

Role of Information Communication Technology (ICT) in Nepalese Banking Industry

Niranjan Sapkota^a, Niroj Paudel^b, Dipak Kumar Subedi^c, Raju Bhattarai^d, Rajesh Shrestha^{e*}

^aDepartment of Computer Science, Amrit Science Campus Kathmandu (TU), Nepal

^bDepartment of Applied Plant Sciences, Kangwon National University, Chuncheon 24341, Korea

^cDepartment of Physics, Patan Multiple Campus (TU), Lalitpur, Nepal

^dDepartment of Chemistry, Trichandra Multiple Campus (TU), Katmandu Nepal

^eDepartment of Physics, Trichandra Multiple Campus (TU), Kathmandu, Nepal

^aEmail: nirajan.sapkota@gmail.com, ^bEmail: nirojirauna@gmail.com, ^cEmail: dsubedi48@gmail.com

^dEmail: bhattarairaju29@gmail.com, ^eEmail: rajeshshrestha402@gmail.com

Abstract

Public and private sectors, organization has been keen to harness the potential of ICT to enhance its administrative, managerial and clinical performance. Successful implementation of the new technology depended upon acceptance by organizational member targets as its end-users. The experiment is done by the help of both primary and secondary data. Primary data have been collected from the structured questionnaire developed for the employee of the bank and the customers. Secondary data have been collected from the website of Nepal Rasta Bank, ICT related journals, banking articles and other published sources. The study purpose is to gain a more complete understanding of the change management factors affecting the acceptance of the. The present study was aimed to explore the prevailing status of the use of ICT in commercial banking services, assess the extent of perceived benefits of the use of ICT and analyze the key problems and their corrective measures so as to leverage the use of ICT in commercial banking in the country. The study found explores the banking sector using the information and technology. The study helps to provide the information about the cons and pros of using information and communication technology in the present context of Nepalese banking sector.

Keywords: Banking; Explore; ICT; Public and private sector; Primary and secondary data.

* Corresponding author.

1. Introduction

As over the past twenty years the level of penetration and sophistication of information technology (IT) has grown dramatically, with computer-based information systems actively supporting all key business processes and significantly enhancing both the operational effectiveness and the strategic direction of organizations of all types.

In both the public and private sectors, organization has been keen to harness the potential of ICT to enhance its administrative, managerial and clinical performance. Unfortunately, the acquisition and introduction of IT is still dogged by high failure rates. Successful implementation of the new technology depended upon acceptance by organizational member targets as its end-users. Thus, having the Technology available is simply not enough; it must be accepted and used appropriately by its target user group in order to realize anticipated productivity gains [1]. In fact, the implementation of an IT project constitutes a major change for any organization; the actual implementation appears to be very heavily biased toward the technological aspects while paying little attention to managing the changes in process, structure and culture.

Since the seventies, research has concentrated its efforts on identifying the conditions or factors that could facilitate the integration of IS into business. This search has produced a long list of factors that seem to influence the use of technology [2]. From the mid-eighties, Information System (IS) researchers [3] have concentrated their efforts on developing and testing models that could help in predicting system use. Davis proposed one of them, the Technology.

ICT is central to all organizations. It has moved from being just a business enabler to being a business driver. In a manner the banking and financial services sector, being the early adapters of any new technology defines the roadmap for future technology adoption. Rapid advancement in ICT has had a profound effect on the banking industry and the wider financial sector over last two decades, ICT is now a tool that facilitates the bank's organizational structure, business strategies and customer services [4].

By referring the history of ICT in banking sector, the advancement and interest of general people towards the ICT is being exploring. Along with the positive impact towards the ICT, the problems are also raising. Unhealthy communication, circuit break, temporary blockage of systems etc. create the Customer dissatisfaction towards the service provided by financial institutions,

The core issues faced by the banks today are on the fronts of customer's expectations, cutting operational costs, and managing competition. Technology can help banks in meeting these objectives.

