INTERNATIONAL JOURNAL OF ENGINEERING AND MANAGEMENT SCIENCES

www.scienceandnature.org

DETERMINANTS OF INTERNET BANKING ACCEPTANCE IN INDIA – A STRUCTURAL EQUATION MODELING (SEM) APPROACH

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ABSTRACT
Internet banking provides huge benefits to banks' in cost savings, improved customer relationships and differentiating their offerings from competitors. Although the Internet banking services were introduced in India for more than a decade ago, the adoption among the bank customers is still very low. This study aims to examine the factors that determine adoption intentions of customers to use Internet banking services in India. The research proposed a model called 'Internet banking Acceptance in India', constructs of which were developed based on the Unified Theory of Acceptance and Use of Technology (UTAUT) and three additional variables as identified to be context-specific. The data presented in this study are based on 325 questionnaires collected from individual bank customers' in Hyderabad city. The empirical findings of the study confirm the relationships between the identified latent variables and their impact on the adoption of Internet banking services. The proposed model explained about 66% of the variance in behavioural intention to adopt the Internet banking in India. This study contributes to the literature by providing a new research framework for predicting Internet banking adoption in India and its findings provide useful insights for bank managers and policy makers in planning Internet banking promotion strategies.

KEYWORDS: UTAUT, Behavioural Intention, Trust, Awareness, Attitude

INTRODUCTION

With the advent of Information technology, the way individuals and business are performing various activities have changed over the last two decades worldwide. The Internet users have been rapidly growing, as a new avenue of performing tasks like communication, shopping, banking, etc. According to Internet World Stats (2012), there are approximately 2.4 billion Internet users across the world against 361 million in the year 2002, with a growth rate of 566.4%. Further, it was reported that there were around 137 million Internet users in India with the penetration of only 11.4% of the population (Internet World Stats, 2012).

Internet technology has undoubtedly redefined the way the products and services are designed, communicated and delivered to the customers. For a marketer, the Internet has provided innumerable opportunities to understand and serve the customers better than rivals in the Industry. For example, the Internet has enabled most of the firms to save a considerable amount of money, by having personalized communication and delivering their products and services online. Most of the firms have been using hybrid channels (a combination of physical and virtual channels) to reach different customer segments, expanding their market coverage globally. This impact of the Internet is evident in almost all industries, including banks in India. Many banks in India have established their presence online, thus providing their customers the convenience of banking 'anytime, anywhere'. With the rapid diffusion of the Internet, banks now can add more value to their customers through their innovative banking channels and differentiate their offerings from competitors.

Internet banking is a platform where bank customers can perform various activities such as balance enquiry, fund transfer, request for bank statement, etc. which were traditionally performed in branch banking. There are numerous benefits for the banks and the customers through offering banking services online. For instance, it was estimated that branch banking costs about Rs.1 per transaction, Automated Teller Machines (ATMs) cost only 45 paise whereas Internet banking at 10 paise per transaction. This results not only in cost savings but also efficient and effective services quality. And for customers, it is possible to perform most of the banking transactions online without visiting the physical bank branch, at any time and in any place. In India, the banking services provided by the banks' websites can be classified under two types: informational websites and transactional websites. Informational websites would simply give customers access to services such as checking balances, viewing account statement, etc. whereas through transactional websites, customers can transfer funds online, make bill payments, etc.

Internet banking has been defined in the literature in many ways. For instance, Pikkarainen et al. (2004) defined Internet banking as "an Internet portal through which customers can use different kinds of services ranging from bill payment to making investments."

Although many banks have been offering banking services online, still the bank customers in India have not been using this technology-based service channel completely. The penetration of the Internet is steadily

growing in the last few years in India, but it was reported that only 7% of the bank customers are using Internet banking for performing their banking transactions (McKinsey & Company, 2011).

A number of research studies have been conducted across the world, for understanding the adoption behaviour of Internet banking by the bank customers (Liao et al. 1999, Tan and Teo 2000, Wang et al. 2003, Pikkarainen et al. 2004, Eriksson et al. 2005, Cheng et al. 2006, Yeow et al. 2008, Yousafzai and Yani-de-Soriano, 2012). There are many factors identified in those studies that influence the user's intentions to accept Internet banking for performing the banking transactions. Perceived usefulness, perceived ease of use, perceived security, trust, attitude and perceived behavioural control are some of the factors that are found to have stronger influence on the adoptions' intentions of bank customers. Most of these studies have been conducted in the countries where innovation adoption rate is much higher than the developing country like India in the last twenty years. The Internet banking has been introduced in India more than a decade before, but the adoption rate is still very low. Some of the reasons for bank customers not preferring online banking were lack of knowledge, privacy and security issues and preference for face-to-face transactions (IAMAI, 2006).

