

## Strategic Extension and Perceived Usefulness of Emerging Technologies in the North Indian Banks: An Empirical Analysis

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### Abstract

Technology advancement has changed the way banking business is done globally, where data Diasporas has become a great concern for management and operations of the financial service industry. This paper is an attempt to investigate the current innovation trends in banks with reference to technology-tailored services. All the services newly introduced in banks have been considered in the discussion. Primary survey has been considered to know the opinions of 150 bank employees regarding the implementation of self-services in banks. For data analysis, statistical techniques such as weighted average score, cross tabulation and percentage analysis have been used. The results show that e-channels in the banking industry are gaining acceptance of recent past and growth trends are promising as the world over is heading to paperless, borderless and timeless economies

**Key words:** *Technology, e-channels, Services, e-banking,*

### 1. Introduction

E-banking is becoming highly attractive to customers, businesses, as well as banking community (Mahmood, 2009). E-banking is the use of banking services conducted via electronic media and internet technology. Whereas some banks are wholly online without branches on the high streets (e.g. Egg in the UK), and all major banks are offering e-banking facilities such as checking balances/ viewing/ printing statements, moving money between accounts, making payments to suppliers, ordering cheque books etc. Banks can reach their customer anywhere, anytime and customers are also able to get instant access to their accounts. With increasing competition among banks, customers are also becoming more discerning and demanding. To meet customer expectation, banks will have to offer a broad range of deposits, investments and credit products through diverse distribution channels including upgraded branches, ATMs, telephone and internet. The key to attract and retain customers, therefore, is laid on efficient customer services, including customized value added products to meet various needs of individual customers and also to meet the needs of diverse types of customers (Kaptan, 2002). Many scholars like Dewan *et.al*, (2001), Goi, (2006), Holland *et.al*, (2001) predicted the outcome of e-banking wave. It is argued that e-banking development will lead to two classes of surviving banks, which are very large banks and small niche one. Through the e-banking, smaller banks could compete by offering portals to the services offered by the larger banks. With these advancement, banks could use e-banking to focus on customer needs in order to gain the strongest competitive advantage (Wind, 2001).

E-banking presents opportunities and challenges (Tanuwar *et al* 2010). Tyagi *et al.* (2010) suggested that since today business has shifted from face to face to anonymous electronic transactions, security has become the major issue when we talk about e-transactions. Narinder (2007) indicated that, despite the smooth integration of technology in the financial service industry, there are many unethical issues to be looked upon like hacking, spamming, Phishing and the like, which create backsliding to new adopters and which keep off prospective adopters. Chhabra *et al.* (2009) also argues that there is no security solution that can offer a panacea for all known threats but they do notify a large part of the risk involved. Further, it is important to note that the proximity of the customer services and use of optimum resources with the focus upon being correct, perfect and exact in a most efficient time, are the current requirements of the banking industry. Sourabh *et al.* (2009) suggested that delivering better services with innovations, managing risks and reducing the geographical disparities. The purpose of this study is to examine the technological innovation trends in developing countries with reference to Indian banks, various technologies adopted and strategic options for promoting the use of e-banking services.

## 2. Review of Literature

Mahmood, (2009) analysed the attitude towards the use of e-banking and found that the main reasons for using e-banking were convenience, availability and saving of time. He also suggested that, with time online use will increase and security is no longer a main issue of not adopting e-banking, against the opinion of Goi, (2006) who asserted that in order for e-banking to continue growing, the security and privacy aspects need to be improved. Yang (1997) argues that the future of e-banking will be a system where users will be able to interact with other banks worry-free and banks will operate under one common standard. Unnithan and Chandana (2001) found their comparison between Indian and Australian experiences of e-banking adaptation and viability, the cost of transacting business has been reduced overall by creation of dot.com entities and catch-up, fall behind, forge ahead theory to gain an economic perspective. The fact more particularly has motivated both customers and bankers, to adaptations and use of e-banking and migration from conventional banking. Nyangosi *et al.*, (2009) indicated that customers from India and Kenya who were surveyed have developed positive attitude and attach more importance to the emergence of e-banking. When a survey of service quality was conducted by Khan (2009) in India, It was found that customers are satisfied with quality service on the four dimensions Viz. Reliability/accessibility, privacy/ security, responsiveness, and fulfillment, but least satisfied with the user-friendliness dimension. Tanwar *et al.* (2010) explored risk management challenges, principles and security control practices of e-banking and found that operational, liquidity, credit and reputation risks affect many firms that are adopting e-banking. Further they suggested that banks need to conduct regular risk assessment and keep customers informed. Tat *et al.*(2008) examined predictors of users intention to continue using internet banking services and found that among the predictors tested, trust was the strongest predictor of intention to continue using internet banking followed by compatibility and ease of use. The Paper concluded that building trust with the current users should be the primary concern of internet banking providers. Singhal and Padhamana (2008) explored the major factors responsible for internet banking based on respondents' perception on various internet applications using factor analysis. They found that utility requests, security, utility transactions, Ticket booking and funds transfer are major factors affecting Internet banking adoption. The paper concluded that, providing internet banking is increasingly becoming a need to have quality services than just to have a variety service.

