



## USER ACCEPTANCE OF BANKING TECHNOLOGY WITH SPECIAL REFERENCE TO INTERNET BANKING

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### ABSTRACT

How to attract customers to use internet banking technology in a country like India, where use of such technologies by the customers in banking services is still moderately slow? Is indeed an enormous task for the service providers to build strategies to promote usage of internet banking. In this study, researcher has tried to identify few predominant factors and their influence on behavioural intention to adopt internet banking technology. This empirical study proposes nine research hypotheses derived from previous other studies made on users of banking technology. A survey was conducted among 319 users of Internet banking and the data was further analyzed using statistical tools. Multiple regression analysis was done to identify the predominantly influencing factors on user acceptance. The results of the study are identified perceived usefulness, trust, perceived credibility and perceived ease of use as the most influential factors for user acceptance of internet banking technology. Based on the results, managerial implications were made.

**Key Words:** *User Acceptance, Technology Diffusion, Banking Technology, Internet Banking.*

### 1. INTRODUCTION

Internet banking or online banking has been defined as “the service that allows consumers to perform banking transactions using a computer with an internet connection”. Pikkarainen et al. (2004) while defining Internet banking based on its utility defined it as “an Internet portal through which customers can use different kinds of services ranging from bill payment to making investments”[1].

Shih and Fang et al (2000) discussed how it is advantageous for the banks to go online, as it results in potential savings in the cost of maintaining a traditional branch network [2]. Giannakoudi (1999) states Internet banking system allows banks to expand their business geographically without investing in the establishment of new branches and, as a result, the customer base is broadened [3]. From user’s point of view, Turban et al. (2000) discussed how it is advantageous for the users to bank online because of the savings in costs, time and space it offers, its quick response to complaints, and its delivery of improved services .[4]. In spite of proved benefits, customers are still reluctant in adopting the

technology. For banks, it has resulted only in additional costs over runs as they have incurred huge investment on technology but the benefits received from the technology is much less. Hence it becomes essential for the banks to examine customer attitude and to find why customers are restricting them to use the technology and factors which would influence them to adopt the technology.

This study proposes to identify the factors which determine user’s acceptance towards internet technology. Dillion and Morris (1996) defined user acceptance as a person’s intentions to use a technology.[5]. Various studies has been conducted in developed countries to explore the factors that influences the bank customer’s intention to use internet banking . But in a developing nation like India where technology diffusion is still at its nascent stage, research has to be undertaken to identify the prominent variables that influences diffusion of technology.

Solomon et al (2013) in his conceptual paper reviews the extensive literature on the technology acceptance model (TAM) and explores the factors contributing to the consumer’s acceptance of electronic banking transactions. Trust, financial security, information quality, time

and money were found to predict potential usage. [6] Poon (2008) explored the determinants of users' adoption momentum of e-banking in Malaysia with ten attributes viz convenience of usage, accessibility, features availability, bank management and image, security, privacy, design, content, speed, and fees and charges.[7].Ali Saleh et al (2013) in his research confirmed that perceived ease of use and perceived usefulness, compatibility and trialability factors influence the behavioral intention to use Internet banking in Yemen.[8] Saibaba and Murthy (2013) proposed a model for internet banking acceptance in India with eight constructs such as Performance expectancy, Effort Expectancy, Social Influence, Attitude, Trust, Awareness, Self-Efficacy and Behavior Intention.[9]

## 2. PURPOSE OF THE STUDY

The purpose of the study is to identify the variables which have significant impact on intention to use internet banking.

## 3. REVIEW OF LITERATURE AND FORMULATION OF HYPOTHESIS

This empirical study proposes nine research hypotheses derived based on previous other studies made on users of banking technology

### Perceived Usefulness

Technology Acceptance Model (TAM) is a model that is developed by Fred D. Davis (1986) and later extended in 1989 to identify the factors influencing adoption and application of the new information technology (IT).[10] In his model he identified two antecedents which are perceived of usefulness and perceived ease of use in the application of new information technology.