A detailed literature review found that previous studies examining the Internet banking acceptance in India did not have detailed and systematic theoretical approach, relating to the contextual factors. This study is the first attempt to address this limitation by applying Unified Theory of Acceptance and Use of Technology (UTAUT), which aims to conduct thorough research on factors that influence the adoption behaviour of bank customers in India, assist bank managers and policy makers in offering superior Internet banking services to their customers.

This paper is structured as follows. The next section provides overview of Information Technology theories, UTAUT, Internet Banking acceptance research, and a research model proposed in this study. After proposing the research framework, the article describes the methods employed. The next section includes research results, analysis and discussion. The final section contains the conclusions, implications and recommendations for future research.

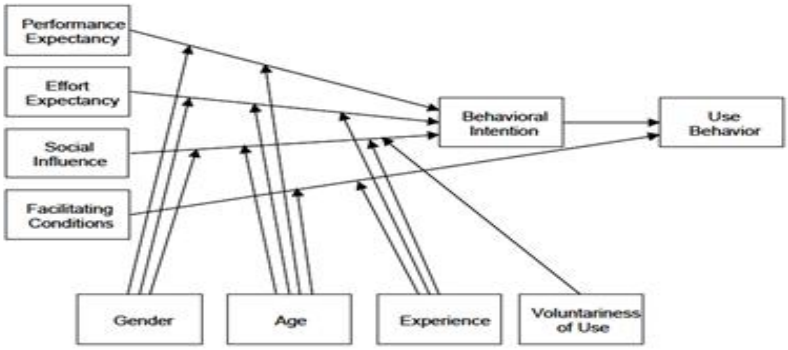
THEORITICAL BACKGROUND

User's acceptance of IT has always been an important area being studied by both researchers and practitioners for many decades. Understanding the secret behind user's decision to accept IT is one of the biggest challenge for successful IT implementation and management issues. According to Dillion and Morris (1996), IT acceptance is "demonstrable willingness to employ information technology for the task it is designed to support". Intentions to use a particular IT system is considered to be a critical element in predicting the behaviour (usage) (Venkatesh et al., 2003).

There are variety of theoretical perspectives that have been applied in various research studies in an attempt to understand the determinants of IT adoption and its usage, mostly derived from social psychology. These research frameworks use behavioural intentions of individuals to predict their actual use of technology, in turn, focuses on the identification of the determinants of their intentions to use that technology. Some of those research models mostly used in the context of IT acceptance, include Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1975), Theory of Planned Behaviour (TPB) by Ajzen (1991) and Technology Acceptance Model by Davis (1989), and Unified Theory of Acceptance and Use of Technology by Venkatesh et al. (2003).

The choice of acceptance model being adopted in this study has been justified as the Unified Theory of Acceptance and Use of Technology (UTAUT) model developed by Venkatesh et al. (2003). This model was considered to be robust and comprehensive for understanding the acceptance and adoption of IT, which integrates eight previously established models on individual acceptance of IT. It was found that there are four factors that significantly influence user acceptance and usage behaviour, namely *performance expectancy, effort expectancy, social influence* and *facilitating conditions* (Venkatesh et al. 2003). UTAUT model (fig. 1) was found to explain 70% of the variance of users' intentions to use a technology, whereas the previous eight models could explain variance of only 17 to 53 percent.

Figure 1: Unified Theory of Acceptance and Use of Technology



Source: Venkatesh et al. (2003)

Many previous research studies have investigated consumers' intentions to adopt or usage of Internet banking. Table-1 presents the overview of few research studies that applied various research models in the context of Internet banking acceptance research.

