



## INTERNET BANKING SERVICES: AN EMPIRICAL STUDY

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### Abstract

The Internet has provided new opportunities for banks to reach their customers and provide better services. Internet banking has become a new means of performing banking transactions, providing lot of convenience to the customers. Still, the adoption rate of Internet banking in India has been lower than other developed nations. There are many reasons for the slower diffusion rate of Internet banking in India from the bank customers' perspectives. This empirical study aims to investigate the factors that determine bank customers' intention to adopt Internet banking by extending Unified Theory of Acceptance and Use of Technology (UTAUT) model, with additional three constructs in order to suit the research context.

**Keywords:** Internet Banking, Perceived Security, Trust Perceptions

### Introduction

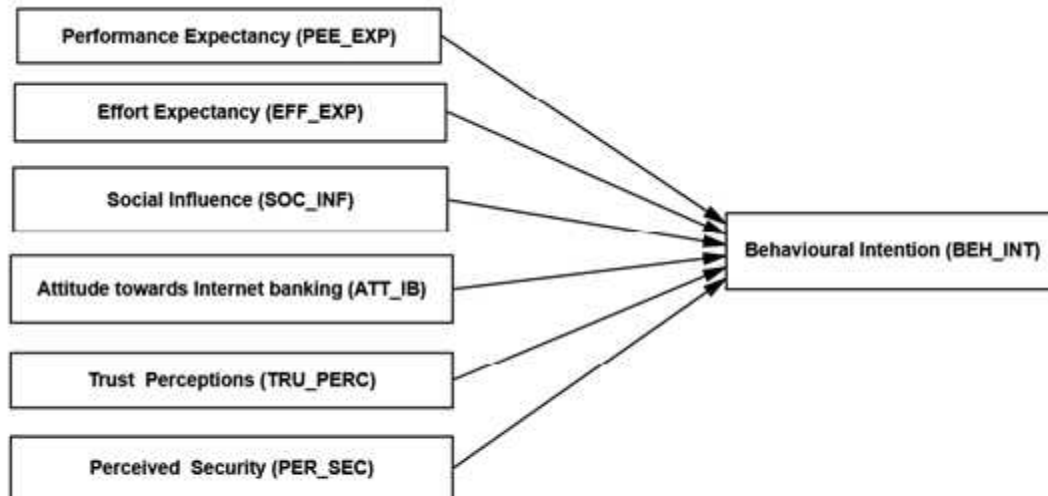
The rapid development of technologies has presented business organisations with both opportunities and threats. This impact cannot be ignored, as it has changed the way the business strategies are formulated and executed. One such industry that has witnessed a significant influence of Internet technology is the banking industry worldwide. Today, most of the services are provided by the bank through electronic channels and customers have the convenience of performing their transactions easily. The Internet technology has been proven to be a new and better way of reaching customers. Traditionally, customers had to perform their banking transactions only at a bank's branches available at a particular place, resulting in increased time and cost spent on it. Later, the banks introduced other banking channels such as telephone banking and ATM, in which customers could perform simple transactions. But the Internet has opened new possibilities for banks to serve their customers better through Internet banking. This technology, not only benefitted banks in lowering their costs and quick service delivery, but, also gave customers the option to perform their banking transactions 24 hours a day, 7 days a week, and 365 days a year. The adoption rate of Internet banking has grown rapidly in developing nations like USA, Australia, Europe etc. but in the developing countries like India, the usage of this innovative banking technology has been slower, inspite of the fact that Internet penetration rate is growing steadily over the past few years. As the success or failure of any technology would depend upon the rate at which it is accepted by the users, hence the businesses would attempt to understand the factor that influence users' intentions to adopt that technology. There are many research studies done in order to identify the determinants of Internet banking adoption in India, and there are conflicting results in explaining the relative importance of those factors. Therefore, this research attempts to explore the possible antecedents of Internet banking services adoption in India, by developing a new model.

