the expected level in global banking system. The results showed that e-banking provides several advantages to Bangladeshi banking sector. This study also observed that the Bangladeshi customers do not have enough knowledge regarding e-banking which is rendered by banking sector in Bangladesh.

Jannatul Mawa Nupur [18] conducted a study concentrating on e-banking and customers' satisfaction in Bangladesh. The result of the study showed that customers satisfaction on e-banking is above satisfactory level (with a mean value of 3.93 on a 5 point Likert scale). The customers are less satisfied on equipment, physical facilities, appealing materials, etc.

From the aforesaid literature review and evaluation of e-banking in developed and developing countries and in Bangladesh, it is evident that internet use and e-banking studies were conducted in different dimension and that sound and secure e-banking only can be achieved if a country can ensure good infrastructure and manpower. The study seeks to evaluate different aspect of the e-banking from structural, regulatory aspect, present status, aspects relevant to users, types of services provided, legal aspects, current practices, challenges and security issues etc.

### **III. OBJECTIVES OF THE STUDY**

The prime objective of this study plans to fill up the gap in research in e-banking to identify the practices and challenges of e-banking in Bangladesh. In such a perspective the specific objectives of this study are:

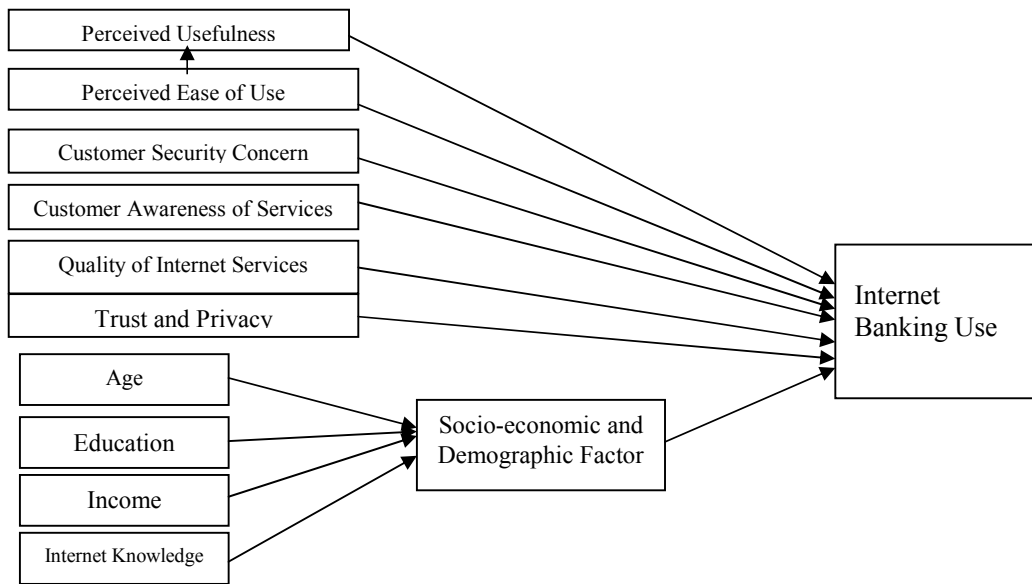
- a) To evaluate internet banking system in Bangladesh from the view point of structure, practices and perception.
- b) To evaluate customer's adoption of internet banking in Bangladesh by using Extended Technology Acceptance Model (ETAM).
- c) To identify the challenges and prospects of existing internet banking systems in Bangladesh.
- d) To provide policy recommendations to overcome the challenges of internet banking in Bangladesh.

### **IV. RESEARCH DESIGN AND METHODOLOGY**

It is to be mentioned that in this study both qualitative and quantitative research approach were applied. Information collected from primary and secondary sources have been used to (i) assess the theory, practice and problems of internet banking (ii) analyze the status, problems and prospect of internet banking practiced in Bangladesh and (iii) provide insight for policy formulation for internet banking in Bangladesh.

a) Research Model: Though many different e-banking channels are in practice, here researcher has concentrated on main e-banking channel which is

called internet banking and model used for the study is Extended Technology Acceptance Model (ETAM).



