A PROJECT REPORT ON

"MODERNISATION IN BANKING SYSTEM IN INDIA"

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Under the Faculty of Commerce

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Mohanlal Raichand Mehta College of Commerce

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NAAC Re-Accredited Grade 'A+' (CGPA : 3.31) (3rd Cycle) Sector-19, Airoli, Navi Mumbai, Maharashtra 400708

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CERTIFICATE

This is to certify that **MS._____** has worked and duly completed his Project work for the degree as Bachelor in Commerce (Banking and Insurance) under the Faculty of Commerce in the subject of **Management control** and his project is entitled, **"*MODERNISATION IN BANKING SYSTEM IN INDIA*"** Under my supervision.

I further certify that the entire work has been done by the learner under my guidance and that no part of it has been submitted previously for any Degree or Diploma of any University.

It is his own work and fact reported by her personal finding and investigations.

Guiding Teacher,

ASST. PROF. DR. KISHOR CHAUHAN.

Date of submission:

DECLARATION

I the undersigned **MS. RUCHITA MAHENDRA JAISWAR** here by, declare that the work embodied in this project work titled **"*MODERNISATION IN BANKING SYSTEM IN INDIA*"**, forms my own contribution to the research work carried out by me under the guidance of **ASST. PROF. DR. KISHOR CHAUHAN** is a result of my own research work and has been previously submitted to any other University for any other Degree/ Diploma to this or any other University.

Wherever reference has been made to previous works of others, it has been clearly indicated as such and included in the bibliography.

I, here by further declare that all information of this document has been obtained and presented in accordance with academic rules and ethical conduct.

(RUCHITA JAISWAR)

Certified by:

ASST. PROF. DR. KISHOR CHAUHAN.

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INDEX

SR.NO.	TOPIC	Page no.
1.	HISTORY	7
2.	POST INDEPENDENCE	18
3.	LIBERALISATION	23
4.	EVOLUTION	25
5.	INTRODUCTION	26
6.	BANKING TECHNOLOGIES • ONLINE BANKING • ATM • ELECTRONIC FUNDTRANSFER • ELECTRONIC CLEARINGSERVICE • CREDIT CARDS • **REAL TIME GROSS SETTLEMENT** • CORE BANKING • MOBILE BANKING • VERY SMALL APERTURE TERMINAL • LASER(DEBIT CARD) • ELECTRONIC **COMMERCE TELE BANKING**	42
7.	LITERATURE REVIEW	62
8.	RESEARCH METHODOLOGY	66
9.	DATA ANALYSIS & INTERPRETATION	69
10.	CHALLENGES AHEAD	73
11.	CASE STUDY	90
12.	CONCLUSION	90
13.	BIBLIGORAPHY	91

SUMMARY

In the organizational context, innovation may be linked to performance and growth through improvements in efficiency, productivity, quality, competitive positioning, market share, etc. All organizations can innovate, including for example hospitals, universities, and local governments.

Over the last three decades the role of banking in the process of financial intermediation has been undergoing a profound transformation, owing to changes in the global financial system. It is now clear that a thriving and vibrant banking system requires a well developed financial structure with multiple intermediaries operating in markets with different risk profiles. Taking the banking industry to the heights of international excellence will require a combination of new technologies, better processes of credit and risk appraisal, treasury management, product diversification, internal control and external regulations and not the least, human resources. Fortunately, we have a comparative advantage in almost all these areas. Our professionals are at the forefront of technological change and financial developments all over the world. It is time to harness these resources for development of Indian banking in the new century.

1. HISTORY

The first banks were probably the religious temples of the ancient world, and were probably established in the third millennium

B.C. Banks probably predated the invention of money. Deposits initially consisted of grain and later other goods including cattle, agricultural implements, and eventually precious metals such as gold, in the form of easy-to-carry compressed plates. Temples and palaces were the safest places to store gold as they were constantly attended and well built. As sacred places, temples presented an extra deterrent to would-be thieves. There are extant records of loans from the 18th century BC in Babylon that were made by temple priests/monks to merchants.

The modernization of the banking system in India has been a gradual process that spans several decades. The history of modernization in the Indian banking sector can be traced back to the pre-independence era and has evolved significantly since then. Here is an overview of key milestones in the modernization of the banking system in India:

Pre-Independence Era (Before 1947):

During the British colonial period, the banking system in India was primarily dominated by a few large banks, mostly of British origin.

The Reserve Bank of India (RBI) was established in 1935 as the central banking institution to regulate the monetary and banking system in the country.

Post-Independence Period (1947-1969):

In 1949, the Banking Regulation Act was enacted, which provided the legal framework for the regulation and supervision of banks in India.

The State Bank of India (SBI) was nationalized in 1955, followed by the nationalization of seven more banks in 1969. This move aimed to bring about social control and promote financial inclusion.

1970s-1980s:

The 1970s and 1980s witnessed the nationalization of additional banks, leading to a significant increase in the government's control over the banking sector.

Technological advancements, such as the introduction of computers, started to play a role in banking operations.

Liberalization and Technological Advancements (1990s Onward):

In 1991, India embarked on economic liberalization, and the banking sector underwent reforms to enhance efficiency and competitiveness.

The Narasimham Committee Reports in 1991 and 1998 recommended measures for the financial sector's restructuring, emphasizing the need for deregulation and increased competition.

The introduction of technology in banking operations, such as the implementation of Core Banking Solutions (CBS), ATMs, and online banking, significantly transformed the sector.

2000s Onward:

The government continued to pursue reforms to improve the financial sector's health and promote financial inclusion.

The establishment of new private banks and foreign banks entering the Indian market increased competition.

The Pradhan Mantri Jan Dhan Yojana (PMJDY) in 2014 aimed to provide financial services to the unbanked population, contributing to financial inclusion efforts.

Recent Years:

The government and the RBI have continued to focus on digitalization, with initiatives like Unified Payments Interface (UPI) and Bharat Bill Payment System (BBPS).

Regulatory changes and the adoption of advanced technologies have aimed to enhance cybersecurity measures and improve the overall efficiency of the banking system

Liberalization and technological advancements have played pivotal roles in transforming the banking sector in India. Here are key aspects of liberalization and technological advancements in the Indian banking system:

Economic Liberalization (1991):

The economic reforms initiated in 1991 aimed to liberalize and open up various sectors of the Indian economy, including banking.

The Narasimham Committee Reports in 1991 and 1998 were instrumental in recommending reforms to the financial sector, emphasizing liberalization, deregulation, and increased competition.

Entry of New Private Banks:

Liberalization led to the entry of new private banks in the Indian market, challenging the dominance of public sector banks.

This increased competition encouraged banks to improve their services, adopt modern technologies, and enhance efficiency.

Foreign Banks' Presence:

Liberalization allowed the entry of foreign banks into India, contributing to increased competition and the introduction of global best practices.

Foreign banks brought in expertise, technology, and innovative financial products, further influencing the modernization of the banking sector.

Technology Adoption:

The adoption of technology in banking operations marked a significant shift towards modernization.

Core Banking Solutions (CBS) were introduced, enabling centralized processing of banking transactions and providing customers with seamless services across branches.

Automated Teller Machines (ATMs) became widespread, offering convenient 24/7 access to banking services.

Internet Banking and Online Transactions:

The rise of the internet facilitated the introduction of internet banking, allowing customers to perform a wide range of banking activities online.

Online transactions, including fund transfers, bill payments, and online shopping, became integral parts of the banking experience.

Mobile Banking and Apps:

The advent of smartphones led to the development of mobile banking apps, providing customers with on-the-go access to banking services.

Mobile banking apps offer features like balance inquiries, fund transfers, and mobile wallet integration.

Unified Payments Interface (UPI):

UPI was introduced in 2016 as a real-time payments system that allows users to link multiple bank accounts to a single mobile application.

UPI has revolutionized peer-to-peer transactions, making it easy for individuals and businesses to send and receive money instantly.

Financial Inclusion Initiatives:

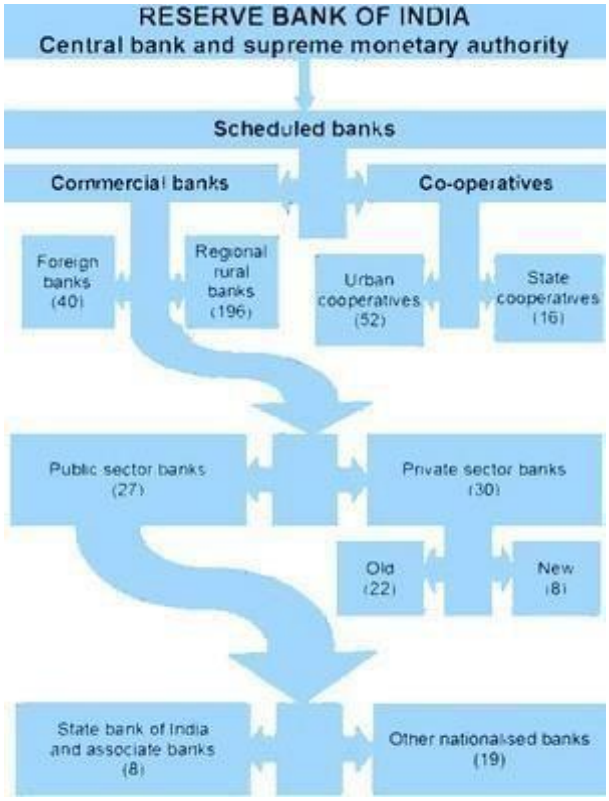
Technological advancements have been leveraged for financial inclusion, with initiatives like the Pradhan Mantri Jan Dhan Yojana (PMJDY) promoting the opening of bank accounts for the unbanked population.

Cybersecurity Measures:

As technology adoption increased, so did the need for robust cybersecurity measures to protect customer data and financial transactions.

Banks invest significantly in cybersecurity infrastructure to safeguard against cyber threats and fraud.

Banking in India



Structure of the organised banking sector in India. Number of banks are in brackets.

Banking in India originated in the last decades of the 18th century. The first banks were The General Bank of India which started in 1786, and the Bank of Hindustan, both of which are now defunct. The oldest bank in existence in India is the State Bank of India, which originated in the Bank of Calcutta in June 1806, which almost immediately became the Bank of Bengal. This was one of the three presidency banks, the other two being the Bank of Bombay and the Bank of Madras, all three of which were established under charters from the British East India Company. For many years the Presidency banks acted as quasi-central banks, as did their successors. The three banks merged in 1921 to form the Imperial Bank of India, which, upon India's independence, became the State Bank of India.

Indian merchants in Calcutta established the Union Bank in 1839, but it failed in 1848 as a consequence of the economic crisis of 1848-49. The Allahabad Bank, established in 1865 and still functioning today, is the oldest Joint Stock bank in India.(Joint Stock Bank: A company that issues stock and requires shareholders to be held liable for the company's debt) It was not the first though. That honor belongs to the Bank of Upper India, which was established in 1863, and which survived until 1913, when it failed, with some of its assets and liabilities being transferred to theAlliance Bank of Simla.

When the American Civil War stopped the supply of cotton to Lancashire from theConfederate States, promoters opened banks to finance trading in Indian cotton. With large exposure to speculative ventures, most of the banks opened in India during that period failed. The depositors lost money and lost interest in keeping deposits with banks. Subsequently, banking in India remained the exclusive domain of Europeans for next several decades until the beginning of the 20th century.

Old Banking system In India

The old banking system in India refers to the traditional banking practices that existed before the significant reforms and modernization efforts initiated in the 1990s. Here are some key features of the old banking system in India:

Dominance of Public Sector Banks:

Before liberalization, the banking sector in India was largely dominated by public sector banks, which were owned and operated by the government.

The State Bank of India (SBI) and its subsidiaries played a central role, along with other nationalized banks.

Limited Private Sector Presence:

The private sector's role in banking was limited, with only a few private banks operating in the country.

These private banks were often smaller in scale compared to their public sector counterparts.

Restricted Branch Networks:

Banks had a limited branch network, especially in rural and remote areas. This resulted in a lack of access to banking services for a significant portion of the population.

Manual and Paper-Based Processes:

Banking operations were primarily manual and relied heavily on paper-based processes.

Transactions were recorded manually, and paperwork was a significant component of banking activities.

Limited Technological Adoption:

Technological advancements, such as the use of computers, were minimal in the old banking system.

Banking operations were time-consuming, and customers often had to visit the bank in person for routine transactions.

Limited Product Offerings:

The range of financial products and services offered by banks was limited compared to the diverse portfolio available in the modern banking system.

Products such as credit cards, online banking, and wealth management services were not prevalent.

Government Control and Regulation:

The government exercised significant control and regulation over the banking sector, and banks often followed strict guidelines set by regulatory authorities.

Decision-making processes were influenced by government policies and directives.

Lack of Competition:

The lack of competition in the banking sector led to complacency in service offerings and customer engagement.

Customers had fewer choices, and innovation in banking services was relatively slow.

Emphasis on Priority Sector Lending:

The old banking system emphasized priority sector lending, with a focus on sectors such as agriculture, small-scale industries, and other priority areas identified by the government.

Limited International Presence:

International presence and collaboration were limited, and Indian banks had minimal exposure to global financial markets.

Foreign banks too started to arrive, particularly in Calcutta, in the 1860s. The Comptoire d'Escompte de Paris opened a branch in Calcutta in 1860, and another in Bombay in 1862; branches in Madras and Puducherry, then a French colony, followed. HSBC established itself inBengal in 1869. Calcutta was the most active trading port in India, mainly due to the trade of the British Empire, and so became a banking center.

The Bank of Bengal, which later merged with the Bank of Bombay and the Bank of Madras to form the Imperial Bank of India in 1921.

