

Revolution in Digitalization of Financial Services through Mobile Banking: With Reference to Gujarat

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Abstract: *With the emergence of smart phones, communication for customers is not limited to voice only. Ever evolving technology has given way to multifunctional wireless infrastructure that is available to the customers 24/7, thus becoming a key driver for mainstream adoption of mobile financial services. With the help of modern information communication technology, m-banking as a new type of banking services carrier can provide efficient and effective financial services for unbanked and rural peoples in India. Increased cellular subscribers in rural India are offering wide opportunity to expand m-banking services.*

In this paper researchers have studied usage and level of satisfaction of mobile banking users of Gujarat. As Gujarat is one of financially developed state, as well as Gujarat is one of top ten mobile phone user states of India, this study may represent revolution in digitalization of financial services through mobile banking in India.

Key Words: *Digitalization of financial services, Mobile Banking, Gujarat.*

1. INTRODUCTION:

E-Banking (Electronic Banking) is the important technological era of the past few years. ATMs, Mobile Banking, Tele-Banking, Internet Banking, Credit Cards and Debit Cards have emerged as effective delivery channels for traditional banking products. Banks know that the Internet opens up new prospects for them and moves them from local to global (Mavri & Ioannou, 2006). E-Banking refers to systems that enable bank customers to get access to their accounts and general information on bank products and services through the use of bank's website (Thulani et al., 2009). It is the types of services through which bank customers can request information and carry out retail banking services like balance reporting, inter-account transfers, bill-payment, etc., via telecommunication network from any place (Aladwani, 2001, Mols et al., 1999).

Of these various E-Banking Services, Mobile Banking is identified as one of the widely accepted services among users in the recent years. Mobile Banking is also known as M - Banking or SMS banking. It is a mobile service that is used to check the account balance, payments, transactions, etc. using mobile devices like Mobile (or Smart) Phone. The previous way for mobile banking was provided through SMS. European Banks were first to introduce mobile banking services to the customers.

It provides universal connection from any location worldwide and is accessible from any internet linked Mobile device (Bradley & Stewart 2003, Perumal & Shanmugan 2004, Rotchanakitumnuai & Speece 2003). Mobile Banking is identified as the cheaper delivery channel for banking products as it allows the entity to reduce their branch networks and downsize the number of service staff. Due to increase in technology usage the banking sector's performance increases day by day. Mobile Banking is becoming the essential part of modern day banking services.

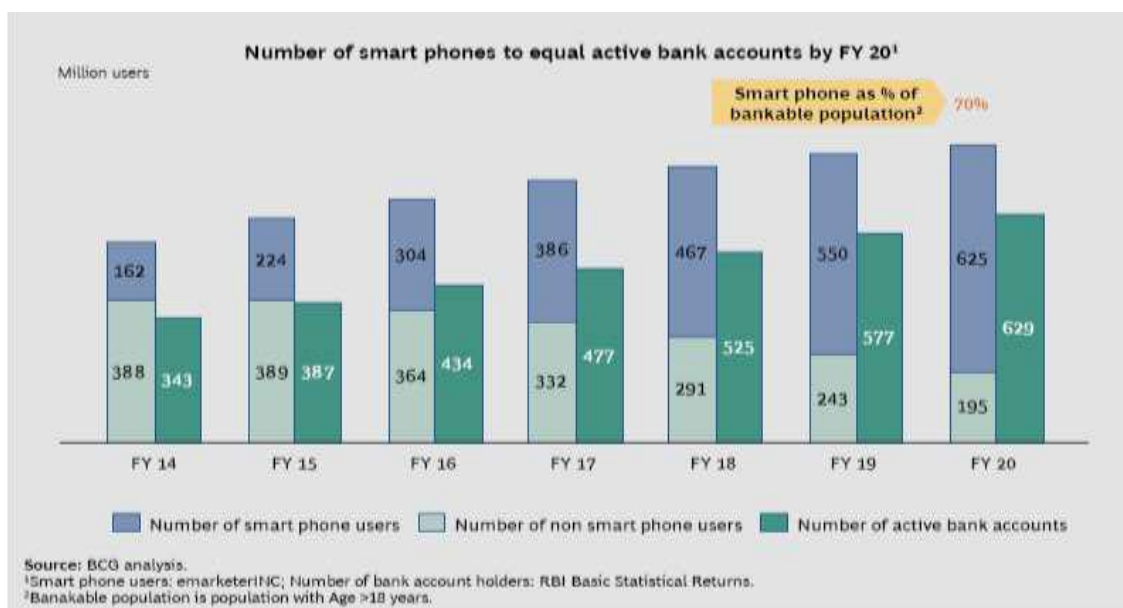
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The digital revolution is spreading very fast and it has become inevitable part of everyone. Technology is advancing day by day. Now a day, affordable smart phones and high bandwidth access has reached to number of Indian consumers. As per the given Chart in BCG's report, it is expected that with the Indian Government's vision, India will emerge as digital savvy or techno savvy within five years. It is expected that by 2020 number of smart phone users will be equal to the number of active bank account in the country.

