

**CYBERCRIME OF BANKING SECTOR IN INDIA,  
CHALLENGES AND REMEDIES**

**A DISSERTATION TO BE SUBMITTED IN PARTIAL FULFILMENT OF  
THE REQUIREMENT FOR THE AWARD OF DEGREE OF MASTER OF  
LAWS**

**SUBMITTED BY**  
**NANDITA SINGH**  
**ROLL NO 1200990016**  
**LL.M-2**  
**SCHOOL OF LEGAL STUDIES**

**UNDER THE GUIDANCE**  
**OF**  
**TRISHLA SINGH**  
**ASSISTANT PROFESSOR**  
**SCHOOL OF LEGAL STUDIES**



**BBD UNIVERSITY**

**SESSION 2020-21**

## **CERTIFICATE**

This is to certify that the dissertation titled, “**CYBERCRIME OF BANKING SECTOR IN INDIA, CHALLENGES AND REMEDIES**” is the work done by **Nandita Singh** under my guidance and supervision for the partial fulfilment of the requirement for the Degree of **Master of Laws** in School of Legal Studies Babu Banarasi Das University, Lucknow, Uttar Pradesh.

I wish her/his success in life.

**Date. 05/07/2021**

**Place-Lucknow**

**TRISHLA SINGH**

**(Assistant Professor)**

## **DECLARATION**

Title of Dissertation “**Cybercrime of Banking Sector in India, Challenges and Remedies**”.

I understand what plagiarism is and am aware of the University’s policy in this regard.

**Nandita Singh**

Roll no 1200990016

LL.M-2

I declare that

- (a) This dissertation is submitted for assessment in partial fulfilment of the requirement for the award of degree of **Master of Laws**.
- (b) I declare that this **DISSERTATION** is my original work. Wherever work from other source has been used i.e., words, data, arguments and ideas have been appropriately acknowledged.
- (c) I have not permitted, and will not permit, anybody to copy my work with the purpose of passing it off as his or her own work.
- (d) The work conforms to the guidelines for layout, content and style as set out in the Regulations and Guidelines.

**Date :05/07/2021**

**Place- Lucknow**

**NANDITA SINGH**

**Roll no 1200990016**

**LL.M-2**

**Corporate and**

**Commercial law**

## **ACKNOWLEDGEMENT**

I owe an indeed thanks to many people who helped and supported me during the making of this Dissertation who all put their faith in me and supported me directly or indirectly throughout the research and study made in this regard.

I would like to express my gratitude to for providing me the foundation and opportunity to be a part of the university.

Foremost, I would like to express my sincere gratitude to my guide **Trishla Singh** for the continuous support of my Dissertation throughout my study and research, for her patience, motivation, enthusiasm, and immense knowledge. Her guidance helped me in all the time of research and writing of this thesis. I could not have imagined having a better advisor and mentor for my Dissertation.

Last but not the least I also extend my heartfelt thanks to my family for their immense support throughout my life and to my friends.

**NANDITA SINGH**  
**Roll no 1200990016**  
**LL.M-2 Corporate &**  
**Commercial law**

## LIST OF ABBRIVATION

- ❖ **ACLU-----AMERICAN CIVIL LIBERTIES UNION**
- ❖ **ACRA-----ANTISQUATTING CONSUMER REFORM AC**
- ❖ **ADB----- ASIAN DEVELOPMENT BANK**
- ❖ **AIC----- ANTI INDIA CREW**
- ❖ **AIDP----- ASSOCIATION INTERNATIONALE DE DROIT  
PONAL**
- ❖ **B2B----- BUSINESS-TO-BUSINESS**
- ❖ **B2C----- BUSINESS-TO-CONSUMERS**
- ❖ **BARC----- BHABA ATOMIC RESEARCH CENTRE**
- ❖ **BBS----- BULLETIN BOARD SYSTEMS**
- ❖ **CC----- CARBON COPY**
- ❖ **CCA-----CONTROLLER OF CERTIFYING AUTHORITIES**
- ❖ **CD----- -COMPACT DISC**
- ❖ **CDA----- COMMUNICATIONS DECENCY ACT**
- ❖ **DDOS-----DENIAL-OF-SERVICE**
- ❖ **UDNDRP----- -UNIFORM DOMAIN NAME DISPUTE  
RESOLUTION POLICY**
- ❖ **UDP-----USER DATAGRAM PROTOCOL**
- ❖ **ULSI-----ULTRA LARGE SCALE INTEGRATION**
- ❖ **UNCITRAL----- UNITED NATIONS COMMISSION ON INTERNATIONAL  
TRADE LAW**
- ❖ **UNDCP----- UNITEDNATIONS DRUG CONTROL PROGRAMME**
- ❖ **UNODCCP----- UNITED NATIONS OFFICE FOR DRUG CONTROLAND  
CRIME PREVENTION**
- ❖ **URL-----UNIFORM RESOURCE LOCATOR**
- ❖ **VA-----VULNERABILITY ASSESSMENT**
- ❖ **VLSI-----LARGE SCALE INTEGRATION**
- ❖ **WAN-----WIDE AREA NETWORK**

- ❖ **WCO-----WORLD CUSTOMS ORGANISATION**
- ❖ **WFD-----WORLD FANTABULOUS DEFACERS**
- ❖ **WIPO-----WORLD INTELLECTUAL PROPERTY**
- ❖ **WWW-----WORLD WIDE WEB**
- ❖ **YIHAT----- ---YOUNG INTELLIGENT HACKERS AGAINST TERROR**