ICT has empowered top management of banks of Nepal to gain greater visibility and control. It also provides a wide range of financial options and greater convenience with borderless approach. Besides, it has opened the banking services and products beyond local market, especially for Nepalese residing abroad to have banking relationship with their banks in Nepal. At present context, Nepalese banks are ready to provide world-class services to their

customers. There are multiple channels including net payments system and net credit cards. Till date, almost every financial institution is providing ICT services to its customers.

Before introduction of ICT in the banking sector of Nepal, it was very difficult to provide services to the customers and operate the banking system as well. It was also very difficult to operate the banking sector with the branches due to lack of networking and paper money were used which are fragile compared to the ICT. All banks were considered as traditional banks and were operating under sheer weight of manpower. There was traditional division of labor and administrative structure was highly regimented. Moreover, there was manual input of records and data and transactions were circumscribed by heavy regulation. There was also limited competition among the commercial banks and minimal technology was used.

When effectively integrated into a high-quality user based environment, researchers have demonstrated that ICT can help deepen users' content knowledge, engage them in performing own request by themselves, and support the development of user friendly environment [5,6]. However, ICT alone cannot create this kind of teaching and learning environment. Programmer must know how to structure attributes, select resources, guide activities, support this learning process and make user friendly; many traditionally-banking service are not prepared to take on these tasks. As [7] point out, to use technology effectively, the pedagogical paradigm needs to shift toward more clients-centered learning. This shift is not trivial or easily accomplished, particularly in financial institutions with office-centered service traditions. The literature suggests that four broad sets of changes should accompany the integration of ICT and the move toward a constructivist model of click system.

The ICT integration in developing country based organizations is challenging. A number of factors—such as management knowledge, time, access to ICT tools, and the alignment of ICT use with institutional goals—appear to help organization integrate ICT and to support users' increased use of ICT tools for customer service[8].

Even the simplest handsets have features buried deep in menu structures. If navigating an m-banking/m-payments interface is difficult for experienced mobile users with bank accounts, even greater is the difficulty for first-time users in the developing world, many of whom will have only been using a mobile for a year or two [9,10]. However, the challenges may run deeper than interface design. People coming to banking for the first time via the mobile handset require a command of abstract concepts about invisible/virtual money. Consider the lack of ways to wrap or —giftll a digital money transfer [11]. Beliefs, misunderstandings, habits, and concerns must be addressed if people who are used to storing money in cash are asked to store it —inl a handset; the analogy remains strained—the mobile is not yet a wallet [12].

The role of existing mediated transfers and other financial services also deserves scrutiny. A large proportion of the volume of m-transactions may reflect existing transactional relationships, shifted over to the new channels. This is not to say that a shift is not itself valuable—there are significant benefits of cost, reliability, safety, flexibility, and immediacy associated with m-banking/m-payments systems. However, it is important for industry, researchers, and

policy-makers to understand the transactional networks and behaviors that already exist. An antecedent to this argument comes from the financial sector.

Reference [13] Formal transfer services like Western Union all have their adherents, and the list is longer when one includes alternative savings and credit mechanisms like chit funds and moneylenders. There are communication issues, as well: transfers are exchanges at a distance, and as Ruthven points out, there is an implicit or explicit network of communication and information exchange embedded into almost every transaction. Remittances, in particular, are a context in which it is difficult to separate financial transactions from symbolic meaning and social bonding [11, 14]. There is a litany of social/contextual influences on m-banking/m-payments use. Both macro-level cultural factors and micro-level, locally-negotiated norms in families and among peers particularly about money are at play [15]. For example, respondents in focus groups we conducted in Manila [16] explained that, while they would certainly transfer money to a family member (a gift), they would not do so to an acquaintance (a loan). Technically, the actions are the same. Socially, they are miles apart. Suggest that m-banking/m-payments systems may alter patterns of money sharing within families by giving women greater autonomy and control over household savings [17]. The objective of this study was to gain a more complete understanding of the change management factors affecting the acceptance of the ICT. It examines a number of issues relating to how change is managed within the implementation of ICT in a French bank. It begins with an overview of the Technology Acceptance Model and then examines the key measures to be taken along with the shifts induced by the ICT in order to make them accepted by the users. The present study was aimed to explore the prevailing status of the use of ICT in commercial banking services, assess the extent of perceived benefits of the use of ICT and analyze the key problems and their corrective measures so as to leverage the use of ICT in commercial banking in the country.