Table-1: Review of Internet Banking Acceptance Research applying various Technology Acceptance Models

Author(s) & Year	Model Applied	Research Context (Country)	Sample Size	Subject Type	Data Collection Method	Dependent Variable	Statistics	Significant Predictors
Liao et al., (1999)	TPB	Hong Kong	118	Bank customers	Questionnaire survey	Intentions to Use	Factor Analysis	Attitude and Perceived Behavioural Control
Tan and Teo (2000)	DTPB	Singapore	454	Internet Users	Online questionnaire	Intentions to Use	Multiple Linear Regression	Attitude and Perceived Behavioural Control
Wang et al. (2003)	TAM	Taiwan	123	Bank customers	Telephone Interview	Intention to Use	Structural Equation Modeling	Perceived Usefulness, Perceived Ease of Use, Perceived Credibility and Computer Self-Efficacy
Pikkarainen et al. [2004]	TAM	Finland	268	Bank customers	Questionnaire survey	intention to use	Factor Analysis and Regression Analysis	Perceived Usefulness, Amount of Information, Perceived Enjoyment
Jaruwachirathanakul & Fink (2005)	DTPB	Thailand	528	Internet Users	Questionnaire survey	Intention to Use	t-test & ANOVA	Perceived Usefulness, Website Features, and External Environment
Lai and Li, (2005)	TAM	Hong Kong	312	Graduate students	Questionnaire survey	Intentions to Use	Structural Equation Modeling	Perceived Usefulness and Attitude
Cheng et al. (2008)	UTAUT	China	413	IB users	Questionnaire survey	Intentions to Use	Structural Equation Modeling	Attitude, Perceived Usefulness and Perceived Web Security
Liu et al, (2008)	UTAUT	China	600	MBA and EMBA pursuing Executives	Questionnaire survey	Intentions to Use	Structural Equation Modeling	User Satisfaction, Performance Expectancy and Social Influence
Al-Somali, et al. (2009)	TAM	Saudi Arabia	400	Bank customers	Questionnaire survey	Intentions to Use	Structural Equation Modeling	Perceived Usefulness and Attitude
Prema & Sudhakar, (2009)	TAM	India	655	Bank customers	Questionnaire survey	Intentions to Use	Structural Equation Modeling	Attitude

Yuen et al. (2009)	UTAUT	USA, Australia, and Malaysia	766	IB users	Questionnaire survey	Intentions to Use	Factor analysis and Multiple regression analysis	Attitude, Performance Expectancy and Perceived Credibility
Foon and Fah, (2011)	UTAUT	MALAYSIA	200	Bank customers	Questionnaire survey	Intentions to Use	T-test, Regression analysis	Performance expectancy, Effort Expectancy, Social Influence, Facilitating Conditions and Trust
Yousafzai and Yani-de-Soriano, (2012)	TAM	UK	435	IB users	Questionnaire survey	Self-reported Use	Structural Equation Modeling	Perceived Usefulness
Geetha & Malarvizhi, (2012)	TAM	India	200	IB users	Questionnaire survey	Self-reported Use	Regression Analysis	Perceived Usefulness, Perceived Ease of Use and Perceived Risk

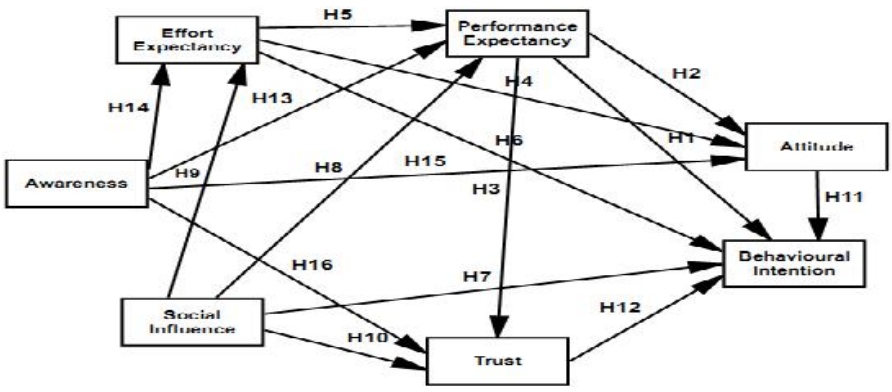
A study conducted by Sathye (1999) revealed that 'lack of awareness' and 'security concerns' were the major factors that are hindering customers from the adoption of Internet banking services in Australia. In another study, Wang et al. (2003) extended the TAM model by adding a variable called 'perceived credibility', for determining the users' acceptance of Internet banking in Taiwan. They found that factors such as perceived usefulness, perceived ease of use and perceived credibility had significant influence on the behavioural intentions of bank customers for using the Internet banking services. Pikkarainen et al. (2004) investigated online banking acceptance among the finish customers, by using extended TAM. This study found that perceived usefulness, amount of information on online banking were the most influential factors of Internet banking acceptance.

