ADOPTION OF INTERNET BANKING – AN ANALYSIS

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Abstract
Technology has changed the way the services are delivered and also the nature of interaction between purchaser and provider. Self-service technologies (SSTs) are technological interfaces, replacing the need for in-person interactions, enable customers to produce a service independently of direct service employee involvement. One such example of SSTs is Internet banking, which enables customers to perform their banking transactions in a most convenient manner. While adopting to Internet banking, there is a change in behaviour across customer segments, that necessitate banks' in India to understand the factors that facilitate the adoption of it. The significance of mean scores of the different categories of bank customers about their beliefs on Internet banking has been tested using Kruskal Wallis H-Test. The study provides various inputs to the bank managers and strategists in understanding the preferences and expectations of their customers towards Internet banking adoption in India.

Keywords: Self-Service Technologies, Internet Experience, Internet Banking.

Introduction

Technological developments during the last 25 years, particularly in telecommunications and computer technology, have had a significant impact on the way in which services are now produced and delivered. The biggest impact of new technology in service marketing is the move away from what was the traditionally people-based service to a higher degree of automation. Technology alters the nature of the service delivery and the nature of the interaction between purchaser and provider. In industries as diverse as medicine, financial services, higher education and even real estate, new technologies are radically altering the ways in which many service organizations do business with their customers, as well as what goes on behind the scenes. Consequently, while a proportion of technophobe still exists, consumer markets and business- to-business markets are seeing growing numbers of customers who seek and embrace self-service technology. Across industries, technology is being used to facilitate a wide range of service encounters and has profoundly changed the way in which customers interact with service providers, replacing the need for in person interactions in some cases. Self-service technologies (SST's) are technological interfaces that enable customers to produce a service independently of direct service employee involvement. This recent focus on customer self-service technologies highlights the importance of exploring research issues where technology is a service enabler. As consumers adopt new technologies, their behaviors change. Hence, there have been numerous calls for research into factors facilitating adoption of technology-based services.

Internet Banking

The explosive growth of the Internet has revolutionized many aspects of daily life and exerted strong pressure on companies to change the way they do business. The banking industry is one such example of an industry that has been revolutionized by the emergence of the Internet and e-commerce. Internet banking allows customers to perform a wide range of banking transactions electronically via the bank's website. There are two ways to offer Internet banking: first, an existing bank with physical offices can establish a website and offer Internet banking in addition to its traditional delivery channels; second, a bank may be established as a `branchless', `Internet-only', or `virtual' bank.

Through Internet banking, bank customers can perform banking transactions on any day, at any time and from any place. Through the use of Internet banking, banks are able to offer almost all of their products and services online. The number of research studies on the adoption and usage of Internet banking in India has been growing in the last few years. However, there are still many questions unanswered leaving some gap between what banks have been offering in the form of Internet banking services and what really bank customers expect from it.

Review of Literature

According to Srivastava (2007), the bank customer's perception of Internet banking could be changed by certain significant factors such as awareness program, friendly usage, low charges, enhanced security and better response to the

services offered by the banks in India. This study also revealed that demographic characteristics of the bank customers such as gender, education and income play significant role in their usage of Internet banking services in India. Prakash and Malik (2008) investigated the factors that influence the bank customers usage of Internet banking in India. The study revealed that accessibility of the Internet, customers' awareness levels, attitude, proper assistance for using website, security issues, trust perceptions and problem solving attitudes of bank employees are the most significant factors affecting bank customers' adoption of Internet banking services. Another study by Tater et al. (2011) explored the Indian consumers perception on the adoption and usage of different banking channels such as branch banking, ATM, Internet banking and mobile banking. This study identified that factors such as convenience, privacy, security, ease of use, real time accessibility, and accuracy are enablers of banking technology adoption. The study also reported that slower transfer speed, technical failure, frauds and lack of awareness are hindering the adoption of this technology. Further, the results reveal that demographic characteristics of customers such as gender, age, education, and income play a significant role in adoption of different banking technologies.

Manoranjan et al. (2012) conducted a study for understanding the role of risk perception in the consumers' adoption of the Internet banking in India. This study found that factors such as financial risk, physical risk, time risk and functional risk were influencing the bank customers' intention to use Internet banking.

Objectives of the Study
1. To study the relationship between technological characteristics on the consumer's beliefs on Internet Banking Services.
2. To make appropriate suggestions Internet Banking adoption behavior based on the findings.