2. Methods

The research is based on both primary and secondary data. Primary data have been collected from the structured questionnaire developed for the employee of the bank and the customers. Secondary data have been collected from the website of Nepal Rastra Bank, ICT related journals, banking articles and other published sources. The data collected from the various source have been analyzed and identified using the statistical tools and with the support of previous developed theory. A systematic research technology is necessary to be followed to meet the objective of the study. This section deals with the research methods applied for carrying out the study. It is discussed with its elements like the research design, population and sample, key variables of the study, the subject for the study, sources of the data, collection and methods, data analysis and limitations of the data.

Sources of Data

The data source is mainly from within Kathmandu valley, its officials and customers. In order to complete the study; following data sources will be accessed.

Any published and unpublished articles, papers and reports of banking.

- Primary Information/Key Informant interview with concerned department like CSD and IT department. A separate questionnaire will be developed for them.
- Website of Nepal Rastra Bank.
- Primary Information with the customers of the different financial institutions. A separate questionnaire will be developed for them.

Both primary and secondary data are used under the study. As far as secondary data are concerned, they are directly obtained from the mentioned sources using personal efforts to some extent. Then the collected data are rearranged for the better classification for the required statistical calculation.

Methods of Data Collection

All the primary data collected through personal investigation, indirect oral investigation, telephone interviews and questionnaire. The required secondary information is collected through the source like published sources, annual report of different commercial bank etc.

Data Analysis

After the collection of the data through various sources like primary and secondary sources, the data are edited, coded, classified into different categories like group classes and tabulated. All the data processing is done within Kathmandu Valley and most of the data are compiled and analyzed with the help of SPSS. Thus, the data are analyzed using both differential and inferential statistics. Relevant tables, figure will be prepared.

3. Results

Table1: Respondent Information by Type and Gender

Respondent Type	Male		Female		Total	
	N	%	N	%	N	%
Bank Customers	87	62.14	53	37.86	140	100.00
Bank Employees	32	64.00	18	36.00	50	100.00

The information presented in table 4.1 reveals that among the 140 customers responding to this survey research, almost 62 percent of them were male and remaining were female. Similarly, among the 50 employees surveyed, 36 percent of them were females and rests were males.

Table 2: Presents with the information related to respondents' age group-wise of both bank employees and bank customers.

Age Group	Bank Customers		Bank Employees		
	Male	Female	Male	Female	
N	%	N	%	N	%
Under 20	6 6.9	3 5.66	-- 0	0 0	
20-29	3337.93	18 33.96	1959.38	10 55.56	
30-39	3034.48	16 30.19	1237.50	8 44.44	
40-49	1314.92	13 24.53	1 3.12	0 0	
50 and above	5 5.75	3 5.66	0 0	0 0	
Total	87100.00	53 100.00	32100.00	18 100.00	

The information presented in table reveals that among 140 bank customers most of the customers were in between age range of 20-39 years and approximately 72 percent of them were male. Among the females, almost 64 percent of them. Similarly, almost all the bank employees who concerned with CSD and IT department were in the age range of 20-39 years. The information related to respondents' education qualification has been presented in table 3.

Table 3: Education Qualification of the Respondents

Education Qualification	Male		Female	
	N	%	N	%
General literate	8	9.20	6	11.30
Up to SLC	21	24.10	9	17.00
Intermediate	18	20.70	16	30.20
Bachelors	23	26.40	15	28.30
Masters	10	11.50	6	11.30
Others	7	8.00	1	1.90
Total	87	100.00	53	100.00

The information presented i states that most of the respondents were having the education qualification of bachelor's degrees. Approximately 6 percent of total respondents were illiterate. It is clear that almost 94 percent of total respondent were literate.

