

# Measuring Innovative Banking User`s Satisfaction Scale

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## *Abstract:*

**Purpose** – The main motive of the study is to measure reliability and validity of innovative banking user`s satisfaction scale in the banking industry of India.

**Design/Methodology/Approach** – It had been attempted to develop scientific scale on user`s satisfaction and the data had been collected using survey methodology. The reliability and validity of the data and scale were tested using confirmatory factor analysis using IBM SPSS and AMOS software.

**Findings** –A reliable and valid multidimensional scale had been conceptualized which explains five dimensions: of technology enabled users in banking Industry.

**Research Limitations/Implications** – The present research was carried out to only “user of innovative banking products and services”. The influences of demographic variables as mediation and moderation effects were not studied. It captures insights of the user`s satisfaction experience as perceived by the bankers.

**Practical Implications** – The scientific scale will be utilized to evaluate the reactions of users and indicating strategic decisions of bankers to frame policies and procedures related to I- banking products and service.

**Originality/Value** – The study discovered valid multidimensional scale which can measure innovative banking user satisfaction experience.

**Keywords:** — *Multidimensional Scale, Strategic Decisions, Innovative Banking, Mediation, Moderation*

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## **I. Introduction**

Innovative Banking user satisfaction has become radical marketing construct in the last two decades. In the past, it was uncherished idea

because bankers thought it was their bargaining power as they are the service provider. However, in the contemporary times, bankers have reaped better understanding of the user satisfaction and

selected it as the most important operational strategy. User satisfaction and user retention are increasingly evolving main success factors in e-banking (**H. H. Bauer, M. Hammerschmidt, and T. Falk, 2005**). According to (S. Laforet and X. Li, 2005) adoption of electronic banking drives users to care about password protection, privacy, encryption, hacking, and the safety of personal information. The dimensions of satisfaction behaviours were found by **Brodeur, 1998** which include standard, value for money, quickliness, productivity, Ease of Ingress and Frontline employee Service.

**S.T Javed & A. Husain, S.A, 2013<sup>1</sup>** The study was conducted to determine the user satisfaction on internet banking users in Pakistan. 400 numbers of internet banking users were accessed through structured questionnaire. Data were analysed with the help of SERVQUAL model, regression analysis and Factor Analysis. With help of SERVQUAL model, it was found that very Significant and significant association between user satisfaction assurance, tangibility, reliability and responsiveness. Empathy also shows positive but insignificant effect on user satisfaction.

**(Ali JomaKhafafa and ZurinaShafii, 2013)<sup>2</sup>** Conducted study which the main purpose to evaluate the user satisfaction in Libyan banks which functions under the Islamic window system. In this study, the modified SERVQUAL model is used. Samples were accessed from three commercial banks, and 366 respondents were accessed through structured questionnaire which was measured for reliability. The outcome of the study was that there exists a positive and significant association between the user satisfaction and constructs of service quality.

**(Datta Saroj & Dixit Neha, 2010)** studied about the acceptance of E-banking among Adult users. The main objective is to determine the adaptability about the innovation in banking within Rajasthan, India. Total 200 numbers of

users were analysed through structured questionnaire. Primary as well as secondary data sources were used to collect the data. Data were interpreted through factor analysis. After analysing the data through factor analysis, it was found that adaptability of e-banking services among Indian users get influenced by the awareness level, familiarity, safety & privacy, belief and innovation.

**(Janet Carruthers, Michel Rod, Nicholas J. Ashill, Jinyi Shao, 2009)<sup>2</sup>** The study was conducted to analyze the relationship between the dimension of service quality and user satisfaction. The sample size was 400 numbers of respondents. Internet users of banking services from New Zealand were accessed through structured questionnaire. With the help of SEM, it was found that there exist a significant association between user satisfaction and online user service quality, Quality of information system, Quality of banking service product.

“Measuring the Post- Adoption user perception of Mobile banking services” done by **(Tai-Kuei Yu and Kwoting Fang, 2009)<sup>1</sup>** believe that technological innovation in financial markets has generated competitive pressures on banks to offer better service quality and efficiency in administration to satisfy the user.