Al-Hajri and Tatnall (2007) investigated the inhibitors and enablers to internet banking in Oman and compared it with Australia. They found that, perceived relative advantage, organizational performance, customer/organizational relationship and ease of use can assist in drawing out enablers and inhibitors to the adoption of internet banking in both Oman and Australia. Hamid *et al.* (2007) compared the internet banking system in Malaysia and Thailand and found that both nations are dissimilar in providing basis services offered by their commercial banks. Belief in lack of effort on educating the consumers towards e-banking further affected the usability in both countries. Miranda *et al.* (2006) evaluated the Spanish private and saving Banks' web sites and found that Spanish Banks sites demonstrated the high flexibility of the web assessment index and detected the main weakness of the web pages assessed. It was found also that Spanish sites are only on the beginning in terms of functionally. Yang *et al* (2007) investigated the recent trend and development of e-banking in rural areas and its economic impact on local financial institutions. The result conformed that small and local banks have currently a much lower percentage of e-banking customers, which is a clear indication that there is a change potential to improve their e-banking operations in future. Also, perception that the addition of new e-banking service will reduce bank's operating cost and increase the degree of customer satisfaction

The above discussion prompted to the major areas of further investigation in Kenya. Hence this study is an attempt to achieve four major objectives:

- To examine the various technologies adopted by Indian Banks
- To study the strategy adopted by banks to promote extensive usage of e-banking
- To analyze the opinions regarding perceived Usefulness e-banking

### **3. Research Design and Methodology**

The survey was conducted in the major cities of North Indian states. The data for this study was collected through self administered personal mailed, and e-mail attachment of a well structured questionnaire to bank branches in India. The survey instrument was first tested and refined after consulting banking experts before used. The questionnaire was meant for senior managers, Heads of departments, Accountants and other bank executives. The cities selected for this study, are representatives of the general population when considering the banking and personal characteristics.

When collecting data, computer savvy was essential for the participants due to specific nature of the survey. Well instructed individuals by the author, distributed to and collected back the survey instrument simultaneously. Some incomplete questionnaires were rejected from the usable ones. Overall 150 usable questionnaires were finally selected for analysis purposes. In the survey instruments scales were used to measure the statements (SA= strongly to SD= strongly disagree) Participants' were asked to express the level of their agreement with attributes identified earlier from the literature review. Attributes covered respondent's present e-banking business model and perceived importance and challenges of e-banking. Data collected therefore was analyzed via frequency and mean scores. In answering the questions, the respondents were assured about the confidentiality of their responses that their names were not published.

### **4. Result and Discussion**

#### *4.1 Demographic characteristics of Respondents*

It has been noted from recent researches that e-banking adoption has been influenced by banking and personal characteristic of adopters. These include work experience, educational level, and type of bank. It is revealed from the sector perspectives that, majority of respondents were public sector banks (63%) followed by private banks (33%) and foreign banks (4%). This might be because of well networked public sector banks which dominated the whole banking arena in India. For instance, State Bank of India (Public Sector Bank) is believed to be the largest bank in India with well stretched tentacles in terms of branch network, as it is present even in very remote areas of India. Even asset-wise, ATM machines-wise has a milestone to be reflected to other banks. This figure further indicate that public sector banks largely provide technology tailored products and services in India unlike in other developing countries where public sector utilities lag behind in technology adoption as implementation process is prolonged to a very long period even if plans have been instituted. Private and Foreign banks initiated technology introduction in banks but they are not present in many cities of rural and urban India. This has hampered them capturing a large customer network which may accelerate expansion of their business.