Methods and Materials
The study is mainly based on primary and secondary data. The secondary data were collected from books, journals, periodicals and websites etc. and the primary data were collected through survey method. Out of 750 questionnaires distributed across the different commercial banks i.e. public sector, private sector and foreign banks, in Vijayawada, only 492 questionnaires were found to be usable for the study. The scale items for measuring the bank customers' beliefs on Internet banking were designed based on various previous literatures 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. The questionnaire covered different aspects including, demographic characteristics of the respondents, Internet-related characteristics, and the banking habits in general and their beliefs on Internet banking and their intention to adopt it. This paper covers only few areas of the questionnaire for analysis and interpretation. The study examines the beliefs of bank customers towards various attributes of Internet banking (including performance expectancy – usefulness, effort expectancy – ease of use, social influence – family, friends and bank staff influence, attitude towards Internet banking services, trust on the Internet banking website, perceived security – privacy concerns and awareness), based on their demographic and technology-related characteristics.

Adoption of Internet Banking - Discussions
The major focus of this study is to reveal the factors that are influencing the behavioral intention of bank customers to adopt Internet banking services.
   a. 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
   b. 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.
   c. 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.
   d. Attitude: The degree to which a bank customer has a favorable or unfavorable opinion on the benefit of using Internet banking services.
   e. 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 reluctant to perform their banking transactions online.
   f. Perceived security: Bank customers' concerns about security and privacy have been identified as barriers to the use of electronic banking.

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g.   Awareness: As bank customers become more informative about the features and benefits Internet banking can offer to them, they are more likely to accept and use it in the future.

Table-1.1 : Pearson Correlations Analysis								
	Performance Expectancy	Effort Expectancy	Social Influence	Attitude	Trust Perceptions	Perceived Security	Awareness	Behavioural Intention
Performance Expectancy	1							
Effort Expectancy	.481**	1						
Social Influence	.513**	.313**	1					
Attitude	.406**	.327**	.324**	1				
Trust Perceptions	.569**	.343**	.560**	.400**	1			
Perceived Security	.175**	.213**	.207**	.137**	.155**	1		
Awareness	.548**	.404**	.423**	.444**	.433**	.269**	1	
Behavioural Intention	**.530****	**.466****	**.501****	**.628****	**.508****	**.298****	**.460****	1

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

From the above table, it is confirmed all the seven factors (consumers' beliefs about Internet banking services) identified in this study are having positive and significant relationship with behavioural intention to accept Internet banking technology.

I. Gender and Customer's beliefs on Internet banking
The bank customers' beliefs on various characteristics of Internet banking services based on their gender is presented in Table – 1.2, in terms of their mean scores.

It is clear from the table that all the bank customers, irrespective of their gender, given higher importance to effort expectancy, followed by performance expectancy i.e. all bank customers prefer Internet banking website to be more easy to use and beneficial than other banking channels.

Table1.2: Mean scores – Gender and Beliefs on Internet banking							
Factors / **Gender**	Performance Expectancy	Effort Expectancy	Social Influence	Attitude	Trust Perceptions	Perceived Security	Awareness
Male	3.39	**3.52**	3.03	2.93	2.95	1.97	3.15
Female	3.45	**3.67**	3.09	3.04	3.01	2.09	3.12

Kruskal Wallis H-test has been applied to test the significance of differences in the mean scores of the different classes of bank customers based on their gender.

Hypothesis: There is no significant difference in the bank customers beliefs on Internet banking based on their gender. Kruskal Wallis Test reveals in Table-1.3, that the hypothesis is rejected (Significant) in 2 cases and in all other cases hypothesis is accepted (Not significant).

It can be concluded that there is a significant difference in bank customers' beliefs on Internet banking with respect to factors such as effort expectancy and perceived security based on their gender.

Table 1.3: Kruskal Wallis Test Gender and Beliefs about Internet banking				
S. No.	**Significant predictors of Internet banking**	**H-values**	**P-values**	**Significance**
1	Performance Expectancy	1.054	0.305	NS
2	Effort Expectancy	5.592	0.018	**S**

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3	Social Influence	0.678	0.410	NS
4	Attitude	1.906	0.167	NS
5	Trust Perceptions	3.249	0.071	NS
6	Perceived Security	6.059	0.014	**S**
7	Awareness	0.181	0.671	NS
Note: NS – Not Significant (P-value>0.05) S – Significant (P-value 0.05)				

II. Age and Customer's beliefs on Internet banking

The bank customers' beliefs on various characteristics of Internet banking services based on their age is presented in Table – 1.4, in terms of their mean scores.

