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Digitizing Banking Services: An Empirical Analysis of Customer's Adoption and Usage

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Abstract.
Internet and mobile technologies of recent years have gained momentum and are impacting the working of every process including financial services. Financial service providers including banks are turning their necks toward the wave of these technologies. In the essence it has been made mandatory by situations and conditions in the market that they should be adopted to meet customer demands. This paper will focus on the adoption and perceived usefulness of customers on cyber/Internet banking (IB) and cell phone banking (CB) in India, and the. Data for this study is primary in nature and collected through a survey conducted on 250 respondents a cross north Indian cities. The result confirms that adoption of IB and CB is on the rise though there is a need for awareness programmes as customers consider it viable.
Key words: Cyber banking, Customer, Internet, Cell phone banking, SMS banking

1. Introduction

Internet technology has brought information revolution in the modern society and is rightly being regarded as the third wave of revolution after Agriculture and industrial revolutions. This technology has enabled the blurring of boundaries and time hurdles to make the globe a village. Since financial service industry is part of the affected, Jahangir, (2008) opined that it (Information technology) has an enormous effect in developing the banking services. In India, electronic banking is becoming highly attractive to customers and banking community as well (Mahamood 2009).

The process started in the early 1980s, when Reserve Bank of India (RBI) set up two committees in quick succession to accelerate the pace of automation of operations in the banking sector (Khan et.al., 2009). A high level committee was formed under the chairmanship of Dr.C Rangarajan, then Governor of RBI, to draw up a phased plan for computerization and mechanization in the banking industry over a five-year time frame of 1985-1989. The focus by this time was on customer service and two models of branch automation were developed and implemented. Having gained experience in the earlier mode of computerization, the second Rangarajan committee constituted in 1988 drew up a detailed perspective plan for computerization of banks and for extension of automation to other areas such as funds transfers, ATMs, Internet banking etc. To cap the legal challenges posed by the new developments in technology, the Government of India enacted IT Act, 2000, with effect from October 17th, 2000. The Act provides legal recognition of e-transactions and other means of e-commerce. Also, RBI set up a working group on internet banking to examine different aspects of internet banking which include technology and security issues, legal issues and regulatory and supervisory issues.

Khan, et.al. (2009) argues that Internet banking in India is at a nascent stage and where online financial providers are few. But still the number of companies specializing in developing Internet banking software, security and website designing and maintenance are becoming many. On the context of mobile banking in India,

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financial institution are finding it easy to provide banking services to a huge mass due to large number of Mobile phone subscribers with day in day out trend upward. It means that, Banks or institution providing multi-channel banking services must arrange for partnerships as shown on figure1. Services can be provided traditionally to customers, or through the internet or through mobile phones or Internet through Mobile phones.