## TABLE OF CASES

- ❖ **AVNISH BAJAJ V STATE (N.C.T.) OF DELHI 150(2008)DLT769, 2008(105)DRJ721**
- ❖ **“AVTAR SINGH VS. STATE OF PUNJAB” (AIR 1965 SC 666).**
- ❖ **DAYA SINGH LAHORIA V. UNION OF INDIA (2001) 4 SCC 516**
- ❖ **FEDERAL TRADE COMMISSION,(PLAINTIFF,)VS CYBER SPY SOFTWARE, LLC, AND TRACER R. SPENCE,(DEFENDANTS) CASE NO. 6:08-CV-1872-ORL-31GJK**
- ❖ **HANS MULLER OF NUREMBERG V. SUPERINTENDENT PRESIDENCY JAIL, CAL. ( AIR 1955 SC 367)**
- ❖ **ICICI BANK V. ASHISH AGRAWAL – STATE CONSUMER DISPUTES REDRESSAL COMMISSION, RAIPUR- (APPEAL NO. 435/2009)**
- ❖ **KING V. STATE EX REL. MURDOCK ACCEPTANCE CORP., 222 SO. 2D 393 (MISS., 1969)**
- ❖ **LOWER MERION SCHOOL DISTRICT (APPELLANT) V BLAKE J. ROBBINS, (RESPONDENT ) IN HANSON COURT FILE ON MARCH 9, 2012, APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF PENNSYLVANIA. DATE FILED: FEBRUARY 23, 2010.**
- ❖ **M/S.INDIAN BANK VS. M/S.PALPAP ICHINICHI SOFTWARE INTERNATIONAL LTD.,WRIT PETITION FILED ON 11 JULY, 2012WRIT PETITION NOS.4696 AND 12854 OF 2012 AND M.P.NOS.1, 1 AND 2 OF 2012**
- ❖ **NASSCOM VS AJAY SOOD AND OTHERS (23MARCH 2005) IN DELHI HIGH COURT.**
- ❖ **NATIONAL ASSOCIATION OF SOFTWARE AND SERVICE COMPANIES (NASSCOM), VS. AJAY SOOD AND ORS. ON 23 MARCH, 2005 119 (2005) DLT 596, 2005 (30) PTC 437 DEL.**
- ❖ **NIRAV NAVINBHAI SHAH & 4 ORS. V STATE OF GUJARAT AND ANR. (IN THE HIGH COURT OF GUJARAT)**
- ❖ **RISHI GUPTA V. ICICI BANK LTD. - BEFORE THE CONSUMER DISPUTES REDRESSAL FORUM, BANGALORE-(CC NO. 514 OF 2010)**
- ❖ **SHRI THOMAS RAJU VS. THE BRANCH MANAGER, ICICI BANK, ANNA NAGAR BRANCH, CHENNAI CASE DECIDED BY- THE**

**ADJUDICATING OFFICER, GOVERNMENT OF TAMILNADU, CIVIL JURISDICTION PETITION NO.3 OF 2011 DATED 16TH MAY 2011.**

- ❖ **SANDEEP VARGHESE V/S STATE OF KERALA**
- ❖ **SANJAY KUMAR VS. STATE OF HARYANA ON 10TH JAN, 2013 CRR NO.66 OF 2013 (O&M).**
- ❖ **SH. HARISH KUMAR C. VAKARIA (APPELLANT) VS M/S INDIA INFOLINE LTD (RESPONDED) -2 APPEAL NO. 1/2009 IN CYBER APPELLATE TRIBUNAL DATE OF DECISION 26/10/2010**
- ❖ **SMT. MATHRI V. STATE OF PUNJAB AIR 1964 SC 986; 1964(2) CR LJ 57, 1964 (5) SCR 916.**
- ❖ **SONY BMG VS GIRARD GIBS AND KAMBER & ASSOCIATES NEW YORK CD TECHNOLOGIES LITIGATION, CASE NO. 1:05-09676-NRB. JAN6,2002**
- ❖ **SONY INDIA PRIVATE VS ARIF AZIM 2002**



## TABLE OF CONTENT

Certificate	ii
Declaration	iii
Acknowledgement	iv
List of abbreviation	v
Table of cases	vi

### CHAPTER-I

**1-21**

<b>INTRODUCTION</b>	<b>1</b>
REASONS FOR CYBER CRIME:	4
CRIME IN ANCIENT INDIA.	5
CYBER CRIME IN BANKING SECTOR:	5
THE FIRST RECORDED CYBER CRIME	10
COMPUTER CRIME & CYBER CRIME	10
COMPUTER CRIME	10
DEFINITION OF CYBER CRIME	11
TYPES OF CYBER CRIMES AGAINST E- BANKING IN INDIA	11
REVIEW OF THE LITRATURE	14
OBJECTIVES OF THE STUDY	15
STATEMENT OF THE PROBLEM	16
HYPOTHESES OF THE STUDY	18
RESEARCH METHODOLOGY	19
SOURCES OF DATA	20
DATA ANALYSIS	21

### CHAPTER-II

**22-66**

PROGRESS OF BANKS IN INDIA, MEANING AND CONCEPT OF E-BANKING, CYBER CRIMES IN BANKING SECTOR AND OFFENSES RELATED WITH BANKS.	22
DEFINITION OF E-BANKING	22
PROGRESS OF E-BANKING	23
FUNCTIONS OF E-BANKING	23
E-BANKING FACILITIES OFFERED BY FINANCIAL INSTITUTIONS	25
RISE OF E-BANKING IN INDIA	26
IMPACT OF E-BANKING ON TRADITIONAL SERVICES	27
THE EVOLUTION OF TECHNOLOGY IN INDIAN BANKING	28
COMPUTERISATION IN PUBLIC SECTOR BANKS	<b>30</b>

