International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426

A Study on Role of Information Systems in Banking Sector

Anurag Gupta

Assistant Professor, Asian Business School, Noida, India

Abstract: ***In the current era of competition, the use of computers and allied technologies has become inevitable and it has been well recognized that Information Systems (IS) plays different roles in different industries. This paper makes an attempt to explore the role of IS in the banking industry, i.e. between public sector, private sector, and foreign sector banks operating in India. The study indicates that IS plays supportive and strategic role in any public, private and foreign sector banks. In this paper, the data about the use of information system in four banks i.e. Axis Bank, ICICI Bank, State Bank of India and Standard Chartered has been taken to understand its use in different banks whether it is a public, private or a foreign bank in India. The paper concludes that IS is important in almost all the functional areas of any bank i.e. HR, Marketing, Finance, etc. It also helps in risk management and cash management along with maintaining long run customer relationship.***

Keywords: Information Systems (IS); Management Information System (MIS); Banking Industry; Electronic Billing Solutions (EBS); Transaction Processing System (TPS); Human Resources Management System (HRMS); Real Time Banking; Core Banking Solutions; CRM (Customer Relationship Management) implementation.

1. Introduction

Today we are in the era of globalization. Multinational organizations worldwide have adopted globalization as their first strategic choice. Advancement in technology has facilitated globalization too. There has been a marked improvement particularly in the area of maintenance, storage, availability and transfer of data. The world has literally shrunk to become a "global village".

In this era of globalization, banks are also required to be automated. They are using information systems to have a competitive edge. **Information system** is an integrated set of components for collecting, storing, and processing data and for delivering information, knowledge, and digital products. Business firms and other organizations rely on information systems to carry out and manage their operations, interact with their customers and suppliers, and compete in the marketplace.

Traditionally, the role of an information system was limited to generating management information systems (MIS) reports. Due to the advent and advancement of IT, information systems are playing a strategic role in the Organizations.

Organizations can adopt IT and information systems in three different ways:

1) To automate the existing set-up
2) To reengineer the obsolete set-up
3) To innovate the set-up.

2. Literature Review

The paper titled "Role of Information Systems in Banks: An empirical study in the Indian Context" by A.M. Rawani and M.P. Gupta (2002), shows the difference in the role of IS in the banking industry, i.e., between public sector, private sector, and foreign sector banks operating in India. This paper uses a strategic grid to determine the role played by IS in banks. The study carried was focused on role of Information Systems in banks from the perspective of technical persons in development and maintenance of IS, i.e. strategic or supportive. The study indicated that IS played a supportive role in public sector banks and a strategic role in private and foreign sector banks. The study also indicated that the future impact of IS does not vary significantly with the banking groups.

H. Peeru Mohamed and V.J. SivaKumar (2003) in their paper titled "Strategic Issues relating to e-CRM in Banks - The perspective of bankers and customers" emphasized the views of bankers and customers as regards designing and implementing e-CRM. It also tried to identify and discuss issues relating to implementation of e-CRM in the banking industry. The findings provided guidelines for customer acquisition, retention and interaction. e-CRM includes capabilities like self-service knowledge bases, automated e-mail response, personalization of web contents, online product bundling and pricing, and so on. e-CRM gives Internet users the ability to interact with the business through their preferred communication channel, and allows the business to offset expensive customer service agents with technology. So, the value was largely one of improved customer satisfaction and reduced cost through improved efficiency. However, an e-CRM strategy deployed alone could also backfire and actually result in decreased customer satisfaction. If the customer's interactions through electronic channels were not seamlessly integrated with those taking place through traditional channels, the customer is likely to become extremely frustrated.