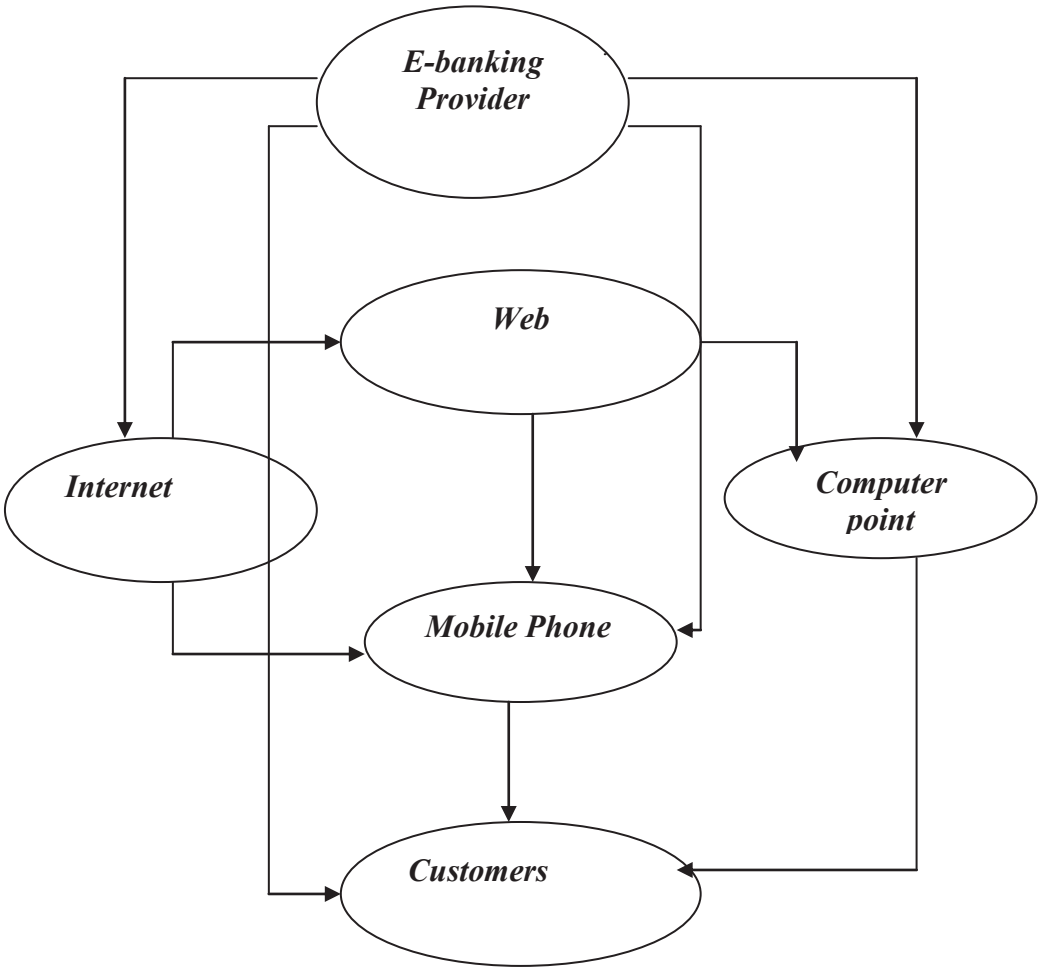
2. Existing Contributions and Objective Development

This section will concentrate on summarized findings of relevant researches, develop objective from the findings and indicate the organization of this paper.

2.1 Survey of relevant contributions

The survey of literature shows that many researches have contributed sufficiently in throwing the light on this concept on internet and mobile banking. For example, Nath, 2001 examined banker's views on the need of IB, its effect on consumer-bank relationship and customers' experiences in internet banking. The study, confirmed that by then, most banks were not offering full-fledged Internet banking. However, many of them had plans to offer internet banking services. Further, the study asserted that IB enhance customer service, increase customer base and impose cross selling opportunities. Soroor (2005) assessed the security of e-banking in Iran with much focus on internet and mobile banking. He presented an overview and evaluation of techniques that are used in Iran. had plans to offer internet banking services. Further, the study asserted that IB enhance customer service, increase customer base and impose cross selling opportunities. Soroor (2005) assessed the security of e-banking in Iran with much focus on internet and mobile banking. He presented an overview and evaluation of techniques that are used in Iran.

Figure 1: A conceptual Model of e-banking



The result found that the best practice in Iran with proper balance between security and cost is the use of other hardware tokens, such as a digipass, that generate response to unpredictable challenges of the bank and that are able to calculate tokens such as a smart card that is already used in other related applications as in, foe example, an electronic purse. Zheng and Zhong (2005) examined the trend in the internet revolutions that have

set the Chinese banking sector in motion and the Factors which have influenced the adoption of IB in china. It was revealed that internet availability, awareness, attitude towards change, computer and internet access, cost, trust in ones bank, security concerns, ease of use and convenience were the major factors affecting the adoption. An exploration done by Singhal and Padhmabhan (2008), revealed that utility request, security, utility transaction, ticket booking and funds transfer were major factors contributing to internet banking adoption. Tat, et.al (2008) examined predictors of intention among users of internet banking to continue using IB services. It was revealed that trust was the strongest predictor followed by compatibility and ease of use. Mirza,et.al.,(2009) revealed a significant difference between demographic and attitude of users and non-user groups. The majority of customers were very comfortable and willing to use IB services. Security concerns, lack of technological knowledge and awareness stood out as being obstacles to the adoption of Internet Banking.