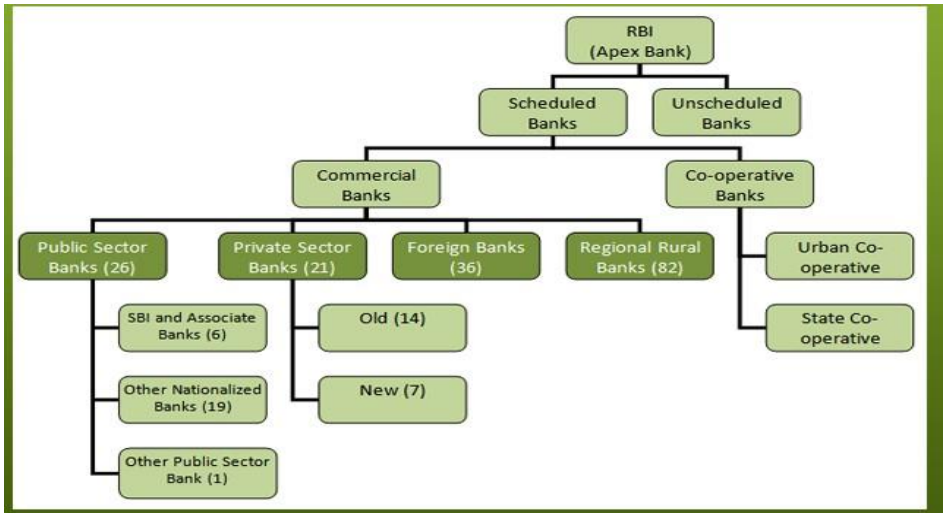
The first entirely Indian joint stock bank was the Oudh Commercial Bank, established in 1881 in Faizabad. It failed in 1958. The next was the Punjab National Bank, established in Lahorein 1895, which has survived to the present and is now one of the largest banks in India.

Around the turn of the 20th Century, the Indian economy was passing through a relative period of stability. Around five decades had elapsed since the Indian Mutiny, and the social, industrial and other infrastructure had improved. Indians had established small banks, most of which served particular ethnic and religious communities.

The presidency banks dominated banking in India but there were also some exchange banks and a number of Indian joint stock banks. All these banks operated in different segments of the economy. The exchange banks, mostly owned by Europeans, concentrated on financing foreign trade. Indian joint stock banks were generally under capitalized and lacked the experience and maturity to compete with the presidency and exchange banks. This segmentation let Lord Curzon to observe, *"In respect of banking it seems we are behind the times. We are like some old fashioned sailing ship, divided by solid wooden bulkheads into separate and cumbersome compartments."*

The period between 1906 and 1911, saw the establishment of banks inspired by the Swadeshi movement. The Swadeshi movement inspired local businessmen and political figures to found banks of and for the Indian community. A number of banks established then have survived to the present such as Bank of India, Corporation Bank, Indian Bank, Bank of Baroda, Canara Bank and Central Bank of India.

The fervour of Swadeshi movement lead to establishing of many private banks in Dakshina Kannada and Udupi district which were unified earlier and known by the name South Canara (South Kanara) district. Four nationalised banks started in this district and also a leading private sector bank. Hence undivided Dakshina Kannada district is known as "Cradle of Indian Banking".



During the First World War (1914-1918) through the end of the Second World War (1939-1945), and two years thereafter until theindependence of India were challenging for Indian banking. The years of the First World War were turbulent, and it took its toll with banks simply collapsing despite the Indian economy gaining indirect boost due to war-related economic activities. At least 94 banks in India failed between 1913 and 1918

The Banking sector in India remains an investment favourite for most of us. This is but natural, given its excellent performance in the past decade. But, when it comes to understanding the structure, we find it too complicated! Most of us even shy away from it.

MoneyWorks4me thus brings to you a simple analysis of the Indian Banking Industry in two parts.

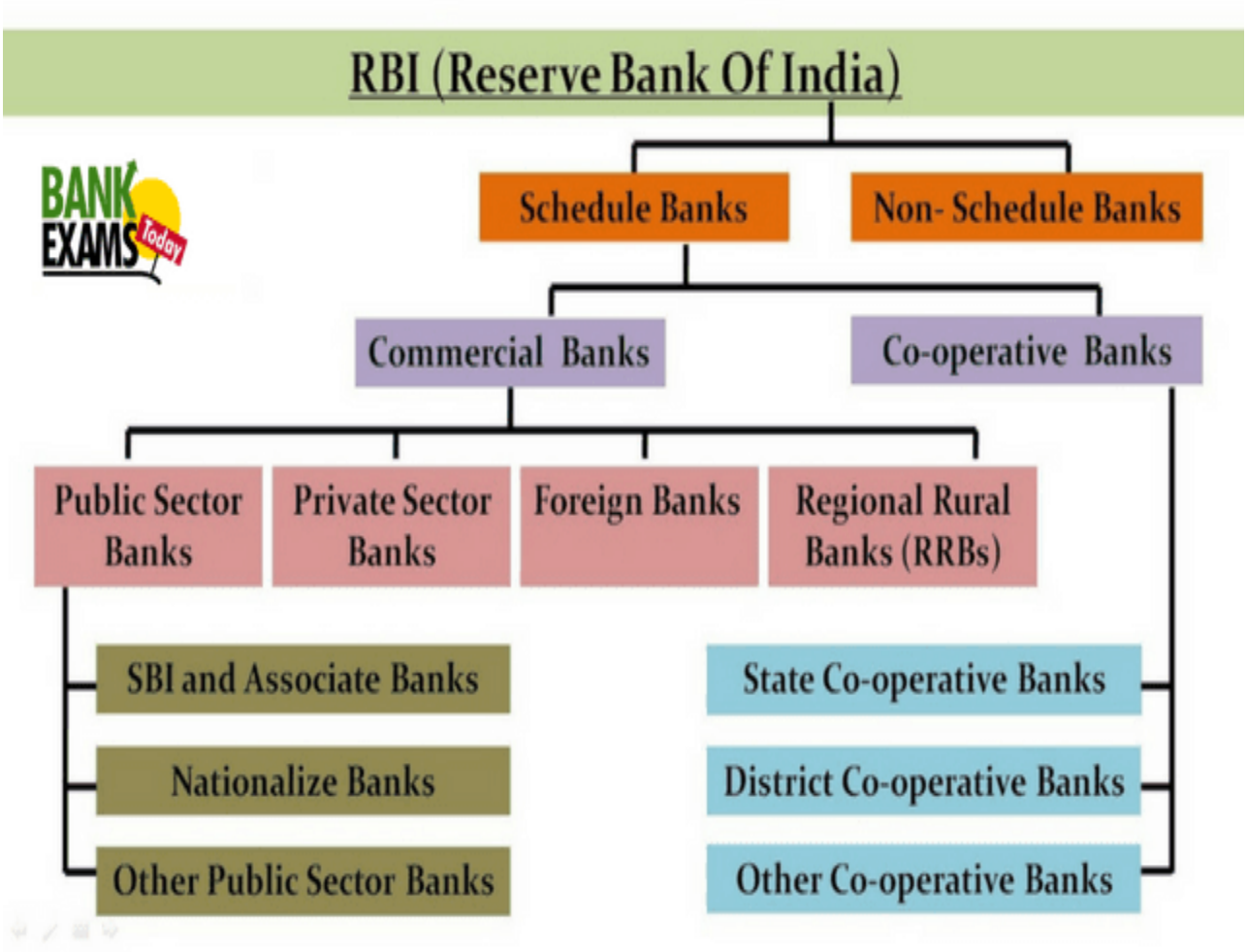
This first article will help you learn the structure of the Banking Industry and what is its business model?

Last Updated on March 4, 2024

Whenever you think of Banks what comes to your mind? Your salary account, your savings account or if you are a businessman your current account. Maybe you are also thinking about loans you took from a bank – your home loan, your car loan or your personal loan. But, did you ever pause to think how does this industry actually work – What is the structure of the Indian Banking Industry? What is its business model? How does a bank make money? What is its future outlook? Let us demystify it in the next two 'Industry Shastra'. Relax, we will not go much into its history or how the Indian Banking Industry evolved. In this first part, we will learn about its structure, its business model and then in the next part we will move to the past performance and future prospects.

The Banking industry plays a dynamic role in the economic development of a country. The growth story of an economy depends on the robustness of its banking industry. Banks act as the store as well as the power house of the country's wealth. They accept deposits from individuals and corporates and lends to the businesses. They use the deposits collected for productive purposes which help in the capital formation in the country.

Today, the Indian Banking System is known the world over for its robustness. The Reserve Bank of India is the central/apex Bank which regulates the functioning of all banks operating within the country.



The banking system, largely, comprises of scheduled banks (banks that are listed under the Second Schedule of the RBI Act, 1934). Unscheduled banks form a very small component (function in the form of Local Area Bank). Scheduled banks are further classified into commercial and cooperative banks, with the basic difference in their holding pattern. Cooperative banks are cooperative credit institutions that are registered under the Cooperative Societies Act and work according to the cooperative principles of mutual assistanc

2. POST INDEPENDENCE

The partition of India in 1947 adversely impacted the economies of Punjab and West Bengal, paralyzing banking activities for months. India'sindependence marked the end of a regime of the Laissez- faire for the Indian banking. The Government of India initiated measures to play an active role in the economic life of the nation, and the Industrial Policy Resolution adopted by the government in 1948 envisaged a mixed economy. This resulted into greater involvement of the state in different segments of the economy including banking and finance. The major steps to regulate banking included:

In 1948, the Reserve Bank of India, India's central banking authority, was nationalized, and it became an institution owned by the Government of India.

In 1948, the Reserve Bank of India (RBI) continued to play a crucial role in the country's financial and monetary policies. By this time, India had gained independence from British rule in 1947, and the RBI's responsibilities expanded to align with the economic priorities of the newly formed democratic nation. Here are some notable developments related to the Reserve Bank of India in 1948:

Monetary and Fiscal Policies:

The RBI, as the central banking institution, continued to formulate and implement monetary policies to regulate the money supply and credit in the economy.

It worked in coordination with the government to develop fiscal policies that aimed at promoting economic stability and growth.

Currency Management:

The RBI was responsible for issuing and managing the country's currency. It continued to oversee the circulation of banknotes and coins to ensure the stability of the monetary system.

Regulatory Framework:

The Banking Regulation Act of 1949 was enacted, providing a comprehensive legal framework for the regulation and supervision of banks in India. This legislation

empowered the RBI to regulate the functioning of banks and financial institutions.

Foreign Exchange Management:

The RBI played a key role in managing the country's foreign exchange reserves and regulating foreign exchange transactions. This became particularly significant as India established its economic policies and engaged in international trade.

Supporting Economic Development:

In the post-independence period, the RBI actively supported the government's efforts to promote economic development. It played a pivotal role in channeling credit to priority sectors such as agriculture, small-scale industries, and other sectors crucial for the nation's growth.

Establishment of Development Financial Institutions:

The RBI played a role in the establishment of development financial institutions to provide specialized financial assistance to key sectors. For example, the Industrial Finance Corporation of India (IFCI) was set up in 1948 to promote industrial development.

Setting Monetary Policy Tools:

The RBI used various tools such as the Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR) to control the money supply, influence credit growth, and maintain price stability.

Formation of Banking Committees:

The RBI was involved in the formation of committees to assess and recommend reforms in the banking sector. These committees aimed at improving the efficiency and functioning of banks in the post-independence era

- In 1949, the Banking Regulation Act was enacted which empowered the Reserve Bank of India (RBI) "to regulate, control, and inspect the banks in India."

The Banking Regulation Act of 1949 is a key piece of legislation that significantly influenced and regulated the functioning of banks in India. Enacted on March 10, 1949, this act marked an important step towards strengthening the regulatory framework for the banking sector. Here are some key features and implications of the Banking Regulation

Act of 1949:

Regulatory Authority:

The Banking Regulation Act established the Reserve Bank of India (RBI) as the primary regulatory authority for banks in India. The RBI was granted extensive powers to regulate and supervise banks' functioning to ensure stability and prevent malpractices.

Licensing of Banks:

The act empowered the RBI to issue licenses for the establishment of new banks and the opening of branches. This allowed for a controlled expansion of the banking sector and ensured that only entities meeting certain criteria could operate as banks.

Regulation of Operations:

The act provided the RBI with authority over various aspects of a bank's operations, including management, capital adequacy, and lending practices. This regulatory oversight aimed to maintain the stability of the banking system.

Minimum Capital Requirements:

The Banking Regulation Act set minimum capital requirements for banks. This was intended to ensure that banks had a solid financial base to withstand economic challenges and protect the interests of depositors.

Branch Expansion Control:

The RBI was given the power to control and regulate the opening of new branches by banks. This control mechanism was implemented to maintain a balanced and systematic growth of the banking network.

Inspection and Audit:

The act empowered the RBI to conduct regular inspections and audits of banks to assess their financial health and compliance with regulatory standards. This measure aimed to identify potential risks and prevent financial irregularities.

Management Control:

The RBI was given the authority to regulate the appointment and removal of bank directors and management. This control was intended to ensure that banks were managed by competent individuals who adhered to ethical and responsible business practices.

Prevention of Unsound Banking Practices:

The act granted the RBI the power to intervene and take corrective measures if it found that a bank was engaging in unsound or unsafe practices. This preventive approach was crucial for maintaining the overall health of the banking sector.

Deposit Insurance:

The Banking Regulation Act laid the groundwork for the establishment of the Deposit Insurance and Credit Guarantee Corporation (DICGC) in 1961. This provided insurance coverage to bank depositors, enhancing confidence in the banking system.

- The Banking Regulation Act also provided that no new bank or branch of an existing bank could be opened without a license from the RBI, and no two banks could have common directors.

However, despite these provisions, control and regulations, banks in India except the State Bank of India, continued to be owned and operated by private persons. This changed with the nationalisation of major banks in India on 19 July 1969.

The RBI was nationalized on January 1, 1949 in terms of the Reserve Bank of India (Transfer to Public Ownership) Act, 1948

By the 1960s, the Indian banking industry had become an important tool to facilitate the development of the Indian economy. At the same time, it had emerged as a large employer, and a debate had ensued about the possibility to nationalise the banking industry. Indira Gandhi, the-then Prime Minister of India expressed the intention of the GOI in the annual conference of the All India Congress Meeting in a paper entitled *"Stray thoughts on Bank Nationalisation."* The paper was received with positive enthusiasm. Thereafter, her move was swift and sudden, and the GOI issued an ordinance and nationalised the 14 largest commercial banks with effect from the midnight of July 19, 1969.Jayaprakash Narayan, a national leader of India,

described the step as a "masterstroke of political sagacity." Within two weeks of the issue of the ordinance, the Parliament passed the Banking Companies (Acquisition and Transfer of Undertaking) Bill, and it received the presidentialapproval on 9 August 1969.