Number of Smart phones to equal active bank accounts by FY 2020



(Source: Report on Productivity in Indian Banking: 2014)

2. LITERATURE REVIEW:

Rugimbana (1995) found that there is vast market potential for mobile banking due to its always-on functionality and the option to do banking virtually any time and anywhere. Clark (2008) suggests that as a Channel the mobile phone can supplement the number of channels available to consumers, thereby giving consumers more low-cost self-service options by which to access funds, banking information and make payments. Mobile as a channel delivers convenience, immediacy and choice to consumers. Comminos et al. (2008) suggest that unbanked will only transact electronically (online/mobile banking) if there is convenience and security.

Sharma and Singh (2009) found that the mobile banking users in India were more concerned with security issues like financial frauds, account misuse and user friendliness issue, difficulty in remembering the different codes for different types of transaction, application software installation & updation due to lack of standardization. Hayat (2009) suggested that for a banking regulator it's important to provide adequate protection for consumers, ensure economic stability, provide interoperability of electronic systems and guarantee security of transactions and Anti-Money Laundering and Know-Your-Customer principles must also be applied to mobile payments.

Suresh (2017), this study focused on changing consumer behavior for mobile banking services in India. He investigated that factors that determine the customer satisfaction of mobile banking in India are security, efficiency, cost effectiveness, easy demand fulfillment and correctness in results. Also, suggested that banks can increase the efficiency of their staff and work promptly.

Uppal (2011) focuses on adoption and usage of m-banking services among Indian banking industries as well as customers. It also discussed the challenges and difficulties of m-banking services like high charges, slow data transmission and in security. Due to this difficulties customer do not prefer m-banking. Customer is not much aware from mobile banking in compare with ATM, credit card, debit card etc. Ray & Sajan (2011), discussed that mobile banking can replace the debit cards and credit cards system in future, m-banking means 'anywhere anytime, anyhow banking. It focuses on m banking scenario, challenges and issues in future and its possible solution. Banking transaction like loan approval, cash payment, and check balance statements can be done with just clicking on mobile phones at the highest comfort level of customer. The study examines a comprehensive view of the global m-banking industry.

3. RESEARCH METHODOLOGY:

The present study is of analytical and exploratory nature. Accordingly, the use has been made of primary as well as secondary data. The secondary data have been collected mainly from journals and other literature available in the field. Primary data were collected online with the help of structured questionnaires from customers using Mobile Banking. Total 443 respondents from state of Gujarat who actually use mobile banking were surveyed by following non-probabilistic convenience sampling technique. To analyze the data, various statistical techniques have been used as per the requirement of the data.

4. OBJECTIVES OF THE STUDY:

- To study the usage of Mobile Banking across demographic variables.
- To identify Satisfaction level of Mobile Banking users.

5. LIMITATIONS OF THE STUDY:

Study includes 443 respondents across Gujarat which does not present the real scenario of the Mobile Banking usage and satisfaction. Data are collected electronically using Google form.

6. DATA ANALYSIS & INTERPRETATION:

Table 1: Demographic Profile:

Demographic Variables	Categories	No. of Respondents	
		N	(%)
Type of Bank	Public Sector Bank	212	47.86
	Private Sector Bank	231	52.14
Gender	Male	270	60.95
	Female	173	39.05
Age	15-25 years	55	12.42
	26-40 years	279	62.98
	41-60 years	69	15.58
	More than 60 years	40	9.03
Income	Up to 3,00,000	113	25.51
	3,00,001 to 6,00,000	205	46.28
	6,00,001 to 10,00,000	88	19.86
	Above 10,00,000	37	8.35
Occupation	Government Service	66	14.90
	Private Service	102	23.02
	Professionals	84	18.96
	Business	102	23.02
	Student	89	20.09

The above Table 1 shows the demographic / Sample profile of the respondents based on Gender, Age, Income, Occupation and Type of Bank. .