AUTOMATED TELLER MACHINES	31
ATM NETWORK SWITCHES	31
INTERNET BANKING	31
PHONE BANKING	32
MOBILE BANKING	32
CARD BASED DELIVERY SYSTEMS	33
SATELLITE BANKING	34
NATIONAL ELECTRONIC FUND TRANSFER (NEFT) SCHEME	34
PROGRESS OF BANKING IN INDIA	34
SCHEDULED BANKS	55
NON-SCHEDULED BANKS	56
TRANSFORMATION OF INDIAN BANKING SECTOR	59

### **CHAPTER-III**

<b><u>CYBER CRIME IN BANKING INDUSTRY- A GLOBAL SCENARIO</u></b>	60
HIGH LIGHTS OF CYBER CRIMES AGAINST BANKING SECTOR	61
TIME AND MONEYS PENT BANKING RELATED CYBER CRIME	61
CYBER FRAUD CASES IN PUBLIC SECTOR BANK(2016-2020)	62
CYBER-CRIMES COMMONLY PERPETRATED AGAINST BANKS	64

### **CHAPTER-IV**

67-76

<b>LEGAL PROBLEMS TO CONTROL CYBER CRIMES AGAINST E-BANKING IN INDIA.</b>	<b>67</b>
INTERNET BANKING	69

MOBILE BANKING ON THE RISE IN INDIA	69
DEVELOPMENTS IN INDIAN CYBER LAW AFTER THE ENACTMENT OF INFORMATION TECHNOLOGY ACT 2000.	70
RULES & NOTIFICATIONS ISSUES BY GOVERNMENT OF INDIA	75
CONCLUSION AND SUGGESTION	77
BIBLIOGRAPGHY	78

## **CHAPTER-I**

### **INTRODUCTION**

Banking system is one of the oldest systems in the world and retained its existence from ancient times period in India. The banking system has its source in the earlier centuries. Awareness of banks was there among the prehistoric society because they felt the necessity of banks and make use of money transaction to get proper benefits. The importance of banking system was recognized by the people because they had realized the real value of money in their life.

Present banking system plays a significant role in the society. Banks are considered to be the most trustworthy and important institution in administrating the money matters and the transactions of money. Banking is the only system, which provides security to cash when deposited in the bank, which provides cash as and when required and even safe guards from fraudulent money tenders. No financial monetary transactions are possible without the help and support of the banks. Banks are considered as the most reliable and secure institution, managing the finances and money matters. A banking organization is the key to economic growth and development of our country.

The banking sector and nationalization of 14 major banks has laid down the foundation of banking reforms in India. The period from 1969 to 1979 is known as the post nationalization period of banking and explains how the reforms in banking sector have lead to the expansion of commercial banks and their branches all over the country. Bank credit was made instrumental for economic development of the country by way of spreading the banking habit among the people under the scheme of 'Social Control' of banks.

Government took major steps in the Indian Banking Sector Reform after independence. In 1955, Imperial Bank was nationalized and merged to form State Bank of India. Seven banks forming subsidiary of State Bank of India was nationalized in 1960. On 19th July 1969 nationalization of 14 major banks was carried out. Second phase of nationalization was carried out in 1980 with six more

banks as a policy decision under Indian Banking Sector Reform. In the early 1990s, the then Narasimha Rao government concentrated on a policy of liberalization, licensing a small number of private banks.

In the last thirty years, Indian banking system has achieved several outstanding success and its most important approach to the people in the last row. Banking system is not restricted to metros and urban centers in India. In fact, Indian banking system has reached to the rural centers of the country. This is one of the main aspects of India's growth in banks and its branches. Banking system is not only restricted to the metro and urban centers in India instead it has even reached to the rural parts of the country and has become one of the main aspects of india's growth in banks and its branches.

Expansion of Commercial Bank's Branches since Nationalization (1969-2012<sup>1</sup>)

Year	1969	1991	2007	2021
No. of Commercial Banks (including RRBs & LABs)	73	272	182	173
No. of Bank Branches	8,262	60,570	74,563	1,01,261
of which Rural and semi urban bank offices	5,172	46,550	47,179	62,061
Population per office	64,000	14,000	15,000	13,000

At the time of nationalization i.e. In 1969, commercial banks in India were 73 with 8,262 branches comprising of 1503 in urban centers, 1584 branches in Urban centers, 3342 branches in Semi-urban centers and 1833 branches in Rural centers. During the time span of 1969 to 2021, there was an absolute growth of 94.38% in terms of increase in number of commercial banks in India. As on March 2021 total number of commercial banks were 173 with 101261 branches comprising of 17396 branches in Metro centers, 21804 branches in Urban centers, 25705 branches in Semi-urban centers and 36356 branches in Rural centers all over the country.<sup>1</sup>

To keep the pace with the process of liberalization and globalization of banking services in banking sector, the economic and financial sector reforms were introduced in India. Due to implementation of economic and financial reforms speedily resulted in the creation of an efficient and competitive banking system in India.

Indian banks consist mostly of Scheduled commercial bank (SCBs), which includes both Public Sector Banks, and Private Sector Banks. In Public Sector Banks, stake of government must be 51%.

The adaption of Information Technology in banking sector was planned by the landmark report of Dr. Rangarajan Committee (1984) and the signing of the settlement on computerization with Bank Unions in 1987. Establishment of second Rangarajan Committee, Saraf Committee, Shere Committee and the Vasudevan Committee had paved the way for computerization in the banking sector. As a result of the implementation of the recommendations of these committees, all Indian banks entered into the era of inter-bank & intra-bank connectivity of their branches and by accepting the recommendations on computerization, all large branches of banks have been computerized.

