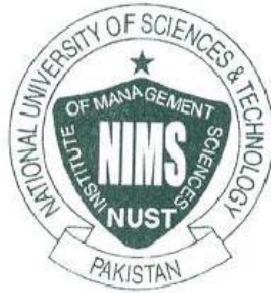




## **NUST Institute of Management Sciences**



### **ROLE OF INFORMATION TECHNOLOGY IN THE BANKING SECTOR OF PAKISTAN**

**THESIS SUBMITTED TO:**

**Ms. Fauzia Janjua**

**THESIS SUBMITTED BY:**

**Jawairia Zia**

**MBA-2K3**

**Registration # 2003-NUST-MBA-082**

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## *Dedication*

*I dedicate this thesis to my dear mother,  
who has always been there with me through  
thick and thin, praying for me all the time and  
believing in me.*

## Acknowledgements

*Proclaim! (or read!) in the name of thy Lord and Cherisher, Who created- Created man, out of a (mere) clot of congealed blood: Proclaim! And thy Lord is Most Bountiful, - He Who taught (the use of) the pen, - Taught man that which he knew not.*

*First and Foremost I thank Allah Almighty for giving me the strength and teaching me ways that I knew not and helping me at each and every step from the mothers womb to what I am today.*

*With a deep emotion of benevolence and gratitude, I feel it my moral duty to place on record my sincerest appreciation to my learned thesis advisor Ms. Fauzia Janjua for supporting this project. I am grateful to her for her inspiring guidance, consistent advice, supervision and constant encouragement throughout the tenure of MBA, enabling me to successfully complete my thesis work,*

*All praises for my Parents and Family who give me strength and power to study and who always pray for my success.*

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## **EXECUTIVE SUMMARY**

Innovative organizations use IT to move ahead of their competitors. More than twice as many innovators see IT as a source of competitive advantage than non-innovators. They have a longer-term IT agenda aimed at empowering employees and promoting organizational flexibility. Compared with less-innovative banks, the proactive ones are much more likely to see such systems as strategically important for the future.

Innovation of today becomes a necessity of tomorrow. This is how things move on in this world. With the passage of time, huge changes have taken place in the financial sectors. Things have improved and now we see the positive changes all over. Communication is now better than ever due to the advance IT and this has given birth to the concepts of multi-national banks offering better services and technology, resulting in competition with local banks. Today banking industry of Pakistan demands constant innovation to attract new customers and to meet ever rising expectations of existing clientele. Technology is a primary tool that can provide an edge in the much needed competitive breakthrough.

Finally, information technology will likely continue to transform some banks into new types of financial institutions whose business bears little resemblance to that of a traditional bank. Banks can now rely on a very profitable IT-driven business, focusing on complex accounting and record-keeping activities for institutional investors, such as mutual funds. Today with an estimated 1,227 ATMs already installed in Pakistan, the new frontier is on the Web. If online banking succeeds, it will almost certainly change the types of products that banks offer.

It is only a matter of time before the Pakistani banking industry witnesses enhanced technology deployment. With that, customers are assured of better service from the banking industry. This would ensure better services to customers and also reduce the incidence of fraud or scams in the banking industry.

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# **CHAPTER ONE**

## ***Introduction***

*“The rate and magnitude of change are rapidly outpacing the complex of theories -- economic, social, and philosophical - - on which public and private decisions are based. To the extent that we continue to view the world from the perspective of an earlier, vanishing age, we will continue to misunderstand the developments surrounding the transition to an information society, be unable to realize the full economic and social potential of this revolutionary technology, and risk making some very serious mistakes as reality and the theories we use to interpret it continue to diverge.” - Cordell (1987)*

### **1.1 BACKGROUND**

If we look back, a couple of decades earlier, we find that local banks were in monopoly having branches in different areas without or with very little correspondence or interaction among themselves thus giving more or less access to customers. The services provided by the local banks were no way near to what was happening in the developed countries of the world. Customer relation management was in a dismal situation. Few standardized products were offered and there was nothing known as innovation in the banking sector.

### **1.2 INTRODUCTION**

In a recent survey article in *The Economist*, John Browning (1990) wrote: *"Information technology is no longer a business resource; it is the business environment."* His statement is not far from truth. Ongoing advances in information technology (IT), along with increasing global competition, are adding complexity and uncertainty of several orders of magnitude to the organizational environment.

Innovative organizations use IT to move ahead of their competitors. More than twice as many innovators see IT as a source of competitive advantage than non-innovators. They have a longer-term IT agenda aimed at empowering employees and promoting organizational flexibility. Compared with less-innovative banks, the proactive ones are

much more likely to see such systems as strategically important for the future. Innovative banks have installed more systems to support their strategic agenda in finance and accounting, customer relationship management, sales and business intelligence.

How can IT help the bank in responding to the challenges of an increasingly complex and uncertain environment? How can IT help the organizations achieve the "flexible" organization structure? How can IT ensure customer satisfaction and best results for the organization? These are the questions the researcher will try to find the answers for in this report.

IT has made things both more convenient and more difficult at the same time.

*“Progress giveth and progress taketh away- sometimes it’s a wash.”*

Innovation of today becomes a necessity of tomorrow. This is how things move on in this world. With the passage of time, huge changes have taken place in the financial sectors. Things have improved and now we see the positive changes all over. Communication is now better than ever due to the advance IT and this has given birth to the concepts of multi-national banks offering better services and technology, resulting in competition with local banks.

Today banking demands constant innovation to attract new customers and to meet ever rising expectations of existing clientele. Technology is a primary tool that can provide an edge in the much needed competitive breakthrough.

David Weymouth, Managing Director Provision Division Barclays once said *“The huge revolution that the electronic banking potentially brings is transferring power through large data centers into the hands of customers.”*

The ultimate benefit of the IT does not only lie with the bank but is also ultimately passed on to the customer in one way or the other. As it is rightly said by the consultants of Ernst

and Young *"This (IT) power could turn the products finally into low profit 'commodity' goods."*

### **1.3 OBJECTIVE**

The main aim of this research study is to collect and provide information regarding the role of Information Technology in the financial sectors with a special focus on the Pakistani market. To study the work flow, form of security implemented in these financial institutions and to study processes from networking to storage of data in financial sector of Pakistan.

### **1.4 SCOPE**

This is a mammoth topic in itself. Hence the researcher will restrict itself and try and focus on the effects of Information Technology on the financial institutions and on the customers of these organizations.

### **1.5 METHODOLOGY**

Information will be congregated for the research purposes from the following mediums:

- ✓ Primary data
  - Libraries
  - Articles
  - Research material
  - Internet
  - Financial Magazines
  
- ✓ Secondary data
  - Questionnaires
  - Interviews
  - Discussions
  - Visits

## **1.6 ORGANIZATION OF THE STUDY**

The research comprises of the following chapters:-

Chapter 1: Introduction

Chapter 2: Literature Review

Chapter 3: Findings

Chapter 4: Analysis

Chapter 5: Conclusion and Recommendation

## **CHAPTER TWO**

### ***Literature Review***

Banks and Financial Institutions are the backbone of the economy of the country. Implementation of information technology and communication networking has brought revolution in the functioning of the banks and the financial institutions. For the sound implementation of information technology and communication networking in banks and financial institutions, necessary legal support is a must. Legal issues relating to electronic transactions processing at banks are very many and there was a need to address them by amending some of the existing Acts and introduction of new act. Necessary legislative support is essential to protect the interests as much of the customers as of the banks / branches in several areas relating to electronic banking and payment systems. This is specially required to establish the credibility of Electronic Clearing System and Electronic Funds Transfer schemes based on the electronic message transfer.

### **2.1 IT AS A TOOL TO ACHIEVE THE DEVELOPMENT FACTORS**

No invention has ever influenced the human beings as computer has. In less than seven decades of its existence it has managed, materializing the concept of a global village. Technologies like Computational Intelligence, Neural Networks, Genetic Algorithms, Data Communication & Networks, Telecommunication, Databases, and Evolutionary Computing etc; collectively offer the business community a broad set of tools capable of addressing problems that are much harder or virtually impossible to solve using the more traditional techniques from statistics to operations research. Country running and putting it on the track of the development is very complex task and might require the decisions making on the basis of the country's past experience and present situation which is obviously available in the form of data. Today's best technology to manage and process data is the Information Technology. Information Technology implementation is one of the ways to fulfill and execute the development factors on the right way, which will help the nation to grow in peace and prosperity, which will create a momentum that will result the development of Pakistan.

## **2.2 SOMETHING NEW -- USUALLY SOMETHING OLD**

The nine-year history of Web-based online banking in the U.S. has witnessed a number of innovations, from Web-based check imaging to inter-FI transfers and beyond. But a number of these innovations first arrived in Web banking earlier than most realize. A gap persists between the introduction of Web banking features at one bank and the widespread awareness and adoption among all banks. This gap points to the broader market and consumer trends.

Inter-FI transfers -- the ability for a customer to transfer money to an account that the customer holds at another institution -- has been a hot topic at large banks for over a year. But inter-FI transfers have been a staple of many community banking offerings for more than eight years. The underlying technology is used routinely in offline transactions, so it is not surprising that inter-FI transfers appeared so early in the development of Web banking. But most community and regional banks still don't offer the feature. Moreover, there is a gap of at least seven years between its first appearance and the August 2003 launch of inter-FI transfers at Citibank Online -- its first appearance in a top 10 retail bank's consumer offering. What explains this slow rollout?

One hindrance was the argument offered by a number of traditional banks that by launching inter-FI transfers, the bank will lose funds, as customers will move money to other institutions that pay higher interest. This argument, dubious at first, has over time become essentially moot. Over the last several years, online brokers and Internet-centric banks such as E\*Trade Bank launched inter-FI transfers. These are institutions whose customers faced the greatest challenges in depositing money and institutions that are offering seductive returns on deposits and investments. The customer who wants to transfer money to an account at one of these institutions has, by construction, access to inter-FI transfers at these institutions. The bank is not stopping the flow of funds by not offering the service itself.

Another gap persisted between the launch of Web-based check imaging for consumers at some Internet-centric and community banks and the wider adoption of this service, especially among large banks. Web-based check imaging for retail customers first arrived



in 1995. But, when the legacy Wachovia bank, once the 15th largest retail bank, launched check imaging in 2000, it was the largest retail bank at that point to launch check imaging. Now, check imaging is the rule rather than the exception. All medium-size and large banks that are currently the exception now are launching check imaging themselves.

A number of forces combined to take check imaging from a feature confined for years to Internet-centric banks and select community banks to a necessity for large banks. First, digital check image capture is required for Web-based check imaging to be feasible, but many banks did not capture digital images when Web banking first rolled out. Second, the proportion of customers using Web banking was small enough at a number of banks that the benefits were not worth the cost of systems re-engineering needed to bring images to the Web.

With the natural progression of systems and the growth in the number of online bankers, check imaging became a popular initiative.

The rise in 2000 of account aggregation and its fall in later years, and the failure of wireless banking to catch on, confirmed a truth of Web banking: There is little to no first mover advantage in online banking, even for the largest banks. Instead, it is often useful to wait for another bank to prove out a speculative idea, such as the notion that customers will adopt wireless banking when they have yet to adopt other wireless services.

But the debunking of the first-mover myth would be the wrong lesson to learn from the slow rollout of inter-FI transfers and check imaging. Banks that offered check imaging early on received uniformly strong, positive feedback from customers on the feature. With inter-FI transfers, the benefits to Internet-centric banks such as E\*Trade Bank is clear, but even community banks that rolled out inter-FI transfers tended to stick with it in the early years, unlike wireless, aggregation, news tickers and third-party brokerage partnerships. Yet, other banks were very slow to adopt either service.

Rather, the lesson is that the different technologies, customer bases and business goals of two banks can result in an innovation that makes sense for one bank long before it makes sense for another bank. As your bank-s systems, customers and goals change, old ideas

make new sense. The next enhancement you should consider for your Web banking offering may not be the one that all the other banks are considering right now, but an earlier innovation that you should now reconsider.

With the success of ATMs, banks had the incentive to develop new products and new delivery channels, such as home banking via phone and Personal computer ATM networks allowed banks to reach new customers outside the markets served by their branches and created the opportunity for greater price competition.

This past October, FleetBoston, newly renamed after the merger of Fleet Financial and BankBoston, took a jump into cyberspace. The firm announced plans to spend \$100 million over 18 months to launch a high-powered new Internet site that will offer not only traditional banking services, but also stock trading, mutual funds, credit cards, mortgages, investment advice, financial news, and bill payment, all in one Web site. Blaise Heltai, managing director of Fleet's Internet strategy, told *The Boston Globe*, "We eventually want you to buy every financial services product or service you could ever need through us." This most certainly is not your father's bank.

With this ambitious venture into cyberspace, Fleet joins a number of other banks in what is only the latest move in two decades of banking industry upheaval brought about by enormous advances in information technology. These advances have affected nearly all aspects of the business of banking.

In 1980, the banking industry consisted of a large number of relatively small firms operating in geographically distinct local markets. Products and services — primarily taking deposits and making loans — were delivered via the branch and the calling officer, which emphasized face-to-face contact with customers. These customers were, for the most part, relatively unsophisticated and trusted their bankers to act in their best interest. Twenty years later, with dramatic advancements in IT, banking customers have become increasingly savvy, making use of multiple distribution channels and demanding an ever-increasing variety of complex products. And competition has emerged from nontraditional quarters to take advantage of new technology and challenge old certainties.

What banks deliver and how they deliver it have changed dramatically. And these changes are likely not over yet. While no one can foresee the future, a look back over the last 20 years at the impact of information technology on banking may provide clues about what lies ahead as banks navigate into the twenty-first century.

### **2.3 THE IMPACT ON PRODUCTIVITY AND PROFITS**

The past two decades have witnessed enormous reductions in the cost of information technology. Between 1986 and 1995, the computing power of the average PC increased eleven fold while the price declined. At the same time, a revolution in telecommunications reduced the cost of transmitting data by 90 percent since 1980. Such cost reductions have made it ever less expensive to acquire, store, transmit, and transform data into information. They have also created enormous changes in data-intensive industries such as financial services — which is, after all, fundamentally about processing information.

For commercial banking firms, these advances in IT have resulted in dramatic productivity gains. One early example was the introduction of the automatic teller machine (ATM), which first appeared in the United States in 1968. Most certainly, the introduction of ATMs made the distribution of some banking services more “efficient.” Before ATMs, withdrawing funds, account inquiries, and transferring funds between accounts all required face-to-face interaction between the customer and a bank teller. The bank’s costs for these transactions included wages of tellers and back-office personnel, the cost of maintaining the premises, and other related expenses. ATMs automated this process and, to the extent that they were simply substituting a machine for a bank teller, costs per transaction fell significantly. *The Wall Street Journal* reported that a typical transaction by a teller costs between 90 cents and \$2 per transaction, whereas the same transaction processed via an ATM costs only 40 cents.

Perhaps surprising, however, is that such productivity increases do not necessarily translate into *overall* cost reductions for banks. Why? Because advances in IT can do more than simply automate a banking activity. They also have “indirect” effects, both on consumer preferences and on the structure and competition of the banking industry.

These indirect effects can alter banks' costs and revenues in a number of complicated and contradictory ways, with the end result on profits uncertain.

In the case of ATMs, as customers became comfortable with the new technology, they began demanding greater convenience and higher-quality products. But the costs of providing these new services were not necessarily below the costs of traditional bank accounts. Customers began making more frequent withdrawals which, in turn, forced banks to process an increasing number of transactions — potentially at significant cost. Soon customers decided that access to a single ATM at the bank branch was not enough; they wanted broader ATM accessibility. Banks responded either by investing in expensive ATM networks or by allowing their customers to have access to accounts via networks built by others.

Customers also began to demand more elaborate services from ATMs. The original machine was a simple cash dispenser; today banks can install sophisticated ATMs that scan checks, give out cash to the penny, let customers apply for loans, and allow for face-to-face discussion with a service representative via video. Thus, what started as a way to automate the services of a bank teller eventually developed into a new and improved delivery system for bank products. Yet, providing this system was costly, requiring a sizable investment in information technology and continued maintenance of sophisticated high-speed computer systems.

The impact of IT on revenues is similarly complicated. With better-quality products and services, banks should be able to charge more, all else equal. In the case of ATMs, the improved features and increased usage meant that banks might expect to receive increased fee revenue for processing customer transactions. But the proliferation of ATM networks also allowed banks to reach customers outside the geographic markets served by their branches. This created the opportunity for greater price competition, as consumers could choose the lowest-cost provider rather than a neighborhood bank. Online banking may have a similar effect on revenues. As people become comfortable shopping and applying for products such as mortgages and credit cards online, these products may turn into commodities, and reduce the profit margins that banks previously

enjoyed. In the end, the impact on revenues depends on whether the higher prices associated with new and better products outweigh the lower prices that come with increased competition.

With the success of ATMs, banks had an incentive to develop new delivery channels, such as home banking via telephones and PCs. Debit cards, electronic check clearing, cash management, derivative securities, risk management, stored-value cards, and electronic forms of currency are also examples of products that are new, or newly reinvented, because of IT. Federal Reserve Economists Franklin Edwards and Frederic Mishkin find that the share of commercial bank income accounted for by activities other than interest on loans almost doubled between 1980 and 1994.

How has this played out to date? Allen Berger and Loretta Mester, also of the Federal Reserve, find that the banking industry's cost per unit of output has risen in recent years, but so has its profits. One way to interpret this result is that the quality of banking products has improved, but in a way that is hard to measure accurately. These new and better products may have raised costs, yet generated revenues greater than the cost increases.

## **2.4 CHOOSING A STRATEGIC DIRECTION**

Banks that do not make investments that take advantage of new technology may find that they are losing customers to the better-quality or lower-cost products of firms that do. But using IT as a strategic weapon can be quite tricky, entailing high costs and an uncertain payoff.

Picking the right time is key. At first, customer resistance and the high price of new technology make investments risky. With ATMs, for example, there were early concerns about security and accuracy; and even today, many people are still reluctant to use ATMs to deposit checks. Competing technologies may exist, and an early commitment to the wrong one can doom a product or business as competitors and customers move on. As the price of IT drops and consumers become comfortable with the new technology, firms can

invest with less concern about customer acceptance, although they may face an entrenched competitor who got there early.

With ATMs, banks divided themselves up and pursued several different strategies, according to Ralph Kimball, an economist at the Boston Fed, and William Gregor, senior VP of Gemini Consulting, in Cambridge, Massachusetts. Traditionalists offered only a few ATMs, primarily as an accommodation for customers needing to cash checks outside normal banking hours. Others positioned multiple machines at their branches as substitutes for tellers, encouraging customers to use the new, more cost-effective delivery channel. These banks did not attempt to reach past their branches by establishing an outside network. Still others, such as New England's BayBanks (now part of FleetBoston), invested early and aggressively in an extensive off-site network of ATMs as a way to extend their distribution and focus on customers with less need for face-to-face contact. It backed up this network with a 24-hour telephone center and a glossy catalog that detailed its products.

Each of these strategies had risks. The traditionalists risked losing customers willing to substitute technology for face-to-face contact. Innovators willing to invest heavily early on, like BayBanks, chose a high-risk and, as it turned out, high-return strategy that hinged upon customer willingness to adopt the new technology. Followers — those waiting to see whether consumers accepted the technology — risked being too late to grab the market share needed to survive.

Now, some of these same issues have resurfaced in online banking. With the cost of an online transaction at about 5 cents, just a fraction of an ATM or teller transaction, banks have been eager to convert customers. They started trying in the 1980s, when several banks invested millions to develop home banking products. But, unfortunately for the banks, consumers were not quite ready for the change and many of these products failed. Is the timing better today? According to Forrester Research Inc., of Cambridge, Massachusetts, the number of households that bank online will increase by over 350 percent in the next three years, from 3.7 million households to 13.7 million. The success

of online brokerage companies, such as Charles Schwab and E\*Trade, also suggests that more customers may now be willing to move their financial transactions online.

As with ATMs, banks are adopting several different online strategies. Some have no Web banking to speak of and continue to rely on branches and ATMs. Others are encouraging existing customers to switch to the Web for its cost advantages, with sites where customers can get balances and transfer funds between accounts. Still others, such as FleetBoston, Citigroup, and Wells Fargo & Co., are undertaking a bolder strategy. They have chosen to offer one-stop financial services on the Web, including real-time balances, corporate research, portfolio calculators, and stock trading. As with ATMs, these banks hope not only to lower costs, but also to increase revenues by providing a broader range of products to new and existing customers. In entering early, they may also be able to “lock in” customers who like the convenience of a one-stop site and later find unwinding the interlocking account and payment arrangements necessary to switch banks too much bother.

And a novel strategy is being pursued by a handful of Internet-only banks — banks with headquarters but with no bricks-and-mortar branches. They are hoping that, at least for some customers, banking will come to resemble the credit card industry, where all transactions are handled via the phone, mail, or electronically. But, although they keep costs low, Internet-only banks also face disadvantages, particularly in dispensing cash and accepting deposits, which still require an ATM.

Which strategies will pay off? BayBanks succeeded in luring new customers by placing its ATMs everywhere, then encouraging cardholders to use them with aggressive marketing and high-energy television and print ads. The investment paid off in increased market share, and its network became one of the most utilized in the country. By 1990, over 90 percent of BayBanks’ customers carried cards, as compared to 65 percent nationally.

But, as with ATMs, banks’ online strategies are not risk-free. Much will depend on customer acceptance. Will people want Internet banking? Will they prefer the

convenience of one-stops or will they want to divide their business among specialty providers? So far, “most institutions have experienced the Internet as a money-losing proposition,” Chuck Farkas, managing director of Bain and Co.’s global financial services practice in Boston, told *The Boston Globe*. As for the future, only time will tell.

## **2.5 E-COMMERCE AND ITS FUTURE IN PAKISTAN**

E-commerce is a very hot issue these days. After the revolution of Internet, more and more countries are getting involved in it.

However, in general, if we use any type of electronic devices in getting orders and sending catalogues, like telephone, fax or any other such instruments, we are supposed to be applying electronic business techniques. However, the real sense of e-commerce is the business on the internet of which there are different modes, like opening a retail store on internet, where all transactions are done on line, from selection of product to payment of bills.

The over-all volume of e-commerce is more than \$4 billion annually. Doing business on internet is not a very costly investment. It is estimated that in near future, almost 25 per cent of the traditional business will be converted into internet business.

Trends: E-commerce is an information technology trend developing fast in the business world. The corporate and the business world, aptly supported by the IT industry, already stands transferred, which by recent estimate will exceed \$400 billion this year.

As we start warming up to global e-commerce in Pakistan, we must understand that almost 78 per cent of the e-commerce activity takes place in the USA, obviously driven by the use of internet in that country. As the January 2000, over 110 million people have internet access there compared to 279 million the world over.

Nevertheless, Pakistan can make good use of this opportunity with proper planning and execution. To begin with, let us focus on the domestic front before going all out for the global market.



Domestic activity: Offer for improving and productivity to bring it to the excellent level. It also allows our entrepreneur to test their web business and marketing skills before taking on the international markets. E-commerce is not for all but for those who understand it. Yet, e-commerce is not a technology.

The issue at the individual level, it is purely a business matter. At the govt level, it is a matter of providing infrastructure for transactions on internet. E-commerce or business through internet is becoming very popular mode of trading around the world particularly in the developed world. E-commerce is a broad term used to quantify the trading taking place on the internet.

