ABSTRACT

The Banking Financial Services and Insurance (BFSI) industry has undergone a sea change. A large percentage of banking transactions occurs outside bank branches. 'Anytime, Anywhere Banking' has caught up with the urban populace and new delivery channels like ATMs, POS, Internet and mobile have found acceptance. Technology is enabling banks to become financial service aggregators, providing new services to an expanding customer base through a variety of electronic delivery channels. Automation enables banks to offer 24x7x365 service using lesser manpower. But to be really competitive, banks need to think beyond just basic automation. The Rangarajan Committee report in early 1980s was the first step towards computerization of banks. Banks started exploring the idea of 'Total Bank Automation (TBA)'. Core banking applications help provide complete front and backend automation of banks. The business landscape of BFSI Industry is quickly evolving. The objective of every financial institution is to establish and maintain a competitive edge. A strong customer focus is replacing traditional product focus and organizations need to evolve new ways to assess business success. Customer satisfaction and loyalty are driven increasingly by personalized products & services and managed customer care.

Keywords: Business Intelligence; Data Mining; CRM; Total Bank Automation (TBA); Service-Oriented Architecture (SOA); Data Warehousing (DW)

INTRODUCTION

The Banking Financial Services and Insurance (BFSI) industry has undergone a sea change. Despite a huge un-banked population and a heavily cash-dominated culture, electronic payments in India continue to enjoy strong growth levels. A large percentage of banking transactions occurs outside bank branches. 'Anytime, Anywhere Banking' has caught up with the urban populace and new delivery channels like ATMs, POS (Point Of Sale), Internet and mobile have found acceptance. Technology is enabling banks to become financial service aggregators, providing new services to an expanding customer base through a variety of electronic delivery channels. Automation is the basic thing that banks need to have in place. It involves a combination of centralized networks, operations, and a core banking application. Automation enables banks to offer 24x7x365 service using lesser manpower.

But to be really competitive, banks need to think beyond just basic automation. Says V Chandrasekhar, GM (Chief Technology Officer), Bank of Baroda, “IT has changed the way a bank reaches out to its customers. Gone are the days where IT was deployed for automating accounting/back office functions to remove drudgery of employees. It is now massively being deployed for customer interfacing / interaction.” A better way to understand the technologies that would define the future of banking would be to start in the past.

OBJECTIVES

To study the role of Information Technology in enhancing the efficiency of Banking Sector
Evolution

The Rangarajan Committee report in early 1980s was the first step towards computerization of banks. Banks started exploring the idea of 'Total Bank Automation (TBA)'. Although titled 'Total Bank Automation,' TBA was in most cases confined to branch automation. It was only in the early 1990s that banks started thinking about tying-up disparate branches together to facilitate information sharing. At the same time, private banks entered the banking arena with radically different strategies. Given the huge IT budgets at their disposal and with almost no legacy IT equipment to worry about; private banks hastened the adoption of technology. The philosophy for private banks was very clear: to provide a whole new range of financial products and services at minimal costs. And technology made this possible.

The Need for Centralized Infrastructure

In the early days of banking technology, the network/backend infrastructure used to be decentralized. This meant that each branch had its own server(s), banking applications, database(s), and other such assorted hardware/software. Decentralized networks had their own set of problems in terms of the cost and management fronts. The decentralized model involves huge capital expenditure and resources (trained manpower, hardware, etc). In the decentralized model, there is no coordination or one central control point. "We had problems with updating applications, troubleshooting, etc before we opted for centralization. Technology representatives had to be present at each branch to provide support," says P.K.Vohra, General Manager, ICICI Bank.

