

Prospects and Challenges of E-banking in Nepal

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ABSTRACT

Financial Institutions are slowly moving from Brick and Mortar (Physical branches) to click and Brick (E-banking). ATM's are the most popular electronic delivery channel for banking services in Nepal. Only few customers are using internet banking facilities. Nepalese financial institutions till date have not faced any kind of electronic fraud or risk. Banks have basic security tools like firewall, lightening/power surge protection. But it is found that the some banks are in lack of having regular back up of website information and E-banking policy. Nepalese banks are using E-banking for their own convenience and for the purpose of retaining exiting customers. The cost analysis of most of the banks in Nepal is seems to be either inadequate or not applied due to their narrow space of business transaction or lack of sufficient tools. No significant correlation was found between use of E-banking and gender, marital status or salary of customer. However, Use of E-banking signification association was found with age and education.

Keywords: E-banking, Tele-banking, PC Banking, Internet Banking, Mobile Banking

Across the globe, but specifically in Nepal, current trend in private banking has been the consumer movement from traditional branch banking to more stand-alone banking. In other words, a move towards using e-delivery channels such as the Internet, telephone and mobile phones. Many banks are beginning to deliver credit and deposit products electronically. As banks venture into the electronic arena, however, they are finding new opportunities with new operational and strategic risks.

Nepal's journey into the world of information technology began some three decades back with the use of IBM 1401 for the population census, 1971. Royal Nepal Academy for Science and Technology (RONAST), for the first time, used the internet. Mercantile Private Limited started email services for commercial purposes in June 1994. (Yadav, 2004)

Major Milestones - Electronic Banking Aspect

- Evolution of Joint Venture Bank in Nepal (NABIL Bank) in 1984.
- Introduction of Credit Cards in 1990.
- Establishment of first ISP in 1994 (Mercantile Office Systems).
- First ATM launched by Himalayan Bank Limited in 1995.
- Tele-banking facility was introduced in 1997 by Himalayan Bank Limited.
- Formulation of IT Policy in 2000.
- Evolution of Private Sector Bank (Kumari Bank) in Nepal in 2001.
- Internet-Banking was first introduced by Kumari Bank in 2002.
- SMS-Banking (Mobile Banking) was launched by Kumari Bank in 2004.
- Electronic Transaction and Digital Signature Act (revised in 2005, yet to be brought in practice).

Banking industry of Nepal has been taking rapid strides in the advancement of technology and aggressive infusion of information technology in the functioning of the banks. The industry has not only kept pace with technological developments but has also forced

the computer industry to continuously keep pace and innovate products to suit its needs. Banks are using information technology to gain competitive advantage. (Mahat, 2004)

There is not abundant research on implications of E-banking by Nepalese financial institutions. The paper, which is focused on analyzing the prospects and challenges of e-banking, would be helpful and useful to those financial intermediaries who are conducting and who want to conduct E-banking. The paper also sheds light on the current scenario of E-banking in Nepal.

The Theory

Benefits from the Bank's Point of View: According to a survey by Booz, Allen and Hamilton, an estimated cost providing the routine business of a full service branch in USA is \$1.07 per transaction, as compared to 54 cents for telephone banking, 27 cents for ATM (Automatic Teller Machine) banking and 1.5 cents for Internet banking (Nathan 1999; Pyun et al., 2002). In Nordea Bank, Finland, one online transaction costs the bank an average of just 11 cents, compared to \$1 for a transaction in the branch (Echikson, 2001). Average payment in Internet bank or via direct debit cost 4 times less, than payment in branch. On actual cost side (or cost side from the bank point of view), average direct debit payment cost 16 times less and payment in Internet bank 7 times less, than payment in branch.