The paper titled "Application of IT in Banking" by K.S. Rajashekara (2004), talked about impact analysis of IT on banking. The problem of doing proper impact analysis is due to difficulty of measuring output accurately when the quality of service is changing as a result of such factors as convenience, speed, and lower risk. Through IT, banks anticipate reduction in operating costs through such efficiencies as the streamlining back office processing and elimination of error-prone manual input of data. Owing to

IT, bank can offer new products and services. Banks are able to develop and implement sophisticated risk, information management system and techniques with more powerful data storage and analysis technologies. IT has positively affected the stakeholders of bank like management, employees, and customers.

The paper titled "Learnings from Customer Relationship Management (CRM) Implementation in a Bank" by M.P.Gupta and Sonal Shukla (2004) attempted to highlight the learnings from CRM implementation in the banking sector. CRM systems were particularly relevant to retail financial services companies, allowing much of the management of the customer relationship to be automated with the objective of maximizing the profitability of individual customer relationships while minimizing the cost of managing those relationships. The study was supported by a case study of CRM systems in major Japanese Bank—Bank of Mitsubishi and also a field survey of scenario in Indian banking sector. The various issues examined included organizational information, the CRM strategy, strategic changes resulting from CRM implementation, implementation priorities for the banks and the factors indicating the performance after CRM implementation. The study revealed that CRM was gradually picking up and was definitely considered as a viable proposition by banks in improving services to their customers. One of the major challenges experienced during implementing CRM was resistance to change. To get CRM to work, high commitment was required in those who were implementing it.

Vasant Godse (2005) in paper titled "Technology: An Impact Analysis" talked about role of Information Technology in banking. Banks faced the enormous task of re-orienting their technology infrastructure towards such interactive decision support and information gathering tools, much different from transaction processing and final accounting. The impact of technology could be on relationship with information technology providers, organizational aspects, banker-customer relationship, control and supervisory aspects, new concepts and processes, which help in further gaining competitive advantage.

Shyam Ramadhyani (2006) in his paper titled "Audit of Banks operating in a computerized Information Systems Environment" focused on Audit related issues of IS in bank. It was emphasized that the use of computers changes the processing, storage, retrieval and communication of financial information and may affect the accounting and internal control systems employed by a bank. The potential for human errors in the development, maintenance and execution of computer Information Systems may be greater than in manual systems, due to level of details inherent in these activities. Through audit reviews, a thorough look and understanding of IS in bank can be seen. The audit of IS would provide us general understanding of IS in bank, managing authentication of users, access control, data security, data integrity, audit logs, testing, accounting entries, data migration, network and RDBMS security, business continuity and disaster recovery plans, hacking, identification of transaction for substantative checking, use of reports generated by system and documentation.

2.1. Data Collection

Axis Bank

Axis Bank implemented a new derivatives system-- Summit FT with the help of global financial applications provider – Misys. It provides ability to structure derivative products in real time and give a single view of the entire transaction to the customer. The bank hopes to leverage the ability to rationalize its currently dispersed functions to provide a single view of every transaction to customers. AXIS Bank Chose SunTec Business Solutions software to centralize and streamline the bank's pricing and billing processes. It implemented a solution that helps Axis Bank create personalized product′ packages and manage fee billing for payment and cash management, while having a unified view of its customers. Axis Bank is SunTec's second banking services client in India, after ICICI Bank.

Software Resources

RisKompass

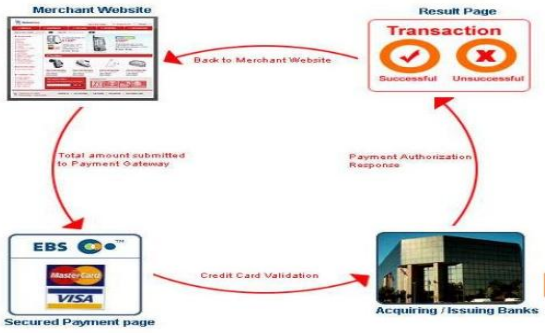
Pyxis systems have provided AXIS bank its RisKompass as the software solution for financial derivatives risk management. It enables clients to manage derivative trades in a further controlled way from the front to back office. It provides automated system that can be accessed by anyone on the different locations of the bank and smoother deal processing, with verifying and online risk monitoring mechanism. The system is user friendly, and the software offers good portfolio management features.