### Review of Literature

Mukherjee and Nath (2003) conducted a study to understand the impact of key factors that are influencing the Indian consumers' trust in online banking. This study found that shared value and privacy are the most important determinant of trust. Further, the study reports that long-term commitment of the consumers in the future to the online banking would depend on their perceived trust. 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 significant effect on behavioural intentions to use online banking in Australia. Abu-Shanab and Pearson (2009) extended UTAUT model with six additional factors such as self-efficacy, anxiety, perceived trust, perceived risk, perceived innovativeness and locus of control, for understanding the adoption behaviour of bank customers in Jordan. The study developed and validated the Arabic instrument in understanding the technology acceptance. In another study done by Prema and Sudhakar (2009), the TAM research framework was extended with an additional variable namely perceived security, to illustrate the attitude towards Internet banking services in India. This study also measured the impact of computer self efficacy and awareness on the process of online banking adoption. The study results revealed that attitude had stronger influence on the customers' intentions to use Internet banking. Kesharwani and Bisht (2012) proposed a research framework for understanding Internet banking adoption in India, by incorporating security and privacy issues into it. The results of this study reveals that customers' perception of Internet banking websites and the risks associated with it would influence their adoption intention. Trust was found to influence the behavioural intention of bank customers only by reducing their risk perceptions about the bank's website. The research model (Figure 1) proposed in this study is an extension



of UTAUT model by adding constructs such as trust perceptions and perceived security, in order to predict the factors that determine the consumers' intention to adopt Internet banking technology in India.



**Figure 1: Proposed model of Internet banking adoption in India**

**Performance Expectancy:** It is defined as the degree to which a consumer perceives Internet banking to be more useful in performing banking transactions than using the traditional banking channels. This perception of Internet banking benefits would motivate consumers to accept and use Internet banking. Thus, the following hypothesis has been proposed:

H1: Performance expectancy has a positive effect on behavioural intention about adopting Internet banking.

**Effort Expectancy:** The degree of ease associated with the use of the Internet banking website and is measured by the perceptions of ease of using or understanding the operations of the online banking website services. Consumers would be ready to use Internet banking when they perceive this system to be easy to learn and use. Hence, we postulate the following hypothesis:

H2: Effort expectancy has a positive effect on behavioural intention about adopting Internet banking.

**Social Influence:** People might use Internet banking services, if their friends or peers influence them to do so. The usefulness of Internet banking might be felt more, not only by oneself, but when it is recommended by others in a social group as the most desirable channel for performing banking transactions. Thus, we propose the following hypothesis:

H3: Social influence has a positive effect on behavioural intention to adopt Internet banking services.

**Attitude:** The degree to which a bank customer has a favourable or unfavourable opinion on the benefit of using Internet banking services. Bank customers' attitude towards Internet banking adoption would influence their adoption intention. Thus, we postulate the following hypothesis:

H4: Attitude has a positive effect on behavioural intention about adopting Internet banking.

**Trust perceptions:** It can be understood as a consumer's confidence and belief in a bank's honesty toward its consumers. Lack of trust is one of the major reasons why customers are still relectant to perform their banking transactions online. Hence, the following hypothesis has been formulated:

H5: Trust perceptions of a customer's has a positive effect on behavioural intention to adopt Internet banking.



Perceived security: Bank customers' concerns about security and privacy have been identified as barriers to the use of electronic banking. With the increasing number of cyber attacks in India, security features of Internet banking system would have significant influence on customers' adoption behaviour. Thus, we propose the following hypothesis:

H6: Perceived security has a positive effect on behavioural intention about adopting Internet banking services.

### Methodology of the Study

Data for this study was collected by means of a survey conducted in Vijayawada, India in 2015. The paper-based questionnaires were distributed to a total of 750 participants across the different commercial banks (public sector banks, private sector banks and foreign banks); 492 usable responses were obtained. The scale items for measuring the bank customers' beliefs on Internet banking were designed based on various previous literature available and the same was validated through pilot study. The bank customers' beliefs on different attributes of Internet banking were measured based on their responses on a five-point scale 1. Strongly disagree, 2. Disagree, 3. Neither agree nor disagree, 4. Agree and 5. Strongly agree. Descriptive statistical tool is applied for data analysis and interpretation and hypothesis testing is done through correlation analysis, exploratory factor analysis and multiple regression analysis by using SPSS program.

### Data Analysis and Results

The demographic profile of the sample respondents is shown in Table 1. This table presents the demographic characteristics of the respondents based on their usage status of Internet banking i.e user vs. non-user of Internet banking. It is evident from the table that majority of the respondents were male (more than 50%) in both groups. Majority of non-users of Internet banking were below 35 years of age, which implies that non-users of Internet banking services were relatively younger. Table 1 also reveals that most of the respondents in both groups were graduates and salaried people, with income less than Rs. 40,000 per month and married.