6.1 Frequency of usage of Mobile Banking:

Frequency of usage of plastic money and its association with all demographic variables is displayed in Table 2 & 3 respectively.

Table 2: Usage of Mobile Banking

Usage	No. of Respondents	Percentage (%)
Daily	284	64.11%
Weekly	122	27.54%
Fortnightly	13	2.93%
Occasionally	24	5.42%
Total	443	100%

Table 2 displays the usage of Mobile Banking by the respondents. It is found that majority (64.11%) of the respondents are using Mobile Banking daily, followed by 27.54% respondents are using Mobile Banking weekly. Table represents that around 3% of the respondents are using Mobile banking fortnightly.

6.2 Chi square analysis of usage of Mobile Banking among respondents

To understand the association between demographic variables of respondents and frequency of Mobile Banking usage, Chi square test was carried out to test the hypothesis as under:

H₀: There is no association between demographic variables of respondents and frequency of Mobile Banking usage.

H₁: There is association between demographic variables of respondents and frequency of Mobile Banking usage.

Table 3: Chi square analyses for frequency of Mobile Banking usage among respondents by Demographic Variables

Sr. No.	Demographic Variable	Chi Square Value	d.f.	p - value	Significance	Hypothesis
1	Type of Bank	1.697	4	0.791	No	Null hypothesis not rejected

2	City	29.176	24	0.214	No	Null hypothesis not rejected
3	Age	156.091	12	0.000	Yes	Null hypothesis rejected
4	Gender	3.832	4	0.429	No	Null hypothesis not rejected
5	Qualification	14.011	16	0.598	No	Null hypothesis not rejected
6	Income	14.835	16	0.537	No	Null hypothesis not rejected
7	Occupation	10.937	12	0.534	No	Null hypothesis not rejected

The above table 3 shows that except Age all other demographic variables are having p-value more than 0.05. So, it displays that, there is association between Age and frequency of Mobile banking usage, whereas for other demographic variables, no association was found with frequency of Mobile banking usage.

Table 4: Reasons for choosing Mobile Banking

Sr. No.	Reasons for choosing Mobile Banking	Mean Score	Rank
1	Convenient, safe and secure than carrying cash	5.67	1
2	Ease of use at anywhere any time	4.75	2
3	Saving of cost and time	3.69	3
4	Effective device for payment and borrowing	3.49	4
5	Symbol of Status and pride	2.39	5
6	Influence of social change in borrowing and spending	1.64	6

The analysis of reasons for choosing Mobile Banking by customers (Table 4) revealed that the first important reason for choosing Mobile Banking was that it is more convenient, safe and secure than carrying cash. The second important reason was its ease of use at anywhere any time. Third and fourth reasons were it helps in saving of cost and time and it is an effective device for payment and borrowing respectively. The reasons for choosing specific cards by the respondents were analyzed and the mean scores and the ranks assigned are presented in Table above.

6.3 Usage pattern of Mobile Banking

Mobile Banking users spend differently on different items. A list of items was provided to respondents who indicated on how they spend on various listed items. The aim of this section was to observe the respondents preference on various item for spending through Mobile Banking.

Table 5: Use of Mobile Banking on spending pattern

Sr. No.	Variable	Rank	W.A.M.
1	Online Shopping	1	5.66
2	Utility Bill Payments	2	5.56
3	Account balance enquiries	5	4.88
4	Inter account Funds Transfer	4	4.95
5	Airlines / railway tickets reservation	3	5.24
6	Online hotel accommodation	7	3.27
7	Transaction History	6	4.43
8	Debit/ credit Card Alerts	8	2.49

Table 5 shows that online shopping was ranked first, followed by utility bill payments and airlines / railway tickets reservation. This shows that majority of respondents are using Mobile Banking on Shopping and payments. Respondents gave Funds transfer, Balance enquiry and transaction histories are given 4th, 5th and 6th priority.

6.4 Factor Analysis for Mobile Banking

Table 6: KMO and Bartlett’s Test for Mobile Banking

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.599
Bartlett’s Test of Sphericity	Approx. Chi-Square	5481.508
	Df	105
	Sig.	0.000

Table 6 displays results of KMO test for Mobile Banking, which is 0.599 (i.e. between 0.5 to 1.0). From test results, it is clear that factor analysis is suitable for Mobile Banking services. It further displays the Approximate Chi-

square values for Mobile Banking 5481.508 at 105 degree of freedom under the Bartlett's Test of Sphericity, which is significant at the 0.000 level. The null hypothesis (that the variables are uncorrelated in the population, or the correlation matrix is an identity matrix) is, therefore, rejected. Thus, factor analysis may be considered appropriate for analyzing the data.