Other Softwares

- Atom Technologies, a subsidiary of the Bse-listed Financial Technologies (India) Ltd. (FTIL), which runs the Multi Commodity Exchange of India has innovated a technology, which enables mobile payments.
- Real Time Gross Settlement (RTGS)
- Electronic Clearing Service (ECS Credit)

Organization Transaction Processing System

EBS (E-Billing Solutions): It is the Merchant Account providing company partnered with Axis Bank. It visualizes how to become more competitive and helps to make the changes to the online payment processing for risk free business. EBS "Payment Gateway" is specifically designed to accommodate the increasing demand by e-commerce companies for sophisticated payment solutions to tap the enormous opportunities for global Internet transactions.



State Bank of India

In SBI, MIS is needed for 24 days banking, 7 days a week; anywhere banking; introduction of new delivery systems,

ATMs, internet banking, etc.; efficiency in operations; strengthening DSS, EIS etc. to improve in the strategic areas like trade finance, treasury etc.

The solution chosen by the SBI after due evaluation and keeping the above objectives in mind is a:

- Core banking solution of Financial Network Services, Australia, which has already been successfully implemented in diverse centralized environment. SBI had chosen TCS Limited, the largest software and Service Company in the country, to customize the product to their needs and also to undertake pilot implementation.
- Teams have been formed by the vendors as well as the Bank, which define the product specific functionalities and customize the software to meet the needs of the bank. Alongside, wherever considered expedient and in the interest of customers, appropriate re-engineering of present systems and procedures and process will be brought about to exploit full potential of the package.

Core Banking Solutions

It is a centralized data processing with IT application to which branches and administrative offices are connected with the objective of strengthening MIS/DSS/EIS, efficiency in operation, to provide any time any where banking and handling effectively strategic areas like – trade Finance, Treasury, ALM(Asset Liability Management) etc.

Solution Providers in SBI

- M/S financial network services (FNS), Australia
  -B@ncs24: software SBI use in CBS.
  -B@ncslink: linking software
- M/S comlink services, USA
  -Finance one: corporate general ledger part
- M/S china system, hongkong/ dubai
  -Exim bills: trade finance package.
- M/S Oracle corporation, USA
  -Oracle 9i: data base management
- Unix/ window 2000
  -Operating systems
- M/S data craft, Singapore
  -Maintenance of SBI connect: leased line connectivity
- Bharat Sanchar Nigam ltd (BSNL), India
  -Leased line for SBI connects & integrated services digital network (ISDN) line as a standby support.
- HP systems, USA
  -Hardware supplier
- Tata consultancy services(TCS) ltd
  -Customisation, integration and implementation
- HCL- comnet
  -VSAT

Architecture of MIS in SBI

- The basic architecture of MIS of SBI is the centralized processing.
- With its applications and data residing at Central Data Centre(CDC) to be located in Navi Mumbai, to which all the branches and administrative offices are connected.
- This type of processing has been preferred by the bank for networking of branches, dictated by volumes and to ensure on-line, real time MIS for decision making.
- So far, the different branches are computerizes only on a standalone basis.

Human Resources Management System (HRMS)

Implementation Partner: SAP™ ERP 41

Before the deployment of HRMS, SBI was using manual systems to manage around 3.7 lakh employees in 15000 branches across 32 countries. After Deployment, SBI is among the top hundred banks globally and is the only Indian Bank in the Top 100. The Bank is in 200th Year of business and has made profit for all the years.

State Bank of India and its seven Associate Banks have already developed group synergy in areas like Real Time On-line Banking, ATM, Treasury and other IT areas. The proposed HRMS Solution would further integrate the Human Resources operations across the group uniformly.