A second dose of nationalization of 6 more commercial banks followed in 1980. The stated reason for the nationalization was to give the government more control of credit delivery. With the second dose of nationalization, the GOI controlled around 91% of the banking business of India. Later on, in the year 1993, the government merged New Bank of India with Punjab National Bank. It was the only merger between nationalized banks and resulted in the reduction of the number of nationalised banks from 20 to 19. After this, until the 1990s, the nationalised banks grew at a pace of around 4%, closer to the average growth rate of the Indian economy.

3. LIBERALISATION

In theearly 1990s, the then Narsimha Rao government embarked on a policy of liberalization, licensing a small number of private banks. These came to be known as *New Generation tech-savvy banks*, and included Global Trust Bank (the first of such new generation banks to be set up), which later amalgamated with Oriental Bank of Commerce, Axis Bank(earlier as UTI Bank), ICICI Bank and HDFC Bank. This move, along with the rapid growth in the economy of India, revitalized the banking sector in India, which has seen rapid growth with strong contribution from all the three sectors of banks, namely, government banks, private banks and foreign banks.

The next stage for the Indian banking has been set up with the proposed relaxation in the norms for Foreign Direct Investment, where all Foreign Investors in banks may be given voting rights which could exceed the present cap of 10%,at present it has gone up to 74% with some restrictions.

The new policy shook the Banking sector in India completely. Bankers, till this time, were used to the 4-6-4 method (Borrow at 4%;Lend at 6%;Go home at 4) of functioning. The new wave ushered in a modern outlook and tech-savvy methods of working for traditional banks.All this led to the retail boom in India. People not just demanded more from their banks but also received more.

Currently (2007), banking in India is generally fairly mature in terms of supply, product range and reach-even though reach in rural India still remains a challenge for the private sector and foreign banks. In terms of quality of assets and capital adequacy, Indian banks are considered to have clean, strong and transparent balance sheets relative to other banks in comparable economies in its region. The Reserve Bank of India is an autonomous body, with minimal pressure from the government. The stated policy of the Bank on the Indian Rupee is to manage volatility but without any fixed exchange rate-and this has mostly been true.

With the growth in the Indian economy expected to be strong for quite some time-especially in its services sector-the demand for banking services, especially retail banking, mortgages and investment services are expected to be strong. One may also expect M&As, takeovers, and asset sales.

In March 2006, the Reserve Bank of India allowed Warburg Pincus to increase its stake in Kotak Mahindra Bank (a private sector bank) to 10%. This is the first time an investor has been allowed to hold more than 5% in a private sector bank since the RBI announced norms in 2005 that any stake exceeding 5% in the private sector banks would need to be vetted by them.

In recent years critics have charged that the non-government owned banks are too aggressive in their loan recovery efforts in connection with housing, vehicle and personal loans. There are press reports that the banks' loan recovery efforts have driven defaulting borrowers to suicide.

4. EVOLUTION

The Rangarajan Committee report in early 1980s was the first step towards computerization of banks. Banks started exploring the idea of 'Total Bank Automation (TBA)'. Although titled 'Total Bank Automation,' TBA was in most cases confined to branch automation. It was only in the early 1990s that banks started thinking about tying-up disparate branches together to facilitate information sharing. At the same time, private banks entered the banking arena with radically different strategies. Given the huge IT budgets at their disposal and with almost no legacy IT equipment to worry about; private banks hastened the adoption of technology. The philosophy for private banks was very clear: to provide a whole new range of financial products and services at minimal costs. And technology made this possible. Says K.N.C. Nair, Head (IT), Federal Bank, “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 Naresh Wadhwa, Vice President-West, Cisco Systems (India), "With the improved services and lowered costs of service providers such as Dot and VSNL, 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.

INTRODUCTION

In the organizational context, innovation may be linked to performance and growth through improvements in efficiency, productivity, quality, competitive positioning, market share, etc. All organizations can innovate, including for example hospitals, universities, and local governments.

While innovation typically adds value, innovation may also have a negative or destructive effect as new developments clear away or change old organizational forms and practices. Organizations that do not innovate effectively may be destroyed by those that do. Hence innovation typically involves risk. A key challenge in innovation is maintaining a balance between process and product innovations where process innovations tend to involve a business model which may develop shareholder satisfaction through improved efficiencies while product innovations develop customer support however at the risk of costly R&D that can erode shareholder return. In summary, innovation can be described as the result of some amount of time and effort into researching (R) an idea, plus some larger amount of time and effort into developing (D) this idea, plus some very large amount of time and effort into commercialising (C) this idea into a market place with customers.

Type of Commercial Banks	Major Shareholders	Major Players
Public Sector Banks	Government of India	SBI, PNB, Canara Bank, Bank of Baroda, Bank of India, etc.
Private Sector Banks	Private Individuals	ICICI Bank, HDFC Bank, Axis Bank, Kotak Mahindra Bank, Yes Bank etc.
Foreign Banks	Foreign Entity	Standard Chartered Bank, Citi Bank, HSBC, Deutsche Bank, BNP Paribas, etc.
Regional Rural Banks	Central Govt, Concerned St. Govt and Sponsor Bank in the ratio of 50:15:35	Andhra Pradesh Grameena Vikas Bank, Uttranchal Gramin Bank, Prathama Bank, etc.

5. ONLINE BANKING

Online banking (or Internet banking) allows customers to conduct financial transactions on a secure website operated by their retail or virtual bank, credit union or building society.

Features

Online banking solutions have many features and capabilities in common, but traditionally also have some that are application specific.

The common features fall broadly into several categories

□Transactional (e.g., performing a financial transaction such as an account to account transfer, paying a bill, wire transfer... and applications... apply for a loan, new account, etc.)

- Electronic bill presentment and payment - EBPP

- Funds transfer between a customer's own checking and savings accounts, or to another customer's account

- Investment purchase or sale

- Loan applications and transactions, such as repayments

Non-transactional (e.g., online statements, check links, cobrowsing, chat)

- Bank statements

□ Financial Institution Administration - features allowing the financial institution to manage the online experience of their end users

□ ASP/Hosting Administration - features allowing the hosting company to administer the solution across financial institutions

Features commonly unique to business banking include

- Support of multiple users having varying levels of authority

Security token devices

Protection through single password authentication, as is the case in most secure Internet shopping sites, is not considered secure enough for personal online banking applications in some countries. Basically there exist two different security methods for online banking.

- Transaction approval process
- Wire transfer

Features commonly unique to Internet banking include

- Personal financial management support, such as importing data into personal accounting software. Some online banking platforms support account aggregation to allow the customers to monitor all of their accounts in one place whether they are with their main bank or with other institutions.

- The PIN/TAN system where the PIN represents a password, used for the login and TANs representing one-time passwords to authenticate transactions. TANs can be distributed in different ways, the most popular one is to send a list of TANs to the online banking user by postal letter. The most secure way of using TANs is to generate them by need using a security token. These token generated TANs depend on the time and a unique secret, stored in the security token (this is called two-factor authentication or 2FA). Usually online banking with PIN/TAN is done via a web browser using SSL secured connections, so that there is no additional encryption needed.

- Signature based online banking where all transactions are signed and encrypted digitally. The Keys for the signature generation and encryption can be stored on smartcards or any memory medium, depending on the concrete implementation.

AUTOMATED TELLER MACHINE (ATM)

Smaller indoor ATMs dispense money inside convenience stores and other busy areas, such as this off-premise Wincor Nixdorf mono-function ATM in Sweden.

An automated teller machine (ATM) is a computerized telecommunications device that provides the customers of a financial institution with access to financial transactions in a public space without the need for a human clerk or bank teller. On most modern ATMs, the customer is identified by inserting a plastic ATM card with a magnetic stripe or a plastic smartcard with a chip, that contains a unique card number and some security information, such as an expiration date or CVC (CVV). Security is provided by the customer entering a personal identification number (PIN).

Using an ATM, customers can access their bank accounts in order to make cash withdrawals (or credit card cash advances) and check their account balances as well as purchasing mobile cell phone prepaid credit. ATMs are known by various other names including automated transaction machine, automated banking machine, money machine, bank machine, cash machine, hole-in-the-wall, cashpoint, Bancomat (in various countries in Europe and Russia), Multibanco (after a registered trade mark, in Portugal), and Any Time Money (in India).

Financial networks

An ATM in the Netherlands. The logos of a number of interbank networks this ATM is connected to are shown.

Most ATMs are connected to interbank networks, enabling people to withdraw and deposit money from machines not belonging to the bank where they have their account or in the country where their accounts are held (enabling cash withdrawals in local currency). Some examples of interbank networks include PULSE, PLUS, Cirrus, Interac and LINK.

ATMs rely on authorization of a financial transaction by the card issuer or other authorizing institution via the communications network. This is often performed through an ISO 8583 messaging system.

Many banks charge ATM usage fees. In some cases, these fees are charged solely to users who are not customers of the bank where the ATM is installed; in other cases, they apply to all users. Where machines make a charge some people will not use them, but go to a system without fees.

In order to allow a more diverse range of devices to attach to their networks, some interbank networks have passed rules expanding the definition of an ATM to be a terminal that either has the vault within its footprint or utilizes the vault or cash drawer within the merchant establishment, which allows for the use of a scrip cash dispenser.

ATMs typically connect directly to their ATM Controller via either a dial-up modem over a telephone line or directly via a leased line. Leased lines are preferable to POTS lines because they require less time to establish a connection. Leased lines may be comparatively expensive to operate versus a POTS line, meaning less-trafficked machines will usually rely on a dial-up modem. That dilemma may be solved as high-speed Internet VPN connections become more ubiquitous. Common lower-level layer communication protocols used by ATMs to communicate back to the bank include SNA over SDLC, TC500 over Async, X.25, and TCP/IP over Ethernet.

CREDITS CARDS

A **credit card** is part of a system of payments named after the small plastic card issued to users of the system. It is a card entitling its holder to buy goods and services based on the holder's promise to pay for these goods and services.[1] The issuer of the card grants a line of credit to the consumer (or the user) from which the user can borrow money for payment to a merchant or as a cash advance to the user.A credit card is different from a charge card, where a charge card requires the balance to be paid in full each month. In contrast, credit cards allow the consumers to 'revolve' their balance, at the cost of having interest charged. Most credit cards are issued by local banks or credit unions, and are the shape and size specified by the ISO/IEC 7810 standard as ID-1.

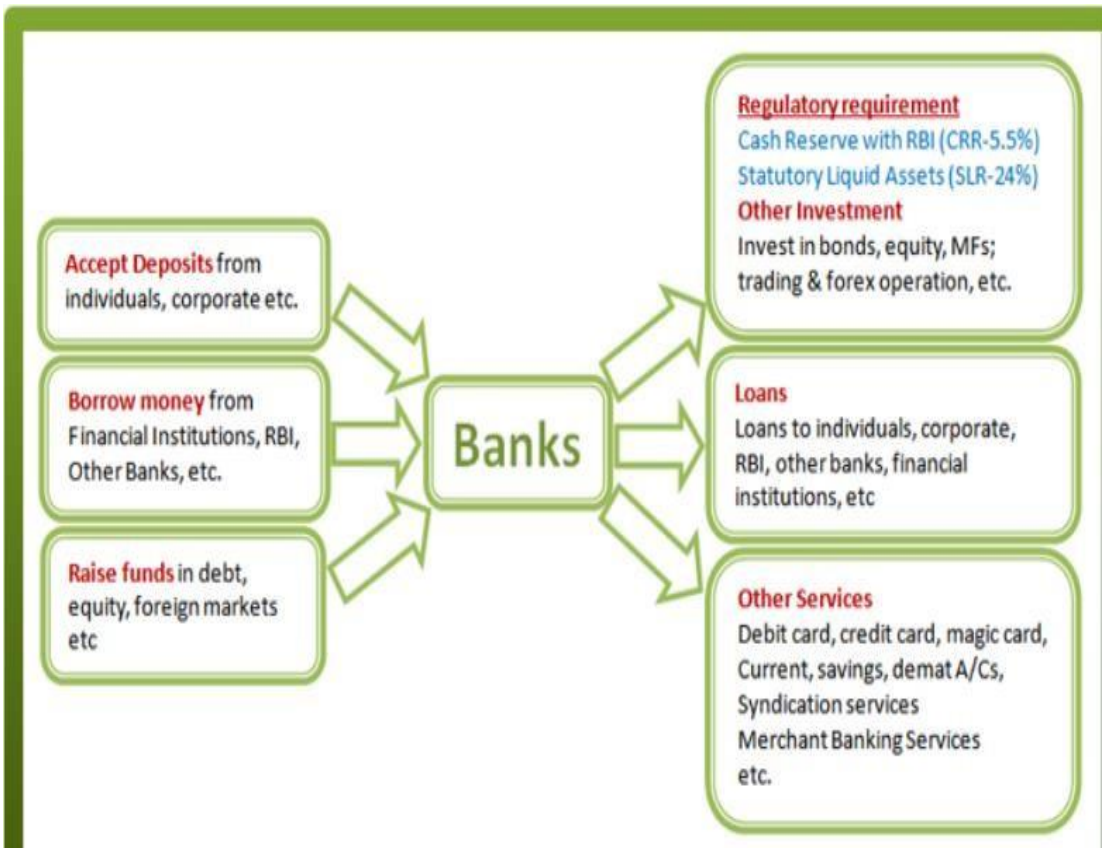
Credit cards are issued after an account has been approved by the credit provider, after which cardholders can use it to make purchases at merchants accepting that card.When a purchase is made, the credit card user agrees to pay the card issuer. The cardholder indicates consent to pay by signing a receipt with a record of the card details and indicating the amount to be paid or by entering a personal identification number (PIN). Also, many merchants now accept verbal authorizations via telephone and electronic authorization using the Internet, known as a 'Card/Cardholder Not Present' (CNP) transaction.

Electronic verification systems allow merchants to verify that the card is valid and the credit card customer has sufficient credit to cover the purchase in a few seconds, allowing the verification to happen at time of purchase. The verification is performed using a credit card payment terminal or Point of Sale (POS) system with a communications link to the merchant's acquiring bank. Data from the card is obtained from a magnetic stripe or chip on the card; the latter system is in the United Kingdom and Ireland commonly known as Chip and PIN, but is more technically an EMV card. These will typically involve the cardholder providing additional information, such as the security code printed on the back of the card, or the address of the cardholder each month, the credit card user is sent a statement indicating the purchases undertaken with the card, any outstanding fees, and the total amount owed. After receiving the statement, the cardholder may dispute any charges that he or she thinks are incorrect (see Fair Credit Billing Act for details of the US regulations). Otherwise, the cardholder must pay a defined minimum proportion of the bill by a due date, or may choose to pay a higher amount up to the entire amount owed. The credit issuer charges interest on the amount owed if the balance is not paid in full (typically at a much higher rate than most other forms of debt). Some financial institutions can arrange for automatic payments to be deducted from the user's bank accounts, thus avoiding late payment altogether as long as the cardholder has sufficient funds.