The result indicated that majority of respondents (32.7%) had 5-10 years of experience in service while 29.3 percent had less those 5 yrs of experience in the banking industry. This means that the industry is either dominated by young employees or the long serving employees were not technology savvy and so they could not be able to give the desired information. The young and techno-savvy employees will be an asset to any financial intermediary serving the dynamic demands of the modern customers. For many banks to meet these demands if old employees are there who do not posse's new technology or computer skill, it will be imperative that they get the training in order for the concerned institution to stay competitive in the current financial arena

**Table1 Demographic characteristics of respondents**

Variable	Category	Frequency	%ntage
<b>Bank type</b>	Private	49	32.7
	Public	95	63.3
	Foreign	06	4.0
<b>Work experience</b>	<5yrs	44	29.3
	6-10yrs	49	32.7
	11-15 yrs	26	17.3
	>15 yrs	31	20.7
<b>Education</b>	Sec/Dip	02	1.3
	Graduate	68	45.3
	Postgraduate	80	53.3

From educational perspective, majority of respondents were Post graduate (Probably with professional degrees like MBAs) (50.3%) followed by graduates (45.3%). These reveals that better skilled people are hired to handle bank business which is an important asset for any emerging economy.

#### 4.2 Emerging Technology in Indian Banks

E-banking includes all technologies through which bank provide its products and services to customers. The examples ranges from ATM, Tele-banking, Cards cell phone banking, PC banking, EFTs to Internet banking. Respondents were asked to indicate from a list of these technologies, the ones their banks have adopted. The rank was assigned to the most adopted technology by many banks. ATM banking was ranked as the most adopted technology by many banks (96.7%), followed by Debit cards (91.3%), EFTS (90.7%) and Internet banking (89.3%). Personal computer banking and Credit cards reportedly scored low ranks as they are not popularly used by majority of clients.

**Table2: E-Banking Technologies adopted by Indian Banks**

Variable	PBs n=49	PSBs n=95	MNBs n=06	Total N=150
ATM Technology	100	94.7	100	96.7
Debit Cards	93.9	89.5	100	91.3
EFTS	83.7	93.7	100	90.7
Internet Banking	98.0	84.2	100	89.3
Tele-Banking	79.6	84.2	83.3	82.0
Mobile- Banking	83.7	77.9	100	80.7
Credit Cards	75.9	78.9	100	78.7
P.C Banking	67.3	65.3	83.3	66.7

Note :(PBs –Private banks, Public sector banks, multinational banks)

Further, it was revealed from table 2 that, except PC banking and Tele-banking, sector-wise analysis indicated that 100% of respondents from it seem that foreign banks have lead the way in offering e-banking technologies. Also, attractive percentage from Private and public banks indicated that they have adopted many of the technologies. From the results, it seems that local banks in India have leveraged on technology as they eye the future competitive financial market not only in India but also in the world over as some Indian banks have started venturing into offshore banking

#### 4.3 Strategic Creation and promotion of E-banking awareness

Banks and other financial companies have various strategies of promoting the adoption of e-banking technologies by customers. In line with this respondents were requested to indicate their strategies of making their customers aware and increasing the awareness among those who know less in regards to banking with technology. Notably, it will not make any significant meaning to continue rolling out technology-tailored products and services, because clients will not be aware of them nor tries to desire services them. This process will involve spending much on promotional channels like Advertisement demonstrations, seminars and personal contact to every customer. These need decisions which do not involve a lot of expenses to anticipate exceptionally higher income from e-banking

services. Wrong choice of promotional strategy, which does not serve the right purpose of making customer aware, will cause losses by increasing transactional cost of e- banking services.

**Table3: Strategic Promotion of E-Banking Technology awareness**

Variable	PBs n=49	PSBs n=95	MNBs n=06	Total N=150
Adverts in Print	81.6	90.5	100	88.0
T.V & Radio	73.5	86.3	100	82.0
Online Adverts	65.3	76.8	100	74.0
Bank Officials	63.3	45.3	33.3	50.7
Employers	40.8	38.9	33.3	39.3

Note:(PBs –Private banks, Public sector banks, multinational banks)

The respondents were asked to indicate the promotional channels which they are using to promote their e-banking services and to make their customer aware. Several variables were indicated which include the use of Bank officials, advertisement in print media which includes newspapers, magazines etc., advertisement on television and Radio, online advertisement and using employers of customers to inform their employees about various e-banking services provided by banks. Table 3 indicates that, advertisement in print and Television or radio was very important strategies for majority of banks. On the other hand Bank officials and Employers of bank customers were not strategic options of banks. This might be due to time constraints for bank officers and employers taking it lightly even if banks extend their request for promoting e-banking awareness.