Table 4 presents with the information related to respondents' profession at the time of this survey research.

Table 4: Professional Backgrounds of the Respondents

Current Status of Employment	Male		Female	
	N%	N		%
House maker	2	2.30	21	39.60
Self employed	17	19.50	7	13.20
Public service holder	8	9.20	7	13.20
Private service holder	37	42.50	9	17.00
Freelance service	8	9.20	4	7.50
Unemployed	15	17.20	5	9.40
Total	87	100.00	53	100.00

The information presented in table 4 states that about 43 percent of the male respondents were private service holders whereas only about 2 percent of them were house makers. At the same time, 40 percent of the female respondents were house makers and only 8 percent of them reported to be in freelance services. Approximately 6 percent of the total respondents were unemployed. There are different services offered by financial institutions in order to attract the customers and serve them. Based on the information collected through the present study, a range of ICT based services were reported to be provided by the Nepalese commercial banks till the time of present study. Such services include --

- Debit/ATM card services
- Credit card
- Internet banking service
- Mobile banking service
- Mobile cash

Table 5.presents the detailed information on intensity and diversity of such services rendered by the Nepalese commercial banks to their customers with different academic backgrounds.

Table 5: Relation of ICT Services and Education Qualification of Customers

Services	Education Qualification (%)					
	General literate	Up to SLC	Intermediate	Bachelors	Masters	Others
ATM/Debit Card	85.70	96.70	94.10	97.40	93.80	100.00
Credit Card	21.4.00	16.7.00	17.6.00	26.3.00	6.2.00	-
Internet Banking Service	28.60	33.30	41.20	34.20	12.50	37.50
Mobile Banking Service	35.70	13.30	38.20	26.30	25.00	25.00
Mobile Cash	7.10	6.70	11.80	2.60	12.50	12.50
Manual Deposit	92.90	100.00	97.10	92.10	87.50	100.00
Manual Withdrawal	78.00	90.00	79.40	84.20	56.20	100.00
All of above	-	-	-	-	6.20	-

Table 5 states about the relation between the literacy of respondents and service they enjoy. Here the percentage represent about the service enjoy by the respondents. Other education qualification includes illiterate respondent as well as special education qualification.

The ICT services provided by the Nepalese commercial banks are described with the help of table 4.6.

Among different commercial banks all the banks provide Debit/ATM card service. It state that Debit/ATM card is essential service that need to provide by every financial

Institutions. Similarly, 82 percent of commercial banks provide credit card facility. It means that most of the banks are providing credit card facility in order to retain their customers and helps in increasing the purchasing power of

customers as well as to lend in some extend. Among different commercial banks all the banks provide internet banking service. It state that in today's concern internet banking service is essential tools to attract and serve the customers.

Table 6: ICT Services Provided by Commercial Bank

ICT Services	Yes	No
ATM/Debit Card	100.00	-
Credit Card	84.00	16.00
Internet Banking	100.00	-
Mobile Banking	98.00	2.00
Mobile Cash	80.00	20.00
Others	90.00	10.00
All of Above	78.00	22.00

Similarly, about 98 percent of commercial banks provide mobile banking service to their valued clients. It means that time is crucial factors so anytime and anywhere customer uses their service to share the information.

From the respondent information it state that about 78 percent of commercial banks provide mobile cash service. Mobile cash makes ease to the clients for the utility service like mobile recharge, shopping, account transfer.

From the respondents information about 90 percent of commercial banks provide other ICT services like utility bill payments, L/C, bank guarantees, forward contracts and SWIFT. Likewise, about 78 percent of commercial banks provide all most all services that stated above.

Every service were crucial and necessity in their own respect, as per the customers demand, competitiveness, retaining the existing customers and attracting potential customers banks are seeks to serve their valued clients by offering such services where ICT plays dominant role in fulfilling such requirements.