<b>Table 1: Demographic profile of sample respondents</b>				
	<b>Non-users of Internet banking</b>		<b>Users of Internet banking</b>	
	<b>No. of respondents</b>	<b>Percentage</b>	<b>No. of respondents</b>	<b>Percentage</b>
<b>Gender</b>				
Male	140	52.6	130	57.5
Female	126	47.4	96	42.5
<b>Age (Years)</b>				
Below 25	56	21.1	44	19.5
26-35	105	39.5	89	39.4
36-45	48	18.0	40	17.7
46-55	31	11.7	32	14.1
55 & Above	26	9.7	21	9.3
<b>Education</b>				
UG and below	133	50.0	119	52.7
PG	81	30.5	83	36.7
Professional & others	52	19.5	24	10.6
<b>Occupation</b>				
Salaried	207	77.8	157	69.5
Business	39	14.7	42	18.5
Others	20	7.5	27	12.0
<b>Monthly Income</b>				
Rs.20000 and less	74	27.8	90	39.8
Rs.20001-40000	113	42.5	80	35.4
Above Rs.40000	79	29.7	56	24.8
<b>Marital Status</b>				
Unmarried	97	36.5	73	32.3
Married	169	63.5	153	67.7



Cronbach's alpha was used as a measure of internal consistency (reliability) tests of six multi-item scale measurements. Table 2 presents the reliability coefficients ranged from 0.880 to 0.955 which is greater than minimum acceptance value of 0.70. Therefore, it is concluded that the scale items measuring the behavioural intention to adopt Internet banking were reliable.

Variables	No. of items	Cronbach's Alpha
PEE_EXP	4	0.892
EFF_EXP	5	0.949
SOC_INF	3	0.945
ATT_IB	4	0.955
TRU_PERC	4	0.880
PER_SEC	4	0.944

Table 3 presents correlation coefficients of six independent variables, where the highest correlation was 0.569, which below the acceptance criteria of 0.80. Thus, it can be concluded that there is no multicollinearity problem in this research study.

	PEE_EXP	EFF_EXP	SOC_INF	ATT_IB	TRU_PERC	PER_SEC
PEE_EXP	1					
EFF_EXP	.481**	1				
SOC_INF	.513**	.313**	1			
ATT_IB	.406**	.327**	.324**	1		
TRU_PERC	.569**	.343**	.560**	.400**	1	
PER_SEC	.175**	.213**	.207**	.137**	.155**	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Factor analysis was performed on the six independent variables – performance expectancy, effort expectancy, social influence, attitude, trust perceptions and perceived security and one dependent variable i.e. behavioural intention. The overall suitability of factor analysis was confirmed by Bartlett's test of Sphericity with a  $X^2_{351}=16007.8$ ,  $p<0.001$ . The value of Kaiser-Meyer-Olkin measure of sample adequacy was 0.855, implying that the sample size was adequate for applying factor analysis. 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, as shown in Table 4 . The cumulative variance explained by extracted 7 components was 85.31%.

	Component						
	EFF_EXP	ATT_IB	PER_SEC	TRU_PERC	PEE_EXP	SOC_INF	BEH_INT
PERF1					0.726		
PERF2					0.797		
PERF3					0.824		
PERF4					0.709		
EFF1	0.838						
EFF2	0.901						
EFF3	0.885						
EFF4	0.929						
EFF5	0.769						
SOC1						0.858	
SOC2						0.829	
SOC3						0.904	
ATTIT1		0.851					
ATTIT2		0.908					
ATTIT3		0.885					



ATTIT4		0.894					
T1				0.777			
T2				0.772			
T3				0.793			
T4				0.752			
PERC1			0.927				
PERC2			0.922				
PERC3			0.931				
PERC4			0.875				
BEH1							0.747
BEH2							0.776
BEH3							0.790
Eigen values	10.812	3.204	2.843	2.524	1.369	1.238	1.043
Percentage of variance	40.044	11.868	10.531	9.350	5.072	4.585	3.861
Cumulative variance	40.044	51.913	62.443	71.793	76.865	81.450	85.311