**(JannatulMawa Nupur, 2010)<sup>4</sup>**, conducted a research to examine the satisfaction level of users towards e-banking in Bangladesh. The main aim of this investigation was to determine the impact of variables of e-banking on user satisfaction in Bangladesh. In this study, 5 dimension of service quality were measured to explore the association between service quality and user satisfaction. Two hundred and fifty users were accessed through structured questionnaire.

## ***Dimensions of I-Banking User Satisfaction***

### **Perceived Usefulness**

Buse Stephan and Tiwari Rajnish, 2006<sup>1</sup> conducted empirical surveys of more than 450 potential respondents and over 50 banks across the globe revealed that mobile banking had gained increasing acceptance owing to value-added innovative services. (Hoffman, Karen Epper, 2007)<sup>1</sup>, At mid-2007 study revealed that innovation in technology will grow anywhere/anytime access among users. (Salam Al-Hajri, 2008)<sup>1</sup> identified four dimensions of e banking service quality: ease of use, user relationship, relative advantage; organizational performance from an analysis of 15 semi-structured interviews.

**Kumbhare Vijay, 2011<sup>2</sup>** ascertain 14 variables which are predictors of user satisfaction in e-banking services. The result of SEM analysis shows that dimensions such as Ease to Use, Convenience, Contact Facilities, Responsiveness, Cost Effectiveness and perceived value were found more significant factors in the model.

**Saleh Salari & Moslem Salajegheh, 2011<sup>1</sup>** conducted a study on users of Mellat bank in Isfahan city, to analyse the perceived usefulness of internet banking in Iran. Overall 247 users were accessed through structured questionnaire. Structural Equation Model (SEM), Confirmatory factor analysis (CFA) & Path Analysis were used to analyse the data. With the help of SEM, it was found that the main objective is perceived usefulness of internet banking to use internet banking by Mellat bank user in Isfahan City.

**Ala'Eddin Mohd Khalaf Ahmad & Hasan Ali Al-Zu'bi, 2011<sup>2</sup>** studied and evaluated the pattern of adoption of e-banking functions and to monitor the influence of the e-banking on the results of the user satisfaction namely, loyalty and positive word of mouth within Jordanian Commercial

Banks. This study focuses on the factors which plays a vital role in the adoption of e-banking in Jordan. Also this research investigated the technological impact the adoption of e-banking user. This study had evaluated the adoption pattern on the basis of the demographic profile such as age, education, income and etc. The outcome of this study can be used by the banking sector for the formulation of the planning to build user satisfaction, loyalty, and positive WOM

**Selvachandra & Mohamed Siddik, 2011<sup>1</sup>**, conducted a study in special context to the ICICI Bank in Chennai city. Random sampling was used to access 350 respondents through structured questionnaire which includes 5 points Likert scale. The study includes e-banking services variables such ATM, credit card, debit card, internet banking, mobile banking, electronic fund transfer, electronic clearing services, etc.

**Shah Ankit, 2011<sup>1</sup>**, investigated about the various determinants which impacted user satisfaction of online banking concerning Indian perspective. The study examines the power of these factors in the context on online or Internet banking. The study was conducted in Vadodara and total 250 users were accessed to for survey through structured questionnaire and interview. All the questions of the questionnaire used a Likert scale ranging from 1=very dissatisfied and 5=highly satisfied. Data was analysed and interpreted using statistical tools such as chi-square and multiple regression.

### **Convenience**

**J. Swaminathan & A. Ananth, 2012<sup>1</sup>** discovered user satisfaction in privacy of information, easiness to use, efficiency, responsiveness, reliability and convenience using a 5 point Likert scale and structure questionnaire.