Davis et al had defined Perceived usefulness as the degree to which a person believes that using a particular system would enhance his/her job performance. Several studies including [10], Wang et al (2003), Pikkarainen et al (2004) have also identified perceived usefulness as a predominant factor that influences intention to use and thereby adoption of internet banking. [11] Eze et al (2013) in their study emphasized customers would normally accept online banking systems if they believe the system to be helpful. [12] Therefore, the following hypothesis is proposed

**H1:** Perceived usefulness positively influences the intention to use internet banking.

### Perceived Ease Of Use

Davis et al have defined perceived ease of use as the extent to which an individual thinks that it would be effortless to use a particular system. Kim et al (2001) in their study validated the existence of positive relationship between perceived ease of use and behavioral intention to adopt online banking [13]. Ramayah et al (2002) in their research explained the positive relationship of perceived ease of use on intention to use online technology. [14]. Santos (2003) for ease of use of bank's website, easy to remember URL address, a well-organized format, easy site navigability, and concise and understandable contents, terms, and conditions are necessary to obtain ease of use for banking online.[15] Raman (2008) also emphasized bank to focus on Web site navigation and applicable functions to provide their users ease of use.[16]

Erikson(2005) has provided an empirical evidence of significant effect of perceived ease of use on usage intention.[17]. Tat et al (2008) in his study stated that that perceived ease of use affects a current user's intention to continue using Internet banking[18]. Jahangir et al ((2008) investigated the effect of perceived usefulness and perceived ease of use on the attitude of customers to adopt electronic banking and results of his study indicate they are positively influencing customer adaption [19]. Abeka (2012) in his study conducted among corporate users also accepted the positive influence of perceived usefulness and perceived ease of use on intention to adopt technology.[20] Therefore, the following hypothesis is proposed

**H2:** Perceived ease of use positively influences the intention to use internet banking.

### Perceived Credibility

Wang et al (2003) used perceived credibility as a construct to study the acceptance of internet banking. Perceived creditability refers to security and privacy. Many studies have proved the impact of security and privacy on adoption and usage of Internet banking.[21] Ba and Pavlou(2002) stated perceived credibility is usually impersonal and relies on reputation, information and economic reasoning, and it is more related to one's judgment on the privacy and security issues of the internet banking systems.[22] Lallmahamood (2007) agreed that security and privacy are the main concerns while using internet banking.[23] Amin (2009) while examining the factors that encourage bank customers to adopt mobile wallet recognized fear of lack of security as an important factor which



impacts the acceptance of mobile banking.[24] Sentosa (2012) in her study states that the usage intention of internet banking could be affected by users' perceptions of credibility regarding security and privacy issues.[25] Therefore, the following hypothesis is proposed

**H3:** Perceived credibility positively influences the intention to use internet banking.

#### Trust

Chen (2003) defined Trust as the reliability and dependability of the vendor offering products or services. [26] Rousseau (1998) has identified three forms of trust as calculus based trust, relational trust, and institutional trust. Calculus based trust arise out of a rational choice of user by calculating the perceived gains and losses. Relational trust is derived from repeated interactions between trustor and trustee. Institutional trust is built by institutional factor. Institutional trust plays a vital role to persuade a potential user to initiate using the technology. [27] Banker's reputation is predominant factor to build institutional trust among the potential users. Han et al (2002) found trust to be a primary factor that influences adoption of online banking. The customer would adopt internet banking technology only when he possess positive expectations and trust regarding the technology[28]. Sohail and Shanmugam (2003) in their research considered trust as an influential variable on adoption of online banking.[29]. Nor et al (2007) empirically proved the influence of trust together with some of the attributes of IDT on Internet banking acceptance.[30] Therefore, the following hypothesis is proposed

**H4:** Trust positively influences the intention to use internet banking.

#### Facilitating Conditions

Facilitating conditions refers to the available physical time and money and technological resources for adoption. Venkatesh et al(2000), defined facilitating conditions as the degree to which an individual believes that an organizational and technical infrastructure exists to support technology usage.[31] Technical infrastructure refers to computer, internet facility and information quality. Nelson et al (2005) states Information quality (IQ) denotes how good the system is in terms of its output. It is measured by information accuracy, completeness, currency and format of information presentation [32]. Foon & Fah (2011) adopted four factors from Unified

theory of acceptance and use of technology (UTAUT) and examined their influence on adoption of online banking. Facilitating conditions were found to be positively correlated with behavioral intention to adopt online banking.[33] Joshua et al (2011) has studied the facilitating conditions in context to online banking and proved the users who are more proficiently to access computer and internet technology are adopting internet banking better than non proficient users.[34] Therefore, the following hypothesis is proposed