Application of Information Technology was successfully administered in the banking system and most of the banking transactions were done through information technology. On the whole, information technology is the trouble shooter of the banking industry and most helpful for the customers for their day to day banking

---

<sup>1</sup>www.rbi.org.in (2013)

transactions. Phone Banking, Automatic Teller Machines (ATM), Credit Cards ,Debit Cards, ATM Cards, Smart Cards, Electronic Funds Transfer (EFT), Shared Payment Network System (SPNS), Electronic Clearing Services (ECS), Point of sale [POS] terminal, D-Mat Accounts, Electronic Data Interchange (EDI), E-Cheques, Computerized Accounting, E-Mail and RBI Net are some of the examples of administration of Information Technology in the Indian banking system.

It is pertinent to note that Information technology does not know physical boundaries and made communication possible in any part of the world. These technological improvements have made from paper to paperless transactions in banks. Therefore, traditional banking shifted to electronic transaction popularly known as e-banking. In the recent past, the banking transactions have become easy and faster, as all the functions are being done with the help of electronic medium. Specific areas where information technology widely used in the banking system are preparation and posting in ledger (LAN), portfolio management, funds management, funds transfer, online banking credit appraisal, foreign exchange transaction, opening of letter of credit, issuance of letter of guarantee, preparation and submission of financial statements and last but not the least is the identification of fraudulent credit card transactions.

### **REASONS FOR CYBER CRIME:**

Hart in his work, “the concept of law” has said ‘human beings are vulnerable so rule of law is required to protect them’. Applying this to the cyberspace we may say that computers are vulnerable so rule of law is required to protect and safeguard them against cyber crime. The followings are some reasons,

1. Capacity to store data in comparatively small space
2. Easy to access
3. Complex
4. Negligence
5. Loss of evidence

### **CYBER CRIME- MEANING AND DEFINITION**

**CRIME IN ANCIENT INDIA.**

“Crime” is a harmful act or omission against the public and an individual, which the State wishes to prevent and which, upon conviction, is punishable by fine, imprisonment or death. As per Oxford English Dictionary meaning of crime is an act punishable by law, as being forbidden by statute or injurious to the public welfare, an evil or injurious act; an offence, sin; esp. of a grave character.

The foot prints of the crime are as old as human society. Indian Culture is one of the oldest of the world. As for as fiscal crimes are concerned, it is stated in “Hindu Darshanshastras” that in ancient India “Danda” was considered to be a crucial constituent of legal & social system. It was signified punishment meant for violating various laws of Society. These laws were framed and established by the ruling class and on many points followed the principal of “Varna” or “Class Legislation”. Various Dharmashastras, demonstrate the judiciary was not only an important arm of Government, but also indispensable to the power structure known as “State” Let us consider the position of crime and punishment in “Smriti” on ancient time in India. The “Smrtis” prescribed various rules relating to punishment to be awarded for crimes.

In Kautilya’s “Arthshastra” which was written around 350 BC describes the different kinds of punishment for different offences. Kautilya’s “Arthashastra” is considered to be an authentic book in India, which discuss the different type of crimes, preventive measures to be taken by the King, This ancient book also gives the set of punishment for the list of different offences. How to recover the loss caused to the victims by the criminal has also been discussed in it<sup>2</sup>.

**CYBER CRIME IN BANKING SECTOR:****(1) Hacking**

Hacking is a crime, which means an unauthorized access made by a person to crack the system or an attempt to bypass the security mechanism, by hacking the banking sites or account of the customers. The Hacking is not defined in the amended IT Act, 2000. But under Section 43(a) read with section 66 of Information Technology (Amendment) Act, 2008 and under Section 379 & 406 of Indian Penal Code, 1860,



a hacker can be punished. Before the 2008 Amendment Act, Hacking was punishable under Section 66 of the IT Act with up to three years of imprisonment or fine which may extend up to two lakh rupees, or both. If such crime is proved, then for such hacking offence the accused is punished under IT Act, for imprisonment, which may extend to three years or with fine, which may be extended to five lakh rupees or both. Hacking offence is considered as a cognizable offence, it is also a bailable offence.

### **(2) Credit Card Fraud**

There are many online credit card fraud which are made when a customer use their credit card or debit card for any online payment, a person who had a mala fide intention use such card details and password by hacking and misusing for the online purchase for which the customer's card are used or hacked, has suffered for such kind of attract or action of a fraud made by the wrongdoer. The hacker can misuse the credit card by impersonating the credit card owner when electronic transactions are not secured.<sup>2</sup>

### **(3) Phishing or Identity Theft**

Phishing is a scam where an Internet fraudster request personal information from users online. These requests are most commonly in the form of an email from an organization which does not perform any buiseness. In many cases, the email has been made to look exactly like a legitimate organization's email would appear complete with company logos and other convincing information. The email usually states that the company needs to update personal information or that the account is about to become inactive, all the efforts are gathered for a user to click the link to a site that only looks like the real thing. Phishing is only one of the numerous frauds on the Internet, attempting to trick individuals into separating with their cash. Phishing alludes to the receipt of spontaneous messages by customers of financial institutions, asking for them to enter their username, password or other individual data to access their account for some reason. Customers are directed to give a response to a mail and also directed to click on the link mentioned in the mail when they click on the given link for entering their information which were asked in the