6.5 Communalities of Mobile Banking

Table 7 displays the initial communalities extracted under Principal Component Analysis method for Mobile Banking. Table shows that the extracted communalities are high, and hence, it is acceptable for all statements.

Table 7 Communalities of Mobile Banking

Statements	Initial	Extraction
The speed of connecting bank account through Mobile is fast.	1.000	0.840
All information are available while using Mobile Banking	1.000	0.767
Mobile Banking is accessible at all the time and functioning accurately	1.000	0.853
Mobile Banking is easy and simple to use.	1.000	0.812
It is easy to get banking details through Mobile Banking	1.000	0.804
There is no interruption while usage of Mobile Banking in connection to poor server connection	1.000	0.657
While using Mobile Banking, it always works smooth and Fast	1.000	0.801
All required information are easy to find on Mobile Banking	1.000	0.853
Bank has given facility to get immediate alternatives for the problems occurred while using Mobile Banking.	1.000	0.750
If any error happen by bank, they are ready to compensate	1.000	0.761
Customer service representative are always available	1.000	0.720
You can access your bank service, in the first instance through Mobile banking	1.000	0.773
Quick confirmations are provided by bank after using Mobile Banking	1.000	0.858
Appropriate securities are there while log in for Mobile Banking	1.000	0.771
It is completely secured to bank through Mobile Banking	1.000	0.802

Extraction Method: Principal Component Analysis.3

6.6 Variance explained for Mobile Banking

Further, table 8 shows that the extractions sum of square loadings for Mobile Banking. However, a careful look at the table displays that 78.814% variance is not uniformly distributed across all components where only the first components accounts for 24.673% of variance. Thus, in order for the variance to be uniformly distributed across all the components, rotation was applied. The variance explained by each component after the VARIMAX rotation method is shown in same table. It is visible from the table that the variance is now evenly distributed in a range of 18.182% - 8.576%, which was 24.676% - 6.829% before rotation.

Table 8: Total Variance Explained for Mobile Banking

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.701	24.676	24.676	3.701	24.676	24.676	2.727	18.182	18.182
2	2.647	17.650	42.326	2.647	17.650	42.326	2.508	16.722	34.905
3	1.872	12.482	54.808	1.872	12.482	54.808	2.355	15.703	50.607
4	1.425	9.499	64.307	1.425	9.499	64.307	1.656	11.040	61.648
5	1.152	7.678	71.985	1.152	7.678	71.985	1.289	8.590	70.238
6	1.024	6.829	78.814	1.024	6.829	78.814	1.286	8.576	78.814
7	0.792	5.280	84.093						

8	0.639	4.260	88.353						
9	0.416	2.773	91.126						
10	0.389	2.592	93.718						
11	0.295	1.963	95.681						
12	0.216	1.437	97.118						
13	0.182	1.212	98.330						
14	0.149	0.996	99.327						
15	0.101	0.673	100.000						

Extraction Method: Principal Component Analysis.

6.7 Rotated Factor Matrix and Grouping of Key Statements Based on Factor Loading for Mobile Banking:

An analysis of factor loadings in the rotated factor matrix is derived for naming the six factors that have been extracted in the earlier section. Interpretation is done by identifying the statements that have very high loading on the same components. These factors can then be interpreted in terms of the statements that load highly on it.

For better data reduction those statements that had the factor loading more than 0.550 were considered under each factor. The statements which had factor loading less than 0.550 are as follows:

- There is no interruption while usage of Mobile Banking in connection to poor server connection
- If any error happens by bank, they are ready to compensate.
- You can access your bank service, in the first instance through Mobile banking

Out of total 15 statements it is reduced to 12 statements which came under six factors. Under Varimax rotation, 3 out of 12 statements have factor loading more than 0.550 in case of Factor 1, 4 out of 12 statements in Factor 2, 2 statements out of 12 for Factor 3 and 4 and 1 out of 12 have factor loading more than 0.550 in Factor 5 & 6. On basis of Varimax rotation with Kaiser Normalization, six factors have emerged.