Features

As well as convenient, accessible credit, credit cards offer consumers an easy way to track expenses, which is necessary for both monitoring personal expenditures and the tracking of work-related expenses for taxation and reimbursement purposes. Credit cards are accepted worldwide, and are available with a large variety of credit limits, repayment arrangement, and other perks (such as rewards schemes in which points earned by purchasing goods with the card can be redeemed for further goods and services or credit card cashback).Some countries, such as the United States, the United Kingdom, and France, limit the amount for which a consumer can be held liable due to fraudulent transactions as a result of a consumer's credit card being lost or stolen.A smart card, combining credit card and debit card properties. The 3 by 5 mm security chip embedded in the card is shown enlarged in the inset. The contact pads on the card enable electronic access to the chip.

How does the industry work? Here is the analysis…



DEBIT CARDS

Debit cards are essentially "pay-now" instruments linked to a checking account whereby transactions can happen either instantaneously using online (PIN based) methods or in the near future with offline (signature based) methods. Consumers typically have the choice of using online or offline methods, and their selection often hinges on the respective benefits. Online debit allows the cardholder also to withdraw cash at the point-of-sale, and offline provides float. According to ATM & Debit News (2007), there were approximately 26.5 billion debit transactions in the U.S. during 2006. This is up from 6.5 billion transactions in 1999 – a four-fold increase.

A debit card is a payment card that deducts money directly from a consumer's checking account when making a purchase. It is a convenient and widely used financial instrument that offers several features and benefits. Here are key aspects of debit cards:

Issuing Bank:

Debit cards are typically issued by banks and financial institutions to their customers when they open a checking or savings account.

Linked to Bank Account:

Debit cards are directly linked to the cardholder's bank account. When a transaction is made using a debit card, the funds are withdrawn directly from the associated account.

Types of Debit Cards:

Debit cards can be classified into different types, including basic debit cards, Visa or MasterCard-branded debit cards, and those that may be co-branded with specific retail or business partners.

PIN-based Transactions:

Debit cards often require a Personal Identification Number (PIN) for transactions at ATMs and point-of-sale (POS) terminals. The PIN adds an extra layer of security.

Signature-based Transactions:

Some debit cards also allow signature-based transactions, where the cardholder signs a receipt instead of entering a PIN. This is common for transactions at merchants that support this feature.

ATM Withdrawals:

Debit cards can be used to withdraw cash from ATMs. Cardholders can access their funds 24/7 at ATMs belonging to their bank or within a network that their bank is part of.

Online and In-Store Purchases:

Debit cards can be used for both online and in-store purchases. They are widely accepted by merchants globally, offering a convenient way for consumers to pay for goods and services.

Overdraft Protection:

Some debit cards come with overdraft protection, allowing transactions that exceed the available account balance. However, this may be subject to fees, and not all debit cards offer this feature.

Contactless Payments:

Many debit cards now come equipped with contactless payment technology, allowing users to make secure and quick transactions by tapping their cards on compatible POS terminals.

Security Measures:

Debit cards often include security features such as EMV (Europay, MasterCard, and Visa) chips, which provide enhanced protection against fraud. Additionally, banks employ various security measures to detect and prevent unauthorized transactions.

Rewards and Incentives:

Some debit cards offer rewards programs, cashback, or other incentives for using the card. While not as common as with credit cards, these features provide additional value for cardholders.

Budgeting and Spending Control:

Debit cards offer a way for individuals to manage their spending by limiting transactions to the available funds in their account. This can assist with budgeting and preventing debt accumulation.

ELECTRONIC FUND TRANSFER

Electronic funds transfer or **EFT** refers to the computer-based systems used to perform financial transactions electronically.

The term is used for a number of different concepts:

□Cardholder-initiated transactions, where a cardholder makes use of a payment card

□Direct deposit payroll payments for a business to its employees, possibly via a payroll services company

□Direct debit payments from customer to business, where the transaction is initiated by the business with customer permission

□Electronic bill payment in online banking, which may be delivered by EFT or paper check

□Transactions involving stored value of electronic money, possibly in a private currency

□Wire transfer via an international banking network (generally carries a higher fee)

□Electronic Benefit Transfer

Transaction types

A number of transaction types may be performed, including the following:

- *Sale*: where the cardholder pays for goods or service
- *Refund*: where a merchant refunds an earlier payment made by a cardholder
- *Withdrawal*: the cardholder withdraws funds from their account, e.g. from an ATM. The term *Cash Advance* may also be used, typically when the funds are advanced by a merchant rather than at an ATM
- *Deposit*: where a cardholder deposits funds to their own account (typically at an ATM)

- *Cashback*: where a cardholder withdraws funds from their own account at the same time as

  making a purchase.

- *Inter-account transfer*: transferring funds between linked accounts belonging to the same cardholder

- *Payment*: transferring funds to a third party account

  Enquiry: a transaction without financial impact, for instance balance enquiry, available funds enquiry, linked accounts enquiry, or request for a statement of recent transactions on the account

- *E top-up*: where a cardholder can use a device (typically POS or ATM) to add funds (top-up) their pre-pay mobile phone

- *Mini-statement*: where a cardholder uses a device (typically an ATM) to obtain details of recent transactions on their account

- *Administrative*: this covers a variety of non-financial transactions including PIN change.

Electronic Fund Transfer (EFT) refers to the electronic transfer of money from one account to another, typically facilitated by financial institutions or electronic payment systems. EFT is a broad term that encompasses various electronic payment methods, including online banking transfers, wire transfers, direct deposits, and electronic payment cards. Here are some key aspects of Electronic Fund Transfer:

Types of Electronic Fund Transfer:

Online Banking Transfers: Customers can initiate fund transfers between their own accounts or to other accounts within the same bank through online banking platforms.

Wire Transfers: These involve the electronic transfer of funds from one bank to another, either domestically or internationally. Wire transfers are often used for large transactions and may incur fees.

Direct Deposits: Employers can use EFT to deposit employees' salaries directly into their bank accounts. Government agencies may also use direct deposits for benefits like tax refunds or Social Security payments.

Electronic Payment Cards: Debit cards, credit cards, and prepaid cards facilitate electronic transactions at point-of-sale (POS) terminals, online, or through ATMs.

Automated Clearing House (ACH) Transfers: ACH is a network that facilitates electronic transactions in the U.S., including direct deposits, bill payments, and other transfers.

Online Banking and Mobile Apps:

Many financial institutions provide online banking services and mobile apps that allow users to initiate electronic fund transfers, check account balances, and perform other banking activities.

Security Measures:

EFT systems incorporate security measures to protect the confidentiality and integrity of transactions. This may include encryption, multi-factor authentication, and fraud detection systems.

Speed and Efficiency:

EFT transactions are generally faster and more efficient than traditional paper-based methods. Funds can be transferred within minutes or a few business days, depending on the type of EFT.

Costs and Fees:

While some EFT transactions are free, others may incur fees. Wire transfers, for example, often involve fees, especially for international transfers. Other transactions like ACH transfers or online banking transfers may be offered at little to no cost by many banks.

Bill Payments:

EFT is commonly used for bill payments. Consumers can set up recurring payments for utilities, loans, and other bills, automating the payment process.

Cross-Border Transactions:

EFT facilitates cross-border transactions, allowing businesses and individuals to transfer funds internationally. This can be done through international wire transfers or using online payment platforms.

Regulation and Compliance:

EFT systems are subject to regulatory oversight to ensure compliance with financial regulations and to protect consumers. Regulatory bodies may set standards for security, privacy, and transaction processing.

Integration with Financial Services:

EFT is integrated with various financial services, such as electronic commerce, online banking, and mobile banking, providing users with a seamless and connected financial experience.

Real-Time Payments:

Some EFT systems, like real-time payment networks, enable instantaneous transfer of funds, providing quick and immediate access to transferred money.

ELECTRONIC CLEARING SERVICE (ECS)

A clearing house is a financial services company that provides clearing and settlement services for financial transactions, usually on a futures exchange, and often acts as central counterparty (the payor actually pays the clearing house, which then pays the payee). A clearing house may also offer novation, the substitution of a new contract or debt for an old, or other credit enhancement services to its members.The term is also used for banks like Suffolk Bank that acted as a restraint on the over-issuance of private bank notes.

Clearing on options exchanges

The Options Clearing Corporation is an example of a clearing house that functions for the purpose of clearing equity options and bond derivatives, in order to ensure the proper implementation of these instruments.

Clearing on futures exchanges

LCH.Clearnet (Formerly known as The London Clearing House), for example, provides clearing and settlement services for the International Petroleum Exchange, London, which is affiliated with the Intercontinental Exchange, Atlanta, Georgia. The London Clearing House also acts as the clearing house for Euronext.liffe and the London Metal Exchange.

In 2001, the Commodity Futures Trading Commission registered the London Clearing House as a Derivatives Clearing Organization (DCO) in the United States, making it the first offshore DCO to be recognized under the statutory mandate of the Commodity Futures Modernization Act of 2000.CME Group, now a combination of the Chicago Mercantile Exchange, the Chicago Board of Trade, and the New York Mercantile Exchange, owns and operates its own clearing operation while also offering clearing services (for a fee) to other exchanges. Its "ClearPort" operation also provides clearing for certain "over-the-counter" trades.

Clearing of payments

In the United States, NACHA-The Electronic Payments Association, formerly the National Automated Clearing House Association, organizes the mechanism for the financial service institutions that participate in the Automated Clearing House (ACH) network. These organizations use the ACH to transfer funds either as debits or credits between participating institutions. Most, but not all,
U.S. banks are members of the NACHA. Typical uses of ACH transactions are for automatic payroll programs, monthly mortgage or membership payments, or among non-profit organizations, as a monthly donor/contribution program.

6. REAL TIME GROSS SETTLEMENT (RYGS)

Real time gross settlement systems (RTGS) are a funds transfer mechanism where transfer of money takes place from one bank to another on a "real time" and on "gross" basis. Settlement in "real time" means payment transaction is not subjected to any waiting period. The transactions are settled as soon as they are processed. "Gross settlement" means the transaction is settled on one to one basis without bunching with any other transaction. Once processed, payments are final and irrevocable.

This "electronic" payment system is normally maintained or controlled by the Central Bank of a country. There is no physical exchange of money; the Central Bank makes adjustments in the electronic accounts of Bank A and Bank B, reducing the amount in Bank A's account by $1000 and increasing the amount of Bank B's account by the same.

The RTGS system is suited for low-volume, high-value transactions. It lowers settlement risk, besides giving an accurate picture of an institution's account at any point of time.Such systems are an alternative to systems of settling transactions at the end of the day, also known as the *net settlement* system such as BACS. In the net settlement system, all the inter-institution transactions during the day are accumulated. At the end of the day, the accounts of the institutions are adjusted. Extending the example above, say another person deposits a check drawn on Bank B in Bank A for $500. At the end of the day, Bank A will have to "electronically" pay Bank B only $500 ($1000 - $500).The implementation of RTGS systems by Central Banks throughout the world is driven by the goal to minimize risk in high-value electronic payment settlement systems.

In an RTGS system, transactions are settled across accounts held at a Central Bank on a continuous gross basis. Settlement is immediate, final and irrevocable. Credit risks due to settlement lags are eliminated. RTGS does not require Core Banking to be implemented across participating banks. Any RTGS would employ two sets of queues: one for testing funds availability, and the other for processing debit/credit requests received from the Integrated Accounting System. All transactions would be queued and submitted for funds availability testing on a FIFO + Priority basis.

CORE BANKING

Core banking is a general term used to describe the services provided by a group of networked bank branches. Bank customers may access their funds and other simple transactions from any of the member branch offices.

Core Banking is normally defined as the business conducted by a banking institution with its retail and small business customers. Many banks treat the retail customers as their core banking customers, and have a separate line of business to manage small businesses. Larger businesses are managed via the Corporate Banking division of the institution. Core banking basically is depositing and lending of money. Normal core banking functions will include deposit accounts, loans, mortgages and payments. Banks make these services available across multiple channels like ATMs, Internet banking, and branches.

Core Banking Solutions is new jargon frequently used in banking circles. The advancement in technology, especially internet and information technology has led to new ways of doing business in banking. These technologies have cut down time, working simultaneously on different issues and increasing efficiency. The platform where communication technology and information technology are merged to suit core needs of banking is known as Core Banking Solutions. Here computer software is developed to perform core operations of banking like recording of transactions, passbook maintenance, interest calculations on loans and deposits, customer records, balance of payments and withdrawal are done. This software is installed at different branches of bank and then interconnected by means of communication lines like telephones, satellite, internet etc. It allows the user (customers) to operate accounts from any branch if it has installed core banking solutions. This new platform has changed the way banks are working.

Core banking is all about knowing customers' needs. Provide them with the right products at the right time through the right channels 24 hours a day, 7 days a week using technology aspects like Internet, Mobile ATM. While many Banks run core banning in-house, there are some which use outsourced service providers as well. There are several Systems integrators like IBM which implement these Core banking packages at Banks.

MOBILE-BANKING

"Mobile Banking refers to provision and availment of banking- and financial services with the help of mobile telecommunication devices.The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customised information."

According to this model Mobile Banking can be said to consist of three inter-related concepts:

- Mobile Accounting
- Mobile Brokerage
- Mobile Financial Information Services

Most services in the categories designated Accounting and Brokerage are transaction-based. The non-transaction-based services of an informational nature are however essential for conducting transactions - for instance, balance inquiries might be needed before committing a money remittance. The accounting and brokerage services are therefore offered invariably in combination with information services. Information services, on the other hand, may be offered as an independent module.