Benefits from the Customers' Point of View: The main benefit from the bank customers' point of view is significant saving of time by the automation of banking services processing and introduction of an easy maintenance tools for managing customer's money. The main advantages of E-banking for corporate customers are as: Reduced costs in accessing and using the banking services, increased comfort and timesaving - transactions can be made 24 hours a day without requiring the physical interaction with the bank, quick and continuous access to information and corporations will have easier access to information as, they can check on multiple accounts at the click of a button, better cash management. (BankAway! 2001; Gur_u, 2002)

Economic Benefits: The impact of the New Economy on the entire economic growth has been studied in several research projects. For example Pohjola (2002) shows, that the contribution of the use of information communication technology to growth of output in the Finnish market sector has increased from 0.3 percentage points in early 1990s to 0.7 points in late 1990s. Similarly, research conducted in Estonia (Aarma and Vensel, 2001), bank customers use bank office services on average 1.235 times per month, and wait in queue in bank office on average for 0.134 hours. Simple calculation shows, that making payments via E-banking facilities (for instance using Internet bank) rather than in the bank offices create overall economy savings in the amount of 0.93% of GDP (Average distance to nearest bank office is 4.14 km (Aarma and Vensel, 2001), which takes approximately 0.21 hours to travel.

Electronic and Telecommunication Infrastructure

Computer hardware, software, data and information management, telecommunication and network infrastructure, the internet, intranet and extranets etc. are the vital part of E-banking technology. E-bank utilizes XML that provides output in different formats (HTML, WML, PDF etc.), thus making the banking services available through PC's, WAP phones,

PalmTops and other handheld devices.

E-banking Risk and Management

E-banking has unique characteristics that may increase an institution's overall risk profile and the level of risks associated with traditional financial services, particularly strategic, operational, legal, and reputation risks. Banks as well as consumers view the security threat as perhaps the most serious threat; it is observed that the security of internet access to client account is the biggest challenge facing banks.

Personal Characteristics and Demographics

Previous research has found out that demographic characteristic such as education, age, and incomes are significantly associated with the usage rates of technological innovations (Dickerson and Gentry, 1983; Zeithaml and Gilly, 1987). Dickerson and Gentry (1983) showed that adopters of personal computers tend to be middle-aged, with higher income, and highly educated. The decisions to adopt technology by men are mainly determined by the perceived usefulness of technology use, whereas women, in contrast, are more influenced by their perceptions about a system's ease of use and social influences (Venkatesh and Morris, 2000). Income and education levels are especially relevant in explaining the use of Internet services and other technological devices. Additionally to income, gender, age, and education effects, there is also evidence of ethnic differences in Internet use (Katz and Aspden, 1997).

E-commerce Consumer Behavior Model

The e-commerce consumer behavior model developed by Turban, Rainer and Potter (2003) stimulate a consumer to think about buying. Then, two types of factors influence the buying decision making process, individuals (personal) factors and environmental factors. In electronic commerce there are additional factors that influence shoppers' decision making- payments, delivery, web designs, use of intelligent agents and customer service.

The Research

Though there is a rapid growth in Nepalese financial sector E-banking is still in infancy. Banks are investing lots of amount on technology but they are not been successful enough in E-banking activities. If the banks do not see the scenario and challenges of E-banking, they can't be profitable. In this context, this study has examined into the following problems:

1. Can E-banking service be profitable?
2. What are the risks involved in E-banking?
3. Are the banks using sufficient risk management tools to assure secure financial transactions?
4. To what extent electrical and telecommunication infrastructure is available in banks of Nepal?
5. What personal characteristics and demographics the internet surfers (potential E-banking adopters) have?
6. What types of E-banking services customers want?

Two separate studies were conducted. Given the exploratory nature of the research in the understanding of potential E-banking adopters a qualitative approach was considered to be appropriate in gaining insight into the issue. The selection criterion for the respondents was mainly the internet surfers. It was logical to assume a close association between the

internet surfers and potential E-banking adopter. The second part of the research study was an attempt to examine the performance and future prospects of Nepalese banks in terms of providing banking products and services through electronic channels. Hence, descriptive research design was used.