It is clear from the table that all the bank customers, irrespective of their age, given higher importance to effort expectancy i.e. bank customers of all age groups still prefer the Internet banking system to be less complexity and more easy to use.

Table 1.4: Mean scores – Age and Beliefs on Internet banking							
Factors / **Age**	Performance Expectancy	Effort Expectancy	Social Influence	Attitude	Trust Perceptions	Perceived Security	Awareness
Young	3.43	**3.63**	3.13	3.13	3.07	2.12	3.13
Middle	3.41	**3.57**	3.10	2.97	2.92	2.09	3.23
Old	3.30	**3.48**	2.98	2.88	2.80	2.04	3.19

Kruskal Wallis H-test has been used to test the significance of differences in the mean scores of the different classes of bank customers based on their age.

Hypothesis: There is no significant difference in the bank customers beliefs on Internet banking based on their age.
Kruskal Wallis Test reveals in Table-1.5, that the hypothesis is rejected (significant) in 2 cases and the hypothesis is accepted (Not significant) in all other cases.

It can be concluded that there is a significant difference in bank customers' beliefs on Internet banking with respect to factors such as attitude towards Internet banking and perceived trust, based on their age.

Table 1.5: Kruskal Wallis Test Age and Beliefs about Internet banking				
S. No.	**Significant predictors of Internet banking**	**H-values**	**P-values**	**Significance**
1	Performance Expectancy	2.307	.680	NS
2	Effort Expectancy	3.399	.493	NS
3	Social Influence	3.854	.426	NS
4	Attitude	10.043	.040	**S**
5	Trust Perceptions	9.932	.042	**S**
6	Perceived Security	5.048	.282	NS
7	Awareness	8.556	.073	NS
Note: NS – Not Significant (P-value>0.05) S – Significant (P-value 0.05)				

III. Education and Customer's beliefs on Internet banking

The bank customers' beliefs on various characteristics of Internet banking services based on their education qualification is presented in Table – 1.6, in terms of their mean scores.

It is clear from the table that all the bank customers, irrespective of their education level, given higher importance to effort expectancy and performance expectancy. This implies that the preference of using Internet banking website would depend on the level of bank customers' perception on system's benefits and ease of use.

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Table 1.6: Mean scores – Education level and Beliefs on Internet banking							
Factors **Education**	Performance Expectancy	Effort Expectancy	Social Influence	Attitude	Trust Perceptions	Perceived Security	Awareness
School & Diploma	**3.36**	**3.71**	3.26	3.08	2.86	1.69	3.11
Bachelor degree	**3.55**	**3.66**	3.00	3.16	3.11	1.91	3.07
Master degree	**3.49**	**3.61**	3.05	2.99	2.99	2.01	3.15
Professional & others	**3.36**	**3.49**	3.09	3.03	3.00	2.10	3.18

Kruskal Wallis H-test has been used to test the significance of differences in the mean scores of the different classes of bank customers based on their education.

Hypothesis: There is no significant difference in the bank customers beliefs on Internet banking based on their education level.

Kruskal Wallis Test reveals in Table-1.7, that the hypothesis is rejected (significant) in 4 cases and the hypothesis is accepted (Not significant) in all other cases.

It can be concluded that there is a significant difference in beliefs on Internet banking with respect to factors such as performance expectancy, attitude, perceived security and awareness level, among the different class of customers based on their education level.

Table 1.7: Kruskal Wallis Test Education level and Beliefs about Internet banking				
S. No.	**Significant predictors of Internet banking**	**H-values**	**P-values**	**Significance**
1	Performance Expectancy	14.238	0.027	**S**
2	Effort Expectancy	8.271	0.219	NS
3	Social Influence	1.283	0.973	NS
4	Attitude	16.253	0.012	**S**
5	Trust Perceptions	6.241	0.397	NS
6	Perceived Security	19.824	0.003	**S**
7	Awareness	15.124	0.019	**S**
Note: NS – Not Significant (P-value>0.05) S – Significant (P-value 0.05)				

IV. Occupation and Beliefs on Internet banking
The bank customers' beliefs on various characteristics of Internet banking services based on their occupation is presented in Table – 1.8, in terms of their mean scores.

It is clear from the table that all the bank customers, irrespective of their occupation, given higher importance to effort expectancy but for performance expectancy i.e. students have given higher importance to benefits available from Internet banking services.