#### 4.4 Value proposition in E-banking Services

E-banking has always been attached to more benefits as compared to conventional banking. This notion came about due to advantages which include high returns due to reduced cost, fast services, convenience service and prestige in case of customers. In this case, many researchers have differed in findings which relate to major benefits of e-banking. In the same case, banks and customers adopt e-banking with the aim of achieving the benefits, which they think is attached to e-banking. But most of them get frustrated due to improper decision which they make. For example a bank planning to roll out technology-tailored services must not wish simply because of the benefits thought. They must weigh the benefits and obstacles. To identify some of the major perceived significance attached by banks to e-banking, literature was surveyed and with the help of bank IT experts, statements of seven variables were scaled down. This excluded fake and counterfeiting of the statements.

**Table4: Statements showing perceived Usefulness of E-banking**

Label	Statements
S1	Electronic Banking services are generally faster than traditional banking.
S2	There is high degree of convenience in e-banking as it can be assessed from anywhere
S3	Electronic banking services are more profitable than brick and mortar bank services
S4	Electronic banking services are generally cheaper than traditional banking services at branches
S5	Electronic banking services are prestigious
S6	E-banking is attributed to customer retention
S7	Risk avoidance can be achieved through adoption of e-banking technology

Table 5 reveals that customer retention capability (WAS, 1.63), the fast nature (WAS, 1.59) and Convenience (WAS, 1.49) of e-banking technology attract banks more banks since it will be easy and convenient also to offer banking services to their clients. Other considerations include ability to attract high returns as they cut operational costs, prestigious nature of e-banking technology when adopted and ambience especially in ATM room as compared to conventional queuing to withdraw money through human tellers. Majority of respondents considered, risk avoidance in e-banking adoption as less useful in comparison to the others give in table 5.

**Table5: Analysis of Perceived Usefulness of e-banking Technology**

Cod	Rank	SA	A	N	D	SD	WAS
S1	2	63.3	34.7	2.0	-	-	1.59
S2	3	54.0	43.3	0.7	2.0	-	1.49
S3	5	46.7	48.7	4.0	0.7	-	1.41
S4	6	46.0	44.0	6.7	2.7	0.7	1.32
S5	4	54.0	42.0	1.3	.7	2.0	1.45
S6	1	44.0	46.7	6.7	2.0	0.7	1.63
S7	7	42.0	51.3	4.0	2.7	-	-0.04

This reveals that risk management techniques employed before adoption of new technology can still work in the current environment.

### 5. Concluding Remarks, Policy Implication and Further work

The objectives of this study were to find out whether the demographic characters have any impact on e-banking adoption, distribution of technologies in banks, strategic promotion of e-banking and the opinions on e-banking. The finding indicated that the e-banking in many banks is at its nascent stages where bank are looking at the strategies of implementing it in order to capture a niche in the market and as customers seem to be demanding sophisticated products and services. Education and experience were important though e-banking technology is young in the financial service industry. It was clear that ATM, Debit cards, EFTs and Internet banking are gaining popularity in many banks. Also, customer retention, convenience, fast nature of services and high return ability were considered useful factors influencing bankers in adopting new technology.

The findings implicate financial institutions as they need keep on tracks of the current regulations in place to conduct safe and to get larger customer network. Also, they must concentrate on customer awareness and since this is the initial stage of adoption they should not concentrate on profitability issues. Regulatory authorities in any developing country especially in the country under the study should try to cover the sections in their current guidelines which are not covered to pave a clear way for financial institutions to roll out safe services and increase ample environment for e-banking business. This study also recommends that customers need to cooperate with their bank officials when efforts are exerted to make them aware. This will help the banks to roll out the services more easily and will help them transform their business by concentrating only on new and innovative services. Researchers should focus on balanced aspects and both perspectives of customers and business. Many researchers have carried out general overview of e-banking, internet banking and mobile banking. Therefore, this study recommends that there is a need to investigate. The impact of on other individual technologies, Profitability and performance issues should also be investigated to open up and clear the way for policy and business decisions