**Sahila C and Senthilkumar N, 2014<sup>2</sup>** Conducted a study to examine awareness and satisfaction level towards service provided by the banks. The study considered only ten commercial banks both

private and a public bank of Namakkal District. The primary data was collected from the 100 respondents who were from different occupation such as Government and private employees, professionals and businessman. The structured questionnaires were used to access a hundred numbers of respondents, and convenient sampling was used. Data were interpreted with the help of statistical tools such as percentage analysis and chi-square. From the data analysis and interpretation, it was found that the main factors which induce the people to use online banking are comfort and convenience. The main reason for not using internet banking is hacking of the account.

### Security

(PanidaSubsornandSunsernLimwiriyakul, 2012)<sup>2</sup> discovered security issues such as confidentiality, integrity and privacy in Internet banking systems as the main factors of user satisfaction. (Kumaran.C, 2010)<sup>3</sup> Identified ATM personnel, location, sufficient number of ATMs, regularity in working of ATMs, Security, Safety privacy and behaviour of ATM personal as the main observed variables of user satisfaction. According to (Khalil M.N and Pearson J.M., 2007)<sup>4</sup> perception on security is found to be the foremost concern of threats by an illegal approaches like phishing, money laundering, virus attack, and hacking. (Yasir Hassan, Farzan Yahya, Muazzam Amin, Umar Farooq, 2011)<sup>5</sup> conducted a study of awareness of electronic banking in Pakistan using structured questionnaire. The main focus of their research was to study the awareness of electronic banking, benefits of e-banking, bank services and security features of e-banking. The majority of questions were close ended and based 5-point on Likert scale. They found that respondents were unaware of various services and security level offered by the banks. They have more trust in the employees than the e-banking because of insecurity. The research was conducted based on demographic

profile such as gender, age, income and education. They suggested that in a country like Pakistan people should be educated more about the security features of electronic banking. The researcher gave more emphasis to organize seminar and conference to educate the user regarding the security and privacy of their account. From the above literature review, the researcher has identified research gap in terms of demographic variables while discussing with focus group, it has being identified that the location, competency level and occupation of innovative banking users do also have significant association with the awareness of innovative banking. (J. Peppard, 2000)<sup>6</sup> explored that consumer have concerns for privacy, password integrity, hacking, data encryption, and the protection of confidential information. (Murat Hakan Altıntaş, 2007)<sup>7</sup> The main aim the study is to analyze the content of internet banking and also determine the perception of service quality. The study accessed 200 bank users in Turkey. Primary as well as secondary data source were used to collect the data. With the help of content analysis, the author leads to the conclusion that Internet banking sector is developing the sector in Turkey, and also phishing attacks are increasing. The maximum use of the web banking insists bankers improve the service quality of the banks and produces improvements in user satisfaction.

### Web Design

Ease of navigation on website is mainly important and impacts users' satisfaction (palmer, 2002). The design of website plays a crucial role in bringing new user, retaining them and improving their satisfaction while using website (Yoon, 2010). The purpose of website design is to attract and provide enjoyment in appearance (Mohd Khalaf Ahmed et al., 2011).



## Speed

DeLone & McLean, 1992; Srinivasan, 1985 observed strong positive relationship between the speed of downloading and users' satisfaction. Swaid & Wigand, 2007. Liao & Cheung, 2002 observed that users are fragile to the speed and time saving.

## Internet Charges

(Mohammed Belal Uddin & Bilkis Akhter, 2012)<sup>8</sup>, conducted a study on the factors impacting the user satisfaction of banking industry in Bangladesh. It is found that service charge, perceived value are main determinants of user satisfaction in Bangladesh. It has been recommended by the researchers that bank managers should define, execute and implement operational and marketing strategies which focus satisfaction. Rahman, 2013<sup>9</sup> conducted a study on user satisfaction and loyalty in a banking sector in Bangladesh. This study investigates the user satisfaction and loyalty relationship regarding basic service, advanced service employed by Jamuna Bank Limited and user perceptions regarding cost and prestige of receiving banking service of the concerned bank. Convenient sampling was used to collect the response from 150 users of Jamuna Bank Limited. Structured questionnaire was used which consist of 25 statements based on 5 point scale. Data was analyzed with the help of Descriptive mean, correlation, and regression analysis. It was found from the study that there is a significant relationship among advance service, cost & prestige, and user satisfaction. It was also found that there exist insignificant relationship observed between basic services and user satisfaction. Finally a positive relationship between the user satisfaction and user loyalty.