Yeow et al. (2008) have developed a research framework based on UTAUT model for investigating adoption of online banking in Australia. The study extended UTAUT theory with additional factors such as perceived credibility, anxiety, self-efficacy and attitude toward using online banking services. This research concluded that most of the independent variables have sign cant effect on behavioural intentions to use online banking in Australia. In another study conducted by Foon and Fah (2011), a survey of 200 respondents in Malaysia found that trust perception when added to UTAUT model, explained about 56.6% of the variance in behavioural intention.

RESEARCH MODEL

Many studies as discussed in previous section, have identified various factors which influence the adoption of Internet banking acceptance. As discussed earlier, this study considered the factors that would be more relevant for the Indian context, in addition to factors in UTAUT model. The new proposed model has six factors namely, performance expectancy, effort expectancy, social influence, attitude, trust, and awareness. These factors are assumed to influence the behavioural intentions of bank customers' in India, for adopting the Internet banking services. The extended UTAUT as illustrated in figure 2, will be named as 'Internet banking Acceptance in India' model.

Figure 2: Proposed Research Model - Internet Banking Acceptance in India



In this study, the bank customers' acceptance of Internet banking is measured by their behavioural intention to use this technology. Dillion and Morris (1996) defined user acceptance as a persons' intentions to use a technology. Behavioural intention to use a technology was verified to be a valid and reliable measure of actual usage (Sun, 2003). Therefore, this study measures customers' acceptance of Internet banking through their behavioural intention to use it.

Table-2: Significant Factors used in this study that influence Internet banking acceptance in India

	Factors	Definition
1.	Performance Expectancy	"The degree to which an individual believes that using the system will help him/her to attain gains in job performance" (Venkatesh et al. 2003)
2.	Effort Expectancy	"The degree of ease associated with the use of the system" (Venkatesh et al. 2003)
3.	Social Influence	"The degree to which an Individual perceives that important others believe he or she should use the new system" (Venkatesh et al. 2003)
4.	Attitude	"An individual's overall affective reaction to using a system" (Venkatesh et al. 2003)
5.	Trust	"Perceptions about others' attributes and a related willingness to become vulnerable to others" (Rousseau et al. 1998)
6.	Awareness	"Consumers go through a process of knowledge, persuasion, decision and confirmation' before they are ready to adopt a product or service" (Rogers and Shoemaker, 1971)

Several hypotheses were formed for testing as summarized in Table 3 and the sources from which they have been derived.

Table-3: Research hypotheses studied in this study

Hypotheses	Sources
H1:Performance expectancy has a significant impact on behavioural intention to use Internet banking	Tan and Teo, 2000; Wang et al., 2003;
H2: Performance expectancy has a positive impact on attitude towards using Internet banking	Pikkarainen et al., 2004; Al-Somali et al., 2009;
H3:Performance expectancy has a significant impact on users' trust perceptions of Internet banking	AbuShanab et al., 2010; Karthikeyan and Sudhakar, 2010; Foon and Fah, 2011;
H4:Effort expectancy has a positive impact on attitude towards using the Internet banking services	Ramayah et al., 2003; Wang et al., 2003;
H5:Effort expectancy has a significant impact on performance expectancy	Nor and Pearson, 2008;
H6: Effort expectancy has a positive impact on trust perceptions	Qureshi et al., 2008; Abu-Shanab and Pearson, 2009; Chang and Hamid, 2010; Sentosa et al., 2012;
H7: Social influence has a significant impact on behavioural intention to use Internet banking	Mashhadi et al., 2007; Liu et al., 2008;
H8: Social influence has a positive impact on performance expectancy	Nor and Pearson, 2008;
H9: Social influence has a positive impact on effort expectancy	Al-Somali et al., 2009;
H10:Social influence has a positive impact on trust perceptions	Alsajjan and Dennis, 2009;
H11:Attitude has a significant impact on behavioural intention to use Internet banking	Liao et al., 1999; Shih and Fang, 2004; Lai and Li, 2005; Nor and Pearson, 2007; Al-Somali et al., 2009; Prema and Sudhakar, 2009;
H12:Trust perceptions has a positive impact on behavioural intention to use Internet banking	Wang et al., 2003; Nor and Pearson, 2008; Abu-Shanab et al., 2010; Chong et al., 2010; Dimitriadis and Kyrezis, 2010; Foon and Fah, 2011;
H13:Awareness has a positive impact on performance expectancy	
H14:Awareness has a significant impact on effort expectancy	Sathye, 1999;
H15:Awareness has a positive impact on attitude towards using Internet banking	Pikkarainen et al., 2004; Al-Somali et al., 2009;
H16:Awareness has a significant influence on trust perceptions of users towards Internet banking usage	Prema and Sudhakar, 2011

RESEARCH METHODOLOGY

The survey method was used for collecting the data to test the hypotheses in this study. The questionnaire was designed based on researches conducted by Sathye (1999), Venkatesh et al. (2003), Wang et al. (2003) and Pikkarainen et al. (2004). The necessary modifications were done in the questionnaire, to fit into the Internet banking context and used five-point Likert scale measurements, ranging from "strongly disagree" to "strongly agree". In addition to this, questions on demographics (gender, age, education, income) and Internet related behaviour of the respondents were included.