Most studies, however, suggest that e-commerce runs through four steps. The very first step is, to build a website to let the world know about your existence. The website contains information about the company, product/services and other related information, which can help visitors to learn more about the hosts. The second step involves asking customers to loose their pockets and buy on line.

This step requires adopting advance level of software capable of handling orders. In the third stage inventory, management adds to the system and lastly, providing provisions of payments through online banking partnership between buyers and sellers, the most difficult and complex part of e-commerce.

The most common and popular forms of e-commerce are business-to-consumers (B2C) and business-to-business (B2B). Business-to-government (B2G) and government-to-citizens (G2C) are other forms, running on the internet but with low steam. However, the use of former two still dominates the internet.

However, Pakistan is still far behind in chasing the west in this regard. Entrepreneurs in Pakistan are of the opinion that e-commerce means being able to make and receive payments through internet and any other activity through internet is not considered as e-commerce. This low level of understanding has led many Pakistani firms to give low priority to e-commerce due to unavailability of proper framework for the internet in the country.

In Pakistan, e-commerce is still in its infancy and faces many barrier to grow. The notable barriers are: unavailability of proper infrastructure [telephone line of stem lines of steam age, the issue of security of transactions on the internet, high bandwidth rates, and last but not least the rigid and monopoly role of the PTCL.

However, the SBP has recently put a crack on the barriers when it approved the merchant ID accounts to facilitate online transactions. But there is still a long way to go and requires government to continue to grease the wheels of e-commerce to speed up the process.

Prospects: Those who create, distribute, and sell goods and services to consumers also have reason to look forward to this new mechanism. All enterprises, including the small and medium sized can reach customers throughout the world instantly and comparatively inexpensively. Many vendors can sell globally without the costly infrastructure of worldwide retail stores, sales offices, distributors, or warehouses.

Greater sales and inventory efficiency maybe possible through the increased interaction with prospective customers that electronic commerce can afford. One to one marketing becomes possible on massive and global scale. Active and alert supplier will also benefit from the new structure of product and service distribution likely to results from electronic commerce. With conventional distribution, a manufacturer must reply to wholesalers and retailers to serve customers in large volumes. E-commerce's automated customers' self-service capabilities can eliminate the need for these intermediaries .The manufacturer no longer has to share profit with others. In addition, the manufacturer gains direct contact with consumers that can facilitate future sales.

With this, as the role of conventional intermediaries-such as retail store clerks, travel agents, bank tellers, and wholesale representatives may diminish or end, new intermediaries have started to appear.

Electronic commerce connects manufacturers directly to consumers. The consumer gets product information directly from the ultimate source. The manufacturer can get customer preferences and needs directly from the ultimate source. Each consumer's

physical location no longer determines whom the consumers' contacts to purchase a product. With the purchase of intangibles that can be delivered electronically, physical location becomes irrelevant to product delivery as well. The internet makes the connection between a French consumer and an Egyptian supplier virtually indistinguishable from the connection between a Persian consumer and a Parisian consumer and Parisian manufacture.

It can be concluded that there is a lot of scope of e-commerce in Pakistan, and most companies are eager to going to the digital world, but at present due to absence of any policy framework and limited internet market, companies are holding their plans to start e-business until clouds of barriers as discussed are disappeared.

## **2.6 INFORMATION TECHNOLOGY IN BANKING**

Now transactions carried out by means of electronic data interchange and other means of electronic communication, commonly referred to as "electronic commerce", which involve the use of alternatives to paper-based methods of communication and storage of information, to facilitate electronic filing of documents.

Information Technology provides solutions to some of the aforesaid demands of banking industry. The solution to the above demands has been analyzed and there are some key terms used in the paper to do that analysis.

### **2.6.1. Key Terms**

#### **i. Secure system**

Secure system means computer hardware, software, and procedure that—

- a. Are reasonably secure from unauthorized access and misuse;
- b. Provide a reasonable level of reliability and correct operation;
- c. Are reasonably suited to performing the intended functions; and
- d. Adhere to generally accepted security procedures;

ii. Recognition of electronic record

The secure digital signature is affixed by the subscriber with the intention of signing or approving the electronic record.

Hence the presumption as to authenticity and integrity of electronic record operates only in case of secure electronic records (to which recognised and trustworthy procedure has been applied). This does not mean that the authenticity and integrity of other electronic records (those not falling under the definition of secure electronic record) cannot be proved by adducing evidence.

iii. Digital signature

Signature authentication and the document authentication are the two basic purposes a signature. Both are better achieved through digital signature technology.

Any other method used by banks for authentication should be recognized as a source of legal risk.

If, by application of a security procedure agreed to by the parties concerned, it can be verified that a digital signature, at the time it was affixed, was—

- . unique to the subscriber affixing it;
- a. capable of identifying such subscriber;
- b. created in a manner or using a means under the exclusive control of the subscriber and is linked to the electronic record to which it relates in such a manner that if the electronic record was altered the digital signature would be invalidated, then such digital signature shall be deemed to be a secure digital signature.

Now let us look at some other terms:

- i. "Computer contaminant" means any set of computer instructions that are designed—
  - a. to modify, destroy, record, transmit data or programme residing within a computer, computer system or computer network; or

- b. by any means to usurp the normal operation of the computer, computer system, or computer network;
- ii. "Computer data base" means a representation of information, knowledge, facts, concepts or instructions in text, image, audio, video that are being prepared or have been prepared in a formalized manner or have been produced by a computer, computer system or computer network and are intended for use in a computer, computer system or computer network;
- iii. "Computer virus" means any computer instruction, information, data or programme that destroys, damages, degrades or adversely affects the performance of a computer resource or attaches itself to another computer resource and operates when a programme, data or instruction is executed or some other event takes place in that computer resource;
- iv. "Damage" means to destroy, alter, delete, add, modify or rearrange any computer resource by any means.

## **2.7 CASHLESS SOCIETY**

For more than a decade there have been predictions of the elimination of physical cash as a transaction medium and the substitution of one form or another of an electronic payments system. Some forecasters view the prospect with delight, looking on it as increasing the efficiency of the economy. Others behold it with foreboding, anticipating it to be another way in which the details of our lives become subject to scrutiny.

### **2.7.1 Forms of Non-cash payments**

Certainly the elimination of cash transactions is fast becoming technically feasible. Many electronic and other non-cash payments means are already in use. Credit cards, debit cards, prepayment cards, and smart cards are established components of a non-cash

transactions system. Checks, of course, are a non-cash payment means also, but don't fit either into the electronic cashless society visualized by its proponents.

- **Credit and Debit Cards**

Credit cards are so widespread in use as to hardly require discussion. A Wall Street Journal article described the credit card business as "a saturated market". Not strictly a payment means, but a promise of deferred payment, credit cards nonetheless can substitute for the use of cash. Debit cards have been available for years. They represent a true payment means since the amount of the purchase is taken from an account belonging to the customer. Despite there being some 40 million debit cards in use, the relative volume of purchases made with them is minuscule.

Use of debit cards seems likely to grow in the rest of the nineties. Many banks have been reluctant to issue them in the past because of technical problems and the perceived difficulty of making them profitable. However, both Visa and MasterCard have launched campaigns to gain more extensive use of their debit cards. These campaigns encompass trying to sign up more banks as issuers and educating consumers in their use. They have also been seeking additional outlets which haven't traditionally taken credit cards, including taxi cabs and fast food outlets.

- **ATMs**

Even ATMs, presently facilitating the use of cash by making it easily available, may help the move away from cash. ATMs which dispense "scrip" spend able at the retailer in which the ATM is located are coming into use. These devices appeal to retailers as another means of making it easy for customers to spend while being much cheaper and less attractive to criminals than cash ATMs.

- **Prepayment Cards**

Prepayment cards store value on magnetic, electronic, or optical media, often in appearance much like a credit card. When used, e.g. in a pay phone, the accepting device

erases the proper portion of the value. (The old paper multi-ride tickets which were punched each time they were used were a precursor of the more modern cards.) Prepayment cards have substantial use in Japan. Nippon T & T alone sells hundreds of millions of them a year. Their use is also rather wide spread in Europe, but not in the United States. Some are being used on college campuses and Sprint has begun issuing them for long-distance phone calls.

- **Smart Cards**

Smart cards are in a sense an extension of the prepayment cards. Like the prepayment cards, they can store value for future use, but they also include an internal microchip based processing capability. Smart cards have been little used in the United States, but are common in Europe. The leading manufacturer (a French firm) has shipped over 100 million of the cards, but only 2 million of them have been sent to the U.S.

### **2.7.2 Barriers to Achieving the Cashless Society**

- **Economic Hurdles**

Economic hurdles may limit the development of systems which are technically feasible. The cost of paper handling and getting authorizations accompanying the acceptance of credit and debit cards has been such a barrier in the past, especially for moderate size transactions. The development of low cost point of sale terminals has been eliminating the need for this paper handling since it makes possible the exclusively electronic handling of the transaction. This has resulted in more than a 90% reduction in the cost of an average credit authorization over the past decade. The cost of handling transactions electronically is approaching the level that makes even relatively small purchases with electronic payment means feasible. Such non-paper exchanges can now have a cost advantage over checks.

- **Consumer Resistance**

Lack of consumer acceptance has retarded the spread of debit cards and may also slow further advances in electronic payments means. The problem may partly have been the name "debit card". To offset this, MasterCard is calling its debit card a "cash card" and Visa its debit card a "check card". Another obstacle is that for many consumers there is no net advantage to debit cards. There is an element of convenience over carrying cash or even a checkbook. However, the user loses the deferred payment feature inherent in credit cards and assumes greater potential liability if the card is lost or stolen. Considering these factors, Consumer Reports advised: "People who pay off their credit-card balances every month will in most cases be better off with one of the many no-fee credit cards now available than with a debit card." Many consumers are likely to reach the same conclusion, though those who don't qualify for credit cards may find the debit cards appealing.

- **Privacy Concerns**

It is not merely drug dealers who are concerned with the privacy afforded by cash transactions. Others are worried about the detailed record of their transactions left by non-cash transactions. Nick Szabo, in a posting to the alt.privacy Usenet newsgroup, expressed this apprehension especially well:

“The point of digital cash is privacy, which is lost with the current electronic credit and smart cards. Call me paranoid, but I'd rather not have strangers accumulating and swapping dossiers showing what videos and games I rent, or what I buy at the drug-store and bookstore, nor do I trust the oblivious clerks at grocery stores who say that the POS-ATM cards don't accumulate marketing info (the people who make the cards say they can and do, because it's quite lucrative for junk mail marketers to know which customers buy rubbers, smoke, etc. Also lucrative for insurers once they catch wind of the data.) Nor do I trust politicians who tell us that by snooping in everybody's databases they will succeed in protecting our privacy, rather than using the data for their own political purposes: collecting taxes and reducing National Health Care costs at my expense, getting re elected, preventing me from getting elected, all sorts of fun stuff they can do with



information on what we used to call our "private life". In cyberspace, I don't want AMIX or Prodigy recording my reading material, or MUDs logging my behavior, for the edification of some marketer or future cop or other miscellaneous snoop.”

Fears of being tracked in detail are not groundless. Last year, for example, Visa introduced a new service "that allows banks to more precisely analyze cardholders' buying patterns and target sales promotions to customers."

Prepayment cards are generally anonymous in use. However, there is no technological barrier to the issuer encoding information about the purchaser on the card and tracking its use. Some systems already have point-of-use devices networked to computers to spot misuse of the cards (e.g. reloading them fraudulently). It is not hard to visualize the practice expanding.

# **CHAPTER THREE**

## ***Findings***

### **3.1 BANKING INDUSTRY OF PAKISTAN: PERFORMANCES AND CONSTRAINS**

Banking is one of the most sensitive businesses all over the world. Banks play very important role in the economy of a country and Pakistan is no exemption. Banks are custodian to the assets of the general masses. The banking sector plays a significant role in a contemporary world of money and economy. It influences and facilitates many different but integrated economic activities like resources mobilization, poverty elimination, production and distribution of public finance. It is purchase of car or building of a home, banks are always there to serve you better. It is play ground or any educational or healthy societal activity the money of banks nurtures them. It is an industrial project or agricultural development of the country the sponsor-ship of banks is very much involved. Banks play very positive and important role in the overall economic development of the country.

Pakistan has a well-developed banking system, which consists of a wide variety of institutions ranging from a central bank to commercial banks and to specialized agencies to cater for special requirements of specific sectors. The country started without any worthwhile banking network in 1947 but witnessed phenomenal growth in the first two decades. By 1970, it had acquired a flourishing banking sector.

#### **3.1.1 Central Banking: Linchpin of Country's Banking System**

SBP acts as a nucleolus in the financial system of the country. It is the linchpin of country's banking system. To day, a central bank is the central arch of the monetary and fiscal framework in many countries of the world and its activities are essential for the proper functioning of the economy and critical for the fiscal operations of the government and Pakistan's banking system is no exemption. Will Roger (1992) described a central bank as one of the great inventions of the 20th century. State Bank of Pakistan was

established on the first of July 1948 under the SBP order 1948 as the central bank of the country.

At the start of the century the world had only 18 central banks but today there are more than 173. Initially central banks did not conduct monetary policy or support the banking system. The world's oldest central bank was established in Sweden in 1668 largely as vehicle to finance military spending. The Bank of England was created in 1694 to finance the expenditure of war. The United States managed without a central bank until early this century. Private banks used to issue own notes and coins. Due to the non-existence of a central bank in USA, banking crises were very common.

No central bank is completely independent in the world. Before the establishment of European Central Bank, the German Bundesbank was the most independent central bank of the world. In the nineteenth century the philosophy of laissez faire dominated, and central banks enjoyed greater latitude compared with earlier and later times. World War I brought that freedom to an abrupt end. After the war there was a desire to return to prewar status, but movement toward this end was precluded by the Great Depression, World War II, and then permanently by the rise of the managed economy. Only in recent years have the trend begun to reverse. The present structure, operation and authority of the SBP originate from the SBP Act 1956. State Bank of Pakistan is entrusted with the prosperity, stability, and growth of the domestic economy. It is sole bank of issue, holder of gold and currency reserves, banker to the government, lender of the last resort to commercial banks and supervisor of the others banks. It is also responsible for National Credit Policy.

In October 1993, complete autonomy was granted to SBP. It was the milestone in the history of SBP. Main reason of its full autonomy is to assume increased independent inputs in macro economic policy making of the country. Autonomy granted to the SBP has strengthened its supervisory and regulatory powers. With the abolition of Banking Council, the multiplicity of regulatory authorities has been removed and SBP has become the sole regulatory authority for the purpose. Now all the DFIs and others financial

institutions has also been under the supervision of SBP. The SBP also enjoys extensive powers of qualitative credit control.

State Bank of Pakistan reins the monetary and credit system in Pakistan. The SBP is performing many useful functions like custodian of cash reserve of commercial banks, custodian of foreign currency reserves, bank of rediscount, central clearance, settlement and transfer, and conducting monetary policy for the stability of the entire banking industry of Pakistan.

### **3.1.2 Comparative Study of Domestic Banking Industry**

Nationalization of banks in the seventies was a major upset to domestic banking industry of the country, which changed the whole complexion of the banking industry. With irrational decision at the top all the commercial banks were made subservient to the political leadership and the bureaucracy. Specialized banking institutions were already working in the public sector. The new accountability paradigm changed the business ethics in the banking industry, and with this change started the disaster. Nationalization of banking industry was accompanied by violent changes in the external value of rupee. The commercial banks thus lost their assets management equilibrium, initiative and growth momentum. They ceased to be a business concern and became big bureaucracies. This was accompanied by indiscreet loaning under political pressure. They suffered from three terminal diseases: non-performing loans; higher intermediation cost; and loss of initiative and entrepreneurship. The rise to Labor Unions and Officers Associations made life tough and working conditions ugly to honest, dedicated and industrious workers in the realms of domestic banking industry.

The era of nineties was the climax of privatization, deregulation and restructuring in the domestic banking industry and financial institutions. The Muslim Commercial Bank was the first bank to privatize. Followed by Allied Bank limited, United Bank Limited and now the Habib Bank Limited have been privatized. One thing good for that particular period was the recruitment of fresh officers in the domestic banking industry through well-organized policies of Banking Council. With the decay of Banking Council there

was flood of insincere, nonprofessional, incompetent candidates directly appointed/ recruited in all the domestic banks of the country.

### **3.1.3 Public Sector Commercial Banks**

National Bank of Pakistan	NBP
First Women Bank Limited	FWB
The Bank of Khyber	KB
The Bank of Punjab	BOP

The government of Pakistan permitted small private sector banks to operate, which indulged in doubtful policies to promote business. The public sector banking, which constituted the backbone, thus continued to suffer because of their approach, size and carried over liabilities. Mehran Bank is the prime example of that kind of lax banking in the country, which ultimately merged into National bank of Pakistan i.e. *last resort of domestic banking industry*.

### **3.1.4 Local Private Banks**

Askari Commercial Bank Limited
Bank Al-Falah Limited
Bank Al Habib Limited
My Bank
Faysal Bank Limited
Metropolitan Bank Limited
Platinum Commercial Bank Ltd
Prime Commercial Bank Limited
Saudi Pak Commercial Bank Ltd
PICIC Commercial Bank Limited
Soneri Bank Limited
Union Bank Limited

Muslim Commercial Bank Limited
Allied Bank of Pakistan
Union Bank Limited
Mashreq Bank

In the meanwhile, western banks started entering into the business. They, with the support of ruling elite, concentrated on the big business, leaving the routine business to the local banks. This reduced the profitability of the local banks.

### **3.1.5 Foreign Banks**

ABN Amro Bank
Al Baraka Islamic Bank
American Express
The Bank of Tokyo Mitsubishi
CITI Bank
Credit Agricole Indo Suez
Deutsche Bank
Doha Bank
Emirates Bank
Habib Bank A. G. Zurich
Hong Kong Shanghai Banking Corporation
IFIC
Mashreq Bank PJSC
Oman Bank
Rupali Bank
Standard Chartered Bank

### 3.1.6 Specialized Banks

Zari Tarqiati Bank Ltd.
Industrial Development Bank of Pakistan
Punjab Provincial Cooperative Bank Limited

There are 18 listed banks in Pakistan 2004. Three banks are still not listed, which are Habib Bank, United Bank, Dawood Bank. Standard Chartered Bank, Citibank, Deutsche Bank and ABN AMRO Bank are main foreign banks in the country. These four banks continue to enjoy a significant share in the market, both in terms of deposits and advances. All the foreign banks of the country are busy to invest heavily in the field technology and e-commerce in order to overcome branch limitation. All the foreign banks have been busy to introduce new products and idea to grab larger proportion of the local markets. Foreign banks are carrying major proportion of local business in credit cards, consumer finances and housing finance.

Many domestic banks have increased their general standards. Ours is the age of plastic money. Internet-based services are constantly increasing the number of ATM machines, either by installing their own machines or making arrangements with other networks. The number of Debit Cards has also been increasing at an unprecedented rate.

All the domestic and foreign banks vigorously institutionalized consumer financing in the country and earned handsome profits. The borrowing to private sector has also increased which ultimately boasted the profitability of all the domestic banks of the country. In the last 3 to 4 years many domestic banks have been suffering from surplus liquidity crisis mainly due to low demand for credit and slowdown of manufacturing sector in the country. Almost all the banks are now bought to invest in capital markets to increase their exposure in equities. To stop that risky trend the State Bank of Pakistan issued the instructions to follow the Prudential Regulations in letter and spirit and not invest in the capital markets beyond the limits. The domestic bank's lending under consumer finance



and housing finance has also been growing. The analysis of Annual Reports of banks shows that their income from core banking activities has been growing. The other positive point is that there are growing expectations for increase in interest rates.

The growth in advances has started matching growth in deposits. The quality of asset as well liability products have been improving. The ratios of non-performing loans have decreased. The SBP29 Scheme has benefited the banks as well as the borrowers to pay-off their long-standing dues. Bank Alfalah is the first to opt for the listing policy of the government and also offered its share to general public. Two of the state-owned banks, Habib Bank and United Bank, have been privatized but the government still holds a substantial stake in these banks.

Allied Bank of Pakistan was privatized in early nineties. But due to many internal and external reasons it continues to suffer. Some meaningful senior managerial changes would be better at the earliest. Dawood Bank has recently emerged on the banking scenario of Pakistan and it is good addition. The bank has come into existence as a result of acquisition of Pakistan operations of a Sri Lankan bank by a local business group. It is also not listed at the local stock exchanges. Meezan Bank is the first bank of the country, which is carrying complete Islamic banking

### **3.1.7 Comparative Analysis of Domestic Banking Industry of Pakistan (Rs. million)**

<b>Bank</b>	<b>Deposit</b>	<b>Advances</b>	<b>Investments</b>
ACB	51,732	30,035	26,759
BAH	34,240	23,775	18,831
Bop	23,767	6,621	8,295
BB	7,761	3,298	1,328
FB	24,554	21,935	6,842
HBL	328,182	167,523	142,877
KB	2,640	490	2,118
MB	5,079	3,532	856
Metro	28,515	19,444	15,013

## *Findings*

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MCB	182,706	78,924	89,610
NBP	362,866	140,547	143,525
PCB	21,155	10,876	10,306
PB	14,640	9,016	7,534
SPB	12,341	8,522	6,365
SB	20,545	11,378	9,844
UB	37,760	28,890	11,822
UBL	154,915	74,117	69,385

### **3.1.8 Administrative Expenses of Different Domestic Banks**

<b>Bank</b>	<b>2002</b>	<b>2003</b>
ACB	1,090	1,436
BAH	760	1,062
BoP	900	999
BB	380	375
FB	619	835
KB	204	327
MB	195	255
Metro	513	662
MCB	8,079	7,575
PCB	326	564
PB	512	719

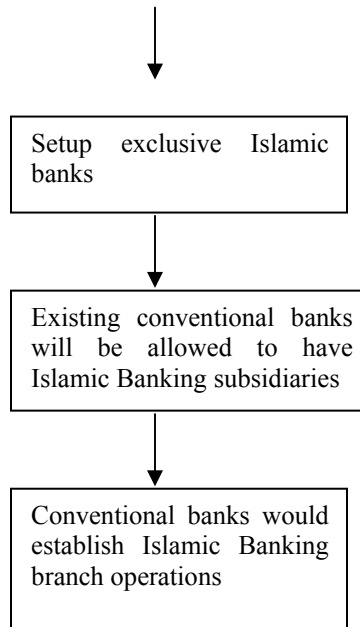
### **3.1.9 Potential Markets for Domestic and Foreign Banks**

#### **A) Islamic Banking**

Islamic banking is getting popularity in the country. Many efforts are being made to make it workable in the era of conventional banking. The SBP had initiated the process

of converting the conventional banking system into Islamic Banking. Government of Pakistan has initiated a parallel banking strategy of promoting Islamic Banking alongside conventional banking. There is huge scope for Islamic and Modaraba Banking system in the country. MCB, Faysal Bank, Al-Meezan banks and ABAMCO Limited are all ready in the Islamic banking field. Pak-Kuwait Investment Company Limited, which is one of the country's premiere joint venture financial institutions, is launching the first ever Islamic Insurance Company in Pakistan. There is huge market of Islamic banking i.e. \$2.5 to 3 billion in the country.