## Employees

Kalagarsamy and Wilson S, 2013<sup>10</sup> conducted research to evaluate the user satisfaction towards

the new technology used for the banking services. The study collected the response from the five public sector bank within Sivagangai district. Random sampling was used to select 20 users from each public bank. Data was interpreted with the help of T-test, Chi-square, Standard deviation and Arithmetic mean. The main findings from the study are that other services like the problem of ATM, Service charge, and improper behavior of employees is giving more difficulties to the customer. Also, it was found that among the 100 respondents 60 of them were said not providing quick services. It shows the bank inability to satisfy the user expectations.

It has been observed from the above literature review that the innovative banking user satisfaction is a result of seven dimensions namely perceived usefulness, convenience, security, web design, speed, fees and charges and employees. These seven dimensions are crucial for scale development.

## II. Methodology

### Scale Development

The researcher had generated initial scale items and thereafter screening and refinement of the items were made using review panels, pretesting of observed variables for regeneration and finally organizing for a survey for the purpose of validation which had also been suggested by Nunnally (1978) and Churchill (1979) for development of Scale. The homologous procedure had been observed for development of scale in multiple studies such as McMullan, 2005; Sin, 2005 and Colwell, 2008. The literature review presented in (Table- I) and survey of stipulated dimensions of user satisfaction qualify to define the user satisfaction scale in the domain of banking industry. At this stage 42 items linked with the seven key dimensions were identified. With a purpose to entrenched content validity of the items, the list had been reviewed by the three senior industry experts from marketing domain and three commercial bank managers from different branch of the banks in the city of Valsad. When items were

initially screened, 15 items were dropped and the native list was reduced to 27 items after pretesting on 125 respondents, purification and revision. The revised 27 items consisting of seven constructs, were considered as eventual version of the innovative banking user's satisfaction scale.

**Table – I Items for Scale Development**

<b>Perceived Usefulness</b>	Buse Stephan and Tiwari Rajnish Kumbhare Vijay, 2011, Saleh Salari& Moslem Salajeghel Hoffman, Karen Epper, 2007 Ala'EddinMohd Khalaf Ahmad & Al-Zu'bi, 2011
<b>Convenience</b>	J. Swaminathan & A. Ananth, 2007 C and Senthilkumar N, 2014
<b>Security</b>	PanidaSubsornandSunsernLimwi 2012 Zohra Saleem and Kashif Rashid, Kumaran.C, 2010, Khalil M.N and J.M.,2007 Yasir Hassan, Farzan Yahya, MuazzamAmin, Umar Farooq, 2010 LogasvathiMurugiah and Haithar Akram, 2015
<b>Web Design</b>	ChienTa Bruce Ho, Wenchuan Li palmer, 2002, Yoon, 2010,Mohd Ahmed et al., 2011
<b>Internet Charges</b>	Mohammed Belal Uddin &Bilkis 2012,Rahman, 2013, Jayshree Chavan andFaizan Ahm
<b>Speed</b>	DeLone& McLean, 1992, Sriniva 1985,Swaid& Wigand, 2007; Yoo Liao & Cheung, 2002
<b>Employess</b>	Chidambaram and Alameleu, 1999 Kalagarsamy and Wilson S, 2013

### Sampling and Data Collection

The primary data weregathered from four different areas of Valsad District(Gujarat State of India) with the help of the commercial banks.Valsadisconsidered to be the largest industrial belt in the entire Asia. Hair (2006) advocated that sample size for factor analysis should be five time more than number of variables to be analyzed. A total of 250 rational replies were obtained after deleting cases of outliers.(Table II).