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Table 1.8: Mean scores – Occupation and Beliefs on Internet banking							
Factors **Occupation**	**Performance Expectancy**	**Effort Expectancy**	**Social Influence**	**Attitude**	**Trust Perceptions**	**Perceived Security**	**Awareness**
Student	**3.76**	3.62	3.56	3.05	3.47	3.47	3.21
Salaried	3.46	**3.59**	3.00	3.19	2.95	2.95	3.21
Business	3.35	**3.61**	3.11	2.75	2.99	2.99	3.05
Professional & others	3.46	**3.60**	2.95	2.97	2.97	2.97	3.26

Kruskal Wallis H-test has been used to test the significance of differences in the mean scores of the different classes of bank customers based on their occupation.

Hypothesis: There is no significant difference in the bank customers beliefs on Internet banking based on their occupation.

Kruskal Wallis Test reveals in Table-1.9, that the hypothesis is rejected (significant) in 4 cases and the hypothesis is accepted (Not significant) for the rest 3 cases.

It can be concluded that there is a significant difference in beliefs on Internet banking with respect to factors such as social influence, attitude, trust and awareness, among the different types of customers based on their occupation.

Table 1.9: Kruskal Wallis Test Occupation and Beliefs about Internet banking				
S. No.	**Significant predictors of Internet banking**	**H-values**	**P-values**	**Significance**
1	Performance Expectancy	10.716	.098	NS
2	Effort Expectancy	3.463	.749	NS
3	Social Influence	14.575	.024	**S**
4	Attitude	23.476	.001	**S**
5	Trust Perceptions	23.192	.001	**S**
6	Perceived Security	3.996	.677	NS
7	Awareness	18.760	.005	**S**
Note: NS – Not Significant (P-value>0.05) S – Significant (P-value 0.05)				

V. Income and Beliefs on Internet banking
The bank customers' beliefs on various characteristics of Internet banking services based on their Income is presented in Table – 1.10, in terms of their mean scores.

It is clear from the table that all the bank customers, irrespective of their income, given higher importance to effort expectancy.

Table 1.10: Mean scores –Income and Beliefs on Internet banking							
Factors **Income**	**Performance Expectancy**	**Effort Expectancy**	**Social Influence**	**Attitude**	**Trust Perceptions**	**Perceived Security**	**Awareness**
Low	3.45	**3.55**	2.97	3.05	2.99	2.06	3.13
Middle	3.41	**3.58**	2.96	2.87	3.04	1.96	3.21
High	3.38	**3.52**	3.01	3.02	2.98	2.02	3.13

Kruskal Wallis H-test has been used to test the significance of differences in the mean scores of the different classes of bank customers based on their Income.

Hypothesis: There is no significant difference in the bank customers beliefs on Internet banking based on their income.

Kruskal Wallis Test reveals in Table-1.11, that the hypothesis is rejected (significant) in only 1 case and the hypothesis is accepted (Not significant) for all other cases.

It can be concluded that there is no significant difference in beliefs on Internet banking, except for trust perceptions, among the different categories of bank customers based on their income.

S. No.	Significant predictors of Internet banking	H-values	P-values	Significance
**Table 1.11: Kruskal Wallis Test Income and Beliefs about Internet banking**
1	Performance Expectancy	8.020	.155	NS
2	Effort Expectancy	7.735	.171	NS
3	Social Influence	9.666	.085	NS
4	Attitude	1.788	.878	NS
5	Trust Perceptions	18.270	.003	**S**
6	Perceived Security	1.342	.931	NS
7	Awareness	5.050	.410	NS

Note: NS – Not Significant (P-value>0.05) S – Significant (P-value 0.05)

V. Computer Self-efficacy levels and Beliefs on Internet banking
The bank customers' beliefs on various characteristics of Internet banking services based on their computer self-efficacy is presented in Table – 1.12, in terms of their mean scores.

It is clear from the table that all the bank customers, irrespective of their computer proficiency, expects Internet banking system to be more easier to use i.e. less complex.

Self-efficacy	Performance Expectancy	Effort Expectancy	Social Influence	Attitude	Trust Perceptions	Perceived Security	Awareness
**Table 1.12: Mean scores – Self-efficacy and Beliefs on Internet banking**
Low	3.35	**3.50**	2.97	2.98	3.27	2.04	3.06
Medium	3.08	**3.85**	3.06	3.36	3.39	2.08	3.22
High	3.77	**4.03**	3.47	3.65	3.42	2.18	3.44

Kruskal Wallis H-test has been used to test the significance of differences in the mean scores of the different classes of bank customers based on their computer self-efficacy levels.