**Figure 1:** Extended Technology Acceptance Model (ETAM) for Internet Banking Adoption in Bangladesh

b) Research Hypotheses and Description of the Model: Security: the measure of the security issues of an individual’s intention to use internet banking, Awareness: the measure of the Awareness of services and its benefits of an individual’s intention to use internet banking, Internet Connection: the measure of the internet connection of an individual’s intention to use internet banking, Trust and Privacy: the measure of the

trust and privacy of an individual’s intention to use internet banking, Perceived Usefulness: the extent to which a person finds that using internet banking enhances their banking activities, Perceived Ease of Use: the extent to which a person believes that using internet banking is free of effort, Socio-economic and Demographic Factor: to measure the personal characteristics of an individual’s intention to use internet banking

**Table 1: Hypotheses Emerged from the Research Model**

H1: Customer’s Perceived Usefulness (PU) is related positively with Using internet banking
H2a: Customer’s Perceived Ease of Use (PEU) is related positively with Using internet banking
H2b: Customer’s Perceived Ease of Use (PEU) is related positively with Perceived Usefulness (PU) of Using internet banking
H3: Awareness of services and its benefits are positively related with customer’s Using internet banking.
H4: Security is positively related with Using internet banking.
H5: Quality of the Internet connection is positively related with customer’s Using internet banking.
H6: Customer’s trust is related positively with Using internet banking.
H7a: Age has a significant impact on customer’s Using internet banking
H7b: Education has a positive impact on customer’s Using internet banking.
H7c: Income has a significant impact on customer’s Using internet banking
H7d: Computer/Internet knowledge has a positive impact on customer’s Using internet banking.

c) Sample Size: Internet banking respondents have been selected from a total of 25 banks. The banks were selected randomly from the list of three types of banks, i.e. private commercial banks, public commercial banks and foreign commercial banks. Out of those 25 banks, 20 were from private commercial banks, 3 from state owned commercial banks and 2 from foreign commercial banks. As to selection of user respondents i.e. internet banking user, customers have been selected at random totaling 250 respondents taking 10

respondents from each bank. The respondents for this study were bank customers who had online internet banking account

located in Dhaka and Chittagong. The survey period was from August 2013 to January 2014.

d) Questionnaire and Measurement: The designed questionnaire for customers consists of two sections. The first section contain 5 demographic questions on gender, age, educational, occupation and income, 3 questions about internet information on browsing time, place, cost, and 3

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general questions on banking account like the name of the E-bank, transaction frequencies and factors influenced to use e-banking. Second section of the questionnaire consists of multiple measures of each of the 7 specific questions about the e-banking to find out the problems and prospects of adoption of e-banking. Each of this variable had 4- 5 items, hence a total of 33 questions were developed.

Likert 7 point scale was used to collect the opinion where scale range from 1 = Strongly Disagree, 2 = Quite Disagree, 3 = Slightly Disagree, 4 = Neutral, 5 = Slightly Agree, 6 = Quite Agree and to 7 = Strongly Agree. However, for simplicity, easy understanding of respondents and rank computation seven point bi-polar scale is widely used in social research. In such a bi-polar scale there is positive (agreement) and negative (disagreement) side with no comment or irrelevant in middle [19].

e) Statistical Analysis: Primary data were mainly used to assess the prospects of internet banking in Bangladesh, draw conclusions and make suggestions out of the study. Further, for analysis purposes statistical software SPSS 20.0 has been used to analyze the data with a view to measuring the usefulness of internet banking in the acceleration of banking sector in Bangladesh. Following various relevant statistical tests were used in analyzing data: 1. Percentage and frequency of sample details, 2. Weighted rank computation by using seven point bi-polar scale 3. Reliability testing, 4. Construct validity testing, 5. Simple regression analysis and 6. Multiple regression analysis.

### V. RESULT AND DISCUSSION

Major Findings of the Study are: a) it has been observed in the study that there are numerous advantages in internet banking systems compared to the conventional banking systems. Both users and service providers can be benefitted with full fledge practice in internet banking. It is also observed from the survey that customers are worried about security because current e-payment structure is not very secure in the context of Bangladesh. However in the context of Bangladesh, due to customers' identification problem and limited e-payment coverage (services are not available in rural areas) some of the mobile companies in Bangladesh are taking advantages to handle monetary matter which is not usual in developed countries.

b) As to the growth and development of internet banking in Bangladesh, the study examined current logistic, internet and legal framework and ethical issues. The study revealed that the banking history in Bangladesh is convincing and currently very good numbers of banks particularly private commercial banks are serving in the country but most of the banks are having limited number of branches mainly in urban areas. But vast majority of the population residing in rural area are unable to avail the opportunities of internet banking.