Table 9 Grouping of Key Statements Based on Factor Loadings of Mobile Banking

Statements	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
All required information are easy to find on Mobile Banking	0.886					
It is completely secured to bank through Mobile Banking	0.756					
Customer service representative are always available	0.748					
Mobile Banking is accessible at all the time and functioning accurately		0.850				
Appropriate securities are there while log in for Mobile Banking		0.763				
While using Mobile Banking, it always works smooth and Fast		0.596				
Bank has given facility to get immediate alternatives for the problems occurred while using Mobile Banking.		0.575				
It is easy to get banking details through Mobile Banking			0.877			
Quick confirmations are provided by bank after using Mobile Banking			0.872			
All information are available while using Mobile Banking				0.770		
Mobile Banking is easy and simple to use.				0.711		
The speed of connecting bank account through Mobile is fast.					0.864	
If any error happen by bank, they are ready to compensate						0.773

6.8 Naming of the Factors for Mobile Banking

The following six Factors were identified and named as per the factor loading in table 10 given below.

Table 10 Factor Identified and Factor Name for Mobile Banking

Factors	Statement No.	Statements	Factor name based on inference
Factor 1	8	All required information are easy to find on Mobile Banking	Customer Friendly
	11	Customer service representative are always available	
	15	It is completely secured to bank through Mobile Banking	
Factor 2	3	Mobile Banking is accessible at all the time and functioning accurately	Responsiveness
	7	While using Mobile Banking, it always works smooth and Fast	
	9	Bank has given facility to get immediate alternatives for the problems occurred while using Mobile Banking.	
	14	Appropriate securities are there while log in for Mobile Banking	
Factor 3	5	It is easy to get banking details through Mobile Banking	Reliability
	13	Quick confirmations are provided by bank after using Mobile Banking	
Factor 4	2	All information are available while using Mobile Banking	Efficiency
	4	Mobile Banking is easy and simple to use.	
Factor 5	1	The speed of connecting bank account through Mobile is fast.	Easy Access
Factor 6	10	If any error happen by bank, they are ready to compensate	Customer Support

Factor 1: Customer Friendly

The statements covered in this factor are, required information can be easily found over Mobile Banking, it is secured to bank through Mobile and also the availability of customer service representative makes this E-Banking service “Customer Friendly”.

Factor 2: Responsiveness

The statements in this factor are related to all the time accessibility of Mobile Banking, smooth working, immediate alternatives in case of problem occurred and proper security while login. This all services provided under mobile Banking makes banking with “Responsiveness”.

Factor 3: Reliability

The statements in this factor are easy availability of banking details and quick confirmation after using each service of Mobile banking. Therefore, this factor is named as “Reliability”.

Factor 4: Efficiency

This factor covers two statements which are focusing upon easy and simple in use and availability of all the information on mobile Banking. This shows “Efficiency” of Mobile banking.

Factor 5: Easy Access

This factor covers only one statement that, speed of connecting bank account through Mobile is fast. Therefore, this factor is named as “Easy Access”

Factor 6: Customer Support

This factor covers a statement that in case of error from bank, it is ready to compensate for the same which shows “Customer Support” of bank for to consumer while doing banking through Mobile.

Table 11 Grand Mean Value of Factors of Mobile Banking

Factor No.	Factor Name	Grand Mean Value
1	Customer Friendly	3.8264
2	Responsiveness	3.9972
3	Reliability	4.3310
4	Efficiency	3.9539
5	Easy Access	3.9693
6	Customer Support	3.9358

From the table 11 it can be interpreted that out of the Six factors, the grand mean value five factors are less than 4. It indicates that the consumer’s satisfaction for the statements containing these three factors is between neutral and satisfied. While for factor 3 i.e. reliability, the grand mean value is 4.33 which is more than other factors. This indicates that consumers are satisfied from factor 3 - reliability factor of Mobile banking.

7. FINDING & CONCLUSION:

The research study concludes that there is an efficient use of Mobile Banking. It is due to convenient, safe & secure than carrying cash followed by any time anywhere usage. Extensive usage of Smart Phone has resulted into more frequent use of Mobile Banking. It is also found that Mobile Banking is used almost by all for online Shopping, followed by for payment of their utility bills and for reservation of Rail / Air tickets. Majority of the respondents are using Mobile Banking excessively as it is convenient, safe & secure as compared to carry cash, ease in usage and also result in saving of time. Level of satisfaction from the existing Mobile Banking users is comparatively high.

Interestingly, while in era of discussion about safety of data and online transactions, reliability in usage of mobile banking is most powerful factor in customer satisfaction. As smart phones usage by younger generation is more, age of customer having relation with mobile banking usage under this study. On the other hand other demographic variables and mobile banking usage are independent each other.

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