CONTINUANCE INTENTIONS OF M-BANKING USERS: INTERPRETATIVE STRUCTURAL MODELING

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Abstract
Innovation in technology and its implementation cost a lot for banking corporations. Adoption of technology and discontinuance of the same did not fetch the purpose of extremely high expenditure in the new technology. It is desirable that after adoption users continue using the technology for longer period of time. During COVID-19 era adoption of m-banking applications experienced a sudden spike. But will that usage be continuing in post pandemic era is a necessary question in the mind of banking incorporations? As the continuance intention is the key to success for mobile banking service providers. In this study, an attempt is made to develop a model for continuance intention using interpretive structural modeling. Security is found to be the level I variable; trust, ease of use, and perceived usefulness as level II; expectation confirmation and satisfaction as level III variable which are the determinants of continuance intention for the use of mobile banking applications. The understanding of the determinants and level of the same will help the banking service providers to increase retention of existing users of their mobile banking applications.

Keywords: Interpretative Structural Modeling, Mobile Banking Application, Continuance Intention, Ease of Use, Expectation Confirmation

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1. Introduction

The outbreak of COVID-19 forced us to rethink the functioning of businesses in all facets. The banking industry is also not an exception to this. The services offered by the banking industry in the COVID environment with no/minimal human interaction was a challenge in the absence of mobile banking applications.

Mobile banking refers to the adoption of mobile phones to access banking services. It allows freedom from temporal and spatial limitations. With the increased penetration of communication technology along with internet it has progressed in leaps and bounds.

The sustainability of mobile banking depends on continuance intention of users of mobile banking applications. The objective of this study is to understand the determinants of the continuance intention of mobile banking applications.

2. Literature Review

Continuance intention of mobile banking applications is not much studied especially in the Indian context. From limited literature in this field following variables have been identified as determinants of continuance intention.

2a. Perceived Usefulness

Davis (1989) defined perceived usefulness as "the perceived degree to which an individual believes that using a specific service or system improves his or her task performance". In case of mobile banking when the user perceives it to be useful in terms of time, effort and money then they will continue the usage of the service.

2b. Ease of Use

Ease of use is defined as "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989). If the technological innovation is difficult to interact then the user will not prefer to use it. To overcome the problems of interaction with users the mobile banking system must be easy to learn as well as easy to use.

2c. Security

In mobile commerce, security plays an important role that holds back the user from using it. Security is defined as "the perception that interactions are safe and secure" (Vatanasombut et al., 2008). If the transactions on mobile banking are not secure then the user will hesitate to use the mobile banking system with the fear of losing his data.

2d. Trust

According to Morgan & Hunt (1994), trust is defined as a "user's confidence in service provider's reliability and integrity". In financial services trust plays a significant role and as mobile banking involves online information exchange trust becomes an important factor.

2e. Satisfaction

Satisfaction refers to the level of fulfillment or satisfaction attained by the users while using mobile banking services. Satisfaction plays an important role in continuance intention as when the users feel satisfied then only, they will continue the usage of mobile banking.

2f. Expectation Confirmation

It is defined as the "perceptions regarding the harmony between the user's expectations of the information system and the system's actual performance" (Daghan & Akkoyunlu, 2016). If the initial expectations of the user regarding any innovations are fulfilled then they will prefer to continue that services.

2g. Continuance Intention

Continuance intention is defined by Bhattacherjee (2001) as the "intention to continue using an information system after its initial acceptance". The success of any information technology innovation is dependent on the continuous usage of that technology or service not only on its acceptance or adoption.

3. Interpretive Structural Modeling (ISM)Methodology for Model Validation

ISM is an interactive learning process, used to establish relationship among variable which define an issue (Warfield, 1976) and to identify direction of relation among variables (Sage, 1977).
The ISM technique involves following steps:

1. Variables identification;

Table 1: Variables affecting continuous intention of mobile banking applications

S. No.	Variables	Supporting Studies
1.	Perceived Usefulness (PU)	Joia & Altieri (2018); Joo et al. (2017)
2.	Ease of Use (EoU)	Ashfaq et al. (2019); Joia & Altieri (2018);
3.	Security (Sec)	Shao et al. (2019); Gao & Bai (2014)
4.	Trust (Trst)	Joia & Altieri (2018); Shao et al. (2019)
5.	Satisfaction (Sat)	Ashfaq et al. (2019); Joia & Altieri (2018)
6.	Expectation Confirmation (EC)	Joo et al. (2017); Shang & Wu (2017)
7.	Continuance Intention (CI)	Shao et al. (2019); Joia & Altieri (2018); Joo et al. (2017);

2. Determination of relationships among variables;
3. Developing a Structural Self-Interaction Matrix (SSIM) of elements to indicate pair-wise relationship between variables;
4. Development of reachability matrix from the SSIM, and observing the matrix for transitivity;
5. Identification of levels in reachability matrix;
6. Development of digraph based on reachability matrix and removing the transitive links;
7. Conversion of digraph in ISM;
8. Review of developed model for conceptual consistency.