c) Computer network particularly internet is one of the vital element for internet banking but study reveals that the price of the internet connection in Bangladesh is higher compared to the neighboring countries. The available bandwidth provided

by BTCL and other ISP sometimes is not sufficient to complete the internet banking transactions.

d) Cyber laws like UNCITRAL model laws are not really in well practice, so internet banking users do not feel secure. All banks are not providing 24 hours services to customers due to power failure or sufficient fund crisis in ATM machines though huge potential internet banking customers are available in Bangladesh. Legal framework for internet banking found weak in Bangladesh, specific Act and Rules governing internet banking in Bangladesh is urgently needed.

e) Secure full fledge implementation of internet banking is a worldwide challenge. The major challenges of internet banking in Bangladesh identified as (i) Weak organizational and policy matters, (ii) Inadequate infrastructure, (iii) Lack of security, safety and secrecy, (iv) Weak awareness service and (v) Weak legal framework.

f) The study evaluated the customers perception towards internet banking is presented. Perceptions of customers with reference to internet banking use was evaluated from six angles viz., security, awareness, internet connection, trust & privacy, perceived usefulness and perceived ease of use. The study revealed that customers are not satisfied with the security especially as to security policy. As to awareness services provided by banks customer found to be unsatisfied which area the service providers should take into serious considerations. Further, the quality of internet connections, as per opinion of the respondents depicts a poor state of affairs. Customers felt that speed and completions of transaction are of very poor status. Regarding trust & privacy customers opined to be worried and unsatisfied which both give rise to risk and confidence erosion that act as barrier to efficiency and expansion of internet banking to customers' satisfaction. On the other hand as to usefulness and ease of use customers opined satisfaction. Thus among these six variables relevant to internet banking, excepting usefulness and ease of use, all other variables, as per opinion of the respondents found unsatisfactory which reveals weakness in organizational, operational and legal framework.

g) The validity and reliability of variables were tested to ensure that they produced reliable and consistent results. Reliability test was done for each variable of the model to confirm the robustness of the model. Cronbach's alpha of 0.60 or more and 0.95 is considered as best figures for optimum internal consistency of the instrument. As found from the result 6.42 to 6.48 the Cronbach's alpha coefficient constructs were above 0.60 for all the variables which is a satisfactory and status for the current study.

h) Besides that construct validity test was also done to prove that the model is scientifically acceptable. Construct reliability measures the stability of scale based on internal consistency of items measuring the construct. The results of the factor analysis of survey responses, all Eigen values are greater than 0.40 except two. The survey instrument validity test results were satisfactory. Literature review of previous studies also indicated that these factors played significant role in internet banking adoption in other countries as well.

i) Hypotheses are considered supported when path coefficient ( $\beta$ ) are significant with a p-value of less than 0.05 level. The p-value found from the results of the regression analysis for all the hypotheses are 0.000. The entire hypotheses framed for the study were found to be empirically accepted.

j) Finally, result of the multiple regression analysis performed on the research model found the overall model to be statistically significant. Multiple regression analysis gives the amount of variance ( $R^2$ ) accounted for in the dependent variable from a set of independent variables. Overall research model is statistically significant ( $F= 38.377$  and  $p < 0.001$ ) and all the independent variables together explain for 48.7% ( $R^2 = 0.487$ ) variance on the dependent variable (Internet banking Use). It proves that the research model is suitable to measure the intention adopting internet banking.

k) The independent variables are socio-economic and demographic factors, security issues, customers' awareness, quality of internet connection, trust and privacy, perceived usefulness and perceived ease of use to determine the Internet Banking Use (as dependent variable). The validity and reliability of variables were tested to ensure that they produced reliable and consistent results. Besides that construct validity test was also done to prove that the model is scientifically acceptable. For the purpose of the study, a number of hypotheses were drawn. All the hypotheses were tested accordingly and found significant. The results reveal that internet banking securities, awareness, perceived usefulness, perceived ease of use; trust and privacy have significant effect on internet banking use.