This was an acceptable scenario till multi-channel came into the picture. With these concepts came the need for a centralized database. The database had to be updated instantaneously irrespective of the branch or channel the customer used. The networks had to be run and managed with lesser costs. Although data centers were being used by some of the banking majors, they were never considered as being capable of being a central operations hub. Things changed when banks realized the cost benefits of swapping the decentralized model to a centralized datacenter architecture. "When one or two private sector banks showed that it can be done efficiently, other banks began to show an interest—they also began consolidating their databases into a single large database," says V.K. Ramani, President (IT), UTI Bank. Says P.K. Vohra, "Centralization using a data centre has helped a lot in improving and simplifying the network from the operations, user, and administration perspectives. From a cost perspective, centralization has been very effective." It is not just the datacenter which contributed to centralization. The network has also evolved into a unified IP network. Says Naresh Wadhwa, Vice President-West, Cisco Systems (India), "Older day banking networks used to be a potpourri of several older protocols. There used to be one network for data traffic, another for telephony, and so on. Today, irrespective of whether its data, voice or videoconferencing, ATMs or mobile banking, just a single IP based network is used."

Core Matters

After the turn of consolidated databases and networks come core banking applications. Core banking applications help provide complete front and backend automation of banks. These applications also help banks achieve centralized processing and provide 24-hour customer service. "Core banking applications provide anywhere, anytime 24 by 7 non-stop services, which is not possible with traditional localized branch automation systems that are available only between 10 am to 2 pm," says V. Chandrasekhar. Core banking applications help integrate the enterprise to existing in-house applications to offer a single customer view. These applications provide automation across multiple delivery channels. Adds Joseph John, Head, Banking Products Division, i-flex solutions: "Banks are increasingly adopting core-banking solutions for retaining customers and lowering service costs to the customer." Banks are reinventing themselves as marketing agencies by selling products like life insurance, RBI bonds, credit cards, etc. Core banking applications are able to support this. Risk management is another area where core banking applications can help. These systems take care of the
risk monitoring and reporting requirements. Loyalty programs can also be monitored and managed using a core banking application.

Banking System

The hosted core banking service is offered in partnership with Application providers and aims to provide small-sized banks in cooperative sectors with a Core Banking System without the associated capital investment and operational hassles. The role of technology in the BFSI sector cannot be ignored. Its impact has been so pronounced that traditional modes of executing transactions are being replaced by clicks on a desktop or a mobile device, thus bringing institutions even closer to the customer. The Banking, Financial Services and Insurance (BFSI) sector continues to lead other sectors in IT spend and will spend around $2.5 billion in 2008 as per Skoch Consultancy Services. The new projections reflect a growth rate of 18.5 percent when compared to last year’s figures of $2.1 billion. CEOs of top 30 banks and insurance firms participated in the survey and pointed out the main concerns surrounding BFSI are related to CRM, more fee-based income and cross-selling of financial products with about 42 percent CEOs saying that an integrated last-mile delivery channel for all financial products was very important. The companies look forward to enhancing IT infrastructure in areas like CRM, Human Resources Management (HRM), Business Intelligence and data mining kind of applications and services. “One of the reasons for higher growth rate in applications like CRM, HRM, Business Intelligence and Data Mining is that they are now considered critical for cross selling, avoiding customer churn and differentiating brand and product offerings and knowing your customer better,” said Sameer Kochhar, CEO of Skoch Consultancy Services. Indian banking, financial services and insurance firms (BFSI) and telecom continue to be the top IT spenders in terms of absolute spend. The average IT spend, in Telecom and BFSI per company touched Rs 191.6 crore and Rs 87.5 crore respectively in 2007-08, says a Dataquest-IDC survey study. In the BFSI segment, large investments were also made by LIC, NSDL, National Insurance, New India Insurance and Oriental Insurance, whereas Bharti, BSNL, Hutch, MTNL, Reliance Telecom and VSNL are some of the top IT spenders in Telecom. The BFSI sector invested 1.5 per cent compared to the overall industry average IT spend of 0.63 per cent of the revenue in IT. The utilities sector led in terms of IT spend per employee, with a budget of Rs 83,000 per employee, much above the overall industry average of Rs 36,000 per employee. The survey conducted among 211 large IT user firms in India said, that these firms spent 27 per cent more on IT in 2007-08 as compared to 2006-07. Apart from these two sectors, IT investments in the retail sector grew the highest at 43 per cent. The average IT spend for a retail player was Rs 7.4 crore. “We did expect the Retail sector to be a heavy investor in IT. But this young sector is also showing surprising maturity on the IT adoption curve. For instance, through its clear preference for off-the-shelf, packaged software, rather than the tedious custom development that most other sectors go through,” says Prasanto K Roy, Chief Editor, Dataquest. The study also pointed that lower growth in IT investments is expected across all sectors in 2008-09 except the pharmaceuticals and biotech sector, that is expected to invest about one-fifth more than their IT investments in 2007-08.
Among spending trends, the survey highlights that mobile services are all set to assume significant role in future business plans of BFSI companies. Mobile payments and voice-enabled mobile handsets, to offer range of financial services are set to be introduced on a large scale in the next three years. The survey also said that mobile services are all set to assume significant role in future business plans of BFSI companies.