---

<sup>2</sup>Pushendra Kumar” KautilyaArthshastra An appraisal 1989 Nag Publishers ISBN:81-7081-199-6

mail received by the fraudulent institutions of banking website, by such kind of activities customers thus they remain unaware that the fraud has happened with them. The fraudster then has admittance to the client's online financial balance available in the bank account and to the funds contained in that account by making the misuse of the detail received from the customer fraudulently. In the case of *Umashankar Sivasubramanian v. ICICI Bank*, the petitioner used to receive monthly bank account statement under the email ID of the bank, one day received a mail asking for his personal details, which he provided, after which his account was debited with Rs. 5 lakhs. Upon complaint, the bank said that it was a phishing mail against which he approached the adjudicating officer. In this case, the bank was held liable according to Section 43 and Section 85 of the IT Act, 2000, as it failed to establish due diligence and providing adequate checks and safeguards to prevent unauthorized access into the customer's account. The bank was directed to pay Rs. 12.5 lakhs.

In *National Association of Software and Services Companies v. Ajay Sood*, a reasoned order approving a settlement agreement between the plaintiff and the defendant in a case which dealt with the issue of 'phishing', wherein a decree of ` 16 lakhs was passed in favour of the plaintiff. The plaintiff contended that the defendants were masquerading as NASSCOM, and were sending emails, in order to obtain personal data from various addresses, which they could then use for head-hunting, and they went on the website as if they were a premiere selection and recruitment firm. The suit was filed praying for a decree of permanent injunction restraining the defendants or any person acting under their authority from circulating fraudulent e-mails purportedly originating from the plaintiff of using the trademark 'NASSCOM' or any other mark confusingly similar in relation to goods or services. A compromise application was filed before the court and the court while approving the settlement agreement observed that "in US an Act is proposed which, if passed, will add two crimes to the current federal law; It would criminalize the act of sending a phishing email regardless of whether any recipients of the email suffered any actual damages. It would criminalize the act of creating a phishing website regardless of whether any visitors to the website suffered any actual damages." The Hon'ble Judge further observed that "I find no legislation in India on 'phishing'. An act which amounts to phishing, under the Indian law would be a

misrepresentation made in the course of trade leading to confusion as to the source and origin of the e-mail causing immense harm not only to the consumer but even the person whose name, identity or password is misused. It would also be an act of passing off as is affecting or tarnishing the image of the plaintiff, if an action is brought by the aggrieved party. Whether law should develop on the lines suggested by Robert Louis B Stevenson in his article noted above is left by this Court for future development in an appropriate case.”

#### **(4) Keystroke Logging or Key logging**

Key logging is a method by which fraudsters record actual keystrokes and mouse clicks. Key loggers are “Trojan” software programs that target computer’s operating system and are “installed” via a virus. These can be particularly dangerous because the fraudster captures user ID and password, account number, and anything else that has been typed.

#### **(5) Viruses**

A virus is a program that infects an executable file and after infecting it causes the file to function in an unusual way. It propagates itself by attaching to executable files like application programs and operating system. Running the executable file may make new copies of the virus. On the other hand there are programs, that can copy themselves, called worms which do not alter or delete any file, but only multiply itself and send the copy to other computers from the victim’s computer.

#### **(6) Spyware**

Spyware is the number one way that online banking credentials are stolen and used for fraudulent activities. Spyware works by capturing information either on the computer, or while it is transmitted between the computer and websites. Often times, it is installed through fake “pop up” ads asking to download software. Industry standard Antivirus products detect and remove software of this type, usually by blocking the download and installation before it can infect the computer.

#### **(7) Watering hole**

“Watering hole” cyber fraud is considered to be a branch arising from phishing attacks. In watering hole a malicious code is injected onto public web pages of a website which is visited only by a small group of people. In a watering hole attack situation, when the victim visit the site injected with malicious code by attackers

the information of such victim is then traced by the attacker. In phishing attack, victim himself gives away information innocently whereas in watering hole the attacker waits for the victim to visit the site. There can be an increase in watering hole incidents when there is more misuse and exploitation of zero-day vulnerabilities in various software programs like Adobe Flash Player or Google Chrome. Cyber criminals in watering hole use the kits available in black market to infect, inject and configure a website which may be new or updated to lure people to provide them details. The site which is to be used for an attack is usually hacked by the attackers' months before the actual attack. They use professional methods to perform such act. Therefore it becomes difficult for cyber-crime cells to locate such infected website. Watering hole is thus a method of surgical attack where the hackers aim to hit only certain specific group of people in the internet and in comparison to phishing it is less ear-splitting.

#### **(8) Credit Card Redirection and Pharming**

Pharming is linked with the words, 'farming' & 'phishing'. In Pharming a bank's URL is hijacked by the attackers in such a manner that when a customer log in to the bank website they are redirected to another website which is fake but looks like an original website of the bank. Pharming is done over Internet and Skimming is another method which occurs in ATMs.

**(9) DNS Cache Poisoning:** DNS servers are deployed in an organization's network to improve resolution response performance by caching previously obtained query results. Poisoning attacks against a DNS server are made by exploiting vulnerability in DNS software. That causes the server to incorrectly validate DNS responses that ensure that they're from an authoritative source. The server will end up caching incorrect entries locally, and serve them to other users that make the same request. Victims of a banking website could be redirected to a server managed by criminals who could use it to serve malware, or to induce bank customers to provide their credentials to a copy of a legitimate website. If an attacker spoofs an IP address; DNS entries for a bank website on a given DNS server, replacing them with the IP address of a server they control, makes an attacker able to hijack customers.