A sample of 500 bank customers was randomly chosen from five different (public, private and foreign) bank branches in Hyderabad city. Out of the questionnaires distributed, 325 usable questionnaires were returned yielding a response rate of 65 percent. Table 4 summarizes the demographic characteristics and Internet-related behaviour of the respondents. Of the 325 respondents, 65.5% were male and the majority (39.1 percent) were between 26 and 35 years of age. Most (36.9 percent) had completed bachelor's degree, followed by respondents with master's degree (32.6 percent). In total, 43.4% were working with private sector organizations and 27.7% were with public sector undertakings. Majority (42.8 percent) of the respondents were in the monthly income group of 'Rs.20,001 to Rs.40,000', followed by 31.1% in 'less than Rs.20,000' income group. Most (34.8 percent) had been using the Internet for more than 6 years and the majority were using the Internet for about 5 to 10 hours (34.8 percent) per week.

Table-4: Profile of Survey Sample

Sample respondents' characteristics	No. of respondents (n=325)	Percentage (%)
I. Demographics		
Gender		
Male	213	65.5
Female	112	34.5
Age		
18-25 years	80	24.6
26-35 years	127	39.1
36-45 years	86	26.5
46-55 years	20	6.2
55 years and above	12	3.7
Education		
School & Diploma	47	14.5
Bachelor's Degree	120	36.9
Master's Degree	106	32.6
Professional Degree	42	13.0
Others	10	3.1
Occupation		
Student	16	4.9
Private employee	141	43.4
Govt. employee	90	27.7
Business	62	19.1
Others	16	4.9
Average monthly income (Rs.)		
Less than Rs.20,000	101	31.1
Rs.20,001-40,000	139	42.8
Rs.40,001-60,000	55	16.9
More than Rs.60,000	30	9.2
II. Internet-related Behaviour		
Internet usage experience		
Less than 2 years	30	9.2
2 to 4 years	75	23.1
4 to 6 years	107	32.9
More than 6 years	113	34.8
Internet usage per week		
Less than 5 hours	38	11.7
5 to 10 hours	113	34.8
10 to 15 hours	96	29.5
More than 15 hours	78	24.0

The data analysis was done with SPSS version 17 and AMOS version 17. Data analysis include descriptive statistical analysis, validity and reliability tests, exploratory factor analysis, confirmatory factor analysis, and structural equation modeling analysis.

RESULTS AND DISCUSSION

Exploratory Factor Analysis

The primary purpose of factor analysis is to 'define the underlying structure among the variables in the analysis' (Hair et al., 2005). The suitability of factor analysis for this study was determined using two main measures such as sample size and Kaiser-Meyer-Olkin (KMO) with Bartlett's test of sphericity (Pallant, 2001). The sample size of this research exceeded the minimum requirement of sample size (10:1 i.e. at least 10 observations per variable) considered suitable for factor analysis.

The Barlett's test of sphericity with an X_{325} = 16403.863, $p<0.001$ indicates that correlations were adequate to conduct factor analysis. The sampling adequacy measure of Kaiser-Meyer-Olkin was used to check for excessive correlations with a value equal to 0.893, well above the recommended value of 0.5. This explains the existence of small correlations among variables.

The principal component method of factor analysis with varimax rotation method was used, which extracted seven (7) factors having eigen values of more than 1.0. The cumulative variance explained by extracted 7 components was 82.83%.