***SBP'S Three-Step Strategy***

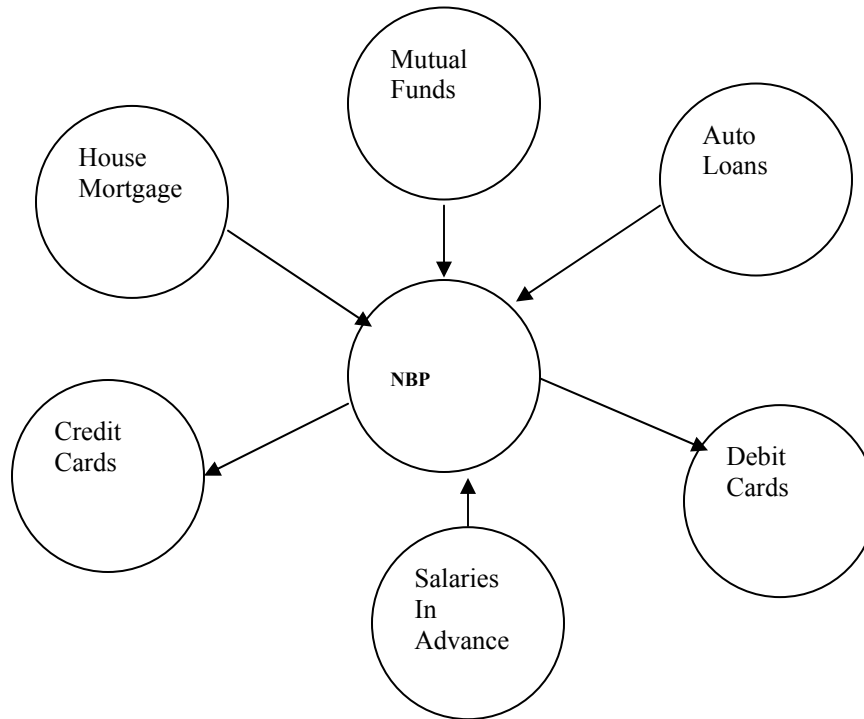


**B) Consumer Financing**

Most of the commercial banks have ventured into consumer finance. They provide funds for the purchase of consumer durables, computers, automobiles and even housing. Automobiles are covered either through leasing or auto loans, being undertaken by leasing companies and mobarabas or separate divisions within financial institutions. Housing finance is still mostly confined to two companies, namely House Building Finance Corporation and International Housing Finance Limited. Habib Bank, ABN AMRO Bank, PICIC Commercial Bank and National Bank of Pakistan are busy in

consumer banking. Ours is the age of “Financial Derivatives” and consumer banking is one of them, which has globe market of over US\$30 to 35 trillion. National Bank of Pakistan has started its consumer banking operations through out the country.

**National Bank’s Cluster of Consumer Banking**



It is great opportunity for NBP to monopolize the huge potential market of common consumers in the country and to increase the profitability of the bank. It will enhance the overall economic activity, industrial productivity in the country and reduce slackness in the consumer market. Insurance& Pension Funds, (Rs 70 billion for armed personnel and domestic flouring industry of insurance) Sales Finance, Mortgages, and Affinity Loans are very common in many ASEAN countries and National Bank of Pakistan can be benefited from the successful experiences of other countries in order to grab the local markets. Steps ought to be initiated to mobilize the net rural saving, which is approximately Rs. 20 to 25 billion. The senior management of NBP should take lessons from Grameen Bank of the Bangladesh, Agricultural Cooperatives of Thailand, Bank

Ryat of Indonesia and ACCION International of Latin America to reduce poverty through extended facilities of micro-credit.

### **C) Housing Financing**

Housing is the largest single asset class in Pakistan with an estimated worth of Rs.1700 billion. It is estimated to be less than 1% of the GDP because there is no vibrant system of housing finance. The total current housing stock in Pakistan is valued at Rs1700 billion and comprises 21 million units. Pakistan is facing shortfall of 6.5 million housing units and this backlog is increasing by 0.4 million annually. Millions of people are living in Katchi Abadis in Pakistan, mostly devoid of basic necessities. Potential for housing finance is currently estimated at around Rs24 billion per year of which the component of mortgage finance is Rs15 billion while the component of micro-financing for housing is about Rs9 billion. Urban demand for houses is growing at the rate of 8 per cent. The demand for urban pucca houses for normal growth, replacement and upgrading etc is estimated at 155,000 units per year costing around Rs64 billion. In USA, it is 53%, in EU 36%, in Malaysia 21% and in Iran 3%. Rich countries as a whole, where investments in housing far exceeds that in stocks and shares, individuals are estimated to own \$23 trillion in equities and a reckoned investment of \$40 trillion in property. Policy makers are striving to turn marginalized housing finance into the mainstream banking activity and NBP has already launched its product “SAIBAAN to open a window in housing financing.

Most of the banks have launched the Consumer Banking Operations but only a few seem to be serious. It is strongly suggested that instead of banks approving credit for each individual, the manufacturers may be extended credit lines, whereby they also take the responsibility of collection of monthly installments. Some of the banks that have issued credit cards, encourage cardholders to buy consumer durables using the card and then transfer the liability to easy installment option. While the cardholder saves in terms of mark-up, the maximum limit is the same as for the credit card. Credit insurance has also become a norm in banking business in Pakistan. For example credit cardholders are paying insurance premium, if they are utilizing a revolving credit by just exercising

minimum payment option. This is primarily to hedge the risk in case of death of the borrower. The same strategy may also be adopted for expanding consumer finance business.

#### **D) Micro-Credit Financing**

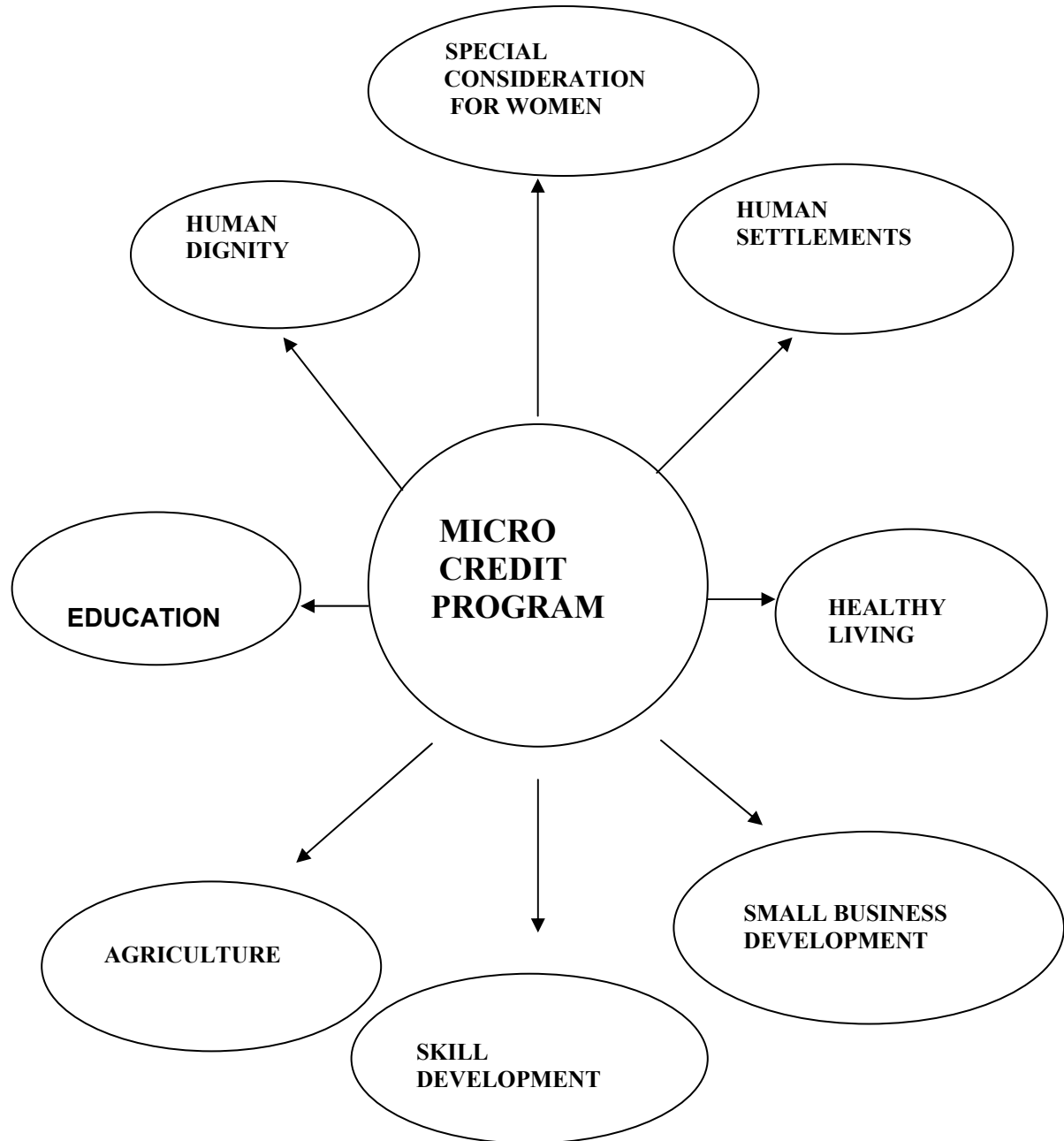
New philosophy has been incurred especially in the developing countries that “Small is Beautiful” because globalization and free market system has provided upper hand to developed countries. At the same time, natural tendencies in the free-market system have brought about an enormous concentration of economic gains in very few hands. Large loans imply few beneficiaries, big loan defaults and more income disparities. Converse is true for small micro-credit loans. Beauty originates from within. Similarly, micro-credit program focus on the people with personal commitment to improve their lot, do honest labor and have genuine need for small loans.

After Khushhali Bank and the First Micro-finance Bank operating with 35 and 10 branch networks respectively, a number of private sector micro-finance banks are in the pipeline with a motive to growing rate of poverty in Pakistan.

There are great opportunities for all the banks in the country to grab the markets of micro financing especially in the rural areas because majority of people live in villages. Micro-finance can easily be used for the development of agricultural and agro based small industries. Bank for Agriculture and Agricultural Cooperatives of Thailand; Bank Ryat of Indonesia and Grameen Bank of Bangladesh exemplify the success of micro credit institutions in Asia.

All the domestic banks should start their micro financing operations in order to increase their shares of profitability and good will in the eyes of common people. It is strongly suggested that all the domestic banks of the country and especially National Bank of Pakistan should focus the following potential areas to earn profit and to reduce increasing menace of poverty.

**Fruits of Micro Credit**



**3.2 TECHNOLOGY IN PAKISTAN**

The advances in information and telecommunication technologies (IT) in the past 25 years have had a profound impact on the nature of banking and in the way in that banks and financial institutions are organized. A study of the technological progress in the

banking sector is important because banks play an important role in providing financing and mobilizing savings, especially in emerging markets as compared to mature markets, where such functions are performed by the well developed capital markets. Technological efficiency can result in lower transaction costs and increased revenues for banks. For instance, technology can allow banks to cross-market new and existing products to customers. Technology can also generate a high rate of innovation in new financial products. Further, information technology can make it easier for banks ‘to screen out good from bad credit risks or to monitor corporations, thus reducing the adverse selection and moral hazard problems,’ that would otherwise impede the efficiency of financial markets. The inefficiencies occurring as a result of adverse selection and moral hazard can adversely affect the banks’ balance-sheet (through an increase in non-performing loans) and make them more vulnerable to external shocks. Such vulnerabilities could translate into full-blown banking crises in emerging markets. From an accounting standpoint, technology can speed up the financial reporting process and the timeliness with which banks make public disclosures via regulatory reports. Better quality public disclosures can translate into an overall improvement of financial market transparency. Such disclosures can also provide useful and accurate data to bank supervisors which in turn could enhance the oversight of banks. Finally, the use of technology can improve/enhance systems for administrative control such as enabling better management of risk, which if disclosed in regulatory reports to supervisors and in annual reports to investors, can improve bank transparency and enable the banks to reduce their cost of capital. Hence, technology can be the key to

- ✓ differentiation,
- ✓ competitive edge, and
- ✓ Institutional survival

The purpose of this research paper is to study the growth and evolution of technology in the Pakistani banking industry, where we broadly understand technology to include not only the process innovations that are put in place to apply technology within the workplace, but also the resulting innovation in business strategy and financial products.



### **3.2.1 The Push (1990s)**

It is interesting to note that, in addition to chastising unions for their resistance to technology adoption, the bank managers initially resisted the implementation of technology because of the lack of flexibility in restructuring employment. Bank managers were not serious about computerization, as years of protection had dulled their perspective. Managers were nervous about the implications of computerization in terms of the hierarchy and their own positions.

This strategic push towards technology adoption was also felt by the new entrants as they realized that their competitive edge and sustainability over the long run was dependent on the provision of low-cost service mediums such as Automatic Teller Machines (ATMs). It is important to note that the push to employ technology resulted in different responses: while the public sector banks (PSBs) used information sharing and technology to facilitate internal operations, the new generation private sector banks relied heavily on technology to increase their market reach, given the disadvantage they faced in the breadth of their coverage across the country compared to the PSBs.

There was also a regulatory push to adopt technology in the wake of the 1992 securities scandal which resulted in institutional changes with regard to electronic trading. By the end of the 1990s, PSBs were eager to introduce computerization and of the more than 45,000 branches belonging to PSBs in September 1998, about 25 per cent were partially or fully computerized. By 2001, this number had increased to 50 per cent.

In sum, the ‘push’ phase of technology adoption in Pakistani PSBs was geared, in particular, towards the decentralization of banking networks, with each branch operating/maintaining its own collection of servers and applications. The problem with this strategy was that branch banking development required high maintenance that resulted in low growth and productivity as evidenced in the empirical section. It was evident that cost reduction process innovations such as multi-delivery channel banking (ATMs, Net-banking, mobile banking, Electronic Funds Transfer at Point of Sale terminals (EFTPOS), debit cards, telephone banking) could only be achieved via

centralized networks. This development in banking also coincided with the PSBs move to high volume retail banking operations to keep their financial margins healthy.

### **3.2.2 The Current Picture**

There has been a concerted effort to improve the payment and settlement systems. Innovations in these areas have included Electronic Funds Transfer (EFT), Real Time Gross Settlement System (RTGS), Centralized Funds Management System (CFMS), and the Structured Financial Messaging Solution (SFMS).

The twenty-first century has also generated urgency among banks to adopt core banking solutions. Core banking is based on the principle of cost saving by centralizing operations at the bank level. Quite simply, core banking implies a move from branch banking to bank banking (external change), i.e., customers are bank-specific and not branch specific. Once a core is established, banks can offer multi-channel services to their customers. Since multi-channel delivery of banking services is becoming important, banks need solutions that would streamline these alternate delivery systems and ensure a seamless and real time interaction between a customer and the retail bank. This is being accomplished via channel integration technologies. Channel integration is indicative of a shift from tactical channel additions to strategic use of channels and customer information to enhance customer value. Simply put, this entails the development of a single view of the customer that can be delivered consistently to all customer touch points, and the delivery of banking products and services consistently across all channels. Such technologies should allow banks to reshape their customer base and generate a positive return on investment and enable banks to reinvent themselves as marketing agencies, by selling products like bonds, credit cards, life insurance, etc. Core banking applications or delivery channel integration applications can also help banks in managing their risk (Loyalty management technology).

Key developments in this arena encompass Any Branch Banking (ABB) which enables customers to operate their accounts from any branch of a bank. Such innovations are made possible by centralizing bank databases and employing automation across multiple

delivery channels. Successful implementation of core banking solutions promises great savings in terms of reduced transaction costs and time, in addition to shortened time frames for branch balance sheet reconciliation.

Bank unions, too, seem to have come a long way in accepting the idea of technology as the only effective tool in combating competition from private banks. On their part, PSBs are employing creative relocation approaches and voluntary retirement schemes to deal with workforce redundancy issues in the wake of this technology deployment. At this point, from the perspective of strategy, PSBs are attempting to take on their closest rivals by the sheer volume of networked branches, which will give individual customers a greater number of access points to bank markets, as opposed to a single entry point through a retail bank branch. Indian private banks seem to possess an edge over PSBs in non-branch banking. In private banks, almost 70 per cent of bank business is handled via non-branch channels such as the internet, the telephone, and ATMs. The PSBs are aggressively seeking to compete in non-branch banking, as documented by the establishment of ATM sharing alliances between PSBs and private sector banks, which have enabled PSBs customers to have access to private bank's ATMs.

### **3.3 INFORMATION TECHNOLOGY**

Another development—technological change—has been present in the Pakistani financial sector since the 1990s. At that time, banks began to reduce the costs of their information processing capabilities by replacing paper- and labor-intensive operations with computers. However, the impact of computerization is small compared with the impact of network technology. For example, the interlinking of real time gross settlement systems has greatly stimulated the development of a single money market. But the mark made by network technology will be even more profound because the Internet will alter the ground rules of our economy, as the classic tradeoff between richness of information and reach of information will end, and communications costs will decrease and eventually disappear.

The global economic slowdown delivered a nasty blow to the comparatively nascent industry of Pakistan from which it is still struggling to recover. It not only resulted in the

closure of a number of software houses but also down sizing in many others costing thousands of IT professionals their jobs. It took the biggest toll on the morale on the IT savvy younger generation, which viewed IT as the ultimate equalizer and harbinger of opportunities.

Will 2006 be benign to the software exports-lead IT industry of Pakistan compared to its predecessor which not only deprived it of whatever growth opportunity there was? Despite challenges, there are signs that 2006 would be a better year for the Pakistani IT industry.

There are also indications that the expected, and the much needed recovery would come mainly from the financial sector — particularly commercial banks both local and foreign.. The date signifies the beginning of the global free trade era when trade between the 144 member nations of the WTO would no more be dictated by quotas and tariffs restrictions.

Before we proceed any further let us look at a number of developments that would encourage electronic commerce and electronic banking in particular and local IT industry in general. The promulgation of Electronic Transactions Ordinance 2002 by President Pervez Musharraf was meant to encourage e-commerce in the country. Introducing the new law was necessary to provide legal recognition of electronic documents, records, information, communications and transactions. The introduction of the new law was also necessary to encourage electronic transactions to enhance the base of the modes of payment which at present is primarily restricted to in cash, cheque and pay order. If electronic commerce is to be encouraged it has to be governed by laws such as this ordinance, without which Pakistani industry and trade would have been denied access to international channels and thus global isolation.

Developing the e-culture and introducing enablers such as the law mentioned above was the step in the right direction. E-commerce offers many inherent benefits — it enhances trade efficiencies by eliminating the delays, helps cut the documentation costs by allowing trade partners to exchange transaction data digitally and reduces errors to

increase productivity and efficiency. Most importantly, it removes geographical barriers to have a real-time online access to international markets at affordable costs. It will also abolish the global isolation, the local businesses are operating in, which is limiting the productivity of all sectors of the economy be it agriculture, industrial or else.

Similarly, the Pakistan Software Export Board announced in late August 2001 that it was establishing 20 new software houses in Lahore. The project, named GEMS 2002, was aimed at facilitating and developing 100 IT graduates both fresh and experienced. The PSEB had selected 20 software companies of five directors each for one year patronization including the entire infrastructure and technical support at the Software Technology Park at Lahore. The project aims to materialize on the ideas and potentials of young IT professionals to develop products such as games, network pools, system utilities, etc. that would be marketed by the PSEB. The Board would also provide the entire logistic support and infrastructure to operate these software houses and during the patronizing period the PSEB will share 20% of the profit. Once these software houses would be developed into independent companies, they will be free to establish their own set-up anywhere they like. The revenue retained by the PSEB will be used to launch the next phase of the project to set up additional 200 companies in Lahore as well as Karachi, Islamabad and Peshawar. The project was expected to generate exports of over \$ 5 million this year.

Another development, also in August 2001, was related to setting up model e-districts in two cities — Sialkot in Punjab and Karachi in Sindh. The Ministry of Science and Technology directed the provincial governments to speed up works to set up model e-districts in each of these two cities. Punjab has selected Sialkot and Sindh has selected Karachi to make the cities a fully automated e-district. Nothing can be said about the developments in Sialkot but as far as Karachi is concerned the ambitious plan has failed to benefit Karachi even minutely as the first IT Park in the biggest city of the country, Lahore and Islamabad both has two such IT Parks each and even Peshawar has one, but still to get the bandwidth connectivity from the PTCL five months after it was announced to be open in August. For all practical purposes, Karachi's first such facility, National IT Park, remains unoperational for absence of the most important bandwidth facility. Some

100,000 square feet of office space spread over five floors lies unused except 4,000 square feet rented by a single company.

Another development in 2001 was aimed at providing the mass access to distant IT education. The Virtual University Ordinance 2002 promulgated by President was aimed at providing education and training in information technology, business management and emerging sciences through satellite, television and Internet. The Virtual University provides life-long learning, deliver courses and provide educational facilities to a large segment of the population at its designated campuses as well as place of work and residences of the students.

### **3.4 THE SPRINGBOARD**

Financial sector in Pakistan, like its counterparts in other parts of the world, is and will play the leading role to develop e-culture in the country. It is not only the pre-requisite but also the springboard and banking sector will become the catalyst for the development of e-culture in the country.

GDP of any economy basically comprises three main elements — Agriculture, Manufacturing and Services. "Trends show that economies where services contribute over 60 per cent to the GDP enjoy a high per capita income of over \$ 20,000. The premier example is the United States where services sector contribute over one-third to the GDP compared to agriculture, which despite its incredible share contribute just 2 per cent while the remaining share comes from manufacturing and other sectors. Services sector, thus, has served as the catalyst for e-commerce everywhere.

Furthermore, Information and Telecommunication Technology (ICT) contributed heavily to the economic prowess of the developed world where it is the single biggest contributor to the GDP of as much as 37 per cent. The ICT can play a similar role in Pakistan as the share of the services sector in its GDP remains low — services sector is contributing only a little more than 5 per cent in the GDP only about 3 per cent comes from the Information and Communication Technologies (ICTs) sector and 2.5 per cent from the financial services sector.

Despite easy availability of human resources and increasingly tech-savvy banking sector the growth of e-culture remains limited primarily because the state-owned Pakistan Telecommunication company still keeps a voice-base system. It is imperative for the PTCL to make investment in latest data services system without which e-commerce activities could not be facilitated. The PTCL should view the expense as a profit as trends worldwide show that revenues of the telecommunications operators from data services are increasing far more substantially than revenues from voice service. In addition, it would help the economy by pushing the share of ICT in the overall GDP of the country.

While PTCL infrastructure keeps leaning heavily on the voice service trends show drastic shift in the revenue of telecom operators across the world which now tilts heavily in favor of data service. Acceptable global standard now dictate that 70 per cent of the total revenue of a telecom company should come from voice while the remaining 30 per cent should come from data service. However, less than 5 per cent of PTCL's total revenue is coming from the data service while the remaining is coming from voice service, both local and international.