Mobile Banking Services

Mobile banking can offer services such as the following:

Account Information

1. Mini-statements and checking of account history
2. Alerts on account activity or passing of set thresholds
3. Monitoring of term deposits
4. Access to loan statements
5. Access to card statements
6. Mutual funds / equity statements
7. Insurance policy management
8. Pension plan management
9. Status on cheque, stop payment on cheque
10. Ordering check books
11. Balance checking in the account
12. Recent transactions
13. Due date of payment (functionality for stop, change and deleting of payments)

14. PIN provision, Change of PIN and reminder over the Internet

15. Blocking of (lost, stolen) cards

Payments, Deposits, Withdrawals, and Transfers

1. Domestic and international fund transfers

2. Micro-payment handling

3. Mobile recharging

4. Commercial payment processing

5. Bill payment processing

6. Peer to peer payments

7. Withdrawal at banking agent

8. Deposit at banking agent

Especially for clients in remote locations, it will be important to help them deposit and withdraw funds at banking agents, i.e., retail and postal outlets that turn cash into electronic funds and vice versa. The feasibility of such banking agents depends on local regulation which enables retail outlets to take deposits or not.

A specific sequence of SMS messages will enable the system to verify if the client has sufficient funds in his or her wallet and

authorize a deposit or withdrawal transaction at the agent. When depositing money, the merchant receives cash and the system credits the client's bank account or mobile wallet. In the same way the client can also withdraw money at the merchant: through exchanging sms to provide authorization, the merchant hands the client cash and debits the client's account.

Challenges for a Mobile Banking Solution

Key challenges in developing a sophisticated mobile banking application are :

Handset operability

There are a large number of different mobile phone devices and it is a big challenge for banks to offer mobile banking solution on any type of device. Some of these devices support J2ME and others support WAP browser or only SMS.Initial interoperability issues however have been localized, with countries like India using portals like R-World to enable the limitations of low end java based phones, while focus on areas such as South Africa have defaulted to the USSD as a basis of communication achievable with any phone.

The desire for interoperability is largely dependent on the banks themselves, where installed applications(Java based or native) provide better security, are easier to use and allow development of more complex capabilities similar to those of internet banking while SMS can provide the basics but becomes difficult to operate with more complex transactions. There is a myth that there is a challenge of interoperability between mobile banking applications due to perceived lack of common technology standards for mobile banking. In practice it is too early in the service lifecycle for interoperability to be addressed within an individual country, as very few countries have more than one mobile banking service provider. In practice, banking interfaces are well defined and money movements between banks follow the IS0-8583 standard. As mobile banking matures, money movements between service providers will naturally adopt the same standards as in the banking world.

Security

Security of financial transactions, being e executed from some remote location and transmission of financial information over the air, are the most complicated challenges that need to be addressed jointly by mobile application developers, wireless network service providers and the banks' IT departments.

Scalability & Reliability

Another challenge for the CIOs and CTOs of the banks is to scale-up the mobile banking infrastructure to handle exponential growth of the customer base. With mobile banking, the customer may be sitting in any part of the world (true anytime, anywhere banking) and hence banks need to ensure that the systems are up and running in a true 24 x 7 fashion. As customers will find mobile banking more and more useful, their expectations from the solution will increase. Banks unable to meet the performance and reliability expectations may lose customer confidence. There are systems such as Mobile Transaction Platform which allow quick and secure mobile enabling of various banking services. Recently in India there has been a phenomenal growth in the use of Mobile Banking applications, with leading banks adopting Mobile Transaction Platform and the Central Bank publishing guidelines for mobile banking operations.

Personalization

It would be expected from the mobile application to support personalization such as

1. Preferred Language
2. Date / Time format
3. Amount format
4. Default transactions
5. Standard Beneficiary list
6. Alerts

Mobile Banking through SMS

Mobile Banking with SMS is conducted through SMS codes sent to a particular number as directed by your bank. You will receive the response in the form of a text message on your mobile phone screen within a few seconds. For example to get details of your HDFC bank account you will use codes like HDFCBAL, HDFCTXN, HDFCSTM, HDFCSTP<6 digit cheque no.>, etc. for balance enquiry, last transaction details, account statement, stop cheque payment etc. respectively.

How it works?

The message sent by you travels from your mobile phone to the SMS Centre of the Cellular Service Provider, and from there it travels to the Bank's systems. The information is retrieved and sent back to your mobile phone via the SMS Centre, all in a matter of a few seconds.

Mobile Banking through WAP

Once you log onto your Bank's WAP site through your WAP/GPRS enabled mobile phone, all you need to do is enter your Cust ID and Net Banking IPIN. Then go to the Transactions Menu after selecting your account. Select any one of the Transactions like Balance Inquiry, Mini Statement, Statement Request(A Statement of Accounts for the selected account for the current period will be mailed to your address on record with the bank), Cheque Book Request (It will be mailed to your address on record with the bank), Stop Payment, Cheque Status Inquiry(will tell you if the cheque has been paid/unpaid/stopped/invalid), Fixed Deposit Inquiry(can get information on account number, principal amount, rate of interest, maturity date and maturity amount) etc.

Banks in India, whether large or small, have traditionally been required to adopt similar strategies to expanding their banking businesses. These strategies have been characterised by an almost exclusive Originate-To-Hold-till-Maturity (HTM) approach to building their asset books, with origination strategies that have often been high cost and high risk in nature and resulting in several anomalies that are currently plaguing the Indian banking system. This paper seeks to lay out a set of ideas that look at root causes of bank performance, which will then pave way for the modernisation of the sector. At the heart of these recommendations is an attempt to go back to first principles of banking and to reflect on what banks' managements and boards (notwithstanding their ownership patterns), and the banking supervisor need to focus on in order to set the course for a globally competitive banking sector for India. Some of the important recommendations pertain to a more focused adoption of approaches and tools that help reveal the true costs of origination which will then lead to better risk-based pricing, and various steps to be taken to reimagine the role of full-service banks from being 'risk originators' to 'risk aggregators' that are well equipped to actively rebalance their portfolios and use diversification as a strategy for effective risk aggregation.

Executive Summary and Key Recommendations India's banking sector is characterised by a few large national banks and many smaller banks of a regional nature, all of which have traditionally been forced to adopt similar strategies in expanding their banking business. Such strategies have been characterised by an almost exclusive Originate-To-Hold-till-Maturity (HTM) approach to managing asset books in an environment where a significant portion of credit continues to be targeted to specific 'priority' sectors at artificially low prices based on policy mandates. These high cost and high risk approaches have resulted in several anomalies that currently plague the Indian banking system. The high accumulation of non-performing assets on banks' books and the continued multi-year government-led capital infusion are only symptomatic of these anomalies. This paper seeks to lay out a set of ideas that look at root causes of bank performance, which will then pave way for the modernisation of the sector. At the heart of these recommendations is an attempt to go back to first principles of banking and to reflect on what banks' managements and boards (notwithstanding their ownership patterns), and the banking supervisor need to focus on in order to set the course for a globally

competitive banking sector for India. Below is a summary list of recommendations.

1. Banks must undertake better risk-based pricing of their loan assets and for this, banks need to rely on processes and frameworks that reveal the true costs incurred in originating loans for various borrower profiles and asset classes. These frameworks include Matched Fund Transfer Pricing (MFTP) to understand cost of funds, Activity Based Costing (ABC) to understand transaction costs, and Risk-Adjusted Performance Measurement (RAPM) for measuring the cost of equity. 2. In its risk-based supervisory process, the RBI must move away from detailed instructions in its Monitorable Action Plan (MAP) and shift towards an approach of specifying targeted risk scores for each bank based on its unique risk position. As a prudent target to place on banks, RBI can focus on ensuring that Systemically Important Financial Institutions (SIFIs) consistently meet low risk scores, while non-SIFIs have more leeway to take on risker endeavours and therefore are to meet higher capital norms commensurate with their riskiness. 3. RBI must provide differential provisioning (both standard and impaired assets) and asset classification norms that reflect the underlying riskiness of each asset class. 4. RBI must require banks to demonstrate IFRS parallel run on their books, and also require the 21 new bank licensees to become compliant with IFRS from start of business to prevent the establishment of legacy systems.
5. Banks will need to be permitted to move away from an exclusive originate-and-hold-tillmaturity strategy and gradually start to document all their loans using debenture / bond documentation so that the liquidity of their balance sheet improves. Credit facilities documented as bonds or Pass-Through Certificates (PTC), whether originated directly or purchased in the secondary markets should be permitted to be held to maturity (HTM) based on declared intent. To this end, there is no longer a need for an artificial distinction between the banking book and the trading book that prevents banks from holding bonds in the former. RBI or FIMMDA must develop and publish Standardised Debenture Trust Deed (DTD) templates that can be used by banks for bonds and loans to improve investor confidence in lower rated bonds and the tradability of loans.

6.There is a need to reimagine the role of universal banks as one that is no longer engaged as risk originators but rather as being risk aggregators, with freedoms to rebalance their portfolios based on risk-profiles and diversification outcomes that each bank decides for itself. Tools such as the Generalised Herfindahl-Hirschman Index (HHI) are useful for banks in quantifying the extent of diversification in portfolios containing a mix of assets that are correlated to various degrees. It is worthwhile to consider the use HHI as a measure of concentration risk, as has been used by the U.S. Department of Justice in its Horizontal Merger Guidelines2 .

7. RBI must require greater levels of disclosures from all banks with regard to concentration levels to each segment/sector, largest counterparties, as well as results of stress tests, both at an overall balance sheet level as well as at a segmental level at least annually so that these banks compete with each other on the strengths of their balance sheets alone, in a level playing field where no entity gets favoured over others due to lesser disclosure requirements.

8. Banks must equip themselves with instruments such as credit derivatives for better risk management of their portfolios. The permission from the RBI to use CDSs for loans held on banks' books would make CDSs much more useful as a risk management tool, and this is especially so for regional banks who can purchase CDSs from large national banks who are better placed to warehouse those risks that regional banks are exposed to.

9. Banks must be permitted to hedge commodity price risks on their agri lending portfolios and offer them to their customers on an OTC basis. In order to permit this, the Government can notify agri-commodity futures and options under the "Any other business" category of the Banking Regulations Act.

10. In order to guard against large scale defaults resulting from catastrophic events, banks must work closely with insurance companies to purchase bank-wide portfolio level insurance against events such as large scale rainfall failure on a regional or national basis, instead of having an expectation that relief would be provided from national or state budgets.

Current Credit Default Swap Guidelines56 are applicable only for corporate bonds and due to the small size of the corporate bond market, it is a foregone conclusion that while highly rated and/or highly liquid bonds of the largest corporates dominate the corporate bond market, the need for hedging credit risk on account of holding these bonds is not as pressing a concern for banks as is the case with their remaining investment and asset portfolios. Banks have traditionally been long-risk on a significant portion of their balance sheet which comprises loans held to maturity, and bonds that are usually not held till maturity (they are usually AFS or HFT). CDSs can serve as a powerful risk management tool for banks in India but for this, CDSs can be permitted to be purchased by banks to hedge their corporate loans in their banking books. These loans would entail a much larger universe of corporates including sub-investment grade companies, than only those that have highly liquid bonds traded in secondary markets. However, permitting CDS on loans would naturally pose the question of whether this would only be an imperfect hedge due to the fact that while the underlying asset itself cannot be marked to market, the CDS necessarily needs to be, and therefore this would lead to volatility in the income statement due to accounting mismatches between the hedging instrument and the hedged item. One possible way to overcome this may be by requiring such loans to be measured at fair value on a recurring basis (as is broadly required under the impending IFRS regime), the frequency of which can be in alignment with the mark-to-market requirements for CDS. Since these loans are intended to be held to maturity by the bank and therefore the bank is indifferent to future opportunities to profit from changes in the loan's fair value, having an ability to protect it by using a CDS would greatly increase demand for the product. In the case of smaller banks that are exposed to its own local systematic risks, CDSs would help greatly to transmit the individual borrower level credit risk exposure of these small banks to other institutions that at a national level would be well-equipped to hold such risks. These instruments, if permitted to be written on loans, would enhance risk management capabilities of these small financial institutions and reduce considerably the chances of single entities failing.

Mobile Banking Alerts

Some banks also provide the facility of Mobile Banking Alerts where you can get regular updates of transactions in your account as they happen. These include:

- Credits to your account (you choose a threshold credit amount, above which you'd like to be alerted)
- Debits to your account (you choose a threshold debit amount, above which you'd like to be alerted)
- Cheque returned (Get to know every time a cheque deposited in your account is returned)

In the time to come we will see more and more banks offering such services in India which will definitely make our life easier.

Very Small Aperture Terminal (VSAT)

A 2.5 m parabolic dish antenna for bidirectional Satellite Internet Access.

A Very Small Aperture Terminal (VSAT), is a two-way satellite ground station with a dish antenna that is smaller than 3 meters. Most VSAT antennas range from 75 cm to 1.2 m. Data rates typically range from 56 Kbit/s up to 4 Mbit/s. VSATs access satellites in geosynchronous orbit to relay data from small remote earth stations (terminals) to other terminals (in mesh configurations) or master earth station "hubs" (in star

configurations). g VSATs are most commonly used to transmit narrowband data (point of sale transactions such as credit card, polling or RFID data; or SCADA), or broadband data (for the provision of Satellite Internet access to remote locations, VoIP or video). VSATs are also used for transportable, on-the-move (utilising phased array antennas) or mobile maritime communications.

The first commercial VSATs were C band receive-only systems by Equatorial Communications using spread spectrum technology. More than 30,000 60 cm antenna systems were sold in the early 1980s. Equatorial later developed a C band (4/6 GHz) 2 way system using 1 m x 0.5 m antennas and sold about 10,000 units in 1984-85.

LASER (DEBIT CARD)

Laser is the primary debit card system used in the Republic of Ireland.

- Laser was launched in 1996 and currently has around 2.5 million customers. Seven Irish financial institutions are partners in the Laser card system: Allied Irish Banks, Bank of Ireland, EBS Building Society, First Active, National Irish Bank, Permanent TSB and Ulster Bank. Halifax, on the other hand, issues the Visa Debit card, and is the only bank to do so in the Republic of Ireland. Postbank do not offer Laser cards, but solely Maestro branded debit cards.

Laser is primarily an electronic point of sale debit card, but can also be used by telephone and internet. There is no maximum limit on a Chip and Pin transaction, and a EUR 1,500 maximum limit on all other transactions.[1] Laser also offers a cashback option similar to many other cards. Laser is the only non-cash payment method that is accepted by some discount stores in Ireland, namely Aldi and Lidl. Post bank and Halifax debit cards are not currently accepted in these stores.

Laser cards are not widely acceptable for online purchases made on sites operated outside of Ireland. For example, at present it is still not possible to use Laser with the Irish iTunes Music store (although it can be used to purchase hardware there). Also some major Irish companies such as Ryanair do not accept Laser payments.