3a. Collective Opinion on Identified Variables

Academicians and industry professionals were consulted for the identification of relationships among variables. For the development of SSIM, the following four symbols have been used to denote the direction of the relationship between variables (m and n): In-depth interviews were conducted of four experts: two academicians, one research scholar and one industry professional. Experts were asked to establish the relationship between the variables based on following rules**:**

- M, if ‘m’ predicts ‘n’.
- N, if ‘n’ predicts ‘m’.
- O, if ‘m’ and ‘n’ predict each other.
- P, if there is no relation.

Table 2: Structural Self-Interaction Matrix SSIM

S. No.	Variables	7	6	5	4	3	2
1	PU	M	M	M	P	P	P
2	EoU	P	M	M	P	P	--
3	Sec	M	M	M	M	--	
4	Trst	M	M	M	--		
5	Sat	M	N	--			

S. No.	Variables	7	6	5	4	3	2
6	EC	M	--				
7	CI	--					

Next step will be to convert SSIM into a binary matrix known as Initial Reachability Matrix by Substituting 1 and 0 for M, N, O and P. The substitution is based on following criterion:

- Value of M in (m, n) cell of SSIM will be converted to 1 in the (m, n) cell of reachability matrix and 0 in the (n, m) cell;
- Value of N in (m, n) cell of SSIM will be converted to 0 in the (m, n) cell of reachability matrix and 1 in the (n, m) cell;
- Value of O in (m, n) cell of SSIM will be converted to 1 in the (m, n) cell of reachability matrix and 1 in the (n, m) cell; and
- Value of P in (m, n) cell of SSIM will be converted to 0 in the (m, n) cell of reachability matrix and 0 in the (n, m) cell also

At the incorporation of above-mentioned rules and the transitivity the reachability matrix for variables is exhibited in Table 3. The driving power and dependence of each variable is also represented in Table 3.

3c. Construction of ISM-based Model of Continuance Intention of Mobile Banking Applications

The structural model is generated from the final reachability matrix. The relationship between variable is represented by arrows to obtain a directed graph or digraph. On the removal of the transitivity the final digraph is formed which is consequently converted into ISM exhibited in Figure 1.