### Hypothesis Testing

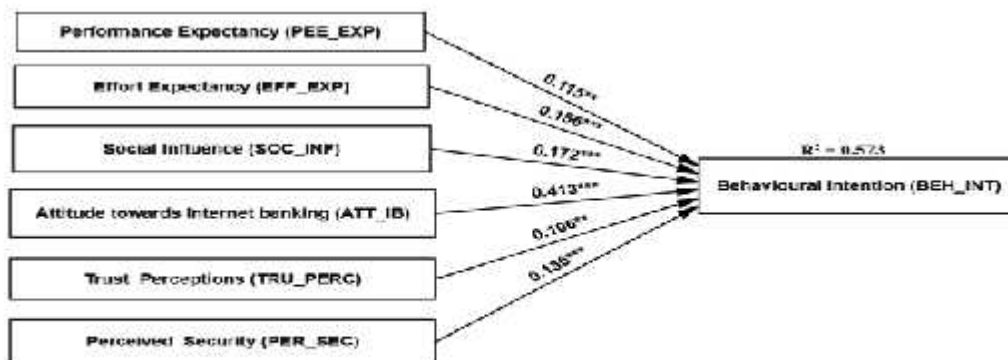
The hypothesised relationships, in the proposed model for understanding the determinants of Internet banking adoption, was tested through multiple regression analysis.

**Table 5: Regression Results on Significant Predictors of Behavioural Intention to adopt Internet Banking services**

Model	Standardized Coefficients		t	Sig.
	Beta			
Performance Expectancy	0.115		2.829	0.005*
Effort Expectancy	0.156		4.503	0.000*
Social Influence	0.172		4.554	0.000*
Attitude	0.413		12.235	0.000*
Trust Perceptions	0.106		2.668	0.008*
Perceived Security	0.136		4.442	0.000*
R <sup>2</sup>	0.573			
Adj. R <sup>2</sup>	0.568			
Sig. F	0.000			
F-value	108.622			

\*Significant (P-value 0.01)

The results of multiple regression analysis are given Table 5. The R<sup>2</sup> value was 0.573 (adjusted R<sup>2</sup> = 0.568), indicating that 57.3 percent of changes in behavioural intention to adopt Internet banking services can be explained by the six independent variables. The F-statistics being significant at one percent level (Sig. F<0.01), showing the fitness of the model. It is clear from Table-5, that all the hypothesised relationships were found to be significant (Figure 2). Performance expectancy of Internet banking was found to be a significant predictor of behavioural intention i.e. when customers perceive Internet banking services to be more useful, they are more likely to adopt Internet banking services. Therefore, H1 is accepted.



**Figure 2: Results of model - Internet banking adoption in India**



Similarly, the effect of effort expectancy on behavioural intention was also found to be significant. Hence, H2 is also accepted. Another significant predictor of behavioural intention was social influence i.e. bank customers in India, when highly influenced by their family, friends or bank's staff, had greater intentions to adopt Internet banking. Thus, H3 is accepted. Attitude of Bank customers in India was found to have greater influence on their behavioural intention to use Internet banking in the future. This implies that customers' positive opinion on the benefits of Internet banking would influence them to use it. Hence, H4 is accepted. Additionally, customers perceptions of trust and security on Internet banking are found to be significant influencers of their intentions to adopt Internet banking. Therefore, H5 and H6 are also accepted.

### **Conclusion**

The objective of this paper is to identify the factors that influence the adoption of Internet banking in Indian perspective. This research proposed a research model by extending UTAUT with the inclusion of three new constructs. The findings of this study revealed that performance expectancy, effort expectancy, social influence, attitude towards Internet banking, trust perceptions and perceived security were the factors stimulating the behavioural intention of bank customers to use Internet banking services in India.

Banks in India should encourage their customers to use Internet banking by:

- communicating the benefits of using Internet banking services through various promotional mix such as personal selling, advertisements, email and mobile messages, and also through bank's staff, for the customers who still prefer branch banking;
- making the Internet banking website as simple and user-friendly in order to persuade customers to adopt it;
- understanding the customers' attitude about Internet banking services and its benefits regularly for encouraging them to use this technology; and
- designing and developing a secured website for performing banking transactions online, giving assurance to the customers, thus enhancing their trust perceptions.

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