#### **(10) Malware based-attacks**

Malware based-attacks are one of the most among hazardous cyber threats related to electronic banking services. In such attacks a malicious code is designed. Now-a-days the number of malware attacks in banking sector has been increasing. Some of the infamous banking malware are Carbep, Tinba, Spyeye, Zeus and KINS. Zeus is the oldest out of these malware. It was detected in July 2007 when the information was lost and stolen from United States Department of Transportation. There are other malwares which have been identified in previous years to commit bank fraud on a large scale. It has been noticed that almost every virus has two features, one, that they secure a backdoor entry into the system and they steal credential information of a user.

### **THE FIRST RECORDED CYBER CRIME**

The first recorded cyber crime took place in the year 1820 when Joseph-Marie Jacquard, a textile manufacturer in France, produced the loom. This device allowed the repetition of a series of steps in the weaving of special fabrics. This resulted in a fear amongst Jacquard's employees that their traditional employment and livelihood were being threatened. They committed acts of sabotage to discourage Jacquard from further use of the new technology. This is the first recorded cyber crime!

### **COMPUTER CRIME & CYBER CRIME**

At present time, financial transactions are performed with the help of computers. Culprits are also materialized with their illegal plans with the help of computers to do harm to banks and their customers such types of crimes are known as cyber crimes. We can define it as follows –

### **COMPUTER CRIME**

“Computer crime” is often used to define any criminal activities that are committed against a computer or similar device, and data or program therein. In computer crimes, the computer is the target of criminal activities. The “computer” in this context refers to the hardware, but the crimes, as we shall see, more often than not relate to the software and the data or program contained within it<sup>3</sup>.

As much as the computer has been used to improve the mode of operations in the

different sectors of the society, it has also evolved as a medium for some people to commit crimes. It started in the 1960's in the form of hacking as a means of solving problems and then in the 1970s, computer crimes such as privacy violations, phone tapping, trespassing and distribution of illicit materials were experienced. Software piracy, copyright violations, and the introduction of viruses were added to the list in the 1980s. Things went downhill and now, the extent of the damage caused by computer crimes is enormous; the international market has not been left out with computers being used for espionage and transnational organized crime and terrorism. Computer crimes have become a major source of concern for organizations worldwide.

### **DEFINITION OF CYBER CRIME**

Cybercrime is not defined anywhere in Information Technology Act 2000, I.T. Amendment Act 2008 and in any other legislation in India. Offence or crime has been dealt with elaborately listing various acts and the punishments for each, under the Indian Penal Code, 1860 and quite a few other legislations too. The term 'cyber crime' has not been defined in any Statute or Act. However, following definitions are available. The Oxford Reference Online defines 'cybercrime' as crime committed over the Internet. The Encyclopedia Britannica defines 'cybercrime' as any crime that is committed by means of special knowledge or expert use of computer technology.<sup>3</sup>

### **TYPES OF CYBER CRIMES AGAINST E- BANKING IN INDIA**

Following cybercrimes are generally committed against electronic banking

#### **SPREADING VIRUSES AND WORMS**

Viruses and worms are computer programs that affect the storage devices of a computer or network, which then replicate information without the knowledge of the user.

Viruses: - A computer virus is a computer program that can copy itself and infect a

---

<sup>3</sup>Warren B. Chik, Assistant Professor of Law, Singapore Management University in his article "Challenges to Criminal Law Making in the New Global Information Society"

computer without permission or knowledge of the user.<sup>4</sup> Note that a program does not have to perform outright damage (such as deleting or corrupting files) in order to be called a "virus". Viruses are very dangerous; they are spreading faster than they are being stopped, and many of the time the least harmful of viruses could become fatal.

**Full form of VIRUS is as under:-**

V- Vital

I- Information

R- Resource

U- Under

S- Siege (blocked)

Generally, there are two main categories of viruses. The first category consists of the file infectors, which attached themselves to ordinary programme files. This category of viruses can be classified further as resident and nonresident. A resident or direct action virus conceals itself someplace in the memory when an infected programmes is executed initially and subsequently infects other programmes when those programmes are executed. 'Jerusalem 185 virus' is the example of this<sup>191</sup>. Another example of resident virus is 'The Vienna Virus'. Maximum viruses are resident in category. The second category of the virus is 'system or boot record infectors'. Such viruses are programmed to infect executable code on a disk which is not the ordinary files. Examples of such viruses are Brain, Stoned, Empire, Azusa etc.<sup>4</sup>

**Stealth Virus** a stealth virus is one that hides the modifications made in the file or boot record. The only completely reliable method to avoid stealth is to boot from a medium that is known to be clean<sup>5</sup>.

**Polymorphic Virus:** - It is one of the viruses that produced different copies of it so

---

<sup>4</sup>Jain N.C. "Cyber Crimes" Allahabad Law Agency, Delhi 2008p8

as to hide itself from the detection of the virus. The virus scanner will be unreliable, and that some instances of the virus may be able to avoid detection.

Sparse infector a virus that infects the computers only occasionally Companion virus is a virus that creates a new programme by doing modification in an existing files Armored virus is a virus that uses special actions to make the copy of its code more difficult. Example is the “Whale Virus” Macro virus is a virus that spread through only one type of program, usually either Microsoft Word or Microsoft Virus hoax is a false warning about a computer virus. The warning arrives in an e-mail note. Such messages are planned to panic computer users. The writer emails the warning and suggested the reader to forward it to others.

### **Worms**

A computer worm is a self-replicating computer program. It uses a network to spread functional copies of itself to other computer systems. Unlike viruses, worms do not need to attach themselves to an existing program.