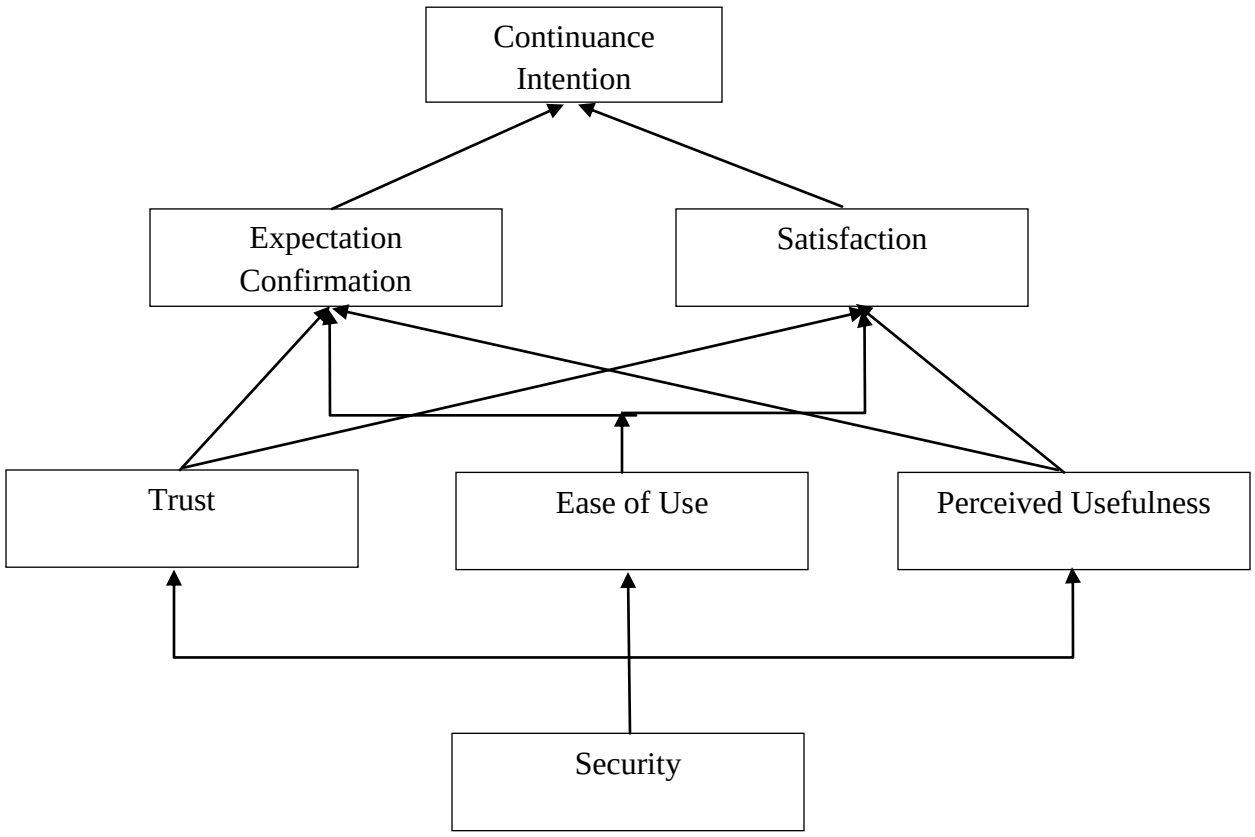

Figure 1: ISM Model Framework, Final diagraph depicting the relationships

Table 3 : Reachability Matrix

S. No.	Variable	1	2	3	4	5	6	7	Driving Power	Rank
1	PU	1	0	0	0	1	1	1	4	II
2	EoU	0	1	0	0	1	1	0	3	III
3	Sec	0	0	1	1	1	1	1	5	I
4	Trst	0	0	0	1	1	1	1	4	II
5	Sat	0	0	0	0	1	0	1	2	IV
6	EC	0	0	0	0	0	1	1	2	IV
7	CI	0	0	0	0	0	0	1	1	V
Dependence		1	1	1	2	5	5	6		
Rank		IV	IV	IV	III	II	II	I		

3b. Level Partitions

The reachability set consists of the elements, which an element may help to achieve elements and the antecedent set consist of the elements which may help to achieve a particular element. Followed by this we derive the intersection sets for all elements. The element with the same reachability and intersection sets are the top-level element in the ISM hierarchy which would not help to achieve any other element above their level. The same process is repeated to find out the elements in the next level and the process will be continued till the level of each element is found. A final table, Table 4 is derived to exhibit all reachability and antecedent sets with the level partitions. With the help of these levels the digraph and the final model is build.

Table 4: Final Reachability Matrix with Levels of variables

S. No.	Variables	Reachability Set (Row)	Antecedent Set (Column)	Intersection Set	Level
1	PU	1,5,6,7	1	1	II
2	EoU	2,5,6	2	2	II
3	Sec	3,4,5,6,7	3	3	I
4	Trst	4,5,6,7	3,4	4	II
5	Sat	5,7	1,2,3,4,5	5	III
6	EC	6,7	1,2,3,4,6	6	III
7	CI	7	1,3,4,5,6,7	7	IV

4. Discussion

Security emerged as level I variable; it has a major influence on continuance intention directly or indirectly. When it comes to finances security becomes the first concern for users to switch from traditional banking to mobile banking.

Trust and Ease of Use emerged as the level II variable. Trust represents the confidence of the user. If user feels that the mobile banking is safe to use then trust can be established easily. Ease of Use is also an important factor for continuance intention of mobile banking applications as if a user feels that it comfortable to interact through this mode then they will continue with the same.

Expectation confirmation emerged at level III along with Satisfaction. If the actual performance of mobile banking applications meets the expectation of users to an acceptable level then one will prefer to continue that technology. Satisfaction also emerged at level III of the model which represents that if users are satisfied with the performance of mobile banking then they might continue with the services.

Continuance Intention emerged as level IV variables. Users will continue its usage when they feel satisfied with its usage.

5. Implications

This study has severe implications for banking professionals and policymakers. During the present age of computerization when it is imperative to move from a 'brick and mortar' structure to an online system, mobile banking applications are boon to everyone. Banking professionals and policymakers could be benefitted from this study as it provides the variables which are affecting the continuance intention of mobile banking applications along with their levels.

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