Developing the electronic business environment would also help document the economy to abolish heavy pilferages in the tax system. As mentioned in a previous article a study conducted by Pakistan Institute of Developmental Economics show that electronic documentation would help widen the tax-net by Rs 42 billion and would also help save Rs 18 billion in costs due to increased competitiveness from efficiency gains in the manufacturing sector, logistics, financial, information and various other sectors of the economy. With complete automation, still years away the financial sector-lead IT growth expected this year would be a test case for the e-business in Pakistan.

### **3.5 THE ROLE OF THE FINANCIAL SECTOR**

So what kind of a leading role the financial sector plays in creating the demand-side IT in the country this year. The local banks, particularly the big commercial ones, will play a much bigger role than the multinational banks for the simple reason that the latter are already fully automated. This means that the bulk of work for the local IT industry, including software, would come from the local banks who have ambitious automation

plans this year. The plans are driven by realization on the part of the local banks that automation offers unique benefits to improve their services and image as well as cutting the costs which only automation offers. For instance, banking transactions at the ATMs costs much less than similar transactions at a branch. That explains the ambitious plans by the local banks to invest in the ATMs this year, a beneficiary of which will be the local IT industry.

The expected growth in the demand-side IT this year will be fueled by growing demand for quality and easily accessible banking services by the account holders. The local banks have realized that they can no longer remain indifferent to growing demand for quality services the main feature of which is access to real-time on-line banking, be it keeping track of one's accounts and other services. This requires automation at central and branch levels which will provide substantial works to the local IT industry.

Though the bulk of IT works from the financial sector will come from the local banks, the foreign banks would also contribute to it because they do require surround systems for their core systems. The local IT industry not only has the expertise to develop these systems but what gives it an edge is that it offers competitive prices.

The automation drive by the leading local banks to install ATMs and to provide online banking services, like the one introduced recently by the state-owned Habib Bank, is expected to give a boost to the local IT industry even if in bits and pieces. The induction of ATMs and online banking services by the Habib Bank and similar plans by other local banks will require automation of a large network of individual branches across the country which will need an efficient infrastructure. All of this means, job for the local IT industry.

The plans to induct latest technology to facilitate real-time online full banking services from anywhere and at any time by the local banks would change the face of banking here in Pakistan. Electronic banking does exist in Pakistan but its use at present is restricted to big companies and multinationals, however, the move to induct of latest technology by



the local banks would help it go into the mainstream where an otherwise ordinary account holder can benefit from it.

The banking sector in Pakistan is thus heading towards a complete automation and central bank, the State Bank of Pakistan (SBP), is leading by example. It has initiated real-time online gross settlements between the banks. In addition, soon it will also be facilitate all treasury deals of the banks online and real-time to monitor the cash position of any branch of any bank at any given time. This would not only bring the much needed discipline in the banking sector but will also encourage speedy automation in the banking sector which in turn will serve as a fuel for the growth of the local IT industry.

### **3.6 TECHNOLOGY IN BANKING**

An industry that's tightly protected by regulations has finally opened up. But this has introduced many new challenges. Here's a look at how technology can help overcome these challenges and address the new set of issues associated with modern day banking.

The Banking sector in Pakistan has experienced a rapid transformation. Just about a decade back this sector was limited to the sarkari (read nationalized) and co operative banks. Then came the multi-national banks, but these were confined to serving an elite few.

One could regard the past as the 'medieval ages' in the banking industry, wherein every branch of the same bank acted as an independent information silo, and multi-channel banking (ATMs, Net banking, tele-banking, etc) was almost non-existent.

#### **3.6.1 The tipping point**

“Banks are increasingly facing sliding margins and fierce competition. It is imperative to increase volumes and reduce operational costs” – Raja Waheed Zaman, VP, ACBL

The opening up of the Pakistani banking sector to private players acted as 'the tipping point' for this transformation. The deregulatory efforts prompted many financial institutions and non-financial institutions enter the banking arena.

With the entry of private players into retail banking and with multi-nationals focusing on the individual consumer in a big way, the banking system underwent a phenomenal change. Multi-channel banking gained prominence. For the first time consumers got the choice of conducting transactions either the traditional way (through the bank branch), through ATMs, the telephone or through the Net. Technology played a key role in providing this multi-service platform.

The entry of private players combined with new SBP guidelines forced nationalized banks to redefine their core banking strategy. And technology was central to this change.

### **3.6.2 Pressing issues**

Today banks have to look much beyond just providing a multi-channel service platform for its customers. There are other pressing issues that banks need to address in order to chalk-out a roadmap for the future. Here are the top three concerns in the mind of every bank's CEO.

**a. Customer retention:** Customer retention is one of the main priorities for banks today. With the entry of new players and multiple channels, customers have become more discerning and less 'loyal' to banks. Given the various options, it is now possible to open a new account within minutes. Or for that matter shift accounts within a couple of hours. This makes it imperative that banks provide best levels of service to ensure customer satisfaction.

**b. Cost pressures:** Cost pressures come into play when banks are not able to afford the cost of a certain service or initiative although they want to or need to have it in place. This is primarily because the cost structure at the backend is not efficient enough to offer that kind of service to the marketplace.

As Aamir Hussain, Credit Analyst, Bank Alfalah puts it, "In today's world of narrowing margins, a serious look at costs is definitely an imperative."

**c. Increased competition:** The entry of new players into the banking space is leading to increased competition.

Technology makes it easier for any company with the right channel infrastructure and money reserves to get into banking. This has been one of the major reasons behind this kind of competition from players who do not have a banking background. New entrants with strategies such as these make the banking game tougher.

### **3.6.3 Redefining objectives**

To cope with cost pressures and increased competition as well as to retain existing customers, banks have started venturing into newer territories.

This is one of the main reasons why banks are focused on retail banking in a big way. The main advantage of getting into retail banking is that the risks involved are lesser in this segment. There are lower Non Performing Assets (NPAs) in retail banking. This is one of the reasons why loans such as those for housing, automotive, etc are being touted by banks like never before. Credit cards and debit cards is another focus area for banks.

With this banks have redefined their business priorities. They are now focused on:

- ✓ Cost reduction
- ✓ Product differentiation
- ✓ Customer-centric services

Although the ways in which banks implement these vary, the underlying objectives remain the same.

### **3.6.4 Cost reductions**

Reduced costs basically translate to higher profit margins. If banks can reduce costs, it can go a long way in increasing profits.

The focus is on increasing the profit margins by cutting costs where it matters—on the operations side. Banks have woken up to the fact that they need to get into shape fast in order to handle competition.

### **3.6.5 Differentiation**

The customer is interested in how he/she can benefit from the bank and its products. That's why it becomes necessary for a bank to differentiate its products from the others. Some of the ways in which differentiation can be introduced are through specialization, new products, and increasing the added value.

Specialization basically means that the bank gets involved only in selected areas. For example, the bank might be getting involved only in housing finance. Or, it could be limiting its services just for corporate banking clients. Another way to specialize could be by handling just specific sets of portfolios.

Banks can differentiate themselves by adding new products to their range of services. This will provide the bank with better yields per contact. Increasing the added value of products is another way of differentiation for banks. Operational excellence is also a key factor in effective differentiation from the competition.

### **3.6.6 Customer-centric model**

Pakistani banks have realized that it no longer pays to have a 'transaction-based' operating model. This has led to the development of a relationship oriented model of operations focusing on customer-centric services.

While banks have to ensure product superiority and operational excellence, the biggest challenge today is to establish customer intimacy without which the other two are meaningless.

Customer relationships have to be managed in the best possible manner. This will ensure that the customer comes back to the bank. In addition to good customer retention rates, it

will also provide better income generation capability. This is because a major chunk of income of most banks comes from existing customers, rather than from new customers.

### **3.7 IT IS PIVOTAL**

“The cost of transactions over channels like ATMs and the Internet are lower than doing it through the branches” – Babar Wasim,, SVP ETD division, ACBL.

IT is central to banking. This is one of the major reasons why new private and multi-national banks have been able to survive, thrive, and adapt in an increasingly competitive space.

These banks were able to leverage on low-cost channels such as ATMs and Net banking to the optimum levels contributing to reduced operating costs.

Banks have realized that shifting customer access to lower cost channels can help bring down operating costs.

"These channels are used not only to improve customer service but also to divert traffic from the branches. It is a fact that the cost of transactions over these channels is lower than doing this through the branches," says Babar Wasim, SVP ETD division, ACBL.

But this does not mean that branch banking is obsolete. Rather, banks are reinventing their business models to offer new financial services through its branches.

#### **3.7.1 Evolving IT**

Banks are looking at newer ways to make a customer's banking experience more convenient, efficient, and effective. They are using new technology tools and techniques to identify customer needs and are offering tailor-made products to match them.

Centralized operations and process automation using core banking applications and IP-based networks improve efficiency and productivity levels tremendously. Core banking applications help a bank to shift from 'branch banking' to 'bank banking.' This basically means that a customer will be treated as a bank's customer than just the customer of a

particular branch which was the case earlier. Also, IP-based networks lets a bank offer multiple services over the same network, resulting in costs savings.

CRM solutions, if implemented and integrated correctly, can help significantly in improving customer satisfaction levels. Data warehousing can help in providing better transaction experiences for customers over different transaction channels. This is made possible because data warehousing helps bring all the transactions coming from different channels under a common roof. Data mining helps banks analyze and measure customer transaction patterns and behavior. This can help a lot in improving service levels and finding new business opportunities.

Risk Assessment is another area where technology can play a major role. "Using technology, banks are able to better assess risks like interest risks, liquidity risks, FOREX risks, etc. The other driver for using IT is that banks can reduce costs and reduce the time to market," says Saad-Ur-Rehman, IT Project Manager, UBL.

### **3.8 CREDIT AND DEBIT CARDS**

Credit cards, like ATMs, are also one of the pre-requisite for complete automation in the banking industry. They encourage creation of credit and in turn help the economy indirectly. At present, the credit card penetration in Pakistan is extremely low — the total number of credit cards in Pakistan does not exceed 400,000.

Recently, multinational ABN Amro Bank, introduced the first ever debit card through Orix Leasing which allows cashless transaction. Many other banks, both local and foreign, have plans. Unlike credit cards the debit cards are expected to be far more popular to enjoy a much wider market due mainly to a much greater acceptance at the retail outlets and the convenience associated with cashless shopping. Like the ATMs, the debit and credit cards credit are acting as an enabler to give a boost to the local IT industry.

### **3.9 WAVES OF CHANGE**

The first wave in banking technology began with the use of Advanced Ledger Posting Machines (ALPM) in the 1980s. The SBP advised all banks to go in for massive computerization at the branch level.

There were two options: automate the front office or back office. Many banks opted for automating the front office ALPM in the first phase. Some banks concentrated on the back office automation at the branch level.

With the second wave of development in late 1990s came Total Bank Automation (TBA). This automated both the front-end and back-end operations within the same branch. TBA comprised of total automation of a particular branch with its own database.

In the third wave, the new private sector banks entered the field. These banks opted for a different model of having a single centralized database instead of having multiple databases for all their branches. This was possible due to the availability of good network infrastructure. In late 1990s, leased line costs were coming down.

Earlier, banks were not confident of running the whole operation through a single datacenter. However, when a couple of private sector banks showed that it can be done efficiently, other banks began to show an interest, and they also began consolidating their databases into a single database. Banks followed up on this move by choosing suitable application software that would support centralized operations.

The fourth wave started with the evolution of the ATM delivery channel. This was the first stage of empowerment of the customer for his own transactions.

The second stage showed the power of technology and how the reach can be increased phenomenally at a great pace. Seeing these, all the banks started revamping their retail delivery channels. Their core focus became the number of customers they can service at lower cost. The main channels for these were channels such as Internet Banking and mobile banking. After this came alliances for payment through various gateways.

The third important development happening now is the real-time gross settlement system. Once this is in place, transactions between banks can be done through the settlement system, online, electronically. So the collections will become very fast.

### **3.10 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), many banks are now outsourcing their security requirements. This way they can focus on their core business competencies than managing their backend security.



### 3.11 PAYMENT SYSTEMS

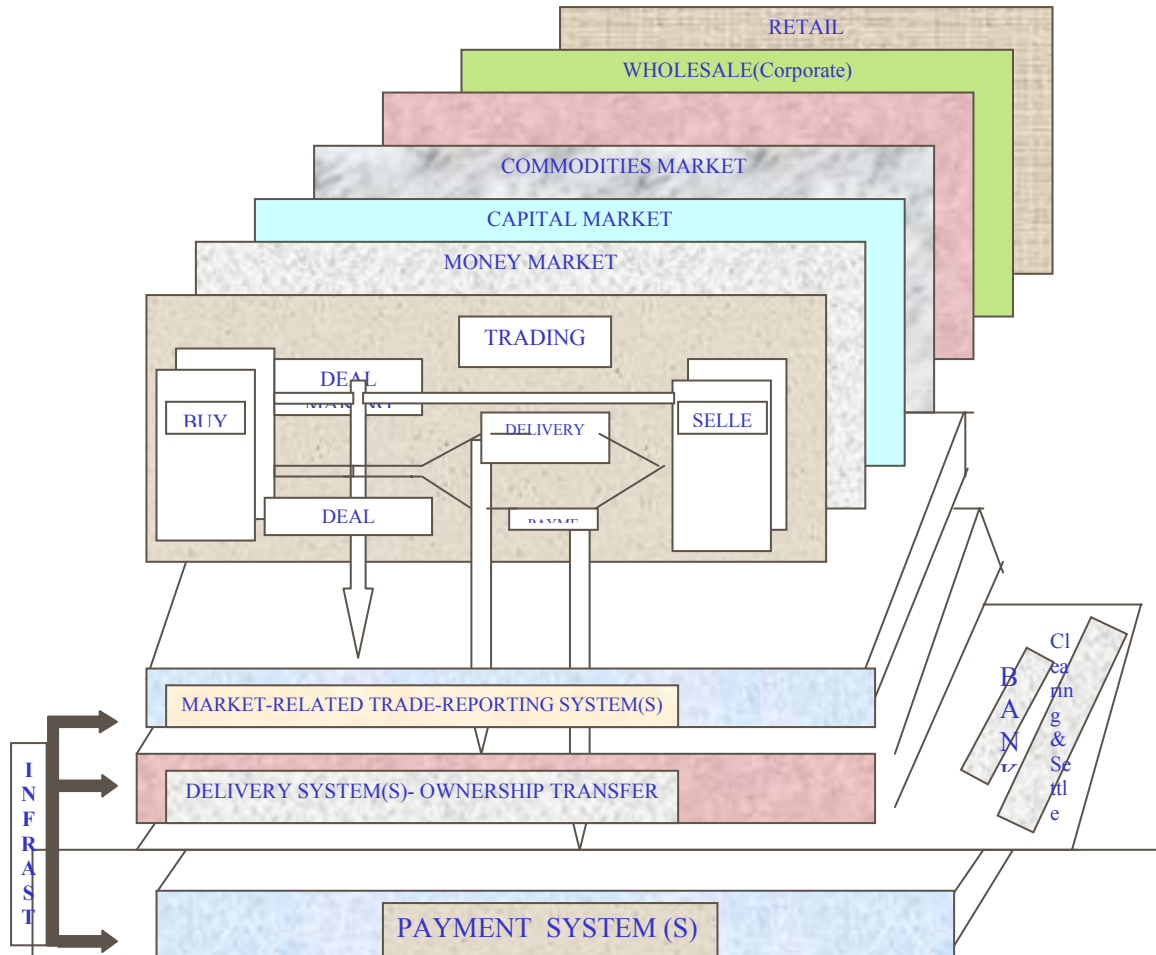
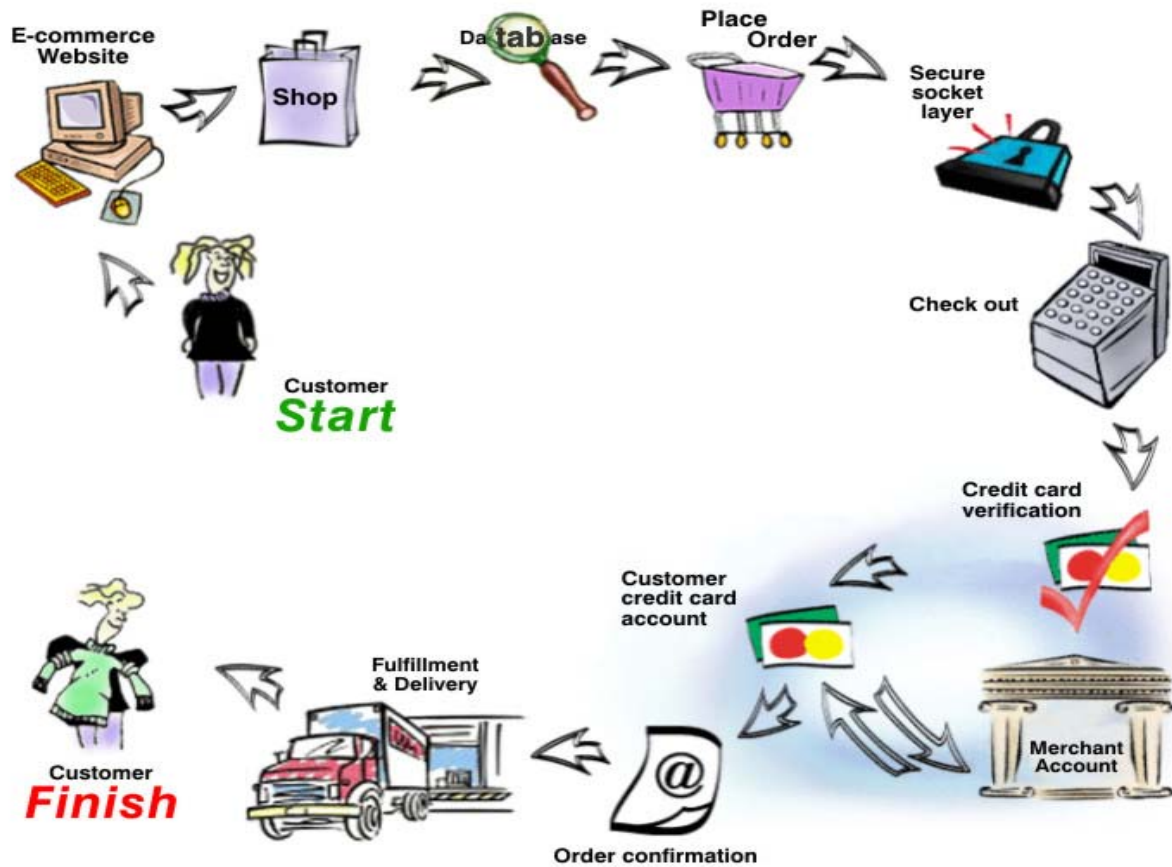


Figure 1

### 3.12 SHOPPING ON INTERNET MODEL:-



*Figure 2*

#### 3.12.1 Encryption

The encoding of data such that only the desired recipients can decode it. It provides protection when transmitting sensitive data such as credit card numbers over public wires like the Internet.

### **3.12.2 Secure Sockets Layer (SSL)**

SSL is a security and privacy mechanism for the Web. The SSL security protocol provides the following over the internet:

- ✓ data encryption
- ✓ server authentication
- ✓ message integrity
- ✓ optional client authentication

SSL-enabled server authenticates itself to an SSL-enabled client, and the client authenticates itself to the server, allowing both machines to establish an encrypted connection.

SSL comes in two strengths, 40-bit and 128-bit, which refer to the length of the "session key" generated by every encrypted transaction. The longer the key, the more difficult it is to break the encryption code.

### **3.13 BATTLING ID THEFT, LENDERS MOBILIZE OLD FRIENDS WITH NEW TECHNOLOGIES**

In 2002; a staggering number of individuals (161,819) in the US reported to the Federal Trade Commission that their identity had been stolen. This brought the number of reported incidents of ID theft to nearly 300,000 since the inception of the database clearinghouse in 2000. While identity fraud is nightmarish for the individual involved, it is no walk in the park for lenders either.

In an ideal world, a lender would be able to answer a single two-part question: "Is this a legitimate identity, and is this individual the right owner of it?" Absent a national identification system, there is no IT solution today that can answer the second part of this question. With that said annual lender losses of an estimated \$1 billion make a compelling case for trying.

For most lenders, identity theft is a difficult-to-quantify risk. The most logical investors in the available technology solutions are lenders with large consumer loan portfolios and thus increased fraud exposure. In addition to high-volume lenders, those lenders planning to drive account opening to self-service or call center channels will also have an easier time justifying increased expenditures.

For other lenders, there remains little IT money available to fund authentication tools. Regulators have not yet begun to weigh in on whether financial institutions are meeting the requirements. And even if they are, the jury is out on whether the technology will be a factor in stemming burgeoning losses.

Ultimately, lenders have always been willing to accept a certain amount of risk, and fraud losses (if not rising) remain an area of complacency. Periodically, though, there is a need to revisit the assumptions--and given the potential economic and geopolitical impact on a lender's bottom line, the time is now. Emerging concept products using less costly Web services can be packaged with existing fraud or compliance tools to make ROI less elusive.

Institutions should take a strategic approach, since the exposure is considerably greater on an enterprise-wide basis -- as is the reward. In fact, a dual-front approach with the emergence of an industry initiative--a consortium of sorts--to incorporate information databases would have the greatest payback.

Recent attempts by lenders to raise consumer awareness of the damages of identity theft include individual mailings to encourage care with personal information. Several government agencies, including the FTC and the Federal Reserve Bank, are now involved in both orchestrating media coverage and organizing more centralized reporting. These efforts may be starting to pay off, as different types of credit fraud losses associated with identity theft have taken a downward turn even while other types of fraud increased.

Yet it is unlikely that attempts to stop identity theft at the source will be any more successful than efforts to stop the theft of credit card information have been. The best

way for lenders to put a dent in this type of loss is to prevent the stolen identity from being used in the initial loan application process.

The problem with this approach is that the technology used to authenticate a person's identity at the point of sale is not mature, and the loss associated with identity theft is random and unpredictable. Unless financial institutions have been involved in substantial losses of this type, they've typically been unable to justify the IT expenditures--let alone fund research and development.

### **3.14 ANTI MONEY LAUNDERING (AML)**

In an effort to detect potential money laundering schemes, many financial institutions have deployed anti-money laundering (AML) detection solutions and enterprise-wide procedural programs. These solutions worked by establishing fixed rule based monetary thresholds and detecting specific money laundering patterns and user scenarios that breached those thresholds. As new schemes were developed, many of these “first generation” solutions were unable to uncover them, providing criminals with new avenues to circumvent detection and the law.

Today there is a perceived need on the part of financial institutions to take these capabilities to a higher level in order to address the shortcomings inherent with risk generation solutions. As a result, “second” generation AML technologies has emerged with the ability to monitor every single transaction, discover various types of unusual behaviors, and alert officials to the activities that represent true risk to the financial enterprise. These “intelligent enterprise systems” are able to learn and adapt, comprehending new money laundering schemes as they arise. With their enterprise-wide approach, they are able to analyze both the client profile and all of the transactions that are undertaken by them, helping the financial institution prevent money laundering schemes in a much more effective and efficient manner.

By analyzing financial data as per standards of second generation AML systems, these solutions allow the financial establishment to deter potential money launderers before they are able to process, providing protection in the form of full compliance with these

new regulations. These second generation solutions should be strongly considered as part of the strategic-anti money laundering technology plan within today's financial organizations.

### **3.15 PAKISTAN AND AUTOMATION**

Governor State Bank Dr Ishrat Hussain has said that despite starting late, Pakistan has made extremely rapid progress in e-banking.