Table 7 reveals that ATM/Debit card service and manual deposit is made by all most all of the customers. But manual withdrawal made by customers is 81% which is relatively lower than use of Debit/ATM cards. Mobile cash and all the service offered by bank enjoying customers are really low enough. Internet banking service, credit card facility and mobile banking service enjoying customers are low average.

Table 7: Types of Service Enjoying by the Customers

Types of service	Yes	No
ATM/Debit Card	95.00	5.00
Credit Card	18.00	82.00
Internet Banking Service	33.00	67.00
Mobile Banking Service	27.00	73.00
Mobile Cash	8.00	92.00
Manual Deposit	100.00	-
Manual Withdrawal	81.00	9.00
All of above	2.00	98.00

The best services that respondents' feel among the different ICT service were explained by table 8

Table 8: Best Service in Reaction of Customers

Types of service	Percent
ATM/Debit Card	88.60
Credit Card	1.40
Internet Banking Service	8.60
Manual Deposit	1.40

Among different services Debit/ATM card, credit card, internet banking and manual service are in best service that the customers feel. Among them also Debit/ATM card service is best among best service for the customers where approx. 89 percent of customer goes with it. Though manual deposit is not the ICT service but customers prefer it because of its essentiality.

4. Discussion

The research mainly signifies to the existing stakeholders who are directly in touch with the information communication and technology. This study will also be equally significant to the central bank, other financial institution to know the impact of implementation of ICT in banking sectors. It also helps to formulate the policy to the central bank regarding its scopes. There are certain loopholes related with the ICT while flow of information in-between customers, management themselves and their shareholders. In order to address those problems this study will help by showing the views of existing customers and potential customers.

Along with the organization perspective, for the researchers also it helps to guide to know about the current status of the ICT and its importance in real business field of economy.

This report covers both financial and technical area of study so technical jargons used herewith may be ambiguous to non-technical readers. As mention before due to lack of availability of time the research design and study are residing within the Kathmandu Valley. It became very difficult to collect some of the important data because of the policy of the bank. They did not give some information about some facts about ICT, as it was very confidential for the bank. It became very difficult for us to collect the correct data during the survey. I found some of the respondents were not much serious with the questionnaire. Although I have tried to avoid the bias during the preparation, some of the candidates gave the void information. Along with that, the bank did not give any information about the type of technology, machine and software imported from abroad because of secrecy purpose.

This research explores the banking sector using the information and technology. The study helps to provide the information about the cons and pros of using information and communication technology in the present context of Nepalese banking sector. The study can also help to those new emerging banks to gain the knowledge about the ICT in Nepal and how it has been used in banking sector. Thus, the finding of the study can be replicated to other banks and the banks will be aware about the current status of use of ICT. Through the knowledge of ICT in the Nepalese banking sector, the customer can better use the ICT services provided by the banks.

5. Conclusion

The banking sector has been booming in recent times and the growth rate of this sector has been substantial. It is a place where the financial services are offered, like checking, saving and providing credit to the customers. In the present context, the banking sector is booming exceptionally from the introduction of information and communication and technology.

In Nepal, all the banks provide ICT services. The latest banking services like E-banking, SMS banking m-banking, utility bills payment in the country. The bank has always focused on building sound technology driven internal system to cater the changing needs of the customers that enhance high comfort value.

ICT is central to banking. It has moved from being just a business enabler to being a business driver. In a manner the banking and financial services sector, being the early adopters of any new technology defines the roadmap for future technology adoption. The core issues faced by the banks today are on the fronts of customer's expectations, reducing operational costs, and managing competition. It is through the application of ICT, we can reach these objectives. The customers of different banks were not seemed to be satisfied with the ICT services provided by the bank. Especially, they were against the response of the bank towards their complaints to the bank and have recommended to strength their ICT policy and to introduce new ICT services.