**Table – II Sample Distribution**

Demographic Factor	Frequency	Percentage
<b>Gender</b>		
Male	130	52.00%
Female	120	48.00%
<b>TOTAL</b>	250	100.00%
<b>Age</b>		
21-30	150	60.00%
31-40	75	30.00%
40 and above	25	10.00%
<b>TOTAL</b>	250	100.00%
<b>Income</b>		
<=50,000 per month	40	16.00%
50,000 to 100, 000	125	50.00%
100,000 to 200000	35	14.00%
200000 and above	50	20.00%
<b>TOTAL</b>	250	100.00%
<b>Occupation</b>		
Service	115	46.00%
Professional	40	16.00%
Business	45	18.00%
Others	50	20.00%
<b>TOTAL</b>	250	100.00%

The sampling unit was innovative banking users who uses online products and services offered by commercial banks. The respondents were approachedin the branch of banks. The respondents were asked about their satisfaction with reference to innovative banking product and services. Hence, the sampling method used for the study is convenience sampling.

### Exploratory Factor Analysis

The collected data were tabulated in SPSS and analyzed for verifying adequacy of sampleand for that purpose Kaiser-Meyer-Olkin (KMO) and SphericityTest of Bartley were used for testing significance.The software reported KMO as 0.921 and Sphericity ( $\chi^2=4,751.107$ , df 351,p # 0.000) portrayedthe acceptability of the data for further analysis.Theeventual exploratory factor analysis on twenty-sevenobserved variables resulted into seven constructs reportedeigen merit more than one.. The constituent constructs were labelled as Perceive Usefulness, Convenience, Security,WebDesign,

Speed, Fee Charges, and Employee on the basis of observed variables and which are line with the

description available in previous researches.

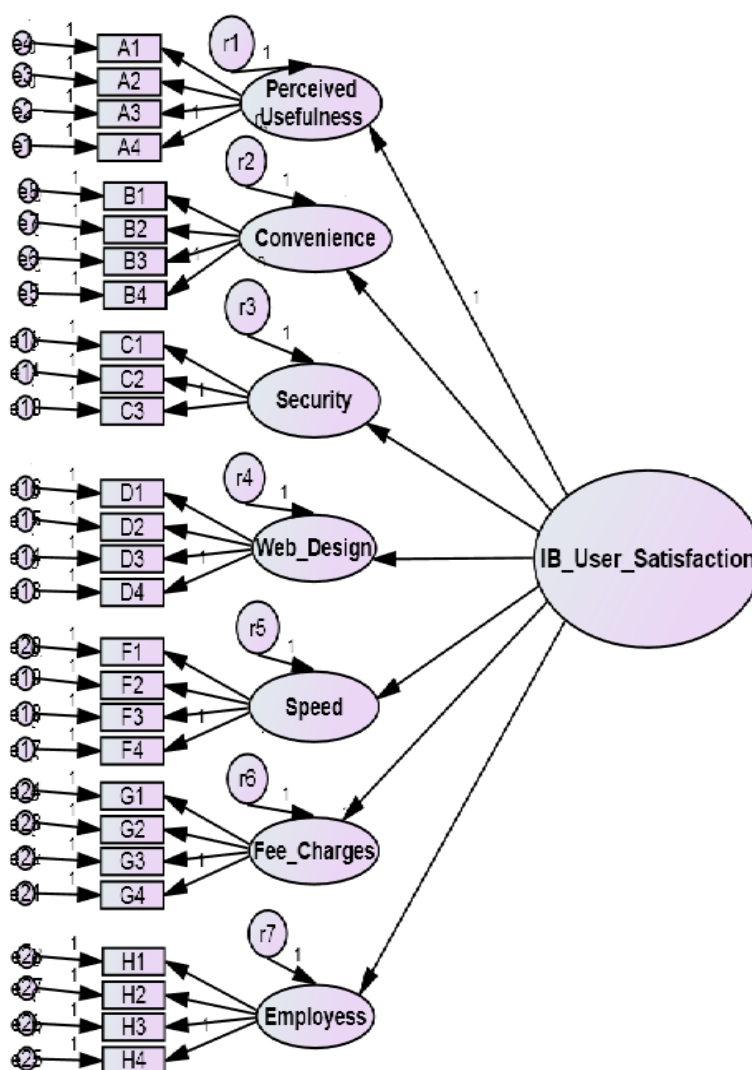
**Table – III Exploratory Factor Analysis**