The population for this study comprised all the banks (national as well as international) which are operating their business in Nepal and the persons who are directly or indirectly involve in E-banking. There were few banks conducting E-banking. Out of these, 5 banks were selected as sample for this study using a simple random sampling method. Second attempt was to identify the potential E-banking adopters and in this regard the data were collected from general customers by means of questionnaire sent through email and also via self administration. From 4 major cities of Nepal (Pokhara-37, Kathamandu-20, Butwal-33, Biratnagar-10) a total of 100 questionnaires were collected and used in the analysis. The responses were categorized, tabulated, processed and analyzed using different methods. Frequency distribution means and correlations were calculated. Besides this, qualitative information was analyzed using recent theories and concepts. Moreover, graphs, charts or figures were included as per the need.

The Analysis

Electronic Delivery Channels Utilized by Commercial Banks

ATM's are undoubtedly the most popular electronic delivery channel for banking services in Nepal. In regards to Mobile banking and Internet banking, though the banks are clearly making the necessary efforts to provide these services, they have not penetrated the market in a big way as yet. Moreover, the research show that Tele-banking is also in practice where as PC banking service is not available.

Mobile Banking Service and Its Utilization

Banks are providing services like enquiry of balance, mini statement, alert messages of every transaction, loan figure alert, and foreign currency rate enquiry through mobile. As per the information provided by the Banks the service request is in increasing trend and more and more customers are using its service.

Table 1: Use of Mobile Banking (SMS Banking)

Name of the Banks	Service request (In the year 2062/2063)	No. of customer using mobile banking yearly
Machh. Bank Ltd.	34000	NA
Kumari Bank Ltd.	NA	2500
NIC Bank	30432	1012

Internet Banking Services

Services that are offered by the banks through internet are shown in table 2

Table 2: Internet Banking Services

Services	MBL	NIBL	KBL
Balance enquiry (Real time basis)	✓	✓	✓
Transaction search	✓	✓	✓
Cheque book replenishment request	✓	✓	✓

Transfer within own accounts or within group accounts		✓	✓
Statement download	✓	✓	✓
Loan information	✓		✓
Insurance service over the internet			
Utility bill payments (Telephone charges, school/college fees, electricity etc)		✓	✓

It shows that Kumari Bank is ahead in providing almost all the internet banking services. It may be because Internet Banking was first introduced in Nepal by Kumari Bank Limited in 2002. This system allows individuals to perform banking activities like balance enquiry, statement download, inter-account fund transfer etc. from any place any time and any where via the internet. Next in the line is Nepal investment Bank limited and then comes Machhapuchchhre Bank Ltd. Other 2 banks which are in sample do not have internet banking facility.

Means of Internet Connection

There are various means through which bank connect to the internet like DSL, Cables, 56 dial up, 28.8 dial up, ISDN, T1 line, Frame relay and so on. Each medium have its own advantage and disadvantage but some media are superior to other. Kumari Bank has been using Optical fiber (cable consisting of one or more hair-thin filaments of glass fiber wrapped in a protective jacket) which can transmit 320 billion bits per second. Moreover this is about 640 times greater than coaxial cable and 32,000 times better than twisted pair cable. Machhapuchchhre Bank has been using DSL (Digital Subscriber Line) which is developed in late 1990s and is digital communications technology that can provide high speed transmissions over standard copper telephone wiring.

Electronic Banking Risk Management

Banks have basic tools like firewall, lightening/power surge protection. Regular update of public web site is also in practice. But it seems that some of the banks are in lack of having regular back up of web site information and clear E-banking policy.