Yuttapong et.al (2009) investigated the factors impacting the adoption of internet banking and found that complexity had a negative relationship with intention to adopt the internet banking in Thailand. Further, it was indicated that compatibility had a high positive relationship with intention to adopt IB. Khan et.al (2009) evaluated the service quality of Internet banking in India from customer's perspective and found that customers are satisfied with quality of service on four dimension viz. reliability, accessibility, privacy/ security, responsiveness and fulfillment but least satisfied with the user-friendliness dimension.

2.2 Objectives of the study

- To study the adoption of Cell phone and cyber banking in India
- To examine the usage of banking serves through Cyber banking
- To analyze the banking services adoption through mobile phones
- To study the perceived usefulness of cell phone banking in India

2.3 Organization of the study

This study has been divided into five sections. The first section deals with the general introduction of the study which gives an overview of Internet and Mobile phone banking. The second section develops objectives and raises research questions from revisiting the already existing contributions which has been made available by many scholars. The next section was dedicated to the methods and the design selected to conduct the research. Section four presented findings of the study, section five gave the concluding remarks, policy implications and Scope for further research.

3. Research Methods & Design

The universe of the study comprised customers of all commercial banks in India, in some selected major cities. It was necessary that the approached respondents should be e-banking savvy. This was done by approaching the respondent and asking if he/she has adopted mobile or internet banking technology. The respondents who do not use these services were excluded from the sample. The research instrument was mailed to identified respondents' addresses, others were personally distributed using drop and pick method. E-mail attachment through internet was used to send the questionnaires to known customers. Out of the total 400 questionnaires send to respondents and after several reminders, 250 usable responses were received. Important statistical tools like Chi- square, Cross-tabulation and other appropriate tools were applied with the help of SPSS statistical software Version 12.0

4. Empirical findings and Discussion

4.1. Adoption of cell phone banking

The trend on adoption of cell phone for communication is upwards in the recent years in every Conner of the globe. This has prompted to the discovery of banking through the mobile phone or providing other financial services. Figure 1, shows that out of the respondents surveyed, 26 percent had adopted cell phone banking in India and 74 percent reported that they have not adopted. Out of those who adopted, 80 percent were young aged 20 to 35 years, 14 percent were 35 to 50 years, and 6 percent were less than 20 years of age. There were no respondents in the age category of 50 years and above. This reveals that majority of customers adopting new age banking services are young.

4.2. Adoption of Cyber Banking

Internet Banking is also another e-banking channel through which banking services are provided to customers. The findings indicate that, 67.2 percent of the total sample adopted Internet Banking and 36.8 did not adopt. Figure 2 shows that out those who adopted, 67 percent were young aged 20 to 35 years, 20 percent were middle aged 35-50 years and old people aged 50 years and above were represented by 2%. Further, it was revealed that young people at the age of less than 20 years had adopted Internet banking (11%). This revealed

that internet banking is more adopted than Cell phone banking which means that there in a need for banks to partner with mobile phone and Internet services providers to tab the un-banked India since mobile penetration has reached them.

4.3 Banking through cyber in India

Cyber banking has gained popularity in the modern banking arena not only in India but elsewhere in the world. IB can be used in many ways as a channel through which banking services will be provided. Using nine common services offered through internet banking, it was enquired from customers the most used services. The various services were listed as variables and the result is presented on table 1. The list of variables which represents the Cyber banking services include, know products of banks (KNWPD), check balance (CKBAL), electronic funds transfers (EFTs), check statement (CKSTM), purchase products (PCHPDS), order cheque books (ODCHBK), stop payment (STPMTS) , change password or pin (CHGPSWD) and after sale service (AFTSLS) i.e. e-mail enquiries.