About 42 per cent CEOs felt the need for an integrated last mile delivery channel for all financial products, the study said. Though 74 per cent of the respondents cited the need to target higher revenues and suggested that revenue could be enhanced through better customer relationship management, more fee-based income and cross-selling of financial products. Infosys Technologies product consultant Gautam Bandyopadhyay said that while technology keeps improving, it does make it easier to counterfeit documents and cheques. But on the other hand it also adds new ways to protect banks - resulting in a “game” of leap frog. Nirmal Jain, chairman, India Infoline, says IT radicalized his business and helped him prepare for the current slowdown.

IT provides the following advantages:

- Reduce operational cost
- Reduce risk loss
- Increase operational efficiency & robustness by streamlining business processes
- Six Sigma based process mapping
- Improved analytics and reporting, leading to informed / faster decision making
- Removal of redundancy & duplication
- System management – enhanced maintainability

Re-engineered Success

For every successful IT implementation, you will hear about four that failed to make the grade. One of the biggest problems behind this is that most organizations expect software to adapt to their needs without any compromise from their part. The technical issues can be sorted out in every implementation, but this lack of process re-engineering cannot be. While it is necessary that core processes remain the same as far as possible, it’s not always the case. Many a time an existing process might have to be modified to get the best out of the implementation. This is where a change of mindset needs to come in. The goal is to have improved benefits at the end of the day. “The business process changes required for implementing core banking or centralization needs support and buy-in at all level. Hence Change Management is a major issue with the banks during IT implementation,” says Santanu
Ghose, Group Manager (Non Stop Systems), HP India. On the technical side, most of the problems occur on the interfacing part. Different platforms using different standards/protocols require diverse interfacing needs. Since many core banking applications make use of modules for operation, special care has to be taken on this front. Most of the banks have legacy applications running side by side. If the interfacing is not done properly and efficiently, the implementation is bound to be a failure.

In recent years, an entire constellation of threats has emerged, ranging from denial of service attacks, to root kits, bonnets, browser-based attacks, and whaling. Banks need to put their risk management practices under a microscope, and seriously look at having a robust infrastructure for mitigating risks and complying with banking norms and regulations. “From an IT point of view, increased online transactions may lead to a few instances of identity thefts, data loss, frauds like phishing, etc. Erosion in the value of the assets charged to the bank, MTM losses, impact on the repaying/debt servicing capacity of the borrowers are a major concern,” added Kalyanasundar. The rising popularity of Net banking, telephone banking, mobile banking, and ATM operations has exposed a corresponding increase in the risk of fraudulent activity. Cyber crime, including spyware and subsequent identity theft, are some of the biggest threats plaguing the banking sector today. “The recent unprecedented meltdown in the global economy has had a great impact on the capital market and companies have lost almost 50% of their market cap. Banks and financial institutions who have invested in the stocks of these companies have realized the importance of market risk management, and banks are paying a lot of attention to monitor their asset liability management, interest rate and other investment risks,” added Sinha.