ELECTRONIC COMMERCE

Electronic Commerce, commonly known as (electronic marketing) **e-commerce** or **eCommerce**, consists of the buying and selling of products or services over electronic systems such as the Internet and other computer networks. The amount of trade conducted electronically has grown extraordinarily with widespread Internet usage. The use of commerce is conducted in this way, spurring and drawing on innovations in electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems. Modern electronic commerce typically uses the World Wide Web at least at some point in the transaction's lifecycle, although it can encompass a wider range of technologies such as e-mail as well.

A large percentage of electronic commerce is conducted entirely electronically for virtual items such as access to premium content on a website, but most electronic commerce involves the transportation of physical items in some way. Online retailers are sometimes known as e-tailers and online retail is sometimes known as e-tail. Almost all big retailers have electronic commerce presence on the World Wide Web.

Electronic commerce that is conducted between businesses is referred to as business-to-business or B2B. B2B can be open to all interested parties (e.g. commodity exchange) or limited to specific, pre-qualified participants (private electronic market). Electronic commerce that is conducted between businesses and consumers, on the other hand, is referred to as business-to-consumer or B2C. This is the type of electronic commerce conducted by companies such as Amazon.com.

Electronic commerce is generally considered to be the sales aspect of e-business. It also consists of the exchange of data to facilitate the financing and payment aspects of the business transactions.

TELEPHONE BANKING

Telephone banking is a service provided by a financial institution which allows its customers to perform transactions over the telephone.

Most telephone banking uses an automated phone answering system with phone keypad response or voice recognition capability. To guarantee security, the customer must first authenticate through a numeric or verbal password or through security questions asked by a live representative. With the obvious exception of cash withdrawals and deposits, it offers virtually all the features of an automated teller machine: account balance information and list of latest transactions, funds transfers between a customer's accounts, etc.

Usually, customers can also speak to a live representative located in a call centre or a branch, although this feature is not guaranteed to be offered 24/7. In addition to the self-service transactions listed earlier, telephone banking representatives are usually trained to do what was traditionally available only at the branch: loan applications, investment purchases and redemptions, chequebook orders, debit card replacements, change of address, etc.

Banks which operate mostly or exclusively by telephone are known as phone banks.

Major Reform Initiatives In banking sector:

Some of the major reform initiatives in the last decade that have changed the face of the Indian banking and financial sector are:

- Interest rate deregulation. Interest rates on deposits and lending have been deregulated with banks enjoying greater freedom to determine their rates.
- Adoption of prudential norms in terms of capital adequacy, asset classification, income recognition, provisioning, exposure limits, investment fluctuation reserve, etc.
- Reduction in pre-emptions – lowering of reserve requirements (SLR and CRR),thus releasing more lendable resources which banks can deploy profitably.
- Government equity in banks has been reduced and strong banks have been allowed to access the capital market for raising additional capital.
- Banks now enjoy greater operational freedom in terms of opening and swapping of branches, and banks with a good track record of profitability have greater flexibility in recruitment.
- New private sector banks have been set up and foreign banks permitted to expand their operations in India including through subsidiaries. Banks have also been allowed to set up Offshore Banking Units in Special Economic Zones.
- New areas have been opened up for bank financing: insurance, credit cards, infrastructure financing, leasing, gold banking, besides of course investment banking, asset management, factoring, etc.
- New instruments have been introduced for greater flexibility and better risk management: e.g. interest rate swaps, forward rate agreements, cross currency forward contracts, forward cover to hedge inflows under foreign direct investment, liquidity adjustment facility for meeting day-to-day liquidity mismatch.
- Several new institutions have been set up including the National Securities Depositories Ltd., Central Depositories Services Ltd., Clearing Corporation of India Ltd., Credit Information Bureau India Ltd.

- Universal Banking has been introduced. With banks permitted to diversify into long-term finance and DFIs into working capital, guidelines have been put in place for the evolution of universal banks in an orderly fashion.

    - Technology infrastructure for the payments and settlement system in the country has been strengthened with electronic funds transfer, Centralised Funds Management System,Structured Financial Messaging Solution, Negotiated Dealing System and move towards Real Time Gross Settlement.

- Adoption of global standards. Prudential norms for capital adequacy, asset classification, income recognition and provisioning are now close to global standards. RBI has introduced Risk Based Supervision of banks (against the traditional transaction based approach). Best international practices in accounting systems, corporate governance, payment and settlement systems, etc. are being adopted.

- Credit delivery mechanism has been reinforced to increase the flow of credit to priority sectors through focus on micro credit and Self Help Groups. The definition of priority sector has been widened to include food processing and cold storage, software upto Rs 1 crore, housing above Rs 10 lakh, selected lending through NBFCs, etc.

- RBI guidelines have been issued for putting in place risk management systems in banks. Risk Management Committees in banks address credit risk, market risk and operational risk. Banks have specialised committees to measure and monitor various risks and have been upgrading their risk management skills and systems.

7. LITERATURE REVIEW

As per knowledge January 2022, a general outline for a literature review on the topic of "Modernization in the Banking System in India."

1. Introduction:

The banking sector plays a pivotal role in the Indian economy, serving as the backbone of financial infrastructure. It facilitates economic growth by providing essential services such as mobilizing savings, channeling funds for productive investments, and offering a range of financial products. Moreover, banks contribute significantly to financial inclusion by extending their services to diverse segments of the population. As a key enabler of economic activities, the banking sector in India serves as a catalyst for development, influencing various sectors and contributing to overall economic stability and progress

- Briefly introduce the importance of the banking sector in the Indian economy.
- Highlight the significance of modernization in adapting to the evolving financial landscape.
- Modernization in the banking sector is vital for several reasons. It enhances operational efficiency, streamlines financial services, and fosters innovation. By incorporating advanced technologies, such as digital banking and artificial intelligence, banks can improve customer experiences, reduce costs, and adapt to evolving market demands. Modernization also promotes financial inclusion, making services more accessible to a broader population. Furthermore, it strengthens cybersecurity measures, ensuring the security of digital transactions. In essence, the significance of modernization lies in its ability to drive growth, improve services, and keep the banking sector resilient in the face of technological and economic changes.

2. Historical Context:

The history of the banking system in India can be traced back to the early 19th century when the first banks, such as Bank of Hindustan and General Bank of India, were established. However, the formal banking sector's evolution gained momentum during British colonial rule. The establishment of the Presidency Banks in the early 19th century and the introduction of paper currency marked significant milestones.

Post-independence in 1947, major banking reforms were initiated, leading to the nationalization of 14 major banks in 1969 and six more in 1980. This move aimed to enhance financial inclusion and prioritize social and economic development. Subsequent decades saw the gradual liberalization of the banking sector, with the introduction of new

private and foreign banks in the 1990s.

The 21st century witnessed extensive technology adoption, ushering in the era of digital banking. Reforms, such as the merger of public sector banks and the introduction of the Pradhan Mantri Jan Dhan Yojana (financial inclusion program), continued to shape the sector. Overall, the historical trajectory reflects a transition from a colonial-era banking system to a dynamic, modernized sector aligned with the needs of a rapidly growing and evolving Indian economy.

3. Technology Adoption in Indian Banking:

- Explore the evolution of technology in Indian banking.
- The evolution of technology in Indian banking has been marked by significant strides, particularly in the late 20th century and the 21st century. In the early stages, technology adoption involved the computerization of manual processes in banks during the 1980s. The 1990s saw the introduction of Automated Teller Machines (ATMs) and electronic funds transfer, providing customers with more convenient banking options.

- The late 1990s and early 2000s witnessed the advent of internet banking, allowing customers to access and manage their accounts online. The following years saw the proliferation of mobile banking, enabling transactions through smartphones. The implementation of the Core Banking System (CBS) in the 2000s integrated various banking functions, enhancing efficiency and customer service.

- Discuss the role of Information Technology in streamlining operations.
- The 2010s marked a transformative period with the rise of digital wallets, UPI (Unified Payments Interface), and mobile payment apps. Demonetization in 2016 acted as a catalyst for the adoption of digital payment methods. Moreover, the introduction of Aadhaar-enabled payments and the promotion of digital literacy further accelerated the digitization of financial services.

4. Digital Transformation:

- Examine the impact of digital technologies on the banking sector.

Enhanced Accessibility:

Digital technologies have made banking services more accessible, allowing customers to conduct transactions, check balances, and manage accounts from anywhere with internet connectivity.

Cost Efficiency:

Automation and digitization have led to significant cost reductions for banks by streamlining operations, minimizing paperwork, and optimizing resource allocation.

Innovative Products and Services:

Digital technologies have facilitated the creation of innovative financial products and services, such as mobile banking apps, digital wallets, and robo-advisors, catering to changing consumer preferences.

Improved Customer Experience:

The digitization of banking services has resulted in a more seamless and convenient customer experience, with features like real-time transactions, instant approvals, and personalized offerings.

Financial Inclusion:

Digital technologies have played a crucial role in promoting financial inclusion by reaching previously underserved populations through mobile banking, digital payments, and other technology-driven initiatives.

Data Analytics and Personalization:

Banks leverage data analytics to gain insights into customer behavior, enabling personalized services and targeted marketing. This enhances customer satisfaction and loyalty.

Cybersecurity Challenges:

The shift to digital banking has brought about increased concerns regarding cybersecurity. Banks need to invest in robust security measures to protect customer data and maintain trust.

Global Connectivity:

Digital technologies have enabled seamless cross-border transactions, enhancing global connectivity and facilitating international trade and investment.

Regulatory Compliance:

Banks are required to adapt to evolving regulatory frameworks related to digital transactions, ensuring compliance with data protection and financial regulations.

Adaptation to Changing Trends:

The banking sector must continually adapt to emerging technologies such as blockchain, artificial intelligence, and machine learning to stay competitive and meet evolving customer expectations

5. Financial Inclusion:

- Evaluate how modernization has contributed to financial inclusion in India.

Increased Access to Banking Services:

Digital technologies, including mobile banking and internet banking, have extended banking services to remote and underserved areas, enabling individuals to access financial services without the need for physical bank branches.

Mobile Payment Systems:

The introduction of mobile payment systems and digital wallets has empowered individuals, including those without traditional bank accounts, to participate in the formal financial system by facilitating easy and secure transactions.

Aadhaar-Enabled Services:

The integration of Aadhaar, India's biometric identity system, with financial services has streamlined the account opening process and facilitated direct benefit transfers, reducing the barriers to entry for individuals lacking traditional identification documents.

Government Initiatives:

Initiatives such as the Pradhan Mantri Jan Dhan Yojana (PMJDY) aimed at providing every household with a bank account, coupled with direct benefit transfer schemes, have leveraged modernization to bring previously unbanked populations into the formal financial system.

Microfinance and Digital Lending:

Modernization has paved the way for digital lending platforms and microfinance institutions to reach individuals in rural and remote areas, providing them with access to credit and other financial services.

Financial Literacy and Education:

Digital channels enable the dissemination of financial literacy information, empowering individuals with knowledge about various financial products and services, fostering a culture of informed financial decision-making.

Business Correspondent Model:

The modernization of banking has facilitated the adoption of the Business Correspondent (BC) model, where individuals or entities act as intermediaries to provide banking services in areas with limited access to traditional banking infrastructure.

8. **RESEARCH METHODOLOGY**

Research is a systematic investigation to search for new facts in any branch of knowledge. Research helps to arrive at new conclusions. It enables to find solution to certain problems. Research is often referred to as ' scientific inquiry' into a specific problem or solution. This is because; the search for facts needs to be undertaken systematically and not arbitrarily. The systematic approach to research enables the research to search for facts in rational manner and to arrive at logical conclusion, whereas, the arbitrary approach attempts to find solutions to problems based on one's. Belief and imagination. Pauline V. Young defines "social research is a scientific undertaking which, by means of logical and systematic techniques, aims to: Discover new facts or verify and test old facts, Analyse their sequences, interrelationships and casual explanations, Develop new scientific tools, concepts and theories, which would facilitate reliable and valid study of human behavior."

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In it we study the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind them. It is actually a voyage of discovery. We all possess the vital instinct of inquisitiveness for, when the unknown confronts us, we wonder and our inquisitiveness makes us probe and attain full and fuller understanding of the unknown. This inquisitiveness is the mother of all knowledge and the method, which man employs for obtaining the knowledge of whatever the unknown, can be termed as research. It is actually a voyage of discovery. We all possess the vital instinct of inquisitiveness for, when the unknown confronts us, we wonder and our inquisitiveness makes us probe and attain full and fuller understanding of the unknown. This inquisitiveness is the mother of all knowledge and the method, which man employs for obtaining the knowledge of whatever the unknown, can be termed as research. Research is, thus, an original 61 contribution to the existing stock of knowledge making for its advancement.

It is the pursuit of truth with the help of study, observation, comparison and experiment. In short, the search for knowledge through objective and systematic method of finding solution to a problem is research.

The systematic approach concerning generalization and the formulation of a theory is also research. As such the term 'research' refers to the systematic method consisting of enunciating the problem, formulating a hypothesis, collecting the facts or data, analyzing the facts and reaching certain conclusions either in the form of solutions(s) Towards the concerned problem or in certain generalizations for some theoretical formulation.

Objectives of Research

1. To gain familiarity with a phenomenon or to achieve new insights into it (studies with this object in view are termed as exploratory or formulative research studies)

2. To portray accurately the characteristics of a particular individual, situation or a group (studies with this object in view are known as descriptive research studies)

3. To determine the frequency with which something occurs or with which it is associated with something else (studies with this object in view are known as diagnostic research studies).

4. To test a hypothesis of a causal relationship between variables (such studies are known as hypothesis-testing research studies).