Factors	Item	Factor Loadings	Eigen Values	% of Variance	Reliability Cronbach Alpha
Perceived Usefulness	Mobile Services	0.785	1.27	24.25	0.836
	Usefulness of Applications	0.763			
	Accessibility	0.688			
	Responsiveness	0.777			
Convenience	Compatibility	0.743	1.23	16.22	0.898
	Comfortability	0.727			
	Easiness of Use	0.669			
	Search Convenience	0.718			
Security	Privacy of Information	0.798	1.07	11.87	0.850
	Password Integrity	0.737			
	Data Encryption and Protect	0.756			
Web Design	Enjoyable Appearance	0.789	1.18	12.44	0.887
	Ease of Navigation on Web	0.784			
	Website Content	0.711			
	Provision for Information	0.696			
Speed	Downloading Speed	0.746	1.12	12.43	0.908
	Fund Transfer Speed	0.733			
	Login Speed	0.765			
	Helpline Speed	0.767			
Fee Charges	Cost of Prestigious Service	0.778	1.09	08.67	0.868
	Cost of Value Added Service	0.765			
	Reduced Cost	0.679			
	Transaction Cost	0.744			
Employee	Professionalism of Employee	0.785	1.06	08.89	0.856
	Behaviour of Employees	0.763			
	Well Trained Employees	0.655			
	Problem Solving Skills	0.755			

### Model Fit

It has been noticed from the output of AMOS software that the obtained values in the model demonstrated satisfactory model fit of the data ( $\chi^2 = 628$ ,  $df=317$ ,  $p \# 0.001$ ;  $\chi^2 / df=1.981$  and

Goodness of Fit Index(GFI)=0.927, Adjusted GFI = 0.907, CFI= 0.932 which clearly indicates the model fit with the research data. It reveals that the model affirms to seven factors of innovative banking user's satisfaction scale.



**Figure 1** Innovative Banking User Satisfaction Scale

#### Reliability of the measurement instrument

Nunnally, 1978 advocated range of 0.7-0.6 for the reliability of a scale and the alpha value obtained by the researcher was 0.922 for innovative banking user`s satisfaction scale which is higher than the specified threshold and hence it is concluded that the present scale is reliable.

The alpha values for the seven constructs were 0.836, 0.898, 0.850, 0.887,0.908,0.868, and 0.856 respectively(Table III).

#### Validity of the measurement instrument

After accomplishing CFA, the composite reliability of those seven constructs were reported to be 0.948, 0.936, 0.922,0.911,0.900,0.908 and 0.941 respectively which is more than the threshold0.70 advocated by Carmines and Zeller, 1988(Table IV).



**Table IV Confirmatory Exploratory Factor Analysis**

Constructs	Measurement Items	Standardized Estimates	P Value	CR	AVE	MSV
Perceived Usefulness	Mobile Services	0.719	***	0.948	0.820	0.719
	Usefulness of Applications	0.791	***			
	Accessibility	0.774	***			
	Responsiveness	0.710	***			
Convenience	Compatibility	0.781	***	0.936	0.785	0.713
	Comfortability	0.831	***			
	Easiness of Use	0.917	***			
	Search Convenience	0.813	***			
Security	Privacy of Information	0.732	***	0.922	0.748	0.704
	Password Integrity	0.888	***			
	Data Encryption and Protect	0.805	***			
Web Design	Enjoyable Appearance	0.807	***	0.911	0.719	0.699
	Ease of Navigation on Web	0.716	***			
	Website Content	0.793	***			
	Provision for Information	0.862	***			
Speed	Downloading Speed	0.794	***	0.900	0.703	0.687
	Fund Transfer Speed	0.836	*****			
	Login Speed	0.875	*****			
	Helpline Speed	0.877	*****			
Fee Charges	Cost of Prestigious Service	0.798	***	0.908	0.711	0.706
	Cost of Value Added Service	0.709	*****			
	Reduced Cost	0.823	*****			
	Transaction Cost	0.837	*****			
Employee	Professionalism of Employee	0.722	***	0.941	0.800	0.754
	Behaviour of Employees	0.738	*****			
	Well Trained Employees	0.873	*****			
	Problem Solving Skills	0.765	*****			