Table 3: Risk Management in Financial Institution of Nepal

Risk Management Factor	EBL	MBL	NIBL	NIC	KBL
Regular Back up of web site information	×	✓	✓	✓	✓
Firewall Protection	✓	✓	✓	✓	✓
Update of public web site	✓	✓	✓	✓	✓
E-banking Policy	×	✓	✓	✓	✓
Lightening/ power surge protection	✓	✓	✓	✓	✓
Advance Security Tools					
User ID and password verification	NA	✓	✓	NA	✓
User ID, Password and PIN Verification	NA	✓		NA	
Digital Certification	NA	✓	✓	NA	✓
Biometric Verification	NA			NA	
Automatic log-off Controls	NA	✓		NA	✓
Encrypted data transfer	NA	✓	✓	NA	✓

With regard to advance security tools, only few banks are having some of them like (EBL: Everest Bank Ltd., MBL: Machhapuchchhre Bank Ltd., KBL: Kumari Bank Ltd., NIBL: Nepal Investment Bank Ltd., NIC: Nepal Industrial and Commercial Bank Ltd.)

user ID and, Password Verification, Digital Certification, Encrypted Data Transfer. It shows that Nepalese financial institutions have to recognize the importance of these tools and create an environment for more secure E-banking activities.

Reason of Offering E-banking

E-banking is a new concept in Nepal. A number of city centered banks are using this facility within their own limitations and conditions. Although E-banking is extremely popular among the nations of globe and have been used for varied purposes by both the banks and the consumers the nature of this in Nepal seems to be specific and limited to its own situation. Research shows that banks are using this service only because of their own convenience and retaining their existing customers.

Cost Structure of E-banking Transactions

Cost analysis of different distribution channels plays dominant role in banking transactions. Lack of cost analysis may result in pushing the bank into the deep abyss of financial loss. Surprisingly, the cost analysis of most of the banks in Nepal is seems to be either inadequate or not applied due to their narrow space of business transaction or lack of sufficient tools. Unit cost for transaction through full service branch is Rs. 2 (average), through ATM (SCT Network) is Rs. 25 for users, through SMS banking Rs 2 and through fax is Rs. 125. There is no cost analysis on the part of online banking. However, it cost less than one rupees for per minute internet surfing in Nepal.

Relationship between E-Banking Adopter, frequency of e-banking use and demographic variables

Table 5: Demographic Variable and Frequency of E-banking Use Cross Tabulation

		Frequency of E-banking use				Total
		Regularly	Occasionally	Seldom	Almost never	
Sex of Respondents	Male	24	30	5	16	75
	Female	3	11	5	6	25
Total		27	41	10	22	100
Age of respondents	Under 21	0	0	0	1	1
	21-25	5	9	6	8	28
	26-30	6	19	1	7	33
	31-35	9	7	2	2	20
	36-40	5	3	0	3	11
	40+	2	3	1	1	7
Total		27	41	10	22	100
Education	PCL	3	1	1	4	9
	Bachelor	10	15	6	12	43
	Masters	14	23	3	6	46
	M. Phil/Ph. D	0	2	0	0	2
Total		27	41	10	22	100

Marital Status	Single	9	15	5	10	39
	Married with no children	4	10	1	3	18
	Married with children	14	16	4	9	43
Total		27	41	10	22	100
Household income	Rs 10000 or less	4	4	0	1	9
	10000-15000	6	8	1	7	22
	15000-20000	1	8	1	6	16
	20000-25000	6	4	3	2	15
	25000-30000	3	2	1	4	10
	30000 and above	7	15	4	2	28
Total		27	41	10	22	100

Table 6: Relationship between E-Banking Adopter and Demographic Variables

Relationship	Pearson Correlation	Sig. (2-tailed)	Significant (0.05 Level)
E-banking and gender	0.154	0.125	No
E-banking and age	-0.211	0.035	Yes
E-banking and marital status	-0.093	0.360	No
E-banking and level education	-0.218	0.029	Yes
E-banking and monthly household income	-0.055	0.589	No

The relationship between adopter and their demographic variables (gender, age, marital status, education and salary) was tabulated and subjected to the Pearson's Correlation test. The study shows that no significant relationship between the use of E-banking and gender, marital status or salary. However, at 0.05 significant levels, age and education were found to have significant association with e-banking. This implies that higher levels of adoption among younger persons, persons with high level of education.