Following are the World Famous Worms attacks The Internet Worm – 1988:- Robert Morris accidentally released his worm on Arpanet (later on known as Internet) in 1988. The worm controlled to infect and disabled aall those machines by making copies of itself and thus clogging them.

#### **The SPAN Network Worm – 1989**

A Worm infected many VAX and VMS computers on the SPAN network in 1989. The worm as displayed "Worms against Nuclear Killers " and named as “WANK” on the basis of the first letters of each word of the message.<sup>5</sup>

The Christmas tree Worm – 1987:-This warm was managed to disable the IBM network on Christmas day 1987.

### **REVIEW OF THE LITRATURE**

A number of books, reports, research papers and articles are referred to complete the

---

<sup>5</sup>Jain N.C. “ Cyber Crimes” Allahabad Law Agency, Delhi 2008p95



study with the subject of legal control of cyber crimes against e-banking in India.

**Tewari R.K, Sastry P.K and Ravikumar K.V.**<sup>7</sup>in their book “Computer Crime and Computer Forensics” the author describes the Computer Networking and the Internet. He further discussed the Vulnerabilities of Computer Networks. The author described the emergence of Computer Crime and the Internet Crimes and Network Security Measures. He commended on Digital Signatures and Cryptography. He discussed the National and International coordination to handle the cyber crime.

**M.I.Tannan**<sup>8</sup>in his book “Banking Law & Practices,” the author gives the every details knowledge about the banking laws & practices in India. It has covered every aspect and every law prevalent for Banking Regulation in India, the book reflects the early history of the banking in India. <sup>6</sup>

**S.B.Verma, S.K.Gupta&M.K.Sharma**in their book “E-Banking and Development of Banks” described the general history of banking. The Authors further described the adoption of IT in banking has undergone several changes with the passage of time. Today IT has become an inseparable segment of banking organization. The application of information technology in the banking sector resulted in the development of different concepts of banking such as – E-banking, Internet Banking, Online Banking, Telephone Banking, Automated teller machine, universal banking and investment banking etc.

**NandanKamath** in his book “Law relating to computers, Internet and E-Commerce (A guide to Cyber Laws and the Information Technology Act, 2000),” the author commented on the cyberspace as it becomes a money spinner and it will increasingly become the domain of business legal & illegal. As a potential information technology power, India should take warning from the hunting hackers and put the legal system on guard. The author also discussed the importance of electronic evidence in the case of cyber crimes. He further added about the

---

<sup>6</sup>Tewari R.K, Sastry P.K and Ravikumar K.V “Computer Crime and Computer Forensics” Select Publishers Delhi 2002 <sup>8</sup>Tannan M.L “Banking Law and Practice in India”, 28th edition, India Law House Connaught Place, New Delhi.

legitimacy of the electronic records to be produced as electronic evidence. He exhaustively explained about the burden of proof related to electronic evidence

### **OBJECTIVES OF THE STUDY**

The objectives of this research work are to touch all the important facets of the legal control of cyber crimes against e-banking in India in a comprehensive way and to achieve new insights into it. The main objectives of the present study are as under:

1. To study the progress of the banking in India and implementation of various banking reforms in the banking sector in India
2. To study the current developments, emerging scenario and building blocks in banking sector in the light of technological advancement in the Indian Banking 3)  
To study the meaning and concept of e-banking.
3. To understand the working and authenticity of e-banking in India
4. To study the meaning & concept of cyber crimes specifically related with ebanking.
5. To study the offenses related with cyber crimes specifically related with ebankingin India.
6. To study the problems of law to control the cyber crimes against e-banking in India.
7. To evaluate the significance of various existing national and international laws related with e-banking in India.
8. To point out the loopholes in the existing national laws to control the cyber crimes against e-banking in India.
9. To compare the existing cyber laws of the various countries for controlling the cyber crimes in the respective countries.

10. To suggest the remedial measures in respect of the legal control of cyber crimes against e-banking in India.

Legal provisions are proving insufficient to control of Cyber Crimes and providing remedies to the customers & banking institution. Moreover, the existing national laws are not sufficient to deal with the domestic e-banking transactions. Therefore this study will throw light on the insufficiency of legal remedy for e-banking and will suggest where the full proof amendments in legal provisions are required to facilitate legal control of cyber crimes against e-banking in India.

### **STATEMENT OF THE PROBLEM**

Banking industry has gone through major changes in recent past. Almost all the banks in India have adopted Information Technology solutions for rendering the banking services to their customers by using the IT tools & techniques to fulfill the needs of the customers. Due to the dawn of e-banking, conventional banking has been disappeared from the Indian banking scenario and banks have shifted from traditional banking to Core Banking Solution. Under these circumstances Indian banking industry is facing the challenges of impact of technology on the banking. In the age of information technology the swift expansion of, telecommunications, computers and other technologies has lead to the new forms of crimes known as "Cyber Crimes". Cyber crime doesn't know the physical boundaries and may affect every country in the world.

The transformation in committing crimes with the help of information technology; the law should not be a mute spectator but to transform itself according to the changing environment. There was a need to redefine the old laws in the changing environment. Most of the existing laws in India are either created by the British Government or enacted after the independence within the first three decades and based on physical environment, geographical boundaries, tangible documents and records.