"During the last two years, almost 40 percent of bank branches have been automated and it is expected that by 2006 almost 70 percent of the branches would be automated," the SBP Governor said, adding that the rate of increase during the last two years has been 300 percent plus. "This is one of the fast growing e-banking in the world," he remarked.

The SBP chief said that besides automated branches the number of online branches has increased at a growth rate of 376 percent.

With penetration of Internet in the country many banks have started web-based banking in Pakistan. Mobile banking would be the next fashion in the world, because mobile phone has an ability to be more convenient.

Because of e-commerce, now the customers do not have to wait for three days for their funds to be transferred from one branch to another. Dr. Ishrat said because of electronic commerce, now raw material can be purchased without any delay in time and money can be transferred immediately to the supplier. "That will cut down not only cost but the time," he added.

The SBP governor said that the government has realized the importance of e-commerce and it has issued the Electronic Transaction Ordinance 2002, which covers issues such as the certification authorities and cyber-banking crimes.

"Once you have a large volume of transactions, you can expect cyber crimes," he added.

Besides legal cover, an institutional arrangement is also needed to detect, investigate and prosecute such type of crimes.

Governor SBP said "the State Bank is itself in the process of computerization." The SBP itself is implementing the largest single IT project in Pakistan, he said, adding that it is \$24 million project, which is being executed by a series of international and Pakistani efforts. "Pakistani firms are as good as international firms," he commented.

He said Pakistan has a lot of talent, so the youth should come forward and utilize their talent. "We should not always try to put ourselves down," he added.

The SBP governor said that lack of confidence is a big problem in our country. "I have recruited almost 150 young graduates in IT from Pakistan. I can tell you that these can be as competitive as anybody else in India, Singapore or Malaysia or elsewhere." He said Pakistani youngsters should be proud of their capabilities. Dr Ishrat exhorted the youth to use their creativity, innovation, marketing skills for success in the competitive world.

"Now you need not to rely on concessions or government support", he said, adding the youth should work hard according to their best abilities to sell Pakistani goods and services.

Dr Ishrat Hussain said that there is no single fixed point in e-commerce. "Technology is changing fast and for that you have to keep pace. Through IT, Pakistan can increase its share of service sector in its GDP," he added.

### **3.15.1 Mobile phone banking in Pakistan**

Governor State Bank of Pakistan (SBP), Dr Ishrat Hussain recently announced that mobile banking would start in 2006 and cost of each banking transaction would be Rs5 only. He said from 2006 all branches of commercial banks would be made online initiating the mobile banking era.

According to him, before the start of ATM the cost of clearing each cheque was Rs20 and "currently ATM clearing cost is Rs15".

He said with the start of mobile banking the chances of bank robberies would go down automatically and bank customers would be more secure and safe in making banking transactions.

Before the start of this century, there was hardly any ATM service in the country. However, he said there were still dangers of hacking and terrorism like activities and that threat would continue but the banking system should be ready to face these challenges.

He was of the view that the banks were making serious efforts to adopt modern technologies.

Governor SBP said that the banks would be offering the customers business transaction through mobile phone without going to a brick and mortar branch.

He said, "this is our objective and that we are putting in place the entire infrastructure, legal framework, technology and training of human resources, which together will enable us to move towards this very particular goal."

Dr Ishrat Hussain points out that such an arrangement would reduce the cost from Rs15 for an ATM transaction to less than Rs5 for online banking.

This would not only save cost but also provide convenience for the customers as they would be able to carry out transactions from their place without traveling to the nearest bank branch.

The Governor SBP pointed out that "it is also a fact that the security is becoming an important ingredient in banking services". He hoped that the bankers would make use of the Public Key Infrastructure (PKI) in order to move towards more safe and secure transactions.



## Findings

He is of the view that "without PKI the future of e-commerce and e-banking in Pakistan was not going anywhere and therefore it was one of the most important missing elements in our journey, which we embarked on in the year 2001 towards electronic clearing and electronic banking".

### 3.15.2 ATM Machines in Pakistan

BANKS	NCR		Wincor		Diebold		Total ATMs
	Delivered	Order	Delivered	Order	Delivered	Order	
ABN AMRO BANK	20						20
ALLIED BANK	45	60					105
ASKARI COMMERCIAL BANK	50	3					53
Bank Alfalah Limited	52	45					97
CITIBANK N.A	15						15
Faysal Bank Limited	12	6		4			22
HABIB BANK LIMITED	104		22				126
HABIB BANK AG Zurich	18	2					20
PICIC Commercial Bank			5		35	0	40
HONGKONG BANK	2						2
MUSLIM COMMERCIAL BANK	78	0	134		30		242
National bank of Pakistan	50	0	18	0	35		103
STANDARD CHARTERED Group	42	18					60
Bank Al-Habib	16	10	0		28	0	54
Soneri Bank	11		10		18		39
KASB	10						10
Cres Bank Pakistan	3	3					6
Saudi Pak Bank			3		4		7
Meezan Bank	3						3
NIB							0
MetroPolitin Bank	20	0					20
UBL	39	15	15	35		10	114
Union Bank	37	0					37
Bank of Punjab		5	5			5	15
Baank of Khyber					1		1
American Xpress							0
WebDNA	3	5					8
Prime			0	8			8
	<b>630</b>	<b>172</b>	<b>212</b>	<b>47</b>	<b>151</b>	<b>15</b>	<b>1227</b>
	<b>802</b>		<b>259</b>		<b>166</b>		

Source:- ETD Div, UBL

## *Findings*

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<b>Total ATMs in Pakistan</b>	993
<b>Total on order</b>	234
<b>NCR</b>	630
<b>Wincor</b>	212
<b>Deibold</b>	151

Source:- ETD Div, UBL

# **CHAPTER FOUR**

## ***Analysis***

The technology-driven globalizing world economy is moving at a breathtaking speed. The so called creative destruction has played havoc with the economic and social development policies of developing countries. A large number of developing countries have been totally marginalized. They are bearing the cost of globalization without having any share in its benefits.

A small huddle of shiny high-rises reaching towards a multinational heaven, surrounded on every side by a wasteland of the poor, living in a state of almost biblical desperation is the gravest systemic threat to globalization. It is evident that market alone cannot deal with the challenges of globalization. Hence, the need for international development cooperation in the twenty-first century is far greater than it was in the past.

There has been an exponential growth in the use of Internet. The number of Internet users has grown from 30 million to 300 million in the last five years. E-Commerce transactions globally are estimated to reach US\$ 750 trillion by the end of 2005. These are promising prospects.

Given that technological innovations in the banking sector in industrialized countries have been shown to increase productivity of this industry around the world, then why did Pakistan shy away from adopting this technology until the 1990s? Why has Pakistan been a late adopter of technology in the banking industry when it could have reaped the benefits from the existing R&D expertise developed by innovators and early adopters?

As far as technology, it will continue to reshape the industry through the use of new innovations such as wireless technology. When you look at Boomers, Generation X and Generation Y, if there's one universal trend, it's their embracing of technology. This predilection on the part of many younger and middle age consumers, in turn, needs to alter the way banks view themselves, the role they play, and the alliances they enter to

create new products. More banks need to be more entrepreneurial. Banks have to start to realize technology is more than about productivity or communications; it's about a competitive advantage.

The empirical analysis demonstrates the superior performance of the early adopters of technology (private sector and foreign banks) as measured by productivity, returns on equity, and market share, as compared to the late or passive adopters (public sector banks).

#### **4.1 THE FUNDAMENTALS OF BANKING**

The starting point is to identify the fundamentals, or core competencies, of the banking firm: i.e. what gives banks competitive advantage. The fundamentals are essentially:

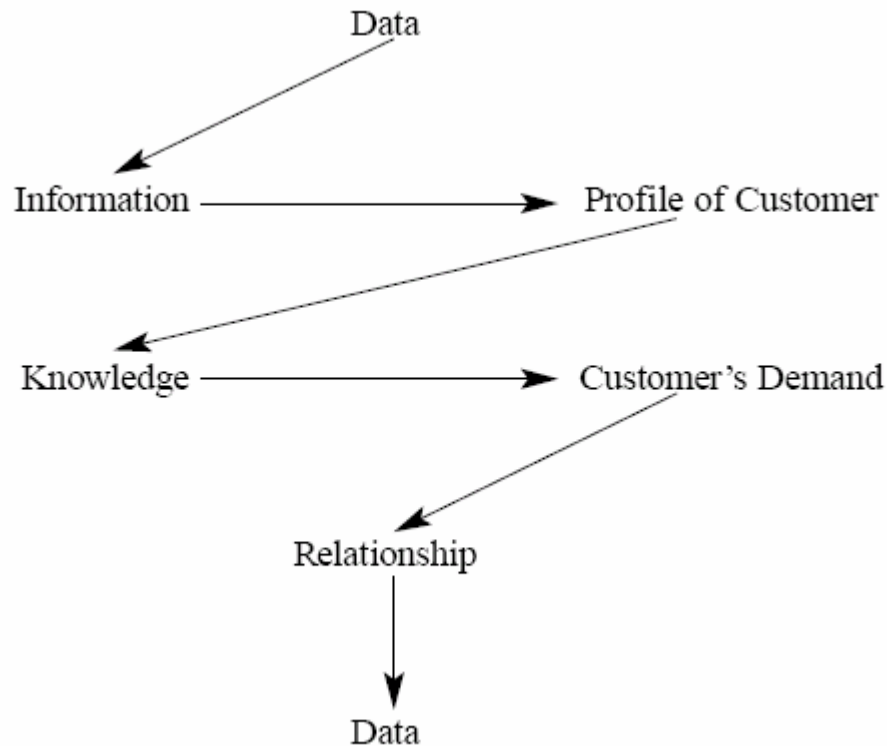
- ✓ Information advantages;
- ✓ Risk analysis expertise;
- ✓ Monitoring of borrowers and enforcement of loan contracts;
- ✓ Broking potential (bringing various counterparties together);
- ✓ Delivery capacity;
- ✓ Acting as the core of the payments system which acts as the first point of contact with customers;
- ✓ Trust in the eyes of consumers.

A bank's overwhelming advantage is the information it has on the customer base which is obtained through economies of scale, investment in information systems and expertise, and economies of scope or synergies. By managing a customer's account, and through the bank's continuous monitoring of customers, a bank necessarily acquires information that can be used in various ways. Information gained through one part of the business operation can be used in others. One reason, for instance, why banks in Germany have a particularly close relationship with their large corporate customers is the accumulation of information gained by the banks through the continuous monitoring of their customers, and much of this information cannot readily be transferred either to other banks or to the capital market. Alternatively, the customer may choose not to make information public

for competitive reasons but is willing to share it with its banker on an exclusive basis. In this way the bank gains a monopoly advantage over its competitors including the capital market most especially in cases where disclosure laws are not demanding. Banks are essentially in the ‘information businesses.’ In this regard, banks need to focus on two elements: the gathering, storing and retrieval of *data* (which in itself is of little value), and the transformation of data into usable *information*. Banks have a great deal of data but there is also enormous potential to transform this into valuable information. Within the information loop (Figure 3) a distinction is made between data and information.

The bank has a substantial amount of miscellaneous, low-value *data* about its customers. This needs to be transformed into high-value *information* (for a profile of its customers) and in turn into *knowledge* about what the customer is likely to demand. Through this transformation of basic data the bank has the potential to build up an enduring relationship with customers which in turn provides more data.

**Information Loop**



*Figure 3*

The seven core elements outlined above represent what might be regarded as banks' core competencies. In essence, banks have traditionally used their comparative advantages to specialize in the provision, holding and monitoring of loans that are not readily marketable. However, the same competencies can be used in a variety of other ways. For example, information advantages can be used by a bank to make loans, to underwrite capital market issues of their customers, to conduct broking operations, or as a basis for cross-selling a variety of products and services. They can also be used to signal the credit-worthiness of their customers to the capital market. There is no unique way in which core competencies can be used. It was noted in an earlier section that the skill in developing competitive strategies in a changing market environment is to identify core competencies and in which (sometimes new) sets of markets they can be applied with comparative advantage.

#### **4.2 THE NEW FACE OF BANKING**

An industry that's tightly protected by regulations has finally opened up. But this has introduced many new challenges. Let's look at how technology can help overcome these challenges and address the new set of issues associated with modern day banking.

The Banking sector in Pakistan has experienced a rapid transformation. Just about a decade back this sector was limited to the nationalized and co-operative banks. Then came the multi-national banks, but these were confined to serving an elite few.

One could regard the past as the 'medieval ages' in the banking industry, wherein every branch of the same bank acted as an independent information silo, and multi-channel banking (ATMs, Net banking, tele-banking, etc) was almost non-existent.

#### **4.3 IS TRADITIONAL BRANCH BANKING DEAD?**

The extent to which new regulatory policies and technology has transformed the banking industry brings us to one moot question: Is traditional branch banking dead?

With the emergence of various channels for (retail) banking, pundits all over have been predicting the end of traditional branch banking, at least in the metros and other upwardly urban areas.

But despite the benefits offered by other technologies in terms of lower costs or better reach, it looks like branch banking is very much here to stay.

The reason: Branch banking itself is undergoing a transformation. Traditionally, banks used their retail outlets to provide services to the individual customer. Now with ATMs, Net banking, and Tele-banking replacing traditional service channels, banks are more focused on enhancing customer value through branches. They are using their existing network of branches to advise on and sell new financial instruments like consumer loans, mutual funds, etc.

They are also using branches to inform and educate customers about other, more efficient channels to conduct common transactions like cash withdrawal or balance checks.

As Dr. Ishrat Hussain, Governor SBP says, "It is very interesting to observe that no channel has replaced any of the others. Rather, they are complementing each other. The customer remains one, but over the years, there are multiple channels being developed like ATMs, call centers, online banking, mail/fax, WAP, etc. The interesting trend is that customers are using all the available channels instead of settling for just one."

#### **4.4 CONSUMER TRENDS**

Consumer's expectations and demands are also changing, and likely to change yet further, as a result of the secular pressures identified, and especially the greater competitive pressures evident in the market for retail financial services:

- ✓ Consumers will become increasingly aware of greater competitive pressures in the industry, and they seek to exploit this to their advantage;
- ✓ Here will be increased demand for higher standards and greater reliability;
- ✓ It is almost certain that consumers will come increasingly to demand convenience and quicker access to financial services and products;
- ✓ Consumers are likely to demand more choice in the range of products and in the range of financial services;
- ✓ In particular, a wider range of access and delivery mechanisms will be demanded;



- ✓ With access to more and cheaper information, consumers will become more sophisticated in their demands and will, in turn, come to demand more information about what is being offered by financial firms.

Overall, consumers will increasingly recognize the change in the balance of bargaining advantage between them and the suppliers of financial services, and will change behavior accordingly. The consumer has increasingly become aware of choice.

#### **4.5 TECHNOLOGY**

Starting point is simple: *technology is transforming the fundamental economics of financial services* just as it has with many other industries. However, unlike in other industries, finance technology is changing both the *production* and *distribution* economics simultaneously. The theoretical discussion in the early part of the paper indicates that the fundamental cores of banking business are: *information, risk analysis monitoring, and trading*. In addition we may add *processing* and *delivery*. These are the core elements of banking. Technology is changing the underlying economics of each of these core business components.

The power of technology will be, and has been, decisive: it acts as both a threat and an opportunity to banks. It enables existing services to be provided more efficiently; enables new services to be offered; increases the economies of scale in bank processing; enhances management's access to information; lowers entry barriers in some areas, and changes the economics of delivery. Technology has the power to transform the basic economics of any industry. In this respect banking is no different from other industries which have been transformed by technology. Technology has the potential to increase the availability and reduce the cost of information. This is a potentially powerful force as it both reinforces and challenges one of the banks' major core competencies: information. Given that banks are ultimately in the 'information business', anything that impacts on the availability, cost and management of information must have a decisive influence on their business.

The potential of the Internet is both a threat and an opportunity for banks as with all suppliers of banking and financial services. It has the potential to challenge two aspects of the basic economics of banking: information and delivery. By its very nature it increases consumers' access to a wide range of information, and adds a further dimension to the delivery of financial products. 'Instant trading' on the Internet has become commonplace in the US and the technology exists for its development in the UK and many other countries.

To date, it is largely technology companies in joint-ventures with banks that are developing the potential for 'home banking' and allowing a wide range of standard banking and other financial transactions (payments, funds transfer, securities transaction, purchases of financial products) to be conducted from the home at any time of any day. Software packages (e.g. Quicken) have been developed to make this an easy and readily accessible option. Both hardware and software companies could come to challenge the banks in some aspects of their core business. Whether, in the course of time, banks could become disintermediated on a major scale remains to be seen. In the course of time, the Internet could become the dominant medium for relatively simple and standard transactions. In the US, several banks have formed joint-ventures with a group of computer companies to provide a 'financial services superhighway'.

Banks are experimenting with electronic shopping malls and several banks and building societies offer services through the Internet.

The potential impact of the Internet on banking is substantial:

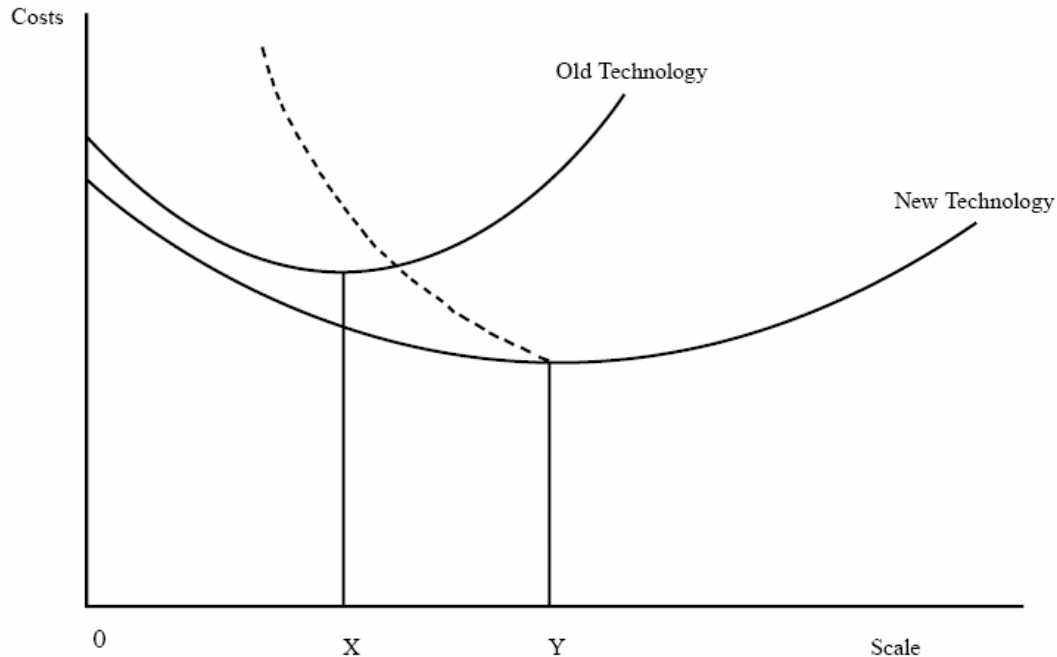
- ✓ The marginal cost of transactions is virtually zero;
- ✓ Distance between consumer and supplier becomes meaningless and of no economic significance; this may result in more cross-border competition;
- ✓ It is usually the case that the consumer pays the access costs;
- ✓ As an increasing number of rival banks and financial firms open net sites and home pages, the cost of information to the consumer and the search costs for rival

- services and products become very low which in itself increases competitive pressures in the market;
- ✓ The transactions costs of switching between competitors are reduced which is likely to have the effect of eroding customer loyalty;
  - ✓ It further erodes the necessity to have a branch network to supply financial services and further erodes entry barriers.

#### **4.5.1 Technology Capacity**

In many areas of financial processing, the impact of new technology is twofold: it creates more substantial economies of scale (lower average costs), and it increases the volume at which the optimum scale is reached (lowest point on the average cost curve). This is illustrated in Figure 4. In a competitive market, a financial firm is under pressure to minimize costs and to move to the lowest possible level of average costs. In terms of Figure 4, the objective is to move to output OX with old technology but to OY with new technology. A firm which had the optimum scale with old technology may nevertheless be less economic than larger competitors with new technology. Indeed, installing new technology may (because of high fixed costs) conceivably imply higher costs at the previous optimum level of output. If the firm cannot move to OY, it may secure the necessary economies of scale by sub-contracting the relevant process. Thus, while the development of technology may appear to be adverse for small firms, they may be able to offset this by sub-contracting.

Developments in technology have themselves impacted on capacity in that new technology vastly increases the capacity of banks to supply services. It is unlikely that, given the economies of scale in new technology, the current number of banks can be sustained as they cannot all apply new technology to its most economic extent. And yet banks individually will attempt to do so. This is a case of the fallacy of composition: what is viable for an individual bank is not necessarily so for all banks taken together.



*Figure 4*

#### **4.6 BIGGEST CHALLENGE—ESTABLISHES CUSTOMER INTIMACY**

In today's world of narrowing margins, a serious look at costs definitely is an imperative. One obviously has to ensure product superiority and operational excellence. However, to researcher's mind, the biggest challenge today is to establish a customer intimacy without which the other two are meaningless. In the financial world, product superiority does not last for long as it is relatively easy to copy products. So, the real strength comes from operational excellence and understanding the customer and developing rapport with him.

Notwithstanding what banks may feel about their products, customers utilize these products only for a few minutes. The key lies in making those few minutes convenient, efficient and effective. There are multiple ways to achieve these objectives. For instance, we introduced welcome kits wherein, a customer who comes in to open an account with our bank walks out with a fully enabled account, debit card, cheque book, Net Banking account, and phone banking account—in a matter of minutes.

Another key area that researcher can immediately think of is integration of services. Why should a customer receive multiple mailers from the bank when he can instead receive

integrated financial statements? Why should a customer have multiple login IDs for different electronic channels?

These measures not only lead to customer convenience, they also help the banks save on cost. Identifying customer needs and tailoring products to match these needs is another area where a lot can be done.

IT infrastructure budgets take a medium term (18 to 24 months) view of the requirements. While cost optimization plays an important role, the key considerations are on high-availability, scalability and optimal level redundancy of the infrastructure. The key lies in making this infrastructure transparent to the end user.

So what are the mistakes that banks have made in the past in terms of over investment in IT, underutilization of resources and so on? Pakistani Banks have at any stage done over investment in technology. Expenditure has been right or perhaps less than what has been the need of the hour. However, expecting tangible and time-bound returns is today's minimum expectation from the investments in technology.

Mistakes can be that there was a lot of emphasis on doing things in-house and an improper alignment of technology with business requirements. Another issue is that of proper synchronization of tech innovations with businesses processes and rollouts. Without this, however good a product or service may be, sales do not result. At the end of the day, anything that does not result in sales is not meaningful.

#### **4.7 THE TECHNOLOGY FACTOR IN BANKING**

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

IT 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.

Banks are focused on three areas: meet customer's service expectations, cut costs, and manage competition. For this banks are exploring new financial products and service options that would help them grow without losing existing customers. And any new financial product or service that a bank offers will be intrinsically related to technology.