## VI. RECOMMENDATIONS

The following recommendations and strategies may be applied to overcome the problems of internet banking in Bangladesh [20]:

### a) Recommendations as Regards Operational Reform

- [1] Bangladesh Bank's ICT security guideline should be updated on regular basis and should be ensured full compliance by the scheduled banks and financial institutes.
- [2] Security infrastructure should be properly tested prior to using the systems and applications for regular operations.
- [3] The banks should keep upgrading the systems to latest versions which would ensure better security and control.
- [4] Banks using e-payment system should establish risk management department with properly trained staff and sophisticated instruments.
- [5] Various levels of authentication technologies may be put to use in order increase security and authenticity.
- [6] Electronic Fund Transfer Act of USA may be taken as guideline for framing legal framework to check fraud.

### b) Recommendations as Regards Legal Reform

1. The Government has to make sure that legal risks arising out of cyber laws are identified and adequately addressed.
2. Cheques in electronic form should be defined in the future amendment of ICT Act and NI Act and it also should address the authenticating techniques to be used in signing electronic cheques.
3. The Evidence Act of Bangladesh should be adequately modified to provide evidentiary value to electronic signatures and electronic records and their method of proving.
4. Banks should be designated and brought under licensing regime of certifying authority so that digital signature technologies based on Public Key Infrastructure may be introduced for increased security in EFT.
5. Data Protection clause should be specifically introduced in the ICT Act along with defining sensitive personal data and manner and extent of their use by data controller such as Banks.
6. It is necessary to balance the interests of customers and that of banks and provide protection to banks against any fraudulent or negligent act of customer. On the other hand, the customers are also to be protected from unauthorized and fraudulent transactions. It is not appropriate to leave such an important issue to be dealt with in Banks internal regulation. Appropriate statutory provision needs to be enacted in this regard.
7. The duties and liabilities of intermediaries should be clarified.
8. Bangladesh should sign and ratify United Nations Convention on the Use of Electronic Communications in International Contracts so that it may supplement the core legislation on electronic communications in international trade including international EFT in Bangladesh.

### c) Recommendations based on customers Survey Report

1. Security Issues: it was revealed from the survey that the customers' main concern was security. Internet banking service providers should have to ensure that online banking is safe and secure for every user in all kind of transactions. Cyber law should be enacted to deal with fraud and settle any dispute between buyers and sellers.
2. Customers Awareness: Publicity is one of the important elements to increase the internet banking users. Banks should regularly organize seminars and symposiums to make customer aware of the uses of online banking as well as security and privacy of their transactions. Bank officials and staffs also need to be trained to make them adopted and customer service oriented. Internet banking services should try to mobilize more deposit schemes through better marketing and innovative measures.
3. Cost and Speed of Internet: Banks should emphasize the cost saving that online can provide to the people, such as reduce transaction cost by use of online banking. Cost of internet browsing and the speed are not in satisfactory level in Bangladesh. Here

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cooperation of Government and service providers need to arranged and ensured.

4. Internet banking Services (Perceived Ease of Use): Internet banking service should resolve the entire problems that the customers face in online transactions very quickly. Banks should emphasize the convenience that online banking can provide to people, such as avoiding long queue, in order to motivate them to use it. Need to establish more ATM booths with sufficient fund. Internet banking service should be according to the customer expectation and satisfaction.
5. Performance of Internet banking (Perceived Usefulness): Internet banking system should be more flexible. Internet banking should develop their communication among branches. The decision making process should be faster.

### CONCLUSION

In the backdrop of some limitations and flaws, the study in implication and policy recommendation has provided some suggestions with reference to safety in payment and minimization of risks through ensuring adequate legal and operational measures for safety, security and confidence of customers. Information and communication technology (ICT) revolution has paved the way for technological advancement in different areas concerning socio-economic development of a country. This technological advancement in the field of banking has given rise to internet banking ensuring quick, accurate, and convenient banking services favorably helping both bankers and customers. Bangladesh entered into internet banking bit late but showing a steady progress in this regard as to acceptance and operation of internet banking. This study evaluated internet banking structure, operations, problems and prospects in the context of Bangladesh with reference to other countries. The study found some flaws in the spheres of organization, legal and operational sides. The perception of customers brings the weak areas to light. In such a context it is warranted that concerned authorities, based on in depth SWOT analysis and findings of the study would give attention to flaws and take appropriate action to minimize the flaws for efficient operation of internet banking in Bangladesh. In fact in his global competitive and advanced technological development internet banking in Bangladesh need to be well organized with safety, security, and customer satisfaction which in turn would benefit the economy, commerce, bankers, customers and the people in general.

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