Banks are committed towards serving its customer. They serve not only to the people within the boundary of country but also abroad. Currently 32 commercial banks are operating throughout Nepal to enables its customer to make any banking transaction irrespective of the place they are. In order, to make this transaction more easy, time saving and cost effective, it has been providing ICT services to its valued customer. Moreover, the bank has been providing different services like Debit card, ATM card, Mobile banking, mobile cash, utility bill payment and Internet Banking Services in the country. They also are planning to implement more ICT services like precisely Credit card services, intra bank transaction services, automated clearing house.

Acknowledgment

The authors are grateful for the Nepalese bank in Kathmandu for providing valuable data. Also thanks the Amrit Campus, Kathmandu, Patan Multiple Campus and Trichandra multiple Campus, Kathmandu Nepal.

References

- [1] Sahut, J. M. (2000). ICT Acceptation: The Case of CRM Project. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1755493.
- [2] Bailey, J. E. & Pearson, S.W. (1983). Development of a tool for measuring and analysing computer user satisfaction, *Management Sciences*, pp.530-545
- [3] Cheney, D., Mann, H. & Amoroso, A. (1986). Models of Technology. *Information Technology*, pp. 35- 38
- [4] Jayamaha, R. (2008). Commercial Application of ICT in the Banking Sector.
- Peevers, G., Douglas, G., & Jack, M. A. (2008). A usability comparison of three alternative Message formats for an SMS banking service. *International Journal of Human-Computer Studies* 66(2), 113-123.
- [5] Kozma, R. (2005). National policies that connect ICT-based education reform to economic and social development. *Human Technology*, 1(2), 117–156.

- [6] Webb, M., & Cox, M. (2004). A review of pedagogy related to information and communications technology. *Technology, Pedagogy and Education*, 13(3), 235–
- [7] Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.). (1999). *How people learn: Brain, mind, experience, and school*. Washington, DC: National Research Council/National Academy Press.
- [8] Awuondo, I. (2008). Commercial Application of ICT in Banking Sector. Available at <http://www.strathmore.edu/pdf/ictc-08/ict-banking>.
- [9] Cracknell, D. (2004). Electronic banking for the poor—panacea, potential and pitfalls *Small Enterprise Development*, 15(4), 8-24.
- [10] Peevers, G., Douglas, G., & Jack, M. A. (2008). A usability comparison of three alternative message formats for an SMS banking service. *International Journal of Human-Computer Studies* 66(2), 113-123.
- [11] Singh, S. (2007). The digital packaging of electronic money. In N. Aykin (Ed.), *Usability and Internationalization. Global and Local User Interfaces* (pp. 469-475). New York: Springer.
- [12] Chipchase, J., Persson, P., Piippo, P., Aarras, M., & Yamamoto, T. (2005). Mobile essentials: field study and concepting. Paper presented at the 2005 Conference on Designing for User eXperience. From <http://portal.acm.org/citation.cfm?id=1138301>
- [13] Maurer, B. (2008). Retail electronic payments systems for value transfers in the developing world. Retrieved 27 May 2008, from Department of Anthropology, University of California
- [14] Hart, K. (2000). *The memory bank: Money in an unequal world*. London: Profile.
- [15] Zelizer, V. A. (1994). *The social meaning of money*. New York: Basic Books.
- [16] Donner, J. (2007b, August 23). M-banking and m-payments services in the developing world: New channel, same ties? Paper presented at the panel on living and livelihoods at HOIT2007: Home/community oriented ICT for the next billion, IIT Madras, Chennai, India.
- [17] Reijswoud, V. (2007). Mobile banking - an African perspective. Retrieved 27 May, 2008, from <http://www.regulateonline.org/content/view/948/63/>

Appendix -1

Research Questions

The overall research was guided by a set of pre-determined research questions (RQs) so as to establish a complete solution against the statement of the problem set forth in this study.

L

RQ 1: How is the status of the use of ICT in banking services in the present context of Nepalese commercial banking?

RQ 2: What are the major benefits of the use of ICT in banking services in these banks?

RQ 3: What is the future prospect of using ICT in these banks?

RQ 4: What are the problems hindering the use of ICT in these banks?

RQ 5: How could the use of ICT is leveraged in these banks?