ICICI Bank

Human Resources Management System (HRMS)

Implementation Partner: PeopleSoft-Oracle

Before Deployment of HRMS in ICICI bank, it was having various manual and partly automated systems for managing the HR lifecycle. But now it has automated the complete HR life cycle of 36000 employees in one system which is 24x7 and has an uptime of almost 100%. It is also having a provision for handling the expected 2.7 lakh resumes in the next financial year.

Customer Relationship Management (CRM) Implementation

The software used by ICICI Bank is FCRM i.e. Finacle Customer Relationship Management which is a part of the Finacle suite of products from Infosys. It is a tool to enable Customer Relationship Management. The name is derived from Finacle Core Banking that is used as the main product processor for liability products and banking transactions. Finacle CRM aggregates customer information from all major products - Liability products/ Deposits, Credit Cards, Loans and others.

As the financial market system is questioned and people are seeking for alternative way of doing business, FCRM has been effective to the ICICI Bank in the following ways:

- Communicating with the customers.
- Checking unusual movements on the account.
- Providing tremendous opportunities to their clients.
- Secure the banks business models.
- Managing customer's questions flow.

Changes due to CRM at ICICI Bank

- The value of the relationship has been improved.
- Getting personalized information on all customers.
- Customized offerings to their customers.
- Converting a future & expected customer into a true customer.

Benefits to ICICI Bank

The Finacle CRM has helped ICICI banks to obtain clear insight into relationships with customers. With the help of FCRM they are empowered to distribute effective customer support to all, improved capabilities to manage their sales opportunities & plan, & even execute powerful marketing across communication channels & branches.

Few benefits seen are:

- Enhanced Decision-Making Process
- Improved Customer Service
- Improved Effectiveness of Marketing Programs
- Improved Operational Efficiencies
- A Comprehensive, End-to-End Solution

Standard Chartered

Payroll TPS

In Standard Chartered payroll TPS is designed to get information and record of the employees and then to calculate their annual earnings.

It get information about the employee from the employee's department and from general ledger and send it to payroll TPS from where it links that information with the previous record and prepare a report which is forwarded to management. Management takes notice the "LN" record of the employee's efficiency to work and may declare added bonus or other incentive. This report is checked and approved by the branch manager after which check is issued to the employee and when that check is cashed, the record is updated in the general ledger as well as the master payroll (HUB).

Customer Identification

In Standard Chartered bank there is their own information management named software "Virses"is working which is connected to NADRA. So if any new client wants to open an account in thebank the system automatically send a request to NADRA to check and verify the customer ID number which helps the management to identify whether he/she is using his original ID card or not.

Real time Banking

In many circumstances the primary factor is speed. For example, when a customer withdraws a sum of money from his or her account the transactions are processed and the account balance updated as soon as possible, allowing both the bank and customer to keep track of funds. The new transaction is send to LN. The LN enters the HUB where the specified file is accessed. The updates are made entered there and finally the update is done.

Online Complaints

Standard Chartered bank allows the customer the option of online complaints. The customer submits the online complaint which is then processed by Customer Service TPS which is linked by management and after the problem identification it is send to the concerned department

Advices

As all of the record of the customers are stored in main server (HUB) of Standard Chartered bank, so incase if someone account balance is getting near to zero the system automatically alert the management about that. Then manager take manual action and send him/her the advice (a letter, mail or phone call) to check the account balance.

Account Opening

This TPS is designed for opening a new account in the bank.
Input: Give bio data, NIC no., income, city name.
Process: Information send to the "virses".
Output: new account opened in the bank.

Online Activity

Purpose: Transfer funds with the organization.
Input: Concerned Branch code, city name, account title, amount & the transaction.

Process: The information will send to organization server (HUB).
Output: Transfer of fund to the concerned branch.