QUESTIONNAIRE

1. **How often do you use banking services?**

- Daily
- Weekly
- Monthly
- Rarely

2. **For Transactions, Which UPI app are most used by the people?**
- Google Pay
- BHIM
- Phone pe
- Paytm

3. **What kind of difficulties people face while using the UPI app ?(Problems in using UPI)**
- Bank server down
- Transaction failed
- Money get transferred within 3 days
- No difficulties

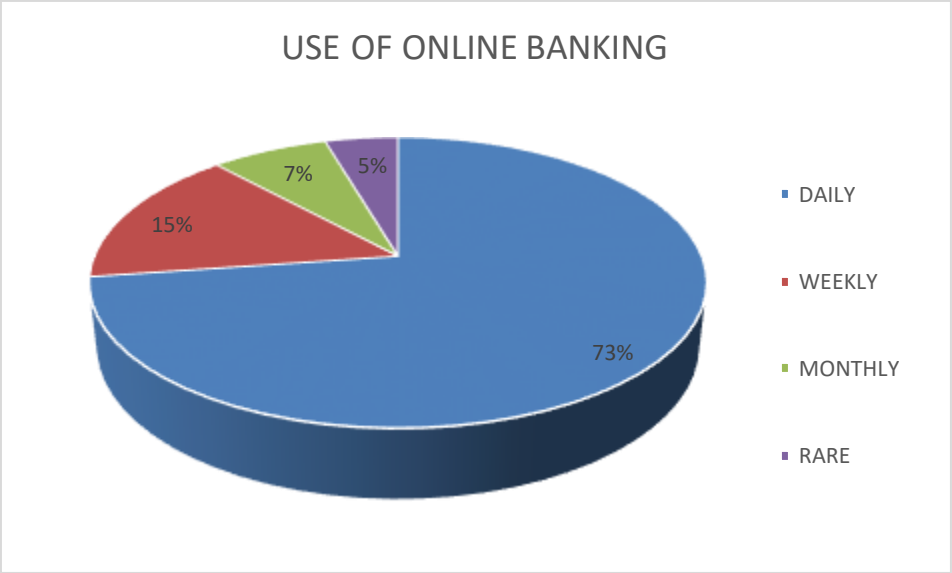
4. **What is the impact of COVID-19 on the usage of UPI?**
- More digital
- Only digital
- Same as before

5. **Are you aware of recent technological advancements adopted by your bank?**
- Yes 80%

- No 20%

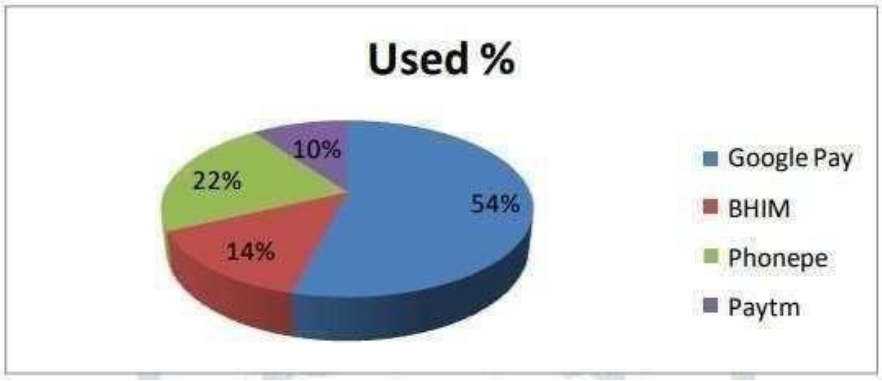
9. DATA ANALYSIS AND INTERPRETATION

1. How often do you use banking services?



- From the above data, it is observed that the People use services 73%
- people is used weekly 15%
- 7% People is used service
- 5% rarely use banking Sevices

2. For Transactions, Which UPI app are most used by the people?



Interpretation: -

- From the above data, it is observed that the Google Pay app is the most used UPI app i.e. 54%. After Google Pay, Phonepe(22%) is used most by users.
- Reasons for more use of Google Pay and Phonepe apps can be cashback, offers & discounts. Usage percentage of BHIM & Paytm app is 14% and 10% respectively.

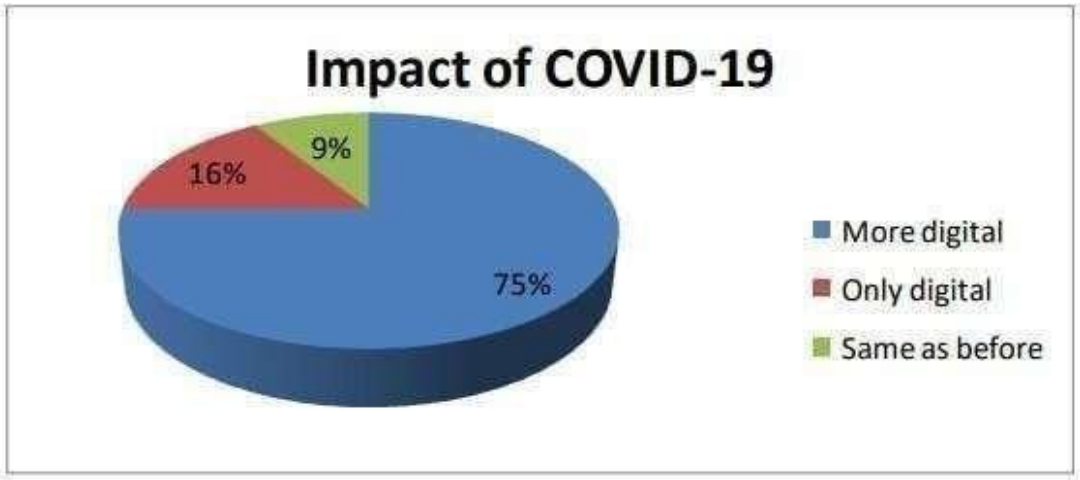
3. What is the impact of COVID-19 on the usage of UPI?

Interpretation: -

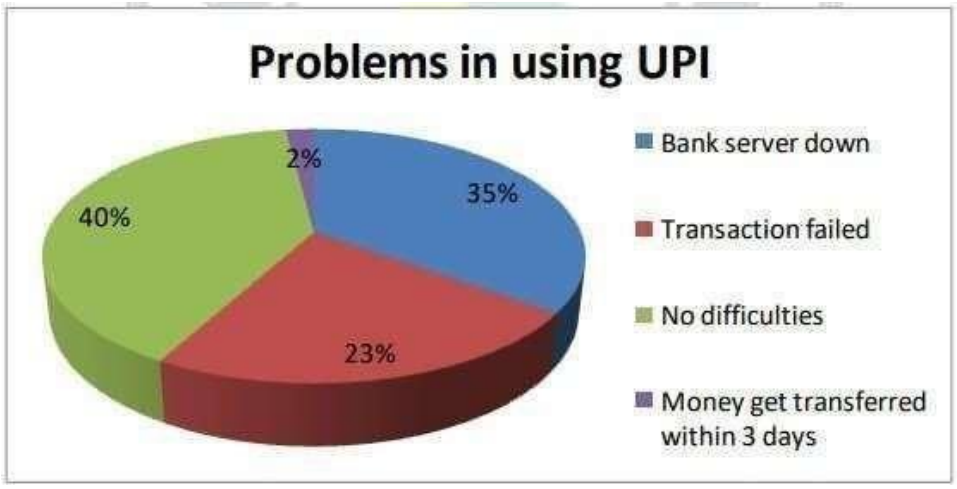
· From the above data, it is observed that there is a higher use of digital payment methods than cash payments i.e. 75% of users use digital methods for making.

· transactions.

· Around 16% of users use only digital payment methods. 9% of users still make payments as before.



4. **What kind of difficulties people face while using the UPI app ?(Problems in using UPI)**



Interpretation: -

- From the above data, there are 2 major problems faced by UPI app users
- i.e. Bank server down(35%)
- Transaction failures(23%). 40% of users seem to have no difficulties while making transactions. 2% of users mentioned the problem that money gets transferred within 3 days.

10. CHALLENGES AHEAD IN BANKING SECTOR

***(i) Improving profitability*:** The most direct result of the above changes is increasing competition and narrowing of spreads and its impact on the profitability of banks. The challenge for banks is how to manage with thinning margins while at the same time working to improve productivity which remains low in relation to global standards. This is particularly important because with dilution in banks' equity, analysts and shareholders now closely track their performance. Thus, with falling spreads, rising provision for NPAs and falling interest rates, greater attention will need to be paid to reducing transaction costs. This will require tremendous efforts in the area of technology and for banks to build capabilities to handle much bigger volumes.

***(ii) Reinforcing technology*:** Technology has thus become a strategic and integral part of banking, driving banks to acquire and implement world class systems that enable them to provide products and services in large volumes at a competitive cost with better risk management practices.

The pressure to undertake extensive computerisation is very real as banks that adopt the latest in technology have an edge over others. Customers have become very demanding and banks have to deliver customised products through multiple channels, allowing customers access to the bank round the clock.

(iii) Risk management: The deregulated environment brings in its wake risks along with profitable opportunities, and technology plays a crucial role in managing these risks. In addition to being exposed to credit risk, market risk and operational risk, the business of banks would be susceptible to country risk, which will be heightened as controls on the movement of capital are eased. In this context, banks are upgrading their credit assessment and risk management skills and retraining staff, developing a cadre of specialists and introducing technology driven management information systems.

(iv) **Sharpening skills**: The far-reaching changes in the banking and financial sector entail a fundamental shift in the set of skills required in banking. To meet increased competition and manage risks, the demand for specialised banking functions, using IT as a competitive tool is set to go up. Special skills in retail banking, treasury, risk management, foreign exchange, development banking, etc., will need to be carefully nurtured and built. Thus, the twin pillars of the banking sector i.e. human resources and IT will have to be strengthened.

Greater customer orientation: In today's competitive environment, banks will have to strive to attract and retain customers by introducing innovative products, enhancing the quality of customer service and marketing a variety of products through diverse channels targeted at specific customer groups.

(v) **Corporate governance**: Besides using their strengths and strategic initiatives for creating shareholder value, banks have to be conscious of their responsibilities towards corporate governance. Following financial liberalisation, as the ownership of banks gets broadbased, the importance of institutional and individual shareholders will increase. In such a scenario, banks will need to put in place a code for corporate governance for benefiting all stakeholders of a corporate entity.

(vi) **International standards**: Introducing internationally followed best practices and observing universally acceptable standards and codes is necessary for strengthening the domestic financial architecture. This includes best practices in the area of corporate governance along with full transparency in disclosures. In today's globalised world, focusing on the observance of standards will help smooth integration with world financial markets.

WHAT HOLDS THE KEY FOR BANKS PROSPERTIY? - INNOVATIONS IN BANKING

Innovation calls for vision and conviction. Innovation helps us make the product/provide services highly suited for the targeted application. Successful innovation is not about the ideas or inventions; it's about the people. Innovation can be defined as the key process by which products, processes and services are created, and by which businesses generate jobs and wealth. Innovation isn't all about great ideas. Innovation is a chain that requires strength at every link to succeed. The chain starts with idea generation, but then moves to prioritizing and funding ideas, to converting those ideas to products/services and finally to diffusing those products/services and business practices across the institution/bank.

Innovation calls for certain discernment on the part of the service delivery system of banks to design the services in such a way that the customer is much delighted as to how the business process is effectively carried out and how easily with least time and distress is delivered to them.

In a situation of global economic crisis, institutions will need to shake hands with a new generation of price optimization system, customer relationship management platforms and Web-enabled tools that expand relationships and grow wallet share. Customers who have adapted to the mass customization of the Internet's long tail - and who are used to getting personal recommendations from e-retailers can't understand why an institution that has so much information about them can't offer tailored products and services. Banks that change that perception by using automated tools to fine-tune products will be well-positioned. Today banks dive deeper than ever before to connect with consumers. To this the government at the Centre (Indian central government) through the RBI fine tunes the banking system by reducing the CRR and lowering repo and reverse repo rates.

Looking for new frontiers in revenue growth, banks are discovering interesting opportunities in the way they satisfy their customers. What are the key factors that appeal to bank customers and entice them to do more business? As in most service industries, overall responsiveness and behavioral attributes account for a 10- percent margin in customer satisfaction.

When it comes to speed of service and the attitude of the people who deliver that service, banks should improve their personal touch. Furthermore, advanced technologies provide bank managers and staff valuable help because convoluted legacy systems hinder the prompt delivery of banking services and the integration of customer information. Notwithstanding a positive service attitude, ailing technology systems could severely constrain the ability of bank personnel to satisfy customer demands. Technology also plays a role with other drivers of customer satisfaction, such as quality of service and product innovation. In order to be effective in luring customers, banks should invest in fundamental improvements in their people, process, and technology capabilities.

Service delivery

Most business houses believe that they do deliver superior things to their clients. But at most times they do not satisfy at least half of their expectations. Which means that business fail to understand their customers and there is no innovation in business. When customers appreciate the way a business is carried then there should be necessarily innovation taking place. Following are some aspects which will make a bank to be more innovative in its service delivery.

Alerts to keep customer on budget: Informing customer when they near their minimum balance requirement and intimating every time drawls are made through sms alert or email service**.**

Easy Deposit: Scanning cheques from home and the same may be directly deposited into the account of the customer, provided the cheque has the MICR code and other security features. Informing the issuer of the cheque for counter- checking the amount details through email or sms alert can be another innovation for safety of banking transactions.

Account-to-account transfers: Make a transfer to or from an account at another bank or credit union or consortium arrangement – already banks are doing under the core banking system. But the cost of service has to be made very less.

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Live chat support: An interactive voice support system or a 24 hours online chatting system with the banks representative have to arranged after ensuring with the system a fraud-free chatting.

Enhanced online security: Innovation means also ensuring more security features. Banks should customize a security phrase and image at login for even greater protection. This will ensure accidental visitor online from entering into one's account details.

View every transaction: Customers have to given the choice to see a list of each deposit and withdrawal, along with images of cheques/drafts that have been cashed and provide a running statement online - including credit card and debit card accounts.

Creditor/debtor online clearing: Though some organizations have resorted to the practice of direct credit of customer accounts instead of issue of cheque/DDs, but many organizations has not taken this route as there are some practical problems like, accountability for tax and online checking of credits and debits.

Charges/fee notification: There is a general criticism of customers, especially of individual customers that, banks charges for deposit in other branches (from non-base branches), cheque collection, annual 'card' charges, charges for issue of statements and the like are charged without notifying the quantum of charges to the customer. It becomes known only when a customer updates his passbook or get a statement from the bank. Annoying the customer by these of charges could be avoided and at the same time the banks could continue charging them, by giving an sms alert or email that such and such charges are levied.

New technologies for customers: The use of technology like Smart card, mobile ATMs, coverage of post-offices under electronic payments network in far flung areas, etc. in providing financial services to the people holds a tremendous potential for the business growth.