Characteristics of Internet Surfers/ E-banking Adopters

Large percentages of the adopters surf the internet from their work as well as home (35%). Twenty-four percent access internet from their office while 26 percent of the adopters use internet from cyber café and only 13 percent have internet access at their home. Sixty two percent of the surfers have been using internet from more than 3 years. Fifty eight percent of the adopters use internet with regularity. Further analysis showed that 79 percent use internet for sending mails while 70 percent use internet for education/research/ information gathering. The next in the line is general browsing 41 percent and commercial activities 20 percent. Only 10 percent use internet for online purchasing.

Use of Electronic Payment Instrument

Since e-commerce and e-banking are in its infancy stage in Nepal people are not using it as per their need and banks are not making sufficient effort for its use. ATM card is the most used instrument for e-banking transaction. Due to the nature of the card e-banking transactions has not reached to its full fledged status. Consequently the debit cards from Visa electron, Credit cards and E-payment card hold the remaining positions.

Purpose and Frequency of E-banking Use by Customer

Depending upon the regional scope and limitation of different banks running this service a varied range uses may result. As such the use of E-Banking seems to be focused highly in certain services and a negligible use in other. Customer are seems to be using e-banking for the purpose of cash receive and withdraw. Similarly, some of the customer use e-banking for balance enquiry and regular and schedule payment like payment of NTC mobile bill. Furthermore, it shows that many consumers are not aware of using this service for online purchase and stock trading.

Types of Online Purchasing Items

Electronic commerce at present was used very slightly. Ninety five percent of the respondents had never bought products or services via the Internet. According to the responses, the products most commonly bought via the Web were Leisure items like CD's, books. The Internet was neither used much for booking of flights, hotels, or tickets. In summary, the Internet is mainly used for information seeking and for communication with other people.

Conclusions

Advances in information technology and telecommunications have certainly introduced new delivery channels for Nepalese commercial banks' products and services. These new delivery channels include automated teller machines (ATM's), mobile banking, Internet banking. Among these, the ATM's are the most widely accepted and highly utilized delivery channel. As per the information provided by banks, mobile banking seems to have good future prospects. PC banking is still not available in Nepal. However, about 35% of the respondents have Internet access at home and work and these represents a positive indication for PC-based banking and Internet banking in the future. At present, the strategies of the Nepalese banks tend to retain the existing customer through E-banking. E-banking adopters use the basic banking facilities such as cash receive and withdraw, balance enquiry, regular and schedule payment. Only few percentages use other facilities such as inter-account fund transfer, online purchasing. This is basically because of the security and confidentiality concern of the customers regarding these facilities of E-banking. Risk management, infrastructure development and policy formulation the three major challenges of E-banking in Nepal. Technological problems like connect break in service while withdrawing cash from ATM, poor mobile service are creating obstacles in development of E-banking in Nepal. An adequate level of infrastructure and human capacity building are required before banks adopt the full-fledged E-banking. In Nepal, E-banking is at its infancy right now and the system is not perfectly secure. However, no e-banking frauds have been found yet. Lack of understanding of internet technology may be the reason. But, precaution must be taken.

Telecommunications industry and financial services sector are crucial components for E-banking. Nepal Telecom and now Mero mobile are two telecommunication industries which are operating their business throughout the county. But, the services are limited and the problems are more. The signification association found between age, education with use of E-banking means E-banking providers should target the younger age group as well as well educated persons. The cost analysis of most of the banks is seems to be either inad-

equate or not applied due to their narrow space of business transaction or lack of sufficient tools. This poor awareness in cost analysis of banking transaction may lead to loss in future in the field of E-banking. To be able to draw conclusions about profitability, some investigation into the income side has to be made as well.

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