**H5:** Facilitating conditions positively influences the intention to use internet banking.

#### Perceived Cost

Luarn and Lin (2005) defined perceived financial cost as the extent to which a person believes that using technology will cost money. Financial costs have negative impact on adoption of online banking.[35] Sathye (1999) in his study discusses two kinds of price involved in adopting internet banking .Primarily cost of internet such as cost of computers and Internet connection, and secondly the bank costs and charges. [36].Silvio et al (2014) in their paper opined unreasonable prices are another deterrent which affects IB adoption .Bank charges and internet connection fees are taken as perceived cost. They suggested technological innovations should therefore be reasonably priced as compared to other alternatives to facilitate adoption[37]. Richard al (2013) expressed potential users are discouraged by economic considerations such as concerns on basic fees for connecting mobile banking[38]. Therefore, the following hypothesis is proposed

**H6:** Perceived cost positively influences the intention to use internet banking.

#### Subjective Norms

Venkatesh et al (2000) defined subjective norms or normative pressure as the person's perception that most people who are important to her or him should or should not perform the behaviour in question.[39]. Amin (2007) in his study using extended TAM and emphasized the impact of normative pressure on intention to adopt technology.[40] Sripalawat et al (2011) in his study conducted in Thailand identified subjective norm as the most influential factor followed by perceived usefulness and self efficacy[41]. Therefore, the following hypothesis is proposed

**H7:** Subjective norms positively influence the intention to use internet banking.

**Image**

Moore and Benbasat (1991) defined Image as the degree to which adoption/continual usage of Internet Banking is perceived to enhance one's image or status in one's social system.[42]. Venkatesh et al (2000) further identify positive influence of image on social influence.[43]. Kleijinen et al (2005) in their study on adoption decision regarding service innovation identifies self image as significantly influential[44]. Therefore, the following hypothesis is proposed

**H8:** Image positively influences the intention to use internet banking.

**Self Efficacy**

Self efficacy is related to the perceived ability of using a new technology. Eastin & Larose(2000) have defined computer self-efficacy as the judgment of one's ability to use a computer more specifically internet. Self-efficacy is the belief in one's capabilities to organize and execute courses of internet actions required to produce given attainments.[45]. Lin (2009) in his study conducted in Taiwan referred self efficacy had positive effect on the behavioral intention to use mobile banking.[46] Ariff( 2013) studied the impact of self efficacy along with TAM variables on behavioural intention to adopt internet banking system among potential young users .His study validated the effect of computer self efficacy on behavioural intention.[47] Therefore, the following hypothesis is proposed

**H9:** Self Efficacy positively influences the intention to use internet banking.

**4. FRAMEWORK OF THE STUDY**

To understand the impact of the variables on intention to use internet banking a research model using multiple regression has been developed in the study.

$$Y = C + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + e$$

Where: Y = Intention to Use Internet Banking

X1 = Perceived Usefulness

X2 = Perceived Ease of Use

X3 = Perceived Credibility

X4 = Trust

X5 = Facilitating Conditions

X6 = Perceived Cost

X7 = Subjective Norms

X8 = Image

X9 = Self Efficacy

**5. RESEARCH METHODOLOGY**

The research design for this study was a descriptive research. A survey was conducted to test the hypotheses. The population of the study consists of internet banking users. The sampling procedure was convenience sampling. A five point Likert's scale with the range of 1 (strongly disagree) to 5 (strongly agree) were used for the measurement. Data was collected through self administered questionnaire. The questionnaire was divided in to two parts, first part of the questionnaire covered the demographic profile of the respondents and the second part of the questionnaire measured the constructs. .A pilot study was conducted and feedback regarding ambiguity and structure of the questionnaire were collected and the necessary changes were incorporated to refine the questions. 350 questionnaires were distributed out of which 319 were received with a response rate of 90%.

**6. RELIABILITY AND VALIDITY TEST**

Face and content validity of the instrument were ascertained by experts. The construct validity of the instrument was established and a correlation coefficient was 0.412. For construct validity in term of the discriminant validity test, correlation analysis between the variables was performed. The correlation among the variables is relatively low and it indicates that the constructs are unrelated from one another. The reliability of the instrument was ensured using cronbach's Alpha and a reliability coefficient of 0.893 was obtained. Hair et al (1998) in their study approved that items with a Cronbach's alpha value of more than 0.70 is consistent and reliable.[48] This suggests that the items concerned adequately measure a single construct for each tested variable

**7. PROFILE OF THE RESPONDENTS**

The data of the respondents' demographics is presented in the following figure It can be observed that majority (73%) of the respondents are male and nearly two thirds of them are unmarried. It is to note that 43% of them are within the age group of 35 years. The study is biased towards the educated respondents only. Majority of them are self employed. The majority of respondents are from the middle-income group and high income group.