Having human touch: Although today's banking system has become mostly online and a customer need not visit the branch at all for further transactions, yet most customer walk-back to their branches to have a human touch and see their account operations done manually atleast once in a month and once in two months. This requires a sort of human touch by the bank employees with the customer- innovations could be introduced in receiving and dealing with a customer and minimize his number of visits to the branch.

VIRTUAL BANKING

Various technological and payment systems developmental initiatives are undertaken in the Indian banking and financial sector. The system has moved to a ‘virtual' banking system gradually in view of IT penetration in every sphere of banking.

The Core Banking concept to a great extent emerged from the IT infrastructure and this enabled the centralization process and has since received a complete and focused attention from all the banks for its rapid implementation. The banks have also undergone a massive change in terms of improvement in the IT Communication network which has greatly facilitated not only the networking of the internal communication processes but the integration with the external payment systems gateways as well.

The offering of electronic banking service channels like Internet Banking, Mobile Banking, real time fund transfer, ATM Applications and other forms of upcoming electronic banking channels have become important vehicles of offering banking services in a cost- efficient manner with wide geographical spread; enhancing the banks' reputation and brand building addressing the competitive forces as Operational comfort and convenience of operations in a highly challenging environment for banks. The most important requirement relates to looking at the convenience of customers either online or offline.

OPERATIVE EFFICIENCY

It's important to recognize that customers' needs, priorities, and choices are different now than the past. Any organization that relies on an outdated set of beliefs about customer is more likely to accelerate their irrelevance than ensure their success. Reorienting the organizations toward operational efficiency needs the following corrective steps.

- Observe changes in the environment in real time… while aggressively avoiding the strong tendency to just see what you expect or hope to see
- Orient yourself quickly to what those changes mean… being careful to challenge and revise outdated assumptions and beliefs
- Decide on a course of action… chosen from range of creative alternatives most relevant to the changing environment
- Act in a coordinated and unconstrained manner… while being ready to observe, orient, decide and act to ensure progress and enable course corrections as necessary.

FUTURE CHALLENGES AND PROSPECTS ON SERVICE DELIVERY AND INNOVATIONS

The future opportunity lies in the form of integration of the Indian banking and financial system with the Government's e- Governance initiatives. The electronic benefits in this regard would be passed on to the beneficiaries directly thereby preventing the leakage of the funds provided under various Government's schemes like e- payments, etc. for the upliftment of the people. The collective efforts of the Government, banks, financial institutions and the IT firms to provide innovative solutions for an inclusive growth of the Indian economy will certainly go a long way not only for the sustained growth of the financial system but the Indian economy as a whole.

Customers are continuing to opt for and engage in experiences that are designed to meet their needs. It's just that their needs and priorities are changing significantly. Banks that understand and quickly adapt to these changes can not only preserve but enhance revenue in the short term. When a customer enters a bank branch, checks into a hotel, enrolls with a health insurance provider, etc… they have a set of constructs they've learned from past experiences and that operate within a perceptual framework that enables gist processing.

Experiences designed based on this perceptual framework and set of experiential constructs become inherently easy to navigate. Many organizations have placed an increasing amount of attention on the quality of the experience their customers have. However, the first mistake most organizations make is focusing on what the company does to deliver a customer experience rather than taking a step-back and thinking first about how customers actually have experiences. The second biggest mistake is the way most banks listen to and react to customers' suggestions about what to do to improve the experience.

Emotional touch on customers, change how they feel. This can be brought through delivery of innovative solutions to people's underlying, end-to-end problems. Finding these solutions requires getting below-the-surface of existing touch points.

Prospects:

Artificial Intelligence and Automation:

AI and automation have the potential to revolutionize service delivery by improving efficiency, reducing costs, and enhancing customer experiences. Applications include chatbots, virtual assistants, and process automation.

Blockchain Technology:

Blockchain has the potential to enhance security, transparency, and traceability in various industries. It could transform processes like supply chain management, financial transactions, and identity verification.

5G Technology:

The widespread implementation of 5G technology promises faster and more reliable connectivity, opening the door to innovations such as augmented reality (AR), virtual reality (VR), and the Internet of Things (IoT).

Personalized and Predictive Services:

Advanced analytics and machine learning enable businesses to offer personalized and predictive services. Understanding customer behavior and preferences allows for tailored service delivery.

Digital Health Innovations:

Telemedicine, wearable devices, and health monitoring apps have the potential to transform healthcare service delivery, making it more accessible and personalized.

Ecosystem Collaboration:

Future service delivery may involve increased collaboration between different industries and service providers. Creating seamless ecosystems that cater to various customer needs could be a key trend.

Regenerative Design and Sustainable Innovations:

Innovations that focus on regenerative design and sustainability are likely to gain prominence. Businesses and industries will increasingly prioritize environmentally friendly practices in their service delivery.

Agile and Adaptive Organizations:

Agile methodologies and organizational structures that foster innovation and rapid adaptation will be crucial. Companies that can quickly pivot to meet changing market demands will have a competitive advantage.

A1. Products:

Mortgage loans are one suite of products that have experienced a great deal of change over the past 25 years in the United States. In 1980, long-term fully amortizing fixed-rate mortgages were the norm and this product was offered primarily by thrift institutions. Moreover, these loans required substantial down payments and a good credit.

Predicting the future of service delivery and innovations is inherently challenging, but several trends and potential challenges are likely to shape the landscape in various industries. Here are some future

challenges and prospects related to service delivery and innovations:

Challenges:

Technology Risks:

The increasing reliance on advanced technologies such as artificial intelligence (AI), machine learning, and automation introduces the risk of technical glitches, system failures, and cybersecurity threats.

Data Privacy and Security Concerns:

As more services become digitized, ensuring the privacy and security of customer data will be an ongoing challenge. Regulatory compliance and safeguarding against cyber threats will be critical.

Inclusive Innovation:

Ensuring that innovations are inclusive and address the needs of diverse populations can be challenging. Bridging the digital divide and making technology accessible to all segments of society is essential.

Regulatory Compliance:

The pace of technological innovation often outstrips the ability of regulators to keep up. Striking the right balance between fostering innovation and ensuring consumer protection will be an ongoing challenge.

Adapting to Changing Consumer Expectations:

Meeting evolving consumer expectations is a perpetual challenge. As consumers become more tech-savvy, businesses need to stay ahead of the curve to deliver personalized, seamless, and convenient services.

These characteristics have markedly evolved. The first big change occurred in the early 1980s with the widespread introduction of various types of adjustable-rate mortgages (ARMs), which had previously been banned by federal regulators. The Tax Reform Act of 1986, which ended federal income tax deductions for non-mortgage consumer debt, spurred substantial growth in home equity lending. One mortgage innovation more directly tied to technological change is subprime lending, which was originally predicated on the use of statistics for better risk measurement and risk-based pricing to compensate for these higher risks. However, the subprime mortgage crisis has uncovered significant shortcomings in the underlying statistical models.

* Subprime Mortgages: Subprime mortgage lending, broadly defined, relates to borrowers with poor credit histories or high leverage as measured by either debt/income or loan-to-value. This market grew rapidly in the U.S during the first decade of the twenty-first century – averaging about 20% of residential mortgage orginations between 2004 and 2006. At the end of 2007, subprime mortgages outstanding stood at $940 billion; down from over $1.2 trillion outstanding the previous year (Inside Mortgage Finance 2008).

Since the onset of the subprime mortgage crisis, research has attempted to identify various sources of the problem. Mayer, Pence and Scherlund (forthcoming) provide an overview of the attributes of subprime mortgages outstanding during this time and investigate why delinquencies and defaults increases so substantially. These authors, as will as Gerarbi, Lehnert, Sherlund, and Willen (forthcoming), point to significant increase in borrower leverage during the mid-2000s, as measured by combined loan-to-value (CLTV) ratios, which was soon followed by falling house prices.

A2. Services:

Recent service innovations primarily relate to enhanced account access and new methods of payment-each of which better meets consumer demands for convenience and ease. Automated Teller Machines (ATMs), which were introduced in the early 1970s and diffused rapidly through the 1980s, significantly enhanced retail bank account access and value by providing customers with around the clock access to funds. ATM cards were then largely replaced through the 1980s and 1990s by debit cards, which bundle ATM access with the ability to make payment from a bank account at the point of sale. Over the past decade, remote access has migrated from the telephone to the personal computer. Online banking, which allows customers to monitor accounts and originate payments using "electronic bill payment," is now widely used. Stored-value, or prepaid, cards have

* Debit Cards: Debit cards are essentially "pay-now" instruments linked to a checking account whereby transactions can happen either instantaneously using online (PIN based) methods or in the near future with offline (signature based) methods. Consumers typically have the choice of using online or offline methods, and their selection often hinges on the respective benefits. Online debit allows the cardholder also to withdraw cash at the point-of-sale, and offline provides float. According to ATM & Debit News (2007), there were approximately

26.5 billion debit transactions in the U.S. during 2006. This is up from

6.5 billion transactions in 1999 – a four-fold increase.

* Online Banking: As households and firms rapidly adopted internet access during the late-1990s, commercial banks established an online presence. According to De Young (2005), the first bank websites were launched in 1995: and by 2002 nearly one-half of all U.S. banks and thrifts operated transactional websites. As of 2007, bank call report data suggests that 77.0 percent of commercial banks offer transactional websites (and these banks control 96.8 percent of commercial bank deposits).

The primary line of research relating to online banking has been aimed at understanding the determinants of bank adoption and how the technology has affected bank performance. In terms of online adoption. Furst, Lang, and Nolle (2002) find that U.S. national banks (by the end of the third quarter of 1999) were more likely to offer transactional websites if they were: larger, younger, affiliated with a holding company, located in an urban area, and had higher fixed expenses and non-interested income. Turning to online bank performance, De Young, Lang, and Nolle (2007) report that internet adoption improved U.S. community bank profitability – primarily through deposit-related charges. In a related study, Hernando and Nieto (2007) find that, over time, online banking was associated with lower costs and higher profitability for a sample of Spanish banks. Both papers conclude that the internet channel is a complement to – rather than a substitute for – physical bank branches.

* Prepaid cards: As the name implies, prepaid cards are instruments whereby cardholders "pay early" and set aside funds in advance for future purchases of goods and services. (By contrast, debit cards are "pay-now", and credit cards are "pay later"). The monetary value of the prepaid card resides either of the card or at a remote database. According to Mercator Advisory Group, prepaid cards accounted for over $180 billion in transaction volume in 2006.

Prepaid cards can be generally delineated as either "closes" systems (e.g., a retailer-specific gift card, like Macy's or Best Buy) or"open" systems (e.g., a payment-network branded card, like Visa or MasterCard). Closed-system prepaid cards have been effective as a cash substitute on university campuses, as well as for mass transit systems and retailers.

A3. Production Processes

The past 25 years have witnessed important changes in banks production processes. The use of electronic transmission of bank-to- bank retail payments, which had modest beginnings in the 1970s, has exploded owing to greater retail acceptance, online banking and check conversion. In terms of intermediation, there has been a steady movement toward a reliance on statistical models. For example, credit scoring has been increasingly used to substitute for manual underwriting – and has been extended even into relationship-oriented products like small business loans. Similar credit risk measurement models are also used when creating structured financial products through "securitization". Statistical modelling has also become central in the overall risk management processes at banks through portfolio stress testing and value-at-risk models – each of which is geared primarily to evaluating portfolio value in the face of significant changes in financial asset returns.

Asset Securitization: Asset securitization refers to the process by which non traded assets are transformed into the U.S., securitization is widely used by large originators of retail credit – specifically mortgages, credit cards and automobile loans. As of year-end 2007, federally sponsored mortgage pools and privately arranged ABS issues (including private-label mortgage-backed securities) totalled almost $9.0 trillion in U.S. credit market debt outstanding.

By contrast, as of year-end 1990, these figures were $1.3 trillion, respectively. One recent innovation in the structured finance/securitization area is the introduction of collateralized debt obligations (CDOs). According to Longstaff and Rajan (2006) these instruments, which were first introduced in the mid-1990s, are now in excess of $1.5 trillion. Like ABS, CDOs are also liabilities issued by financial-institution-sponsored trusts, which essentially pool and restructure the priority of cash flows associated with other types of risky financial assets, including senior and mezzanine ABS, high- yield corporate bonds and bank loans.

* Risk Management: Advances in information technology (both hardware and software) and financial theory spurred a revolution in bank risk management over the past two decades. Two popular approaches to measuring and managing financial risks are stress- testing and value-at-risk (VaR). In either case, the idea is to identify the level of capital required for the bank to remain solvent in the face of unlikely adverse environments.

* Organisational Forms: new bank organizational forms have emerged in the United States over the past few decades. Securities affiliates (so-called "section 20" subsidiaries or the creation of "financial holding companies") for very large banks and Subchapter S status for very small banks, were the by product of regulatory/legal evolution. Indeed, only one new organizational form, the internet-only bank, arose from technological change. These institutions, which quickly emerged and disappeared, may represent an interesting laboratory for the study of "failed" financial innovations. We believe that understanding such experimental failures may hold important insights for understanding the keys to successful innovations.

11. CONCLUSION

The face of banking is changing rapidly. Competition is going to be tough and with financial liberalisation under the WTO, banks in India will have to benchmark themselves against the best in the world. For a strong and resilient banking and financial system, therefore, banks need to go beyond peripheral issues and tackle significant issues like improvements in profitability, efficiency and technology, while ghachieving economies of scale through consolidation and exploring available cost-effective solutions. These are some of the issues that need to be addressed if banks are to succeed, not just survive, in the changing milieu.

Over the last three decades the role of banking in the process of financial intermediation has been undergoing a profound transformation, owing to changes in the global financial system. It is now clear that a thriving and vibrant banking system requires a well developed financial structure with multiple intermediaries operating in markets with different risk profiles. Taking the banking industry to the heights of international excellence will require a combination of new technologies, better processes of credit and risk appraisal, treasury management, product diversification, internal control and external regulations and not the least, human resources. Fortunately, we have a comparative advantage in almost all these areas. Our professionals are at the forefront of technological change and financial developments all over the world. It is time to harness these resources for development of Indian banking in the new century.

12. WEBLIOGRAPHY

- www.google.com
- www.yahoo.com
- www.wikipedia.com

13. BIBLIOGRAPHY

- Banking Financial System - P.K.Bandgar
- Banking and Financial Service in India – Renu Sobti
- Principles of Banking – Macmillum
- Basics of Banking and Finance – K.M. Bhattachrya