Table 1 Usage of Cyber Banking services by Indian customers

Variable Label	<20	21-35	36-50	>51	Total
KNWPD	24	90	28	4	146
	(63.2)	(57.7)	(60.9)	(40.0)	(58.4)
CKBAL	17	87	29	7	140
	(44.7)	(55.8)	(63.0)	(7.0)	(56.0)
EFTS	9	60	14	3	86
	(23.7)	(38.5)	(30.4)	(30.0)	(34.4)
CHKSTM	15	75	23	4	117
	(39.5)	(48.1)	(50.0)	(40.0)	(46.8)
PCHPDS	7	22	21	4	54
	(18.4)	(14.1)	(45.7)	(40.0)	(21.6)
ODCHBK	6	17	14	3	40
	(15.8)	(10.9)	(30.4)	(30.0)	(16.0)
STPMTS	5	19	13	5	42
	(13.2)	(12.2)	(28.3)	(50.0)	(16.8)
CHGPSWD	11	63	21	4	99
	(28.9)	(40.4)	(45.7)	(40.0)	(39.6)
AFTSLS	14	73	25	3	115
	(36.8)	(46.8)	(54.3)	(30.0)	(46.0)

Notes: Figures in parentheses shows percentage

Table 1 indicates that 58.4% of the respondents reported to use cyber banking to know various products offered by banks. This indicated that, many banks mostly used or needed to use their websites to advertise their products because this is an important source of product information to customers. Checking account balance (56%) was another service which seemed to be used by many customers checking bank statement (46.8%) and after sale service (46.0%) were favored also which shows that customers have started embracing internet banking though the percentage is less as compared to other services like ATM and cards banking. This might be due to the low internet penetration in India and improper infrastructural facilities in many urban and rural India. Stop payment and order cheque book were favored by 16.8% and 16.0%. This shows that majority of Indian customers do not use this service, may be they can be availed somewhere else or they no longer need internet banking to get this services

4.4 Adoption of Banking services through Cell phone

Cell phone banking means the provision of banking services through mobile phones. This service too like any other e-banking services is gaining momentum as customers are finding it easy to bank 24x7. Using different common E-banking services provided through a cell phone, which included: balance inquiry (BLNQRY), requesting cheque book (RQCKB), know last few transactions (KNWTS), requesting bank statement (RQBST),stop payment of cheque (STPCHK), and bill payment (BILPAY). Respondents were asked to indicate the services they had adopted. The result is shown on table 2.

Table2 Cell phone banking adopted services by India customers

Variable label	<20 Yrs	21-35 Yrs	36-50 Yrs	>51 Yrs	Total
BLNQRY	22	90	29	6	147
	(57.9)	(57.7)	(63.0)	(60.0)	(58.8)
RQCKB	7	48	15	-	70
	(18.4)	(30.8)	(32.6)		(28.0)
KNWTS	9	61	18	1	89
	(23.7)	(39.1)	(39.1)	(10.0)	(35.6)
RQBST	4	46	12	2	64
	(10.5)	(29.5)	(26.1)	(20.0)	(25.6)
STPCHK	7	18	13	1	39
	(18.4)	(11.5)	(28.3)	(10.0)	(15.6)
BILPAY	16	58	24	4	102
	(42.1)	(37.2)	(52.2)	(40.0)	(40.8)

Notes: Figures in parentheses shows percentage

This result clearly indicates that 58.8% of respondents use cell phones banking to know their balances. Also, 40.8%, 35.6% and 28.0% used Cell phone banking to pay their bills, know their past few transactions and request cheque books respectively. Further, it is also indicated that many of the respondents never use Cell phone banking to stop cheque payment (15.6%) and request bank statement (25.6 %). This shows that they either use other channel or perhaps they have abandoned the use of cheques. Age wise result indicated that, all age categories use SMS banking for balance enquiry and to know last few transactions. However, young people aged 20-35 were majority which might throw light that adoption of Cell phone banking can be also be affected by age distribution of bank customers In the same case, majority of respondents reported that they use SMS banking to know their account balances and last few transactions

4.5 Perceived usefulness of SMS banking

Financial products through cell phones have proved to be useful to both customers and providers in recent times. Customers find it easy, convenient, and efficient to transact conventional banking services which are non-monetary in nature such as balance enquiry, transfer of funds, change password etc through a mobile phone. Also, in some parts of the world like Philippines, South Africa and Kenya, transactional services are offered through cell phones. The research proposed to enquire customer opinion regarding the emergence of cell phone banking.