Many products and services being offered by the banks today are due the enablement by IT. Most of the products and services are actually impossible without presence of IT systems and infrastructure. Hence approximately 60-70% of the increase in revenues of the bank can be attributed to IT enablement. And this percentage will continue to grow as time goes by.

The new generation banks showed the way and others had no option but to follow the tech infusion to retain and attract profitable customers. UBL alone has made investments to the tune of \$5 million during last 2 years in 2003-2005. Usually IT investments are spread over a period. Which means anything started today will continue to have investments for at least a year to 5 years. If we take a period starting from last 2 years to next 3 years, the IT investment by the banks must be in the tune of \$ 100 million, at least in the banking sector of Pakistan.

#### **4.8 AUTOMATION IS KEY**

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.

#### **4.8.1 Evolution**

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.

Saad ur Rehman, IT Manager, UBL said, "The new generation banks showed the way and others had no option but to follow the tech infusion to retain and attract profitable customers."

The improved connectivity and falling costs offered by leased lines and VSATs provided a booster to inter-branch automation.

Confirms Baber Wasim, VP ETD division, ACBL, "With the improved services and lowered costs of service providers, it became more feasible for banks to network their branches. This gave banks an impetus to network all the branches and set up centralized databases. With these developments it became possible for operations such as MIS to be truly automated and centralized."

With centralized infrastructure and numerous connectivity options, banks started exploring multiple delivery channels like ATM, Net-banking, mobile banking, and Tele-banking thus driving down cost per transaction.

Banks are increasingly adopting core-banking solutions for retaining customers and lowering service costs to the customer.

#### **4.8.2 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 SVP (IT), ACBL.

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 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," Saad ur Rehman, IT Manager, UBL said.

Baber Wasim, VP (ETD) ACBL, said, "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. 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.

#### **4.9 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 Saad ur Rehman, IT Manager, UBL.

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.

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, 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.

#### **4.10 CREATING VIRTUAL VALUE**

By integrating business channels, consolidating customer histories and beefing up security, banks are improving their online offerings to provide customers with all the conveniences of branch banking in the comfort of their own homes.

In today's mobile society, consumers increasingly equate a bank's value to the services it provides online. With the growing number of Web users, many banks, eager to remain competitive, hope to attract and retain customers with enhanced online offerings. By integrating their business channels and customer views, expanding self-service functionality and improving Web site security, financial institutions are creating a seamless online banking experience.

But enabling consumers to log into their accounts is the easy part for banks. Consumers are demanding more functionality online and many will choose a bank based on an institution's online offering. Online banking is a critical component of any bank's business. This is a competitive weapon for financial institutions. If banks do not provide services online, ultimately they will lose customers.

Web users want to conduct the same transactions online that they are used to doing at a bank branch, call center or ATM. To ensure this transparency, banks must integrate their business channels to synchronize transactions and deliver results in real-time.

Banks promote their Web services as a component of their multichannel strategy. By integrating channels, information is pulled from one bucket of data, which eliminates errors and duplicated information. There is tremendous customer service surrounding this. Banks that can truly make the banking experience transparent as customers move between channels are more attractive.

#### **4.10.1 Aggregated View**

The next stage of synchronization requires banks to deliver an aggregated view of the customer's existing banking portfolio. If a company wants to be a leader in online banking, it needs to offer integrated information delivery. Consolidated views of accounts not only help consumers manage their personal or household net worth; they build the value of a bank's brand.

If a bank can provide a secure access point to view and manipulate accounts both internally and with outside banks and brokerage firms, they are creating a huge

opportunity. If customers are willing to rely on bank's site to view their accounts, they will gain the trust to access the bank's site for additional financial needs.

So here is the opportunity. Customers want an integrated view of their banking relationships as well as tools to help them budget, plan and manage their accounts online. Banks responded to this demand by offering inter- and intra-bank transactions.

One up-and-coming aggregation service being leveraged by banks is online bill payment. Banking customers tell us that a large percentage of their customer service calls are consumers who want to check on whether their recent payments posted to their checking accounts. By adding electronic bill payment service to their online offering, banks can post information on more than one-third of their payments. Then consumers can view their account activity online.

By automating the check payment process, banks are not just providing a higher level of customer service and convenience for their users. Perhaps more important, the services give banks opportunities to connect with users.

Another way banks are seeking to be competitive is by offering self-service tools online. By empowering customers to conduct business online, banks can reduce operating costs, increase customer bases and positively impact the overall banking experience. However, banks need to be mindful of the applications they choose to offer over the Web.

#### **4.10.2 Self-Sufficient**

The key to self service is to maintain customer touch points without sacrificing customer service. All banks are focused on reducing the costs of servicing customers and scaling their customer reach. By leveraging automated tools that provide a simple and functional customer experience, they will achieve both goals.

Some of the most popular self-service tools are e-mail communications, live text chat and e-mail-based alerts or notifications. Some foreign banks are working to add search tools similar to those used on Google and Yahoo! to their Web sites. Users will input keywords

into bank's search box, then it is presented to the bank, the bank returns data and answers the query.

Looking ahead, self-service tools will help consumers stay connected to their financial portfolios at home or on the go. Through self-service tools that can be accessed remotely from a laptop, WAP-enabled cellphone or PDA, visitors no longer need to wait for information to be sent to them.

It is about making information more accessible to users when they need it. Banks need to be proactive about sending customer-specific information to them before they need it.

#### **4.10.3 On Guard**

With the increase in functionality and information presented electronically, however, the need for online security is greater than ever. The best way for banks to position themselves is to add tools that will keep them one step ahead of fraud. But, as banks fight the battle against hackers, cyber criminals bolster their arsenal of weapons to attain corporate and customer data.

Most banks agree that the first step in a sound security strategy is to educate the online community to evolving security risks. Besides posting security measures, some banks also deliver targeted messages to online customers reminding them not to share personal information and passwords.

But efforts cannot stop there. Historically, consumers rarely follow instructions. Yet, consumers also are demanding a safe and secure online environment. That's why banks must be diligent about providing security measures behind the scenes as well.

Banks need to be armed with the proper tools that will keep them from being a target. Similarly, they also need solutions that are easy for the consumer to use. A logical step is to add a new layer of online authentication.

Typically, user names and passwords are used to authenticate a user. But this practice is easily hacked. By adding two-factor authentication, banks essentially are doubling online

security, adding interactive tool-based personalization. The tool may be an additional information-gathering engine that prompts a user to answer a constantly changing personal question, or it can be a physical token, such as a code embedded on a bank card or a device that is linked to a bank's systems and generates random numbers to create a constantly changing password.

In an ironic twist, increased use of the online channel may actually cut down on fraud. Many identity fraud crimes can be avoided by reviewing transactions, statements and credit reports online. A key contributor of fraud is the distribution of paper statements. One thing that could help ward off this fraud is for customers to stop requesting paper statements.

By promoting e-statements, banks are averting fraud while cutting costs associated with paper and shipping. This is a strong preventive measure against identity fraud. An electronic version of statements, account activity and checks is the way to go.

#### **4.10.4 Don't Underestimate Customer Loyalty**

Compared to conventional banking customers, online customers seem to have a higher level of confidence in their financial institutions. If banks violate consumers' trust on even one occasion, however, banks can kiss these loyal customers goodbye.

The best customers are often also profitable customers. The more complex accounts and transactions they have make them more profitable. A single breach could translate into the potential loss of millions of customers. If these customers leave, it could cause a lot of damage and be a very costly problem for banks.

Banks need to ensure that their online efforts do not sacrifice customer loyalty and profitability. If a customer's trust is breached, banks will feel huge implications beyond a loss of data. It could be damaging for the bank's brand, and they will gain a negative perception in their customers' eyes.

#### **4.11 A HAPPY CUSTOMER**

Managing customers is one of the main issues that banks 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) plays an important role.

CRM is a strategy used to learn more about customers' needs and behaviors in order to develop stronger relationships with them. After all, good customer relationships are at the heart of business success. There are many technological components to CRM, but thinking about CRM in primarily technological terms is a mistake. The more useful way to think about CRM is as a process that will help bring together lots of pieces of information about customers, sales, marketing effectiveness, responsiveness and market trends.

What is the goal of CRM? The idea of CRM is that it helps businesses use technology and human resources to gain insight into the behavior of customers and the value of those customers. If it works as hoped, a business can:

- ✓ provide better customer service
- ✓ make call centers more efficient
- ✓ cross sell products more effectively
- ✓ help sales staff close deals faster
- ✓ simplify marketing and sales processes
- ✓ discover new customers
- ✓ increase customer revenues

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.

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 VP (IT), UBL.

Yes, building compliance systems and managing the business for growth can be done in tandem, since at the heart of many compliance challenges is the issue of "knowing your customer." The silver lining here is that knowing your customers for compliance reasons can dovetail nicely with knowing your customer for marketing and customer-service purposes. Unfortunately, many have been slow to catch onto this. "For most financial services operators, the compliance issue is seen as separate from proactive CRM," he says.

CRM is not optional, as per the research conducted by the Global Future Forum that shows a clear trend toward inspirational buying habits. In a marketplace crowded with commoditized products, people make decisions "on intangible values or associations surrounding a product". So understanding customers through CRM becomes a key way for firms to tell their story in the right way to the right potential customers. In other words, while compliance systems allow a firm to better know its customers, CRM allows customers to better know the firm.

#### **4.11.1 CRM Tools**

CRM tools can be broadly classified into two categories: Operational and Analytical.

Operational CRM provides the software support for businesses that require customer contact. These tools are largely workflow based to provide information to employees and document customer interactions. This includes collaborative CRM type of tools used to provide enterprise/customer interaction across all contact channels such as face-to-face, telephonic, electronic, and wireless. Operational CRM types are the major CRM tools

being used nowadays for customer support in India. For example, say a premium customer dials your call center from his home. Operational CRM can alert the call center executive of his account status and other details by his home telephone. This will help the employee in extending him the kind of service extended to a premium customer.

Analytical CRM helps you make sense of the information. It helps you target customers and utilize their potential to the maximum. For example, say an account holder withdraws Rs 10,000 every month from his account and deposits it in another bank as EMI for a loan. Analytical CRM tools can help you track this activity. Techniques such as data warehousing and data mining are prominent tools used for this. Your bank could offer a loan to the customer at a lower rate than what the other bank offers. This will keep the customer happy since he knows that you are giving him better service. This translates to gains for your bank as well.

Banks tend to forget one important aspect about CRM; it is more than just a technology implementation, it has to be a clearly defined process with appropriate customer service levels. This is exactly the reason why CRM implementations meet with limited success.

E-transformation should not be at the expense of the personal touch in service. This will differentiate a bank from its competitors when the technology is available to all sooner or later.

#### **4.11.2 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.

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 one can view or use information when required.

So having the information in place with the warehouse but how do one make sense out of it? This is where data mining steps in. Data mining can help recognize patterns in the data bank have. For example, how many of the 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.

### **4.12 IT STRUCTURE**

The role of IT in the banking sector of Pakistan is:-

- ✓ To increase the overall efficiency and productivity of the bank by automating manual processes
- ✓ Ensuring that the Bank's IT Operations run smoothly
- ✓ Developing and Introducing new IT products & services to further improve the operational efficiency of the Bank
- ✓ Identifying possible areas of risk and incorporating security features into all systems before, during and after the implementation of the system

There are Five Operational IT Areas:

#### **4.12.1 Systems**

This section is responsible for the Development & Maintenance of the Banking packages & modules

#### **4.12.2 Banking Operations**

This section is responsible for the day to day Operations, Reporting and Support for Banking Packages running in the Bank

#### **4.12.3 PC Operations / Inventory Control / Internet**

This section oversees Hardware & Network evaluation, purchase and maintenance and also takes care of Internet operations

#### **4.12.4 ATM/ i-Net Operations**

This section is responsible for the creation and despatch of ATM Cards and ATM/Internet PIN mailers to the branches

#### **4.12.5 Communications / Networking**

This section is responsible for:

- ✓ Installation/Maintenance of Wide Area Communications devices at the Branches and the Head Office
- ✓ Monitoring/Trouble-shooting of communications links

### **4.13 RETAIL BANKS AND TECHNOLOGY**

For retail bankers these technological innovations are opening up both opportunities and threats – more hopefully called ‘challenges’.

The *opportunities* are clear enough – to provide services to customers more flexibly, conveniently and reliably at lower unit costs, and to develop new products and services to meet customer needs and increase the value of franchises.

The *challenges* arise because:

- ✓ new technology is usually expensive – both to install and to maintain – and, moreover, can become redundant relatively quickly;
- ✓ new technology is complex, making greater demands on management, on resources for staff training and on back-up facilities;
- ✓ new technology is less labor-intensive, giving bank managements a substantial task in reducing staff levels sensitively and smoothly;
- ✓ not all customers enthusiastically embrace the new delivery systems and products, so that traditional systems have to be run in parallel with the new ones, perhaps for a long time;
- ✓ new players can have a comparative advantage in new technology, while not carrying some of ‘the baggage’ (including expensive branch networks) of the established financial institutions; and
- ✓ modern communications technology will make it easier for customers to shop around and, with banking becoming more remote and products more ‘commoditized’, customer loyalties might weaken.

A couple of key questions are prompted – the answers to which might be clearer after this Seminar.

First, *transition strategy* – what is the optimal pace for a retail bank to invest in new technology? Cost and the behavior of competitors are obviously important. Another key factor is the readiness of its customers to accept change. In the payments area, transition strategy has been made especially complicated by inherited pricing policies. The rate of migration of customers to electronic payment methods is determined in part by relative pricing of the new technology and the old (particularly cheques). Historically banks have undercharged in this area, making customer resistance to transaction fees particularly

strong. Although easier said than done, it is increasingly important that retail banks get their pricing ‘right’ in payments and other services, because competition will continue to erode the interest margins which have previously cross-subsidized them.

A second key question: how much will the high capital and maintenance costs of up-to-date technology increase the minimum *sustainable size* of a retail bank? It’s popularly thought that banks will have to become larger to survive. This is almost certainly correct, as a generalization – and the number of retail banks has indeed fallen in the past decade. On the other hand, opportunities to form alliances with software suppliers and network providers, to outsource processing work to specialist bureaus and to share facilities on an industry basis should surely help to protect the viability of smaller operations. Such approaches can also, of course, involve sharing some profit with others. But it may be no bad thing for smaller retail banks to concentrate on those aspects of the business where their comparative advantage should lie – customer relations and the design of financial services.

#### **4.14 RE-ENGINEERED SUCCESS**

For every successful IT implementation, one hears 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.

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.

#### **4.15 CUSTOMER'S PERSPECTIVE**

Now the researcher will analyze the effects—or potential effects—of technology on the delivery of banking products and effect on capital markets. The growth in internet access by consumers to products has been really rather phenomenal. Last year, for example, online trading accounted for about 35 percent of all customer transactions, up from about 15 percent only in 2003.

Of those banks which are now accessible via internet, about 40 percent of commercial bank assets and 60 percent of national bank assets are now accessible through internet means. Customer maintains an internet bank account, simply because of the novel nature of it, and because of the ease of convenience. Traveling a great deal, one can set up the monthly automatic payment of accounts.

In many banks one could actually pay up to 20 accounts a month for no service charge at all, which is phenomenal. The consequence of this technological development for the consumer is indeed, very, very appealing.

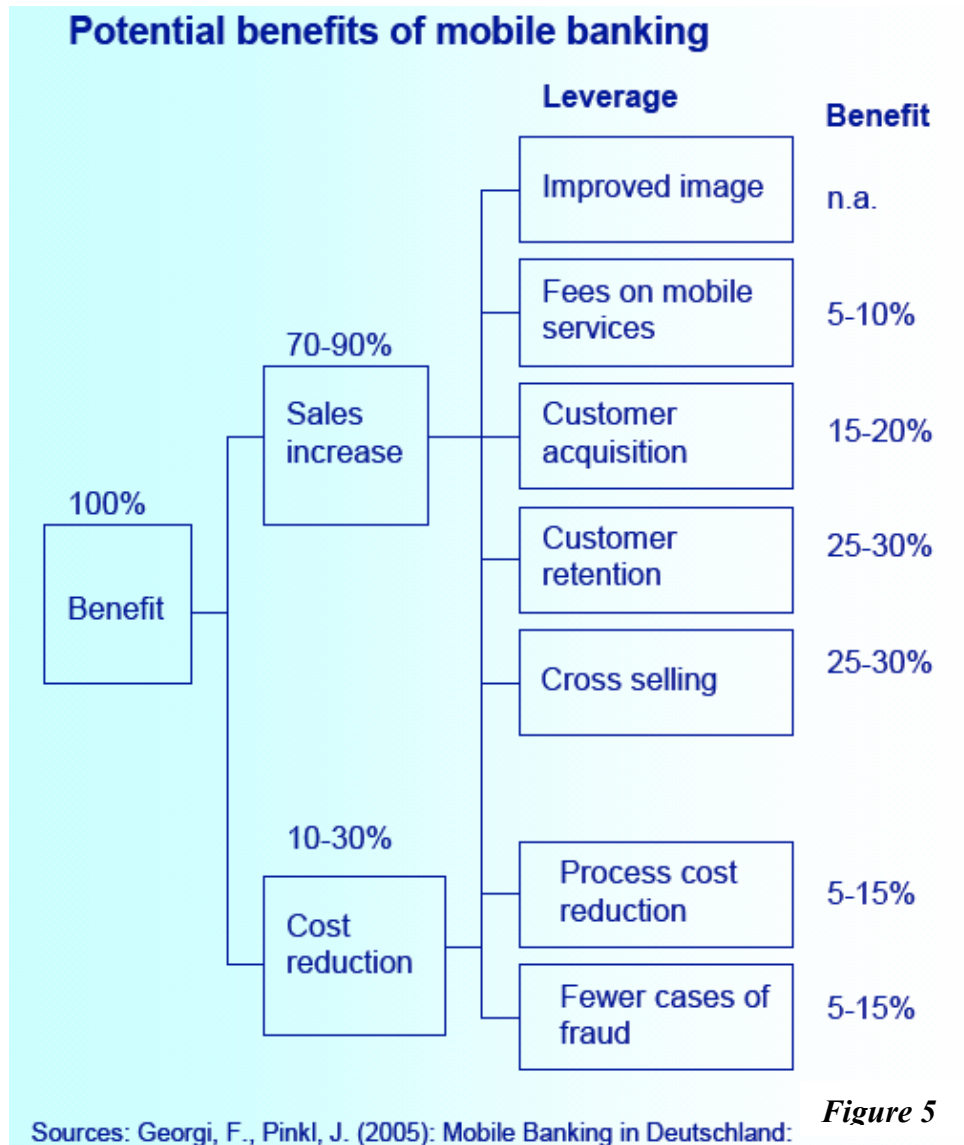
Further, activity engaging a teller within the bank lobby—these are very generalized figures—may cost as much as \$1.30. When you do an ATM transaction, that average cost will drop into the mid-60, 65-cent range. And when the transactions are via computer the cost drops to about 4 cents.

Given the extraordinary competitiveness in the markets today, it would seem very clear to from a business perspective why the banking community would be very interested in seeing rapid deployment of internet access to banking services as well as securities activities.

Compounding, however, the considerations of all the issues that are swirling around privacy, one of the biggest restraints in polling data from consumers is the concerns that once online, their accounts may not be properly protected or their personal information made easily accessible by an inappropriate party. And it seems to be the biggest restraint in escalating what is already phenomenal growth in this use.

#### **4.16 POTENTIAL BENEFITS OF MOBILE BANKING**

Some players will take a second stab at mobile banking. Increasingly faster transmission via GPRS or UMTS feed the vision that mobile banking merits another attempt – in spite of the GSM failure. Indeed, many advantages can be thought of. SMS alerts can disburden more expensive channels (e.g. contact centers). Also, useful information can be transmitted to the client, and increase customer loyalty at low cost. Still, a comprehensive business case in transaction banking and brokerage with cost covering revenues is currently not in sight.



**Figure 5**

Convenient access to banking via mobile phones including:

- ✓ Account Balance
- ✓ Mini Statement
- ✓ Funds Transfer
- ✓ Utility Bills Payment
- ✓ Lost/stolen ATM card report
- ✓ Cheque Book Request
- ✓ Remittances request

#### **4.17 ATM AND TECHNOLOGY**

In the case of ATMs, as customers became comfortable with the new technology, they began demanding greater convenience and higher-quality products. But the costs of providing these new services were not necessarily below the costs of traditional bank accounts. Customers began making more frequent withdrawals which, in turn, forced banks to process an increasing number of transactions — potentially at significant cost. Soon customers decided that access to a single ATM at the bank branch was not enough; they wanted broader ATM accessibility. Banks responded either by investing in expensive ATM networks or by allowing their customers to have access to accounts via networks built by others.

Customers also began to demand more elaborate services from ATMs. The original machine was a simple cash dispenser; today banks can install sophisticated ATMs that scan checks, give out cash to the penny, let customers apply for loans, and allow for face-to-face discussion with a service representative via video. Thus, what started as a way to automate the services of a bank teller eventually developed into a new and improved delivery system for bank products. Yet, providing this system was costly, requiring a sizable investment in information technology and continued maintenance of sophisticated high-speed computer systems.

The impact of IT on revenues is similarly complicated. With better-quality products and services, banks should be able to charge more, all else equal. In the case of ATMs, the improved features and increased usage meant that banks might expect to receive increased fee revenue for processing customer transactions. But the proliferation of ATM networks also allowed banks to reach customers outside the geographic markets served by their branches. This created the opportunity for greater price competition, as consumers could choose the lowest-cost provider rather than a neighborhood bank. Online banking may have a similar effect on revenues. As people become comfortable shopping and applying for products such as mortgages and credit cards online, these products may turn into commodities, and reduce the profit margins that banks previously enjoyed. In the end, the impact on revenues depends on whether the higher prices



associated with new and better products outweigh the lower prices that come with increased competition.

With the success of ATMs, banks had an incentive to develop new delivery channels, such as home banking via telephones and PCs. Debit cards, electronic check clearing, cash management, derivative securities, risk management, stored-value cards, and electronic forms of currency are also examples of products that are new, or newly reinvented, because of IT.

#### **4.17.1 ATM Systems Highly Vulnerable To Fraud**

By failing to scan security codes in the magnetic strips on ATM and debit cards, many banks are letting thieves get away with an increasingly common fraud at a cost of several billion dollars a year.

A report from Gartner Inc., a technology analyst firm, estimates that 3 million U.S. consumers were victims of ATM and debit-card fraud in the past year.

The fraud most commonly begins when a criminal engages in "phishing" -- sending a legitimate-seeming e-mail with a link to a phony Web site that appears to belong to a consumer's bank. The e-mail recipients are asked to give their account information, including PIN numbers.

With that information "harvested," fraudsters can make their own cards for automated teller machines and withdraw huge sums.

This should be easily preventable, because the magnetic strips on cards contain multiple tracks. One track has data such as the user's name and account number. A second track contains special security codes that card users don't know. That means the information can't be squeezed out of them in a phishing attack.

Duplicating the codes would require inside knowledge of a bank's security procedures. (The inclusion of security codes in records held by a credit and debit card processor,

CardSystems Solutions Inc., made that company's massive data breach disclosed this spring especially dangerous.)

Surprisingly, perhaps half of U.S. financial institutions have not programmed their ATM systems to check the security codes. Con artists specifically seek out customers of banks that do not validate the second track on the strip, she said.