*Table 1 Multiple regression analysis for user acceptance of internet banking*



Model	B	S.E	Beta	T value	Sig
Constant	5.397	.821		2.454	.019
Perceived Usefulness	1.231	.047	.275	25.041*	Sig
Perceived ease of use	1.112	.072	.173	17.081*	Sig
Perceived Credibility	1.173	.083	.195	19.923*	Sig
Trust	1.190	.042	.201	21.763*	Sig
Facilitating conditions	.983	.072	.121	12.173*	Sig
Perceived cost	.732	.069	.063	6.992*	Sig
Subjective norms	1.073	.044	.170	17.013*	Sig
Image	1.013	.072	.083	9.357*	Sig
Self Efficacy	1.042	.063	.147	14.228*	Sig

\* p < 0.05 Dependent Variable : Diffusion of IB

Table 2 Multiple regression analysis for user acceptance of internet banking

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std Error	F
1	.973	.946	.928	.834	1939.067

All the constructs taken for the study including perceived usefulness, perceived ease of use, perceived credibility, trust, facilitating conditions, perceived cost, subjective norms, image and self efficacy are significant and hence positively influences the intention to use internet banking. From the above table showing the results of multiple regression analysis, we infer perceived usefulness is the best predictor of diffusion of internet banking having a beta value of 0.275 followed by trust (.201) and perceived credibility (.195). Perceived cost is the least predictor of intention to use internet banking. Adjusted r<sup>2</sup> value .946 denotes that 95% of the intention to use internet banking was influenced by above constructs and the variation of 5% was due to the other variables outside the regression model.

R = 0.973

Adjusted R<sup>2</sup> = 0.928

The following regression equation can be derived from the model.

Where

B1 (1:1-9) = Regression Weights Coefficients

A (Constant) = 5.401

Regression equation can be written as

$$Y = 5.397 + .27 X_1 + .17X_2 + .19X_3 + .20X_4 + .12X_5 + .06X_6 + .17X_7 + .08X_8 + .14X_9$$

The above equation shows the result of step wise regression. The model identifies perceived usefulness, trust and perceived credibility as strongly influencing predictors to dependent variable. This indicates that one standard deviation increase in perceived usefulness score brings about 0.27 standard deviation increase in intention to use internet banking; one standard deviation increase in trust brings about 0.20 standard deviation increase in intention to use internet banking and one standard deviation increase in perceived credibility score brings about 0.197 standard deviation increase in intention to use internet banking. Further perceived ease of use ( $\beta = 0.17$ ) is significant followed by subjective norms ( $\beta = 0.17$ ), self efficacy ( $\beta = 0.14$ ), facilitating conditions ( $\beta = 0.12$ ), Image ( $\beta = 0.08$ ) and perceived cost ( $\beta = 0.06$ ).

## 8. CONCLUSION AND IMPLICATIONS

The results of the study are consistent with the researches done earlier. This paper identifies perceived usefulness, trust, perceived credibility and perceived ease of use as the most influential factors for user acceptance of internet banking technology

This study has few limitations as well, First the study is conducted in Chennai metropolis where the technological diffusion and adoption is high. The results may not be generalized to other geographical locations where the technological diffusion is comparatively less. Secondly the study has taken nine factors to study the user acceptance of internet banking technology, but there are certain other factors like trust in internet as a banking medium, personal factors, RBI regulations and culture which also significantly impacts user's acceptance were not considered. An additional avenue of research is required to identify and study those factors also. Thirdly the sample size of 319 users is not large enough as compared to other studies undertaken in this area of research.

The investigated results would help the service providers to develop strategies to increase



the customer base using internet banking technology Trust could be established more effectively by improving bank's reputation and corporate image. Security and privacy is found to be a matter of major concern for users, hence the bankers have to develop risk mitigating strategies to overcome this barrier and to build confidence and trust among users. Perceived ease of use is the next influential factor to determine user acceptance, so service providers should develop a user friendly website which has better navigation to ease the process of online banking. To enhance the usage further, banks should also ensure quality information is provided to them regarding services as well as usage. Perceived usefulness has most predominant influence on behavioural intention. But it has been found during the course of research that the user uses online banking only for receiving particular array of services, few services are not availed by the user due to certain impediments. He uses traditional system to avail those services. There is a further scope of research to study the reasons as to why certain services are not availed online.

In conclusion, the study examined user's acceptance of internet banking technology and its predictive components that determines it. The study revealed all the components were significantly affecting adoption of internet banking. The statistical Analysis shows perceived usefulness, Trust, perceived creditability and perceived ease of use as predominant factors determining user acceptance of internet banking. Based on the study suggestions were provided to the service providers and few recommendations were also made.

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