The result is presented in Table 3 on the basis of bank wise and age-wise. The strong feeling were indicated by strongly agree and the weakest feeling was indicated by strongly disagree. Table 3 indicates that, 45.2% agreed and 40.8% strongly agreed that SMS banking is useful. In the similar case, 9.2% were neutral to this fact whereas 4.0% disagreed and 0.8% strongly disagreed on this fact. This shows that the majority, (more than 85%) either agreed or strongly agreed on this fact. This shows how Indian customers are in favor and will support the introduction of SMS banking in banks.

If we look at the Bank type classification perspective, respondents from Private Banks (PBs) supported the fact by more 95% respondents who either agreed or strongly agreed that SMS banking is useful. Also, 44.1% of Public sector (PSBs) strongly agreed while 37.5% agreed on the same fact. In the case of Multinational Banks (MNBs) respondents, 50% agreed and 33.3% strongly agreed that SMS banking is useful. This shows that in the overall case, all Indian respondents favored the emergence of digital financial service through mobile phones.

Table 3 Opinion regarding usefulness of CP banking

Variable	Bank-wise				Age- wise				
	PBs	**PSBs**	**MNBs**	**Total**	**<20 Yrs**	**20-35 Yrs**	**36-50 Yrs**	**>50 Yrs**	**Total**
Strongly Agree	33 (35.9)	67 (44.1)	2 (33.3)	102 (40.8)	22 (57.9)	58 (37.2)	20 (43.5)	2 (20.0)	102 (40.8)
Agree	53 (57.6)	57 (37.5)	3 (50.0)	113 (45.2)	10 (26.3)	78 (50.0)	21 (45.7)	4 (40.0)	113 (45.2)
Neutral	2 (2.2)	20 (13.2)	1 (16.7)	23 (9.2)	6 (15.8)	13 (8.3)	3 (6.5)	1 (10.0)	23 (9.2)
Disagree	3 (3.3)	7 (4.6)	-	10 (4.0)	-	5 (3.2)	2 (4.2)	3 (30.0)	10 (4.0)
Strongly Disagree	1 (1.1)	1 (0.7)	-	2 (0.8)	-	2 (1.3)	-	-	2 (0.8)

Notes: Figures in parentheses shows percentage

Table4 Inferential result of Chi-Square

Profile	X²-Value	df	P-value	Significant
Bank-wise	14.763	8	p>0.05	Insignificant
			p>0.01	Insignificant
Age-wise	30.391	12	P<0.05	Significant
			P<0.01	Significant

From age dimension, it is indicated that, all categories of age except customers aged above 50 years, i.e. less than 20 years, 20 to 35 years and 36 to 50 years of age, supported Cell phone banking by indicating that the channel is useful to them. It was indicated by more than 80% of respondents who either agreed or strongly agreed on the fact about usefulness of mobile phone banking. The old age category (above 50 years) shows that 60% either agreed or strongly agreed whereas 40% either disagreed or strongly disagreed which clearly indicates that young respondents had a positive feeling than old respondents. However, since more than half of them support SMS banking, the negative feelings represented by 40% can not affect the positive felling of 60%.

- H1= Age does not associate with opinion regarding the usefulness of Cell phone banking
- H2= Bank classification is associated with the opinion regarding the usefulness of Cell phone banking

The Chi-square result (Table 4) revealed that Bank type had no association with the perception towards the usefulness of Cell phone banking in India and age had an association with perception regarding the usefulness of cell phone banking. The prompt the rejection of hypotheses

5. Concluding Remarks, Policy Implication and Scope for Further Research

Cyber and cell phone banking clearly indicate moving a head with the wave of information and communication technology. This study confirms that the type of customer bank has no association with the adoption of e-banking whereas the customer age has, and it was indicated that young customers are associated with adoption of e-banking. Further, the study finds that the adopted services were basic which means that banks must do a lot in terms of either informing their clients or adopting advanced services incase they have not adopted. This research recommends a research on challenges impacting adoption, individual channel, performance and legal requirement on the aspect of e-banking adoption. The study suffered some constraints like any other survey studies. The sample was limited to north Indian cities due to convenience and economical aspects, which is a representative and generalization of all over India. The finding will implicate policy makers, bank decision makers and technology providers in viable decision on the future of online banking in India.

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