## Discussion

It has appeared from the results that innovative banking user's satisfaction scale is a multidimensional construct integrating seven

dimensions – perceived usefulness, convenience, security, website, charges, speed and employees.

The first dimension, perceived usefulness, is expressed with four items mobile services, easiness of use, accessibility and responsiveness. The literature on online banking products and services user's satisfaction reinforce that perceived usefulness affiliated elements are integral to satisfaction, the main influencing variable for satisfaction is perceived easiness of online banking such as mobile bank, telephone banking, internet banking, ATMs etc. (Swaid & Wigand 2007, Yoon 2010).

Convenience has appeared as second dimension which is formed by four items – compatibility, comfortability, Anytime/Anywhere Banking, and search convenience. User feels positive after undergoing convenient experience in using online services. Innovative banking enables the user to use banking services at anytime and anywhere which is judged as a relative advantage (Gerrard & Cunningham, 2003). The third dimension is characterised as Security which is constituted by measurement items – privacy of information, password integrity, and data encryption and protection. The innovative banking users are deeply concerned about financial exchange security and digital signature while making transactions online (Ranganathan & Ganapathy, 2002). The online users satisfaction is positively influenced by the security features of the e-banking services. (Jun & Cai, 2001; Liao & Cheung, 2008). Fourth dimension is labelled as website design which contains by measurement items enjoyable appearance, ease of navigation on website, website content, and provision for information. The website contents generates user satisfaction and loyalty in e-banking (Luis et al., 2008). Fifth construct has emerged as speed which is a combination of downloading speed, fund transfer speed, login speed, helpline speed. The contents of the material on website, available hardware and method of connection decides the downloading speed and which is influencing variable for user satisfaction (Ma, Zhengwei, 2010). Sixth construct has been characterised as Cost which is a combination of cost of Prestigious

Services, Cost of Value Added Services, Transaction Cost, Reduced Cost. The commercial banks impose lower commissions for their services and higher charges are challenging for their successes (Devlin, 1995; Siriluck & Speece, 2003). The internet banking reduces operational and official costs which helps the banks to lower down their cost (Mohd Khalaf Ahmad et al., 2011). The Seventh construct was employees which is a formation of Professionalism of Employees, Behaviour of Employees, Well Trained Employees, Problem Solving Skills of employee respectively. A banking company can create positive impression on users with the help of staff behaviour and essential roles performed by them while interacting with the users (Huang and George & Kumar 2014). Deng Yingru 2013 observed that the personal interaction is a crucial variable for the user satisfaction.

### III. Conclusion

The present study was aimed at developing a reliable and valid measure of innovative banking user's satisfaction. The authorised guidelines for scientific scale development had been followed and seven constructs of user satisfaction had been developed for its measurement. The scale is judged for reliability and validity using adequate statistical tools. The constructs are also supported by other studies of user satisfaction. The present measurement is unique from previous measures on user satisfaction. This scale is a composition of all factors of innovative banking user satisfaction.

### Managerial Implications

The contemporary innovative banking practices is a focal point in generating user satisfaction in an expectation to create favourable comeback of the users. The branch of the bank can be materially assisted by the scale as it will allow them to evaluate user's satisfaction and feelings towards online banking products and services. The user satisfaction scale can act as prompt assessment on online banking practices in terms of those seven

dimensions. This scale can help the bankers to understand the users and they can develop innovative products and services to satisfy them. The bankers can develop strategies related to the dimensions to create positive user satisfaction.

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