Table-5: Exploratory factor analysis

	Effort Expectancy	Attitude	Performance Expectancy	Trust	Social Influence	Behavioural Intention	Awareness
PE1			.726				
PE2			.812				
PE3			.856				
PE4			.766				
EE1	.903						
EE2	.910						
EE3	.924						
EE4	.943						
EE5	.816						
SC1					.842		
SC2					.851		
SC3					.891		
ATT1		.831					
ATT2		.928					
ATT3		.897					
ATT4		.823					
T1				.778			
T2				.785			
T3				.802			
T4				.681			
BI1						.858	
BI2						.869	
BI3						.853	
AW1							.821
AW2							.834
AW3							.848
Eigen value	9.766	3.394	2.515	1.809	1.465	1.411	1.176
Percentage of total variance explained	37.561	13.052	9.673	6.956	5.633	5.429	4.523

Confirmatory Factor Analysis (CFA)

CFA was used in this study, to assess the quality of each measure under three main issues: convergent validity, unidimensionality and reliability. The model were estimated by using the Maximum Likelihood (MC) estimation procedure available in the Amos version 17, because this type of estimation method is widely used in the literature of business and marketing (Shah and Goldstein, 2006). The seven-factor measurement model was tested to confirm the validity, reliability and unidimensionability of all constructs, which is summarized in Table-6.

The minimum requirements of the measurement model has been satisfied. All the standard regression weights are greater than 0.60 and the critical ratios are significant at $p=0.001$. The adjusted $\chi 2$ ($\chi 2/df$) is 2.574 and other goodness of fit statistics (GFI, AGFI, CFI, RMSEA) suggest that the proposed model achieved a good fit to the observed data. In terms of composite values, all constructs have achieved the recommended value of 0.70. Reliability evaluation based on AVE revealed that constructs exceed 0.50 and the Cronbachs alpha values exceed 0.70.

Table 6: CFA results for Measurement Model

Constructs	Convergent Validity			Item Reliability	Scale Reliability		
	Standard Regression Weights	Standard Error	Critical ratio (t-value)	R^2	Composite Reliability	Average Variance Extracted	Cronbach Alpha
Acceptance level	**≥0.6**	**Low**	**±1.96 ±2.57**	**≥0.5**	**≥0.7**	**≥0.5**	**≥0.7**
Performance Expectancy							
PE1	0.758	-	-	0.574	0.894	0.678	0.898
PE2	0.866	0.051	22.682	0.750			
PE3	0.894	0.052	23.388	0.799			
PE4	0.768	0.048	19.827	0.590			
Effort Expectancy							
EE1	0.905	-	-	0.819	0.968	0.883	0.960
EE2	0.926	0.024	40.287	0.857			
EE3	0.935	0.024	41.509	0.874			
EE4	0.991	0.021	50.37	0.982			
Social Influence							
SI1	0.92	-	-	0.847	0.958	0.883	0.959
SI2	0.929	0.025	42.054	0.862			
SI3	0.97	0.023	47.985	0.941			
Attitude							
ATT1	0.794	-	-	0.594	0.877	0.704	0.917
ATT3	0.92	0.056	24.647	0.807			
ATT4	0.837	0.047	21.889	0.710			
Behavioural Intention							
BI1	0.95	-	-	0.903	0.963	0.898	0.963
BI2	0.983	0.017	61.47	0.965			
BI3	0.908	0.021	43.926	0.825			
Trust							
T1	0.885	-	-	0.783	0.913	0.778	0.913
T2	0.92	0.027	32.869	0.847			
T3	0.84	0.031	28.254	0.706			
Awareness							
AW1	0.852	-	-	0.726	0.839	0.636	0.767
AW2	0.713	0.046	18.31	0.508			
AW3	0.82	0.043	20.483	0.672			
Unidimensionality – Overall Good-of-fit indices							
$\chi 2 = 2.547$;							
GFI = 0.933; AGFI = 0.912; CFI = 0.977;							
RMSEA = 0.049							
*** p=0.001							

To examine discriminant validity of the measurement model, the comparison of the correlation between factors with the average variance extracted of the individual factors (Fornell and Larcker, 1981) was made. The result of this analysis shows all the inter-scale correlations are lower than the square root of average variance extracted confirming discriminant validity (see Table-7).

Table-7: Discriminant Validity of Constructs

	ATT	PE	EE	SI	TR	AW	BI
ATT	**0.839**						
PE	0.289	**0.824**					
EE	0.325	0.342	**0.940**				
SI	0.264	0.529	0.259	**0.940**			
TR	0.305	0.576	0.310	0.632	**0.882**		
AW	0.319	0.392	0.283	0.310	0.357	**0.797**	
BI	0.426	0.531	0.293	0.512	0.550	0.338	**0.947**

Note 1: Diagonal elements (in bold) are the square root of average variance extracted (AVE). Off-diagonal elements are the correlations among constructs.