Many banks simply didn't know about the vulnerability. Others may have once scanned the codes but stopped because using the codes requires that customers go to a bank and have an ATM card rewritten whenever they want to change their PINs.

That was a costly step that many banks figured they could avoid in pre-phishing days when ATM fraud was rare.

“It's not negligence,” Analyst said. “It's just kind of being asleep at the wheel when business is running smoothly, and then you get hit.”

It is estimated that annual losses from ATM fraud total \$2.75 billion, or \$900 per incident. Most of that is covered by the financial institutions that issued the hacked cards, but consumers sometimes have to struggle with bounced checks and other inconveniences when a criminal raids a bank account. Although fixing the security hole is straightforward, it might not solve everything.

One of the codes is only three digits, meaning hackers can use brute-force attacks -- trying every possible combination -- over some online systems. It is advised to banks to lengthen the codes on newly issued cards.

A separate report by the corporate services unit at International Business Machines Corp. noted a surge in Internet attacks that facilitate bank fraud, including phishing and the surreptitious installation of keystroke-logging programs that copy what a computer user types.

Network monitoring by IBM and other organizations led IBM to determine that, in the first half of this year, criminals sent 35 million e-mails designed to steal financial data.

Criminals are increasingly engaging in "spear phishing," a targeted attack at a specific person or organization known to be vulnerable, IBM security analyst Jeremy Kelley said. That makes the phishers harder to detect and shut down.

#### **4.17.2 Rejected Transaction Analysis**

##### **User Errors:-**

<b>Error Description</b>	<b>No of Transactions</b>	<b>Count(%)</b>
<b>Low Balance</b>	<b>46,090</b>	<b>27.11%</b>
<b>Limit exceeded</b>	<b>13,647</b>	<b>8.03%</b>
<b>Invalid A/c status</b>	<b>9,465</b>	<b>5.57%</b>
<b>Incorrect PIN</b>	<b>7,018</b>	<b>4.13%</b>
<b>Warm Card</b>	<b>4,376</b>	<b>2.57%</b>

##### **System Errors:-**

<b>Error Description</b>	<b>No of Transactions</b>	<b>Count(%)</b>
<b>Dispenser Fault</b>	<b>16,560</b>	<b>9.74%</b>
<b>Host Link Down</b>	<b>13,647</b>	<b>9.50%</b>
<b>Time Out</b>	<b>9,465</b>	<b>8.32%</b>
<b>Host Reject</b>	<b>7,018</b>	<b>2.44%</b>
<b>Host Busy</b>	<b>4,376</b>	<b>1.05%</b>

**Source:- ETD div. ACBL**

#### **4.18 HOW NEW TECHNOLOGIES ASSIST IN THE AML PROCESS**

The value of any AML solution has to be based on its ability to uncover suspicious financial activities by identifying the specified individuals or organizations that may be involved.

A second generation of AML technologies has emerged that provides the ability to monitor every single financial transaction, discovering all unusual behavior, and

separating out those transactions that are determined to represent a true risk for the financial enterprise. These “intelligent” enterprise systems are able to learn and adapt, comprehending new money laundering schemes as they arise. They take an enterprise-wide approach, determining every transaction that is unusual as opposed to looking for a specific patterns or behaviors while analyzing both the client profile and the transactions undertaken by the financial firm.

Second generation anti-money laundering systems are made up of four basic risk assessment components that ensure full disclosure and reporting necessary for compliance with the federal statutes:

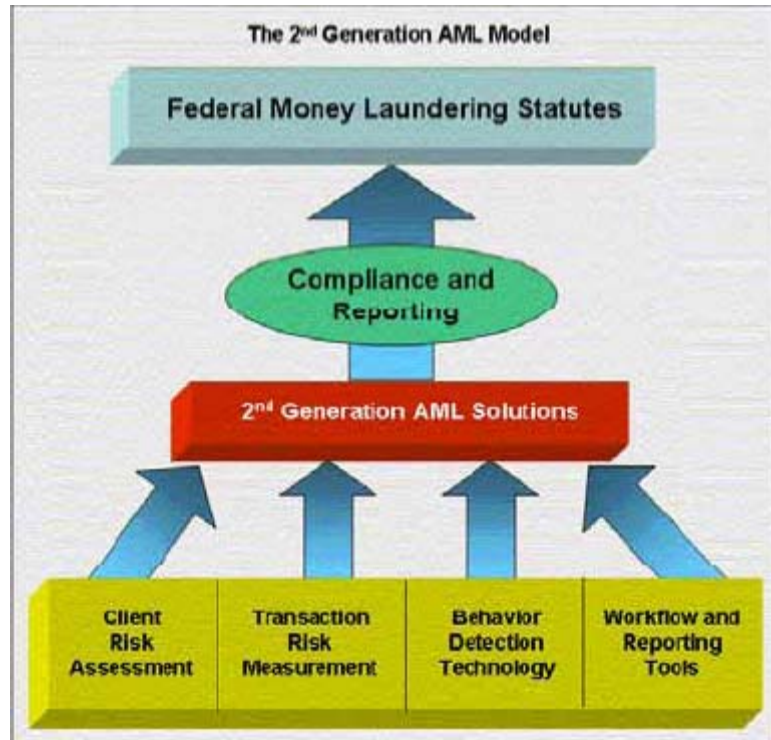


Figure 6

- **Client Risk Assessment:-** Using detailed information and transaction activities which are collected at the time that an account is opened, to investigate all aspects of the customer's profile.
- **Behavior Detection Technology:-** Using specific technologies that are able to detect suspicious patterns of behavior that may be hidden beneath large volumes of financial data.

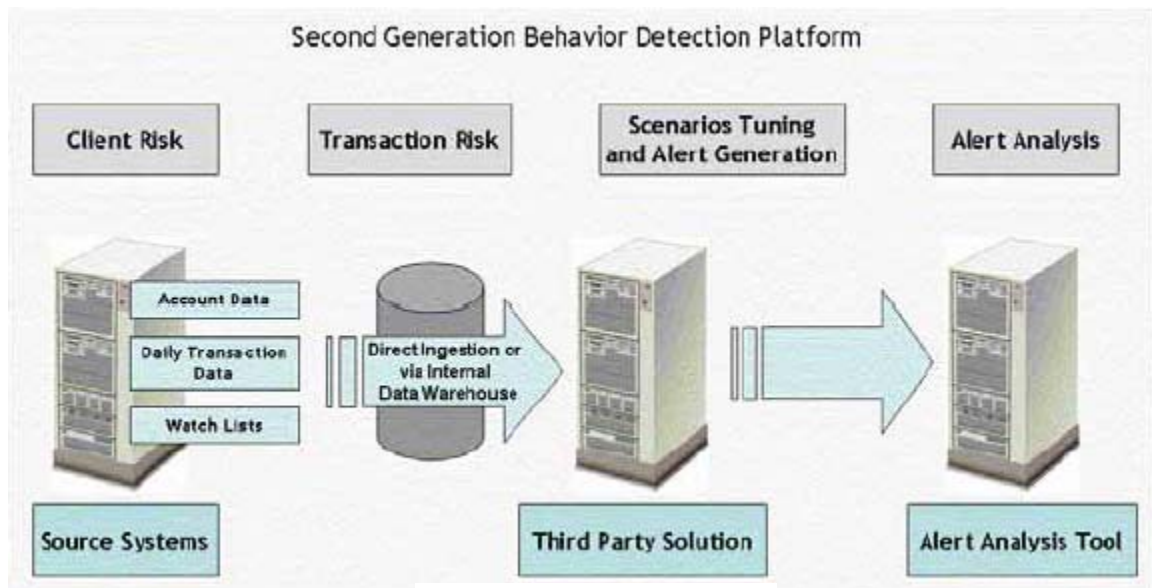


Figure 7

- **Workflow and Reporting Tools:-** Using tools that will assist in alert investigation and compliance reporting.
- **Transaction Risk Measurement:-** Identifying and filtering account related transactions that pose the greatest risk for potential money laundering activities.



*Figure 8*

#### **4.19 THE CHANGING BOUNDARIES OF THE FIRM AND THE INDUSTRY**

The changes brought about by IT — new products, more sophisticated customers, changing cost structures, and enhanced competitive pressures — have all combined to transform the structure of the banking industry. And with further development of new technology, the industry will likely continue to evolve.

Advances in IT have surely changed the optimal size of a bank. Some technologically intensive products, such as processing payments, are more efficiently produced on a large

scale; and the banking industry's recent wave of mergers and acquisitions suggests that bankers, at least, believe the "efficient" size of a bank has increased. Although much of this consolidation was due to the elimination of restrictions on interstate banking and branching, much was also attributable to advances in IT.

However, the advantages of scale have not been felt equally across all banking products. Loans to businesses, for example, which tend to be specialized and handled on an individual basis, have shown less dramatic efficiency gains. Moreover, small competitors can often get the advantages associated with economies of scale by outsourcing some of their activities to specialists.

Advances in IT have also resulted in new database technology and data-mining techniques that may expand the range of services that banks offer their customers. This technology allows firms to use customer information gathered in one part of their company, say banking, to increase sales in the others, say insurance or brokerage services, and is one of the factors driving recent industry consolidation. Large financial supermarkets, such as Citigroup, formed from the merger of Citibank, Travelers Insurance, and Salomon Smith Barney, are hoping to take advantage of the "cross-selling" opportunities created by IT. The days of a bank offering only traditional deposit accounts and making standard loans are likely over.

Advances in IT have opened up market niches for competitors from unexpected places. Many firms, not just banks, can now use statistical models to evaluate risk efficiently, originate loans, transform them into marketable securities, and sell them to obtain funding to make more loans. Countrywide Mortgage caused a radical change in the residential mortgage business when it equipped its sales force with laptops and sent them into the field to take applications in USA. This not only reduced the inconvenience for clients, but also reduced its own need for bricks-and-mortar facilities and for the data entry needed to process applications. Through its use of IT, Countrywide dramatically increased its market share, growing from a small start-up in 1969 to the largest U.S. independent residential mortgage lender and servicer in 1998.

Finally, information technology will likely continue to transform some banks into new types of financial institutions whose business bears little resemblance to that of a traditional bank. Banks can now rely on a very profitable IT-driven business, focusing on complex accounting and record-keeping activities for institutional investors, such as mutual funds. Other banks have taken on firms such as Amazon.com, using technological expertise to help smaller businesses build and manage online stores. For a fee, these banks will track inventory, generate shipping information, authorize customer payments, and even build the Web site. Although closely related to financial services, these activities are hardly traditional bank lines of business. These practices of the international banks should be benchmarked by Pakistani financial institutions and after creating the need of new products in the eyes of demanding Pakistani customers, new innovative products should be launched.

#### **4.19.1 Technology and senior bank employees**

Senior employees are not aware of the technology. They are used to work with their old pen and paper way. When IT was paving its way in the banking sector, many feared job loss, loss of empowerment and also faced ego problems as they were unwilling to learn about technology from their juniors. Hence IT courses were started to give them know how of what's happening in the world of IT and how important role is it going to play in the banking industry.

#### **4.20 REQUIRED AUTOMATION LEVEL**

The financial sector, comprising banks, stock exchanges and insurance organizations, have been the backbone of every country. They are the agents to implement and bring about economic reforms. Any changes in this sector through technology will have sweeping impact on the country.

We have seen a significant contribution of technology on the stock markets in the last decade with the introduction of electronic trading, settlement and depository. With the introduction of large-scale automation in stock markets, the cost per transactions to the



investors and other intermediaries in the market has come down significantly, besides bringing total transparency in market operations.

Despite this transformation, we have seen scams emanating from the market, and invariably these are linked to the banking sector. In many instances, such scams have unearthed irregularities in the banking sector, resulting from insufficient and/or inaccurate information. It has also brought to the fore the need for comprehensive automation in the banking sector.

Automation in the banking sector has come a long way in the last two decades. Though the pace of automation among banks is varied, the new private sector banks set up during the nineties have shown the advantage of comprehensive and integrated automation in the banking sector.

However, these banks form a very small percentage of our total banking sector and as such have very little impact on the overall banking sector.

#### **4.20.1 Drivers for large scale automation**

With liberalization in the telecom industry and its improved reliability with reduced cost, many banks and financial sector organizations are going forward with large-scale networking of their branches and implementing centralized core banking solutions. As a result, banks are able to provide their products and services to their products and services to their customers anywhere, any time. With these developments, bank customers have been able to avail to these services across different locations with improved transaction realization and reduced cost.

With increasing proliferation of ATMs, deployment of telebanking and availability of Internet banking facilities, the customer contact points have increased enormously, thereby resulting increased services to customers. This has been possible solely due to the implementation of technology.

#### **4.20.2 Technological challenges ahead**

What has been achieved so far is only a modest beginning and many more industry wide projects are in the offing. In addition, banks are yet to complete major technological up-gradation of their systems. They are yet to see the real benefits of the technology. However, the implications of large-scale technological usage are paramount for a robust and proven disaster capability.

When banks depend on technology for their day-to-day business, the complexity and risks of technology have to be understood and sufficient backup plan put in place to ensure continued customer service.

In addition, as more technology based services are provided, the demand from customers will keep increasing and banks would thereby end up in a technology war. In order to win this war, investments in technology are going to increase and proper utilization of these investments is essential for banks to ensure that the systems deployed are fully integrated with their operations.

With more and more centralized core banking solutions being deployed by major banks, there is a strong felt need to provide comprehensive telebanking services either from a single location or from regional locations based on customer language preference. Further, a significant amount of back office processing can be centralized, relieving the branch staff for more customer interactions. This is expected to bring in large-scale economies of operations and better customer services.

#### **4.20.3 Technology is no cure for all problems**

Though technology is a change agent, it will not be a cure for all inefficiencies. The key area of attention for banks is going to be the re-skilling of the workforce, both in technology and non-technology areas. One of the major areas where re-skilling is needed is in the area of customer service and customer focus; how to manage customer expectation, his feedback and customers; how to attract new profitable customers; how to package products and services to meet this needs, create a hygienic branch environment

and other contact points. Another major need is to ensure consistent customer experience, irrespective of the channel used for interaction with him. Added to this is the security across all channels and distribution points for customer information and transactions.

While technology may not be a cure-all, it is definitely an enabler. The tool has to be used efficiently and effectively to derive maximum benefits. This will definitely be a differentiator to offer products and services.

#### **4.21 BENEFITS OF ELECTRONIC BANKING TO THE BANK**

Besides innovation and convenience, internet presents numerous advantages to banks as well to their customers as already mentioned. The most obvious include:-

- ✓ Cost effectiveness
- ✓ More efficient utilization of resources
- ✓ Expanded productive ways to offer 'personalized' services
- ✓ Reduced operating cost
- ✓ Improved customers retention
- ✓ Limitless opportunities for cross – selling credit cards
- ✓ Brokerage services and insurance products in the future
- ✓ Consolidated financial statements, which provide instant virtual network. These mentioned added facilities could assist the banks to grow horizontally as well vertically in rendering new services to their customers

#### **4.22 BENEFITS OF ELECTRONIC BANKING TO THE CUSTOMERS**

The evolution of this new technology provides numerous benefits to its users. The users of this technology are mainly the customers or the clients of the bank. Some of the major functions or benefits of e banking to the customers are:-

- ✓ Transfer of funds between your account and to you joint accounts
- ✓ Verify account balances
- ✓ Review account history for your account and joint accounts
- ✓ View your account history in Quicken or Money

- ✓ Search for a transaction by date, amount or type of transaction
- ✓ Stop payment on a cheque
- ✓ Pay bills electronically
- ✓ Balance inquiry
- ✓ Interim statement
- ✓ Cheque reordering
- ✓ Financial wizards

Besides above mentioned some banks are also providing the services of stock quotes and automobile purchases capabilities.

## **4.23 ONLINE BANKING: MERITS AND DEMERITS**

### **4.23.1 Merits**

Regardless of the name, these systems offer certain advantages over traditional banking methods.

- ✓ Consumers can use their computers and or a telephone line to dial in from home or any site where they have access to these mentioned things
- ✓ The services are available seven days a week, 24 hours a day
- ✓ Transactions are executed and confirmed quickly, although not instantaneously. Processing time is comparable to that of an ATM transaction
- ✓ And the range of transaction available is fairly broad. Customers can do everything from simply checking on an account balance to applying for a credit card.

### **4.23.2 Demerits**

There are also disadvantages

- ✓ The most obvious: Technophobes need not apply. You must be comfortable using a technology

- ✓ Investment of time upfront can be formidable. The data entry is necessary before the numbers can be massaged and money managed successfully. Online bill payment is an example of an effort that requires setting up which leads to ultimate convenience
- ✓ Switching software or banks can mean re-entry of data, although internet based systems are less impacted by this. But competition seems to be minimizing this problem. The personal finance management software Microsoft Money enables users of competing software to import data easily.

#### **4.24 PROBLEMS OF DOMESTIC BANKING INDUSTRY OF PAKISTAN**

##### **4.24.1 Knowledge of Risk Management is Missing**

The main purpose of financial and banking organization is to create valuable system by interacting with its environment, customers, constituents, suppliers, technology, competition, economy, government, etc. A valuable system is created by the conversion of available resources i.e. human, financial, physical, and intangible assets into goods and services that fulfill the needs of the customers and save the best interests of the banking and financial organization. Risk management performs all these diversified but integrated work to achieve maximum out-put. Managing risk is actually managing the organization: planning, organizing, directing, and controlling organization systems and resources to achieve objectives. Managing risk must come from within and act to change the organization and its response to changes in the environment.

Now many domestic banks are hiring experts of risk management to secure their precious assets. Banks should create risk management group at head office and as well as regional level to save the best interests of the bank and enhance the chances of investments.

##### **4.24.2 Total Quality Management: Paradigm Shift**

Ours is the age of cutthroat competition, scarcity of resources, technological advancement, integration of financial services, expansion of economic markets and

cultural diversity. In these complicated and conflicting financial and economic scenarios the need of TQM in the ranks of domestic banking industry is indispensable. The middle management should need to have basic understandings about complicated management processes, crisis management tools, marketing/product strategies, financial and treasury management techniques, financial discipline, soundness and transparency of banking system, human resource administration and above all genuine leadership qualities to adequately operate within a highly sensitive and complicated industry.

There is urgent need of having TQM in the realms of banking industry of the country. At the dawn of WTO and increasing chances of investment banking among the SARRC countries the TQM is the need of the hour, Our commercial banks must pay attention to this shift and start thinking strategically for providing high quality products and services to customers. According to a study from Business Communications Company, Inc. The Changing Global Commercial Banking Industry Structure, total commercial banking assets are expected to climb at an average annual growth rate [AAGR] of 7.1% from \$6,772 billion in 2001 to \$9,537 billion in 2006.

The banking industry should determine where improvement is needed, how service can be improved and where operating system breakdowns occur, why they occur and how they can be avoided.

#### **4.25 THE ROAD AHEAD**

From one point of view, IT can be said to have created havoc in the banking industry and to have placed in jeopardy huge investments in human and physical capital. Careers have been disrupted or abbreviated, and venerable institutions have been dismantled. Yet, because each problem also represents an opportunity, IT has provided benefits for those who are able to successfully adapt.

What's more... In the future customers will not even have to the bank for deposits. The ATM machines will be enough to accept cash for any account and the receipt will even

have the picture of the depositor. The deposit will directly go to the account. For more security, the ATMs will have

- ✓ Finger print recognition
- ✓ Voice recognition
- ✓ Eye or face recognition

Customers can expect to enjoy the man less bank branches in future. These branches will be providing many facilities such as

- ✓ Sophisticated ATMs
- ✓ Cash reload facilities
- ✓ Computers/printers/internet for customers
- ✓ Foreign currency services
- ✓ Help desk through telephone

#### **4.26 WRAPPING UP**

Karachi being the financial capital of the country will always set the pace of automation in the banking and financial services industry. It will also take the lead in deploying large-scale systems and reap the benefits. Several banks are already setting the pace of technology deployment. They have set an example of how technology-based transformation is delivering enhanced customer value.

It is only a matter of time before the Pakistani banking industry witnesses enhanced technology deployment. With that, customers are assured of better service from the banking industry. This would ensure better services to customers and also reduce the incidence of fraud or scams in the banking industry.

# **CHAPTER FIVE**

## ***Conclusion and Recommendations***



## **5.1 CONCLUSION**

Since high technology has not yet embraced the daily lives of Pakistanis and the way they conduct them selves the potential for this study is enormous. The paper had a glance summary of the perceived impact of IT on the banking sector with enactment of the information technology and some of the fundamental issues of the banking sector are solved- law recognizes electronic counter parts of paper documents and signatures, they are admissible in the court. This is however the first stage of movement towards the secure electronic environment. As it is said “proof of pudding is in the eating”, it remains to be seen how these provisions will be interpreted. The years ahead promise to be trying, yet exciting, times for our rather archaic legal system that is attempting to come to terms with bounding technology.

However, there currently is not much evidence that this development will take place. In researcher’s opinion, the chance that a virtual bank will ever be in a position to take over the role of a traditional retail bank fully is very small, if not nonexistent. Researcher believes in the concept of retail clients being in a position to choose from several distribution channels to conduct different kinds of transactions with their bank. In this respect, Internet banking is just one of those channels, albeit an important one.

### **5.1.1 Current Scenario in Pakistan**

Meanwhile, Pakistan economy is still largely based on the low-tech, low-value industries that have long been fully mechanized and running very efficiently in developed nations and, therefore, do not attract premier revenue from world markets. In order to put its economy on track to compete with the growing economies of the world, Pakistan needs to quickly take steps to train and bring its workforce to the international educational standards, incorporate new technologies and modern management practices into its

existing industries, and bring intense focus on building an information-based economy by upgrading the technical and managerial skills of its people.

Research on banking can provide useful information about the diffusion of technological progress as banks utilize technology intensively. IT use in Pakistani banking has come a long way since the days when banks were perceived only as instruments of social change. However, despite its importance, there are no significant studies that have closely examined technological change in the Pakistani banking sector.

### **5.1.2 Public Sector Banks (PSBs)**

In the early twenty-first century, the Pakistani banking system is in the midst of a technological revolution. Public and private banks have both realized that technology alone could enable them to trim costs, achieve efficiency and survive in a highly competitive environment. As a result, PSBs have launched voluntary retirement schemes in an effort to bring down their wage costs. The focus on retail banking and other fee-based services such as guarantees and commissions on drafts, derivatives, and gold banking etc., is expected to improve profitability.

Yet, PSBs have still to cover a lot of ground with respect to implementation of technology in all their branches. In order to effectively compete with Private foreign banks, PSBs need to ensure that they are all 'commercially oriented'. The concept of priority sector should be redefined to include only the weakest section of the rural community such as marginal farmers, rural artisans, village and cottage industries, etc. The directed lending should be limited to 10 per cent of the aggregate bank credit, instead of the current 43 per cent. The social purpose of bank credit should be to enhance small industry. Hence, social banking should not clash with sound. Once Pakistani PSBs become more commercially viable, they will be able to effectively employ technology to compete with private banks. However, the SBP will have to take an active role and use a dual system of encouragement (carrot) and penalty (stick) to direct the PSBs away from the perils of unbridled diversification of the business portfolio and poor internal control

in the direction of enhanced profitability. At the same time the SBP must remove any constraints that might arise in applying the fruits of the new technology. PSBs had to adopt technology to become more competitive and to enhance their internal workings.