Creating Awareness and Adopting the Best Practices

Kalyanasundar is of the view that IT can be used for better monitoring, faster collection, analysis of data and timely action. IT based risk management systems are some of the solutions that help in managing the various risks involved. The major concern for the BFSI players is to build a flexible and scalable ‘enterprise-wide risk management technology architecture’ that needs to be comprehensive and integrated in the areas of credit, market, liquidity, operational, strategic and reputation management. “IT risks can be managed by having a robust risk/threat management system, providing multi-factor authentication for doing online transactions, having disaster recovery/business continuity plans with regular drills, etc.,” said Kalyanasundar. Globally, banks have introduced risk management at different levels, but the complexity of markets including retail banking, foreign exchange, corporate banking, treasury, derivative instruments, insurance and third-party products like mutual funds, sovereign risk may impact their capability to manage the risk. “The vulnerabilities in the systems and applications and the lack of user awareness is leading most of the security breaches. Many incidents of this nature were observed in India in the last one year,” added Reddy. It has also been seen that banks have been putting in place appropriate methodologies for risk management in spite of newer kinds of risks being identified and the need to assess them. “Often, the systems are not robust enough. A conflict appears when overzealous business managers in their quest for maximizing profits side step risk management processes,” said Nayar.

To safeguard the risks involved, it is essential that information security processes, systems, disaster recovery and business continuity planning are in place and are continuously monitored. They need to put in place a full proof process for asset liability management and ensure that they are not caught on the wrong foot due to risks like interest rate volatility and maturity mismatch. Banks need to develop custom applications in accordance with an industry standard methodology. Apart from core banking solution, they need to build software applications, preferably based on a service-oriented architecture (SOA) addressing document and data management to proactively analyze and learn from large volumes of transaction data. They require a robust governance, risk and compliance solution that enables them comply with Basel II, SOX, etc., and adequate business analytical solution to gain business intelligence. “The need is to have a full complement of IT and data management tools and services, including high performance servers, routers, and ETL tools,” added Kumaran. However, these rules and regulations help banks manage and mitigate risks in the most crucial operations.
effectively. Banks operating globally are required to comply with Basel II compliance requirements on capital adequacy and they need to provide additionally for operational risks. Having complied with this, banks can adopt a more comprehensive, sophisticated and risk sensitive approach to calculate regulatory capital.

While general training on various risks should be provided to all the employees, special training needs to be provided to personnel working in critical areas like credit appraisal officers, treasury team, AML compliance officers, etc. Banks should also ensure that robust and relevant technological solutions are implemented to help them monitor various risks on day to day basis, if not on real-time basis. “Banks need to first identify and classify the information assets that they need to protect. They require assessing and estimating the damage it can cause because of compromising these information assets, put appropriate controls in place to protect these assets in commensurate with the value at risk,” stated Reddy. Constant customer awareness program and security certifications would help instill confidence of customer in the systems of the bank.

**IT- Boon in BFSI**

IT plays a very vital role in BFSI sector. It facilitates:

**Application Training:** With advancements in technology and with use of diverse applications in various functional domains in BFSI industry, effective end-user application training programs that offer faster time-to-competency, more flexibility, greater reach, scalability, and lower costs than other training methods have become a vital part of training policies. Hence fulfilling the above criteria we develop interactive courses, which focus on building competency in the use various banking applications abiding all industry standards. We have developed courses on ERP and CRM applications specifically on versions of SAP and Oracle Financials. We also develop training material for application support, rollout, certification and development.

**Regulatory and compliance Training:** We have developed self-paced eLearning courses to strengthen banking employees’ knowledge and to keep them informed of compliance issues related to their day-to-day jobs. Also testing is built into the courses so that the organization can access and document whether their employees understand what they need to know for a successful compliance program.

**Sales (Producers/DSA) Training:** We have developed interactive courses that feature skill assessment, questions, simulations, exercises on sales and marketing training. Our e-Learning courses encompass quality content, interaction, graphics and quizzes - making learning interesting and effective for the huge sales force. Most of the courses developed are for updating sales people about various financial services, products, policies, and regulations being rolled out continuously by financial giants.