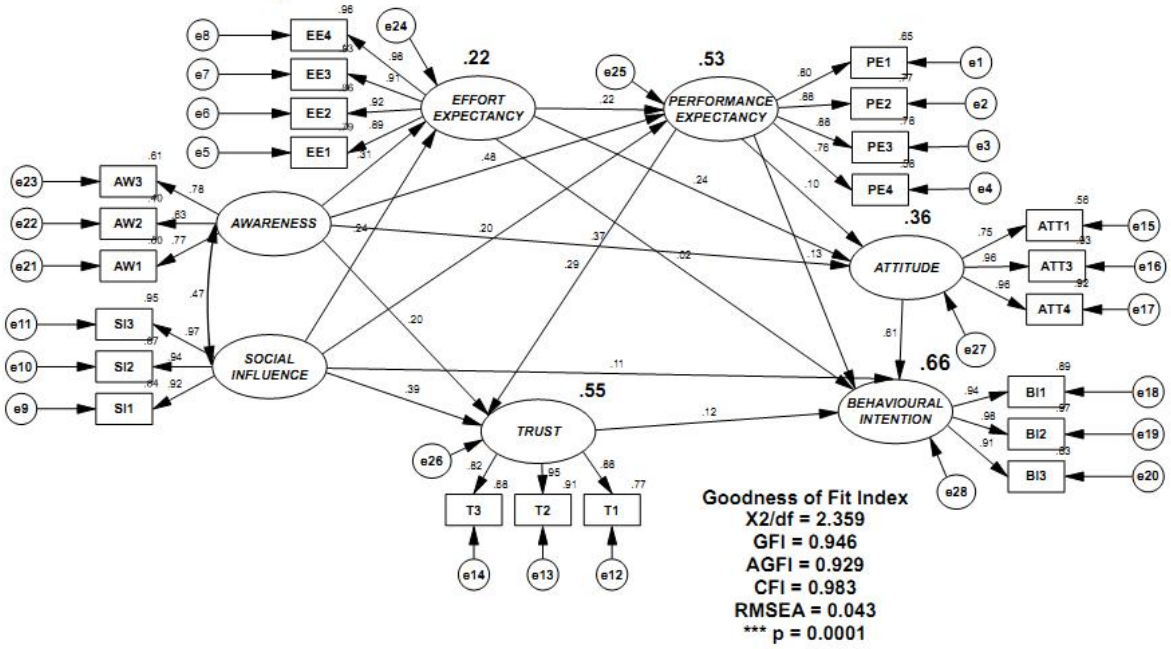
Note 2: ATT=Attitude, PE=Performance Expectancy, EE=Effort Expectancy, SI=Social Influence, TR=Trust, AW=Awareness, BI= Behavioural Intention

In summary, the measurement model results have demonstrated adequate validity and reliability i.e. unidimensionality, convergent validity, item and scale reliability and discriminant validity are fulfilled, and the items adequately representing the conceptual support of the measured variables.

Structural Model

The hypothesized relationships between behavioural intention to use Internet banking and six latent variables - performance expectancy, effort expectancy, social influence, attitude, trust and awareness - are examined using structural model. The full structural model is presented in figure 3.

Figure 3: Results of Structural Model



The parameter estimates of the full structural model is provided in Table 8. The Internet Banking Acceptance model, can be described as follows:

1. A total of 65.7% of the variance in behavioural intention to use Internet banking is explained by four significant predictors: Performance Expectancy, Trust, Attitude, and Social Influence.
2. The variance of attitude in total of 35.7% is explained by three significant predictors: Performance Expectancy, Effort Expectancy and Awareness of Internet banking services.
3. A total of 54.5% of the variance in Trust perceptions of Internet banking is explained by three predictors: Performance Expectancy, Social Influence and Awareness.
4. The variance of Performance Expectancy in total of 53.4% is explained by factors including Effort Expectancy, Social Influence and Awareness.
5. A total of 22.5% of the variance in Effort Expectancy is explained by two significant predictor's viz. Social Influence and Awareness of Internet banking services and its benefits by bank customers.