Pakistani PSBs possess some unique advantages over their competition. But it is their use of technology that will enable PSBs to build on their much strength. Being late bloomers in the technology adoption arena, PSBs are not saddled with legacy systems, suggesting that prompt implementation of technology can place these banks at the forefront of technological change. PSBs also have a vast network of branches within rural and semi-urban Pakistan and can effectively employ technology to tap into under-served markets with significant social returns.

The world economy has already moved from low-value basic industries to a fast paced high-value information based economy. Many countries have taken concrete steps to rejuvenate their stagnated industrial base by rapidly moving to the new-age technologies to produce products and services that are in great demand in the world markets.

Information technology is the current choice of many developing and developed countries to upgrade their economies and become competitive in the global market place. IT-based economies have streamlined the most complex economies of the world and enhanced the productivity to the level where an economy such as that of the US has wriggled out of the entire trillion-plus dollars national deficit and turned into a surplus in recent years.

### **5.1.3 Training Requirements**

To compete with the growing economies of the world, Pakistan needs to educate, train and bring its workforce to the international educational standards, incorporate new technologies and modern management practices into its industry, and bring intense focus on building an information-based economy by upgrading the technical and managerial skills of its people.

**5.1.4 IT and Regulatory Requirements of SBP**

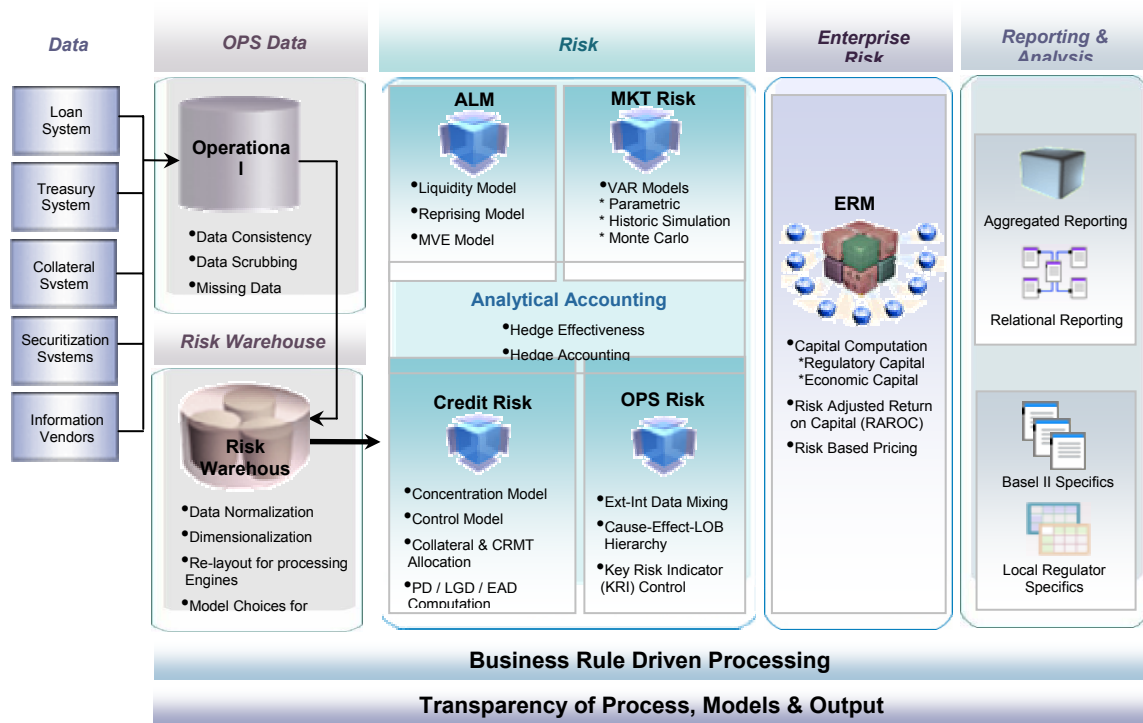
IT is also helping banks to fulfill the strict regulatory requirements of SBP.

- ✓ Reporting is made possible only because of IT system
- ✓ This includes all kinds of reporting
- ✓ Complex IT systems enable bank to keep their operations within SBP regulations

And because of this real time communication between banks and SBP, SBP gets the latest data as per its requirements.

**5.1.5 Compliance to BASEL II**

It is made compulsory by the SBP for all banks to be BASEL II compliant by year 2007. There are some technological requirements in the BASEL II and thus all banks will have to fulfill those. The figure below shows what is exactly expected by the banks in terms of technological advancements.



*Figure 5*

- Logical parts to a Basel II Technology Solution
  - ✓ Pillar 1 requirements - Data
  - ✓ Pillar 1 requirement – Computation Engines
  - ✓ Pillar 2 requirements - Transparency
  - ✓ Pillar 3 requirements - Reporting/Disclosure
  - ✓ Business Extension of the End-State
  - ✓ Implementation Best Practices

### **5.1.6 Technology-Driven Society and AML**

Criminal elements in today's technology-driven society are using every means available at their disposal to launder the proceeds from their illegal activities. Now that governments are using a host of counterintelligence resources in an effort to thwart these activities, they are also leveraging their legal resources to ensure that the financial community is able to assist them in their investigative efforts. Failure for any financial institution to ensure full compliance with these new laws can result in stiff financial, public relations, and customer satisfaction related penalties.

While many Anti Money Laundering (AML) solutions have been in place for some time within the financial community, the efficiency by which these older AML solutions were able to detect, alert and prevent potential money laundering schemes was dependent on the quality of the data collected by the financial institution, and the capabilities of the tools that are tasked with analyzing that data.

The second generation AML solutions that are now available provide a superior means of detecting new money laundering schemes. These solutions go beyond earlier systems by completely analyzing all related financial data in a greater level of detail by scrutinizing smaller transactions and profiling and detecting account behaviors. This minimizes transaction risks ensuring full compliance with the existing regulations. These newer

solutions should be strongly considered as a vital part of any strategic anti-money laundering plan that is part of the financial information infrastructure.

### **5.1.7 Futuristic Dream**

E banking and E commerce is not a futuristic dream. It is happening now it is happening fast, with many well-established success stories and examples. E banking is essentially global in both concept and realization. Millions of individuals and companies, around the world, are already carrying out their transaction on daily basis.

The impact of e banking will be pervasive, both on companies and society as a whole. Banks that choose to regard it only as an “add on” t their existing ways of doing business will gain only limited benefit. For those who are willing to change their organizations and business processes to fully exploit its potential, e banking offers the possibility of breakpoint changes. All the banks, including those that try to ignore the new technologies, will then be impacted by these changes in markets and customer expectations.

It’s not too late for the rest of the banking sector to join the electronic banking group. By encouraging e banking, all sides will gain. The banks that are currently operating outside the boundaries of e banking can realize cost savings, productivity gains, increased market share and penetration of new markets by incorporating electronic banking technology into their banking strategies.

Banks, wishing to join the e banking, should continually examine the risks and opportunities created by it. Their information technology organizations must prepare enabling capabilities and technologies. The risk of lagging probably exceeds the risks of proceeding with less than optimal adoption strategies.

The overall impact of e banking on lifestyle could well be comparable to, say, that of the growth in credit card ownership and spread of the telephone. It is only a matter of time before e banking or e-commerce will become an obvious part of our lives.

### **5.1.8 Technological Effectiveness**

The banking industry continues its transition towards functional desegregation with banks focusing more on providing services to their customers. IT is advancing rapidly, in fact too fast for many banks with their limited internal staffing and skills to keep up to date, due to which they hire the services of the hardware and software vendors to the banking industry who provide consultation in systems facilities management, training and education, services supporting application development, integration and maintenance.

The future of the banking industry's IT efforts and its spending will continue to increase in importance for the transition of banks into virtual banks. The recent statistics show that the total spending on computer and IT is projected to increase by about 70% by year 2006. Banks will need to increase their data center operations, network operations, management and applications development and maintenance. Banks are attempting more to expand their businesses into new areas for higher revenue growth, higher margins and potential for long term service relationship.

### **5.1.9 Development on the Horizon**

With these developments and more on the horizon, the years to come will be very challenging for banks. It will be best for the banks to position themselves for the challenge well in advance. The banks will require being leaders in the commitments to high quality standards, continuous service, process and product improvements and advancement of technology. Banks will have to face the challenges of developing expertise in the newly allowed businesses. This can be done foremost by hiring people with great aptitude and contact positions and upgrading the services provided to the customers. Customer satisfaction, banker's efficiency, product superiority, innovation,

risk and expense management, technology effectiveness will be the keys for the good times of banks in the 21<sup>st</sup> century. The highest degree of these keys will help in profit maximization and in attracting new relationships and retaining existing ones.

#### **5.1.10 Challenges for Banking Sector of Pakistan in 21<sup>st</sup> Century**

The 21<sup>st</sup> century poses formidable challenges for banks in Pakistan. The environment of financial markets in the century would be dominated by increased competition, globalization, and revolutionary changes in technology and payment system, product innovation and new approaches to banker customer relationship. Government of Pakistan has introduced several financial sector reforms which are intended to create an enabling environment for a competitive and dynamic banking system. The main reformation measures include privatization of nationalized banks and establishment of new banks in private sector, changes in supervisory and regulatory framework. Globalization, worldwide changes in banking business and financial sector reforms within Pakistan are going to make future banking business highly competitive and risky. In this environment only efficient and innovative banks will be able to survive: the banks that take the advantage of IT and manage their risks successfully. To meet the challenges arising from changed environment of future financial markets, the major banks in Pakistan first need to be put on sound and healthy footing. They have lost their financial soundness because of their huge portfolio of bad debts and high administrative costs.

SBP being the regulator and supervisor of banking sector also needs to prepare itself for the changes and challenges in the years to come. As financial markets change, supervision must be prepared to adjust. It should adapt continuously to changing technologies, changing bank practices and changing market forces.

The challenge faced by Pakistani banking system in 21<sup>st</sup> century is a result of policy changes, advancements in IT and integration of world financial markets. It attempts to answer the question how banks can cope with the challenges and exploit the opportunities resulting from changing environment of banking.



## **5.2 RECOMMENDATIONS**

### **5.2.1 Good Governance and Strategic Management**

IT must be seen as an investment and not an expense. It requires vision and bold leadership to employ IT as a tool, but it must be coupled with sincere commitment to good governance since without that IT can be detrimental to the freedom and well being of the citizens. Globally, IT and good governance has come to stay and any delay in its adoption can only be at the cost of the development of the country, thus the choice must be made sooner rather than later.

### **5.2.2 Looking Forward**

Computer technology is used by the banking industry to reduce costs and survive the competition. Consumer's acceptance of ATM's and touchtone telephones to make financial transactions has allowed banks to reduce the number of costly transactions made with human tellers. Subsequently, banks have reduced the number of employees by rightsizing. In the future, commercial banks are expected to achieve a rise in real output, while providing more services with fewer employees.

Today with an estimated 1,227 ATMs already installed in Pakistan, the new frontier is on the Web. If online banking succeeds, it will almost certainly change the types of products that banks offer. But it is also likely to further break down the geographic advantage of local firms and intensify price competition. The overall impact on costs and revenues is hard to predict, even as the cost of an individual transaction on the Web drops.

From one point of view, IT can be said to have created havoc in the banking industry and to have placed in jeopardy huge investments in human and physical capital. Careers have been disrupted or abbreviated, and venerable institutions have been dismantled. Yet, because each problem also represents an opportunity, IT has provided benefits for those who are able to successfully adapt.

- **Investing in IT**

The main points to be kept in mind while investing in IT are:

- ✓ A well defined Return on Technology investment
- ✓ A visible addition to customer value
- ✓ Improvement of operational efficiencies leading to customer convenience and cost savings.

Fifty years from now, customers will carry a translucent plastic bank card displaying a talking head with artificial intelligence. Cash and checks will have been eliminated in favor of the new electronic currency of "credits," which customers will be able to transfer at will.

Customers will use their card to summon up virtual shopping environments, and spend the credits at retailers that know their "bio measurements" and other things about them. It'll even remind customers to buy a present for their mother's birthday.

- **All Roads Lead to SQL**

Database technology forms the core of the critical infrastructure requirement in financial services for many reasons, not the least of which is the need to gain a competitive advantage in marketing financial services. A good database is fundamental to good, targeted messaging.

Mobility technology, such as the Bluetooth proximity-based data transmission standard, works alongside comprehensive customer data by making it possible for touch points to react intelligently when a customer approaches. For example, when a customer carrying a Bluetooth-enabled mobile device approaches a service desk, the bank employee should be able to have the customer information ready at hand and suggest financial services. Another example would be a Bluetooth-enabled billboard on the street that switches messages as customers walk past.

Finally, all of the infrastructure in the world can't succeed without innovation and the willingness to take risks. "Don't rely on consumer research," should be the motto. There are examples of technologies that consumers would have never requested, but nevertheless were eventually embraced. "Leaders in innovation need a leap of faith."

### **5.2.3 Security Issues**

Phishers use bogus emails to lure recipients to a fake online banking or merchant sites to steal personal information. Pharming, on the other hand, involves the use of more sophisticated technology that subverts some part of the Internet infrastructure.

In the latter scam, malicious code is often placed on vulnerable domain name systems, which then direct traffic to fraudulent websites. A DNS takes the domain name typed into a browser and uses it to locate the site on the Internet.

To help prevent customers from becoming victims, another layer of authentication can be added, beyond a user ID and password. People signing up for Site Key should be given an option to choose an image, a phrase and three challenge questions.

If customers are logging on the bank's site from their home computers, then they should only be shown the picture and phrase before being given access to their account. If they're using a different computer, then they also will be asked the challenge questions.

The image and phrase will show the customer that they are entering a legitimate bank's site, and the challenge questions will tell the bank the person entering the site is a legitimate customer.

- **Security Policy**

It is not enough to take care of security from just the hardware/software perspective one needs to have security policies in place. Banks should have a mechanism in place where a third party is hired to manage the 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.

Any bank offering e banking must be using all of the security procedures and systems which ensures fool proof security. Also, laws have also been framed around the world including Pakistan related to online laundering, etc. So the risk is not higher in e banking than any other business at the moment. But still security is an ongoing process.

### **5.2.4 Spy Ware for ATMs**

It is suggested that all ATM machines should have cameras installed with them. As per researcher's recommendation, pictures should be taken on different steps while customer is using ATM.

- ✓ When customer inserts the ATM card
- ✓ When customer enters the PIN
- ✓ When customer is taking out the cash.

In this way banks can have the poof as to who has taken the money out and how much and thus customers won't be able to make false claims and complaints regarding their ATM transactions.

### **5.2.5 Effective Role of SBP**

Following important steps are advised to SBP for implementation of e banking in Pakistan.

- **The government should put in place a legal framework which provides for certainty and predictability:** The government's role is to put in place a legal framework which provides for certainty, predictability and clarity of the rights and obligations of the transacting parties. At the same time, the legal framework

will need to be technology neutral and flexible enough to accommodate technological changes and the fluid global environment.

- **The government should provide a safe and secure environment:** Both banks and consumers must be assured of security and safety in cyberspace transactions. Proper procedures and sufficient remedies have to be provided to safeguard innocent parties from abusive use of electronic market space. Similarly service providers and users need to be assured that they are protected from fraudulent attacks. It is, therefore, necessary for the government to take a more sophisticated approach to provide for enhanced penalties proportionate to the different levels of potential and actual harm caused. Consumers need to know that the intermediary, whether it is a bank or merchant, is a trusted one that the transaction will follow through. Other issues include fraud and misrepresentation, rights and redress. Essentially, they want to know about their rights, how they can be protected, and how will they be compensated for their loss.

**Our government should intervene to facilitate e banking, its goal should be:**

- ✓ To ensure competition
- ✓ Protect intellectual property and privacy
- ✓ Prevent fraud
- ✓ Foster transparency
- ✓ Support commercial transactions, and facilitate dispute resolution.

### **5.2.6 Awareness Among People and Customers**

Another major awareness issue is to explain to the potential users what should be the motivation for use of e banking.

A bank must go through the following stages:

- ✓ First stage is the realization that e banking is going to reduce costs, reduce errors, reduce duplication and reduce time for the communication of information about transactions

- ✓ Second stage is that of increasing productivity and efficiency. This is more work in lesser time. This relates to the output. Reorganization of processes enables the organization to produce more with lesser resources.
- ✓ Seminars, workshops and training courses should be used to increase awareness in public and private sector organizations about e banking and use of technology in banking. For meeting the HR needs for this technological implementation, closer partnerships between governments, education and training providers and banks will be essential. Develop and train personnel in the country to use, develop, implement and maintain the e banking infrastructure. The Government of Pakistan should allocate funds to give educational loans to candidates who want to get training in IT.

### **5.2.7 Intellectual Capital Formation**

Banking sector will be used as an elite force to win a battle at all costs, when other forces are retreated on any front. Keeping in view the strategic positioning of the banking industry of Pakistan in future, banking sector of Pakistan should leave no stone unturned to overcome the great challenge of “Intellectual capital formation” because we are entering the IT society in which the basic economic resource is no longer capital or natural resources or labor but is and will be technology and its knowledge. IT has become the most important factor in economic life today. Its knowledge management and harnessing intellectual capital will be a lethal weapon in 21<sup>st</sup> century, according to the leading business visionaries of the world.

If banking sector of Pakistan wants to become a global player in the global game, in the 21<sup>st</sup> century of globalization and global age it should embark on the programme of “Intellectual capital formation.”

### **5.2.8 Coping with Continuous Changes**

It is extremely essential for banks to maximize the use of new technology in order to increase efficiency and reduce their inter-mediation cost.

The banking sector in Pakistan should always keep itself abreast with the continually changing environment. The skills and concepts of change management are required to be used in the Pakistani culture and environment. The future can only be grasped by building it into the present. At the root of change flows continuation of the banking organization's life. Continuity is the process that unifies and links the past to the present and present to the future creating a deep sense of connectedness through transition over time.

### **5.2.9 Areas Where Improvements Is To Be Needed**

- ✓ Communications Skills. No ambiguity should be left. Clear and comprehensive instructions
- ✓ Transparency in all matters especially in financing
- ✓ Aggressive marketing strategies in retail and commercial banking
- ✓ Institutionalization of Human Resource Management (best man should be posted to best assignment, refreshing courses, seminar on emerging banking and financial problems etc. etc.).
- ✓ Humanistic administration, because human is supreme than any entity.(promotion policies, award & reward) etc. etc.
- ✓ Research and Development facilities (Domestic market research, economic analysis, strategic insight of major economic and financial accords, international markets knowledge, rigorous planning and development, loss & prevention mechanism)
- ✓ There should be central compliant cell in every bank in the country in order to reduce people's complaints and foster the ratios of productivity.
- ✓ Commonness of E-commerce and Internet bank should allow flourishing in the domestic banking industry of the country.

- ✓ Scope of Investment Banking is very much there and bright as said by finance minister of the country. Concrete efforts should be made to initiate investment-banking operations in the region.
- ✓ Money laundering and white-collar crimes are on the rampant. Aggressive and comprehensive mechanism should be set-up to save the domestic banking industry of the country.
- ✓ Reporting channels should be made simpler and less bureaucratic.
- ✓ General working conditions ought to be improved

### **5.3 WAY FORWARD**

The phrase 'online transaction' or 'Internet banking' immediately throw up questions about the adequacy of, or lack of information and data security over the Net. But the question is not whether online transaction and payment systems will see mass adoption. The real question is how soon

Despite banking sector especially foreign and private sector banks expanding their global reach through e-banking, archaic legislation and unresolved security concerns in Pakistan hamper growth of such operations in the country with consumers still unable to trust and use these.

Therefore, before deploying and implementing software and hardware safeguards, Banks need to invest in framing sound and secure policy and procedural guidelines.

Banks must assess the risks its customer information and customer information systems are exposed to. This involves identifying all reasonably foreseeable threats to the information and information systems.

A bank's security program must be designed to manage and control the identified risks. Policy and program guidelines will need to be reviewed periodically and updated.

The program will need regular testing of the key controls, systems and procedures of the information security program. The test results should receive independent third party review.



## *Conclusion and Recommendations*

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Its information security programs must include training and testing components. Regardless of what else may be included in the program, staff will have to be trained to implement all aspects of the program.

Prior to this though, rigorous screening procedures need to be conducted both for bank personnel support personnel, system programmers and system administrators.

Banks are required to exercise appropriate due diligence in selecting their Service providers.

The final key element of an information security program is periodic review and adjusting of the program. Security is not a goal; it is an ongoing process.

The program should require that the institution's policies and procedures be reviewed, evaluated and adjusted on a regular basis for any needed updating due to changes in internal or external threats, relevant changes in technology, the sensitivity of its customer information, and the bank's changing business arrangements.

As banking applications migrate from traditional closed network environments to the more open and exposed medium of the Internet; the need for added layers of security checks increases exponentially.

Banks must have in place proper firewalls, encryption software, proxy servers, digital certificates etc. Other safeguard checks include biometric identification and use of smart cards.

All touch points in the network need to be accounted for. Thus, securing the network cannot be restricted to the LAN, WAN, VPN, WAP, Intranet and Extranet, POS/EFTPOS and ATM networks.

It is equally critical to ensure that notebook computers, discarded hardware and magnetic media, printouts, data centers and production/test systems also fall under the purview of the security policies and processes.

## *Conclusion and Recommendations*

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Although the regulatory bodies like SBP have responded to the requirements of the banking and financial services sector through guidelines and work group recommendations, following areas still remain the matter of concern.

- ✓ Jurisdiction in case of WAP and Mobile-commerce
- ✓ Issue of Intellectual Property Rights as they apply to cyberspace and electronic information
- ✓ Regulation of the electronic payments gateway
- ✓ Various issues pertaining to electronic funds transfer viz. Finality of payment, liability for loss in case of fraud, technical failure, errors of insolvency and data protection
- ✓ While virtual banks, still at infancy, need regulation, issues such as the regulator's jurisdiction and prerequisites of virtual banks have still to be thought through.
- ✓ Issues of online banking security include transmission of customer information, and the potential unauthorized access and usage of that information by bank employees.

Other major risks in Internet banking include third party access to account information due to theft or misplacement, loss of personal identification number by customer or illegal accessing of accounts by hackers and inadvertent finders.

It will also be very important for the Pakistani banks to calculate the costs and benefits of their own policies for a comprehensive programme for economic upbringing, based on a vision of ultimately making Pakistan a full-fledge industrial society. Only a comprehensive programme can inspire the public support, enthusiasm and commitment needed to accomplish this goal which is required as an alternative to the current drift and also as a desirable goal. It will depend entirely on the banking institutions to solve Pakistan's current economic situation for meeting long and medium term problems and at the same time to bring about needed improvements in the lives of Pakistani people. The great transition from a state of poverty and powerless to a state of affluence will need to be seen in the coming years.

## ***Conclusion and Recommendations***

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Banking sector is certainly growing right now. This growth is fuelled by many factors, and there are many reasons behind it as discussed in the report. Pakistani banking industry will be much bigger and high tech in years to come. The investments being made in banking sector today will certainly come to fruition by then. All of the Government banks would have been privatized, there will be a good competitive environment and there will be many new technology driven products in the market. The western banking practices and products will also make inroads.

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