**Soft skills Training:** While most corporate entities focus on technology and skills trainings for their employees in an effort to boost production and profitability, it is often the soft skills that make all the difference. InfoPro Worldwide has helped its BFSI sector clients enhance their profitability through a wide range of soft skills programs ranging from six sigma quality to corporate governance, interpersonal relationships, communication and leadership qualities.

**Customer service/Client handling:** Proper relationship management is the key to protect and strengthen the most valuable company asset; its customers. Keeping in mind that customer service reflects the image of the financial institution, we have developed interactive simulation based training for applications used by CSR’s and scenario based learning materials for handling customer complaints. Most of our work is on imparting knowledge about various processes products, policies and services of which CSR’s need to be aware, and on other soft skills, which help them to close and handle customer transactions making business deals secure.

**Mining for intelligence:** Another important issue banks face is in proper analysis of financial data to identify business potential. This helps a bank identify cross- sell and up-sell potentials. Technologies
such as data warehousing/mining come into play here. Says Ramani, "If you have an operational CRM, it streamlines your delivery channels. If you have CRM backed with your data warehouse solution, it not only streamlines the channels, but also tells you where to move. It tells you which customer to focus on."

A data warehouse can help the bank get a single view of its data across disparate systems. This comes in handy since most banks have data spread over several disparate, sometimes legacy systems. If the data is spread across different systems, a transaction done on one system will not be reflected in the other. This is not a very desirable situation when it comes to multi-channel banking. Data warehousing solves these by integrating all the data into a common warehouse (usually an RDBMS). The multiple data coming in from different systems is converted into a common format using the ETL (Extraction, Transformation, Loading) process. This provides a single repository from which you can view or use information when required.

So you have the information in place with the warehouse but how do you make sense out of it? This is where data mining steps in. Data mining can help you recognize patterns in the data you have. For example, how many of your customers have a two wheeler and earn more than Rs 15,000 a month? The answer to this question will give you a list of prospective customers to whom you can offer a car loan. Just give the query you have to the data mining tool and you will have the answer in a jiffy. "Data mining and data warehousing can help banks identify the right customer for a particular promotion. They also help in cross sell and up sell of services to customers," says George Varghese, Head - Marketing, SAS India.

**Outsourced security:** Given the very nature of financial transactions, information security plays a critical role in banking. Most banks have a clearly defined security policy with access rights determined by the role an employee plays in an organization. Banking is one sector where CIOs are focused on the core security processes and operations than just implementing security products.

In addition to investing in the usual security tools and solutions like anti-virus, firewalls, intrusion detection systems (IDS), and PKI, many banks are now outsourcing their security requirements. This way they can focus on their core business competencies than managing their backend security. As C.N. Ram, Head-Information Technology, HDFC Bank says, "It is not enough to take care of security from just the hardware/software perspective one needs to have security policies in place. At HDFC Bank we have a mechanism in place where a third party is hired to manage our entire security. This third-party is constantly onsite looking at the logs, making the required changes as there are patches and upgrades being constantly released and it is imperative to incorporate all of these."

**Case Study**

- NASSCOM, the apex industry body of Software and Services Companies in India, today called for public sector banks in India to work in cooperation with the Indian IT industry for increased adoption of IT in the BFSI (Banking, Financial Services & Insurance) sector. NASSCOM also revealed that in order for banks to introduce the benefits of IT and provide a centralized banking solution to their customers, this sector will require to utilize a minimum of 5% from their total spending in the medium term.

- Sharing the need for IT adoption in the BFSI sector, Mr. Kiran Karnik, President, NASSCOM, said 'To be successful in today's competitive environment, it is imperative for organizations in the financial services sector to embrace Information Technology and redefine relationships with customers, partners and suppliers.'