### References

- Al-Hajri, S. and Tatnall, A (2007).Inhibitors and Enablers to Internet banking in Oman- Acomparative with Banks in Australia *International Review of Business Research Papers* **3** (5): 36-43
- Al-mudimigh, A.S. (2007). E-business strategy in an online Banking service: A case study. *Journal of Internet Banking and Commerce***12** (1)
- Barako, D.G and Gatere, P.K. (2008) “Outsourcing practices of the Kenyan Banking sector” *African Journal of Accounting, Economics, Finance and Banking Research* **2** (2)
- Chhabra, T.N., Suri, R.K., and Verma, S. (2009). An Introduction to e-commerce Dhanpat Rai& Co.New Delhi: 9.8
- Dewan, R., Suidmann, A. (2001).Current issues in e-banking. *Communications of the ACM*, **44** (6)
- Goi, L. C. (2006). Factors Influence Development of E-Banking in Malaysia *Journal of internet banking and commerce* **11**(2)
- Hamid, M.R.A., Amin, H., Lada, S., Ahmad, N. (2007). A comparative analysis of Internet Banking in Malaysia and Thailand *Journal of Internet Business* (4)
- Holland, C.P. and Westwood, J.B. (2001).Product-market and technology strategies in Banking *Communication of the ACM*.**44** (6)
- Kaptan S.S., (2002) “New concept in Banking” Srup and sons, New Delhi:1-150
- Khan, M.S., Mahapatra, S.S. and Shreekumar, (2009).Service quality evaluation in Internet banking: an empirical study in India. *International Journal of Indian Culture and Business Management* **2** (1):30-46



- Lee, K. S. (2007). Factors influencing the adoption Behavior of Mobile Banking: A south Korean Perspective. *Journal of Internet Banking and Commerce* **12** (2)
- Mahmood, Z. (2009) Attitude towards the use of e-banking: Results of a pilot study survey *Communications of IBIMA* **8**:170-174
- Miranda, F.J., Cortes, R. and Barriuso, C. (2006). Quantitative Evaluation of e-banking Web sites: an Empirical study of Spanish Banks. *The Electronic Journal of Information System Evaluation* **9** (2):73-82
- Narinder, K. and Singh, H. (2007). Internet Banking: The Current Challenges” (Ed.) In Uppal and Kaur *Banking in the New Millennium Issues, Challenges and Strategies*, Mahamaya Publishing House, New Delhi:283-287.
- Nyangosi, R., Arora, J.S., and Singh, S. (2009) . The evolution of e-banking: a study of India and Kenyan technology awareness. *International Journal of Electronic Finance* **3**(2):149-165
- Saurabh, Taggar, R., Giri, S., Singh, A. (2009). Perception towards the use of self self-service technology in the new age Banks *Gyan Management* **3** (2):82-101
- Siami, Z.A., (2006). Role of electronic banking services on the profits of Jordanian Banks” *American Journal of Applied Sciences* **3** (9):1999-2006
- Singh, D. (2008). Consumer’s perspectives on Factors affecting internet Banking in India: an empirical study *Abhigyan* **26** (2)
- Singh, S., Chahatwal Singh Sohrab, Yahyabhoy Mohamed Tara and Heng Chin Yeo (2002). Dynamics of innovation in e-banking *ECJIS*, June 6-8, Gdansk Poland: 1527-1537
- Singhal, D. and Padhmabhan, V. (2008). A study on customer perception towards Internet Banking: Identifying major contributing factors *The Journal of Nepalese Business studies* **5**(1).
- Sulaiman, A., Lim, C.H. and Alice. W. (2005). Prospects and Challenges of E-banking in Malaysia, *The Electronic Journal on information systems in developing countries* **22**(1): 1-11
- Tanwar, M., Tater, B., and Bothra, M. (2010). Risk Management Principles for Electronic Banking in Proceeding of National Seminar on Security issues of e-transaction in Banking and Finacial Sector, 23-24 January , Bareilly:101-106
- Tyagi, S, Agrawal, S. and Saha, S. (2010). Security issues of e-transaction in Banking and Finacial sector in Proceeding of National seminar on Security issues of e-transaction in Banking and Finacial Sector, 23-24 January , Bareilly:72-84
- Unnithan, R C., Swatman M.C. Paula (2001). E-banking adoption and Dot Com Viability a comparative of Australian and Indian experience in the Banking sector *Proceeding of the 11<sup>th</sup> BIT 2001 conference*, Manchester, UK
- Wind, Y.J. (2001). The challenges of Customerization in Financial services *Communication of the ACM* **44** (6):39-44
- Yang, J., M., Boehme, K. (2007). New issues and challenges facing e-banking in rural areas: an empirical study *International Journal of Electronic Finance* **1**(3):336-354.

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