Table-8: Assessment of the structural model

Research Hypothesis	Structural Model Paths	Standard Regression Weight scores	Supported?
H1	Performance Expectancy → Behavioural Intention	0.130	**Yes**
H2	Performance Expectancy → Attitude	0.103	**No**
H3	Performance Expectancy → Trust	0.288	**Yes**
H4	Effort Expectancy →Attitude	0.240	**Yes**
H5	Effort Expectancy → Performance Expectancy	0.223	**Yes**
H6	Effort Expectancy → Behavioural Intention	0.022	**No**
H7	Social Influence → Behavioural Intention	0.110	**Yes**
H8	Social Influence → Performance Expectancy	0.202	**Yes**
H9	Social Influence → Effort Expectancy	0.236	**Yes**
H10	Social Influence → Trust	0.390	**Yes**
H11	Attitude → Behavioural Intention	0.608	**Yes**
H12	Trust → Behavioural Intention	0.122	**Yes**
H13	Awareness → Performance Expectancy	0.476	**Yes**
H14	Awareness → Effort Expectancy	0.314	**Yes**
H15	Awareness → Trust	0.203	**Yes**
H16	Awareness → Attitude	0.371	**Yes**

In summary, of the 16 causal paths specified in the hypothesized model, the 14 hypothesized paths are found to be significant. Only two hypothesized paths (PE→ATT, EE→BI) are found to be insignificant. The estimated model has achieved a good fit as given in Table 9.

Table-9: The results of Goodness of fit statistics for Structural Model

Test	$\chi 2$	Df	$\chi 2$ / df	GFI	RMSEA	CFI	AGFI
Criteria			<3	>0.90	<0.05	>0.95	>0.90
Actual	502.403	213	2.359	0.946	0.43	0.983	0.929

As mentioned in Table 10, the following significant inferences can be made on the total effects:

1. Awareness of Internet banking services and its benefits was found to have stronger influence on user's perceived performance expectancy (0.547), on attitude (0.502) and on behavioural intention (0.428). An important finding from this study was awareness levels did have positive impact on behavioural intention through mediating variables namely, performance expectancy, effort expectancy, trust and attitude. As the awareness levels of the bank customers about the Internet banking services increase, their perceptions about the system in terms of its usefulness, their positive opinion and their intention to use, will also increase.
2. The need for social influence on the technology adoption was also confirmed in this study, as peers, family and friends opinions about the Internet banking services was having significant impact on the customers' trust perceptions, their intentions, perceived benefits and ease associated with the technology.
3. Although, the direct effect of effort expectancy on behavioural intention was insignificant, it was found to affect indirectly through variables such as performance expectancy, attitude and trust. The bank customers' perception about the ease of using the system was an important factor influencing their perceived performance expectancy, attitude and trust perceptions of Internet banking and their intention to use it.
4. Finally, bank customers' attitude toward Internet banking was an important factor, having stronger effect on their behavioural intentions to use this technology.

Table-10: Standardized Total Effects

Independent Variables / Dependent Variables	AW	SI	EE	PE	ATT	TR	BI
PE	0.547	0.254	0.223	-	-	-	-
EE	0.314	0.236	-	-	-	-	-
ATT	0.502	0.083	0.263	0.103	-	-	-
TR	0.361	0.463	0.064	0.288	-	-	-
BI	0.428	0.255	0.218	0.228	0.608	0.122	-

Note: PE=Performance Expectancy, EE=Effort Expectancy, ATT=Attitude, SI=Social Influence, TR=Trust, AW=Awareness, BI= Behavioural Intention

CONCLUSIONS AND IMPLICATION

The aim of this research was to identify the factors that determine customers to adopt Internet banking services in India which can be useful for bank managers and policy makers. This study identified six significant factors that directly or indirectly influence the user's behavioural intention to use Internet banking services. The research framework proposed in this study has been derived from UTAUT, which was modified to meet the needs of Internet banking adoption in the Indian context. The proposed model is considered to be unique, as it incorporates the factors that influence Indian commercial banks' customers to accept Internet banking. An important contribution of this study is developing the research model based on previous literature, which is statistically tested to be effective in yielding the desired results.

The results of this study provide bank managers and policy makers, an insight into the most influential factors that determine Indian bank customers' intention to use Internet banking. For instance, awareness was found to be one of the important factor in determining the customers' perception of Internet banking services as it influences customers' perception on system benefits, complexity involved, positive opinion and their trust beliefs. Banks should plan awareness campaigns especially for minimizing the risk perceptions of the customers and to increase their confidence on the system, by communicating its benefits and advantages over other traditional channels.

Future studies could extend the proposed model to include other important variables such as perceived value, perceived risk, personal innovativeness etc. It would be interesting to study the different segments' perception on Internet banking services in India, based on variables such as level of computer knowledge, prior experience, technology readiness etc. The applicability of the proposed model can be evaluated in other developing countries where similar conditions are prevailing.

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