- IT implementation in public sector banks has been commendable over the past two years. The number of fully computerized branches has increased from 5,514 in September 2000 to 11,578 in March 2002 and the number of PCs/nodes increased from 95,090 to 1,65,986. Highlighting the opportunity for domestic software and services companies in this sector, Mr. Kiran Karnik, President, NASSCOM, said, 'Indian companies have made considerable inroads into the BFSI
sector internationally. This sector currently contributes approximately 22% of India's software and services exports. It is time now that these companies focus and extend their expertise for tapping the huge opportunity that exists in the domestic market. The segment also offers great potential for the SME sector for developing customized financial products and services.'

- To encourage IT adoption in the Indian BFSI segment, NASSCOM would work to:
  - Share best practices: NASSCOM in association with various regulatory and Industry bodies such as the IBA will initiate a survey on best practices of IT implementation with in India and overseas. This can then be used as the benchmark for implementing IT solutions with in the BFSI sector
  - Create a comprehensive database of IT applications available for the BFSI sector that could be used as a ready reference for institutions during IT implementation
  - Work with the Ministry of Communications and Information Technology to create standards for smart cards that would enable sharing of credit information
  - Assist the BFSI sector to provide specialized financial IT training modules to its executives
  - Identify joint collaborative opportunities between the Indian BFSI sector and IT companies
  - NASSCOM highlighted the need for IT adoption in the sector to:
    - Provide real time availability of transaction processing through multiple channels and enhancing ability to cross sell products
    - Ensure security and safety of funds and confidentiality of information
    - Increase efficiency through integration of systems across various locations and better management of funds
    - Ensure efficient management Non Performing Assets (NPAs)
    - Minimize transaction costs
    - Encourage the use of Internet to provide access for online bill payments, funds transfers and e-statements in addition to encouraging wireless mobile banking and e-commerce

A Happy Customer

Managing customers is one of the main issues that BSFI face in today's hypercompetitive environment. If the service levels are not up to customer expectations, in all likelihood the customer might take his business elsewhere. This is where Customer Relationship Management (CRM) practices (most important) and software (on the technology side) play an important role. Before banks go for a CRM solution, they need to ask themselves one question: How well do they know their customer? For that matter how many customers have moved in the past? Or how existing customers use various services that the bank provides. "In banking, being the first to market alone is not enough since products can be copied very fast. It is the customer service levels which matter," says Neeraj Bhai, CTO, IDBI Bank. This is where CRM techniques and tools come into place. While a foremost part of CRM strategy is all about treating your customer right, technology does make a major difference. "CRM is a tool that allows you to emote and relate with your customers. Increasingly, all banks will require it as they get centralized," says P. K. Vohra.

CONCLUSION

The business landscape of BFSI Industry is quickly evolving. The objective of every financial institution is to establish and maintain a competitive edge. A strong customer focus is replacing
traditional product focus and organizations need to evolve new ways to assess business success. Customer satisfaction and loyalty are driven increasingly by personalized products & services and managed customer care. The Banking and Financial Services Industry (BFSI) is in a state of rapid transition. Fierce competition, sharp decline in margins and profitability, tighter regulatory and disclosures norms and the need for robust risk management and early warning systems have compelled Banks to look at ‘Data Warehousing’ (DW) and ‘Business Intelligence’ (BI) solutions to manage their business more efficiently and effectively.

Banks worldwide use DW solutions normally for profitability analysis and to enhance their risk management capability. Customer Relationship Management (CRM) solutions are also being increasingly deployed by banks to enhance their ability to manage and grow their customer base in the most desired manner. In the Indian context, most Banks have already implemented or are in the process of implementing a bank-wide ‘Core Banking System’ to facilitate processing of transactions seamlessly across the enterprise. Many Banks have also aggressively implemented a multi-channel delivery capability including Internet Banking, ATMs etc. Deploying a DW and BI capability will be the logical and immediate next step for Banks in their strategic use of Information Technology.

BFSI sector globally has seen a transformation and grown many folds in last one decade. Companies in the BFSI sector are constantly increasing their investments in IT as part of their strategy to increase profits, improve time-to-market of new products and services, cope with regulatory changes and meet rising customer demands.

REFERENCE