Hypothesis: There is no significant difference in the bank customers beliefs on Internet banking based on their computer self-efficacy.

Kruskal Wallis Test reveals in Table-1.13, that the hypothesis is rejected (significant) in 6factors and the hypothesis is accepted (Not significant) for 1 factor (attitude).

It can be concluded that there is a significant difference in beliefs on Internet banking with respect to all factors except for attitude towards Internet banking services, among the varied segments of bank customers based on their computer proficiency levels. This implies that bank customer's computer proficiency and skill levels would influence them to adopt Internet banking services in the future.

Table 1.3: Kruskal Wallis Test Self-Efficacy and Beliefs about Internet banking				
S. No.	**Significant predictors of Internet banking**	**H-values**	**P-values**	**Significance**
1	Performance Expectancy	11.397	.022	**S**
2	Effort Expectancy	29.577	.000	**S**
3	Social Influence	12.570	.014	**S**
4	Attitude	4.124	.390	NS
5	Trust Perceptions	17.827	.001	**S**
6	Perceived Security	26.456	.000	**S**
7	Awareness	22.753	.000	**S**
Note: NS – Not Significant (P-value>0.05) S – Significant (P-value 0.05)				

VII. Internet Experienceand Beliefs on Internet banking
The bank customers' beliefs on various characteristics of Internet banking services based on their Internet experience is presented in Table – 1.14, in terms of their mean scores.

It is evident from the table that bank customers' with less and medium Internet experience have emphasized the need for Internet banking system to be easy to use. But customers with higher Internet experience feel that Internet banking would be more beneficial than other banking channels.

Table 1.14: Mean scores – Internet experience and Beliefs on Internet banking							
Factors / **Internet experience**	**Performance Expectancy**	**Effort Expectancy**	**Social Influence**	**Attitude**	**Trust Perceptions**	**Perceived Security**	**Awareness**
Low	3.44	**3.69**	3.10	2.92	2.90	2.03	3.21
Medium	3.53	**3.70**	3.12	3.07	3.17	2.04	3.14
High	**3.49**	3.46	3.12	2.98	2.83	1.99	3.09

Kruskal Wallis H-test has been used to test the significance of differences in the mean scores of the different classes of bank customers based on their length of Internet experience.

Hypothesis: There is no significant difference in the bank customers beliefs on Internet banking based on their Internet experience.

Kruskal Wallis Test reveals in Table-1.15, that the hypothesis is rejected (significant) in 4 factors and the hypothesis is accepted (Not significant) for 3 factors.

It can be concluded that there is a significant difference in beliefs on Internet banking with respect to factors such as performance expectancy, effort expectancy, attitude and trust perceptions among the different categories of bank customers based on their Internet experience.

Table 1.15: Kruskal Wallis Test Internet experience and Beliefs about Internet banking				
S. No.	**Significant predictors of Internet banking**	**H-values**	**P-values**	**Significance**
1	Performance Expectancy	14.368	.006	**S**
2	Effort Expectancy	16.489	.002	**S**
3	Social Influence	6.083	.193	NS
4	Attitude	16.985	.002	**S**
5	Trust Perceptions	30.691	.000	**S**
6	Perceived Security	4.700	.320	NS
7	Awareness	5.236	.264	NS
Note: NS – Not Significant (P-value>0.05) S – Significant (P-value 0.05)				

Findings and Conclusion

The primary objective of this paper is to understand the relationship between the consumers' beliefs on Internet banking and their behavioural intention to adopt this technology. Based on the correlation analysis the relationship among all the seven predictive factors (performance expectancy, effort expectancy, social influence, attitude, trust perceptions, perceived security and awareness) and the behavioural intention to use Internet banking was found to be significant.The significance of mean scores of the different categories of bank customers about their beliefs on Internet banking has been tested using Kruskal Wallis H-Test. The analysis revealed the significant differences in the mean scores of various categories of bank customers (based on their gender, age, income, occupation, education, Internet experience and self-efficacy) with regard to their beliefs of Internet banking adoption.The study provides various inputs to the bank managers and strategists in understanding the preferences and expectations of their customers towards Internet banking adoption in India. The decision makers of the banks should analyze the differences between the perceptions of varied customer segments, and accordingly design strategies to motivate them in adopting this self-service banking technology.

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