ATM Card

Purpose: Easy with draw of cash.
Input: Give bio data, income summary, company name, NIC.
Process: NIC no. and bio data send to "virses" which is directly linked to NADRA. If informationis correct then it is forward to customer service centre.
Output: Issue of credit card.

Car Financing

Purpose: Leasing a new car.
Input: Account title, down payment amount.
Process: The information is send to the HUB and verifies the account of customer and makes the schedule for leasing for the given period of time.
Output: Customer can get a new car.

eShop NetBuy

Axis Bank eShop NetBuy is developed by Axis Bank and is used by 2 users of Software Informer. The most popular version of this product is 1.0.

2.2. Data Analysis

As shown from the data collected about IS in Axis bank, it is using various IS like Suntec, RisKompass, Real Time Gross Settlement (RTGS), Electronic Clearing Service (ECS Credit) and EBS which are making its operations more efficient and successful. These information systems helped Axis bank to manage its fee billing for payment and cash. They also helped in risk management and creating a competitive advantage.

State bank is also using different information systems in its different branches to gain a competitive edge and to smoothen its functioning. It has arranged its systems by contracting with various service providers like TCS, FNS, Comlink, Oracle, etc. It shows that SBI is giving emphasis on its IS part which helped it to improve efficiency and to handle the strategic areas more effectively.

ICICI bank has also automated its functional area. It is using HRMS to operate 24 hours and 7 days a week and to complete HR cycle. It is also using Finacle CRM developed by Infosys which helps it to provide better customer services. It has benefitted in many ways like enhanced decision making, improved customer services, more effective marketing programmes and operational efficiency.
In Standard Chartered Bank, TPS is used to record all the details of employees and to calculate their salaries. It has developed its own system named as Virses to management information of clients. NADRA is there to help the customers open their accounts by themselves. It is using IS for real time banking, account opening, complaints handling, advises, fund transfers and so on.

3. Conclusion

1) Almost all the banks are using information systems in one or another way whether it is a public or a private bank.
2) Information systems help in all the functional areas of any bank like:
   - HR: to maintain employees' records and to calculate their salaries.
   - Marketing: to maintain clients' records and to provide better customer services.
   - Finance: to transfer funds and to maintain records to fund providers.
3) It also helps on other functions like real time processing, complaints handling, decision making and so on.
4) It helps to operate on 24*7 basis that helps to increase efficiency.
5) Risk management and cash management are some other benefits of Information Systems that helps in better functioning and gaining a competitive edge.
6) The role of information system is very strategic and important in any bank as it helps to become competitive and successful by simplifying all the functions and by making them smoother.

4. Future Growth and Limitations

This study was confined to the banks running india only 24*7 providing round a clock services with the help of various information system helps in decision making which ultimately helps in efficiency of the operations running in back end & front end office operations. This information system only facilitates the decision making but the decision ultimately rest in the hands of the human being.

References

[1] A.M. Rawani and M.P. Gupta, "Role of Information Systems in Banks: An Empirical Study in the Indian Context", Vikalpa, Vol. 27, No.4, October- December, 2002.
[2] H. Peeru Mohamed and V.J. SivaKumar, "Strategic Issues relating to e-CRM in Banks- The perspective of Bankers and customers", Book on Customer Relationship Management by Excel Books Publications, 2003Edition.
[3] K.S. Rajashekara, "Application of IT in Banking", Yojana, Vol.47, No.12, July2004, pp22 - 25.
[4] M.P.Gupta and Sonal Shukla, "Learnings from Customer Relationship Management (CRM) Implementation in a Bank", Vikalpa, Volume 31, October-December, 2004.
[5] Vasant Godse, "Technology: An Impact Analysis", Journal of Indian Instituteof Banking & Finance, Vol.19, No.3, Jan-March 2005.
[6] Shyam Ramadhyani, "Audit of Banks operating in a computerized Information Systems Environment", Chartered Accountant, Vol.54, No.10, April 2006, pp.1450 - 1457.