In the digital era, everything is recorded in digits, irrespective of any physical boundaries. Due to these consequences there arises a need of strict statutory laws to regulate the criminal activities in the cyber world and to protect technological

advancement system. Under these circumstances, E-Commerce Act, 1998 was enacted. After two years of passing of this law, Indian parliament passed “Information Technology Act, 2000” on 17th Oct 2000 to have its exhaustive law to deal with the technology in the field of e-commerce, e-governance, e-banking as well as penalties & punishments in the field of cyber crimes.<sup>7</sup>

The main purpose of enactment of IT Act 2000 was to reprimand various cyber crimes and to provide strict and harsh punishments. For establishment of Sound Cyber Law Regime various new statute were either enacted or old statute were amended. The Information Technology Act was amended in the year 2008. In the series of the amendment of old statute, The IT Act amended some of the provisions of. the Indian Penal Code, 1860; the Indian Evidence Act, 1872; the Bankers Book Evidence Act, 1891 and the Reserve Bank of India Act, 1934.

With the development of secured electronic transaction technologies more banks have joined the stream to use E- banking both as a transactional as well as an informational medium .As a result, registered Internet banking users can now perform common banking transactions . As the user of E-banking grows and the range of online interaction expands, there is expansion in the cyber crimes. It is evident from the table 1.3 as stated above that cyber crime incidents of fraud in the Commercial Banks in India are enormously increased. The researcher, in this study has tried to evaluate that how cyber crime affects e-banking in India.

Though, Information and Technology Act, 2000 is in existence, but with a lot of loopholes. This Act includes law defining and prescribing punishment for cyber-crimes, but this maiden Act has its own limitation. The worst part in IT Act, 2000 with regard to E-Banking is that this act is not applicable to entire Negotiable Instrument Act while the entire banking revolves more or less around negotiable instruments only. The Negotiable Instrument Act was amended in 2002 in respect of cheques in electronic form & truncated cheques; The Information Technology Act 2000 is not encouraging while dealing with the cybercrimes. There are so many discrepancies in the ITAct, 2000 while dealing with the various cybercrimes like copyright, trade mark or patent of electronic information and data. Indian banking

---

<sup>7</sup>Article Cyber Crimes and the Law

industry is facing the problem of growing cyber crime incidents in spite of the Information Technology Act, 2000 & IT Amendment Act, 2008 along with other amended traditional laws like IPC, CrPC, CPC Bankers Book Evidence Act, RBI Act and Indian Evidence Act. to control the cybercrime incidents. Through this study the researcher has tried to find out the loopholes in the ITAct2000& ITAA2008 and other national laws (old & new) related with banking as to why these legislations are inadequate and insufficient to control the cybercrimes against e-banking.

The growing reliance on information technology makes critical infrastructure more vulnerable to attacks. This is especially the case with regard to attack against interconnected systems that are linked by computer and communication networks. In those cases, the disruption caused by a network-based attack goes beyond the failure of a single system. Terrorist attack is the unlawful attacks and threats of attacks against computers, networks, and information stored therein. These attacks are done to coerce a government or its people in furtherance of political or social objectives. Terrorist may direct an attack only to disrupt key services. Other terrorist activities like cyber money laundering, terrorism financing and other tools used against banking like hacking, Trojan horse, spreading viruses and worms and denial of services. The Indian Banking Industry is facing the problem of rising trend of cyber terrorism incidents in spite of the enactment of Information Technology Act, 2000 and Information Technology Amendment Act 2008 and also other amended traditional acts to control the various cyber crimes including cyber terrorism. Through this study, the researcher has tried to find out up to what extent the different statute including ITAct, 2000 & ITAA2008 are effective to handle cyber terrorism against e banking in India.

### **HYPOTHESES OF THE STUDY**

The following hypotheses have been set up for testing statistical significance of I) Cyber Crime incidents of Cyber Securities published by Indian Computer Emergency Response Team – India (CERT In),

Hypothesis-Cyber Crimes Incidents of Total Cyber Security Null Hypothesis H1o: : Existing Cyber legislations are adequate and sufficient to control the cyber crimes

incidents of total Cyber Security against e-banking in India; therefore there is no significant growth in the cyber crime incidents of total Cyber Security against e-banking in India.

### **RESEARCH METHODOLOGY**

This dissertation is conducted under the supervision of Ms. TRISHLA SINGH, Assistant Professor School of legal Studies, Faculty of Law, BBD university, Lucknow. This research work is a doctrinal research and the research work is done by the help of secondary sources. As the cyber crimes incidents against e-banking are increasing day by day therefore this study requires examining the impact of legal control of cyber crime against e-banking in India. Cyber laws of the nations are enacted to check and control the cyber crimes incidents against e-banking. If the cyber laws of the country are enough competent and efficient to check and control the cyber crimes then there is no growth/ or controlled growth in the cyber crimes. To examine the growth of the cyber crime incidents and for the purpose of statistical analysis and drawing inferences following data has been chosen.

- 1) Indian Computer Emergency Response Team – India (CERT-In) is a functional organization of Department of Electronics and Information Technology, Ministry of Communications and Information Technology, Government of India, with the objective of securing Indian cyber space. The Information Technology Act, 2000 by virtue of Section 70 A and Section B designated CERT-In to serve as the national agency to perform the functions of collection, analysis and dissemination of information on cyber incidents in the area of cyber security. CERT-In has started publication of data since 2004 on the various cybercrime incidents.
- 2) The cyber crime incidents related to banking published by CERT-In taken as under:
  1. Phishing,
  2. Network Scanning/Probing,
  3. Spreading Virus/Malicious Code,

4. Spam,
5. Website Compromise and Malware Propagation and
6. Other Incidents.
7. Total Cyber security

The total of these cyber incidents is also taken into consideration. For the purpose of Statistical Analysis and drawing inferences a period of 6 years has been chosen commencing from 2015 to 2021.

### **SOURCES OF DATA**

The study is entirely based on the secondary data and trust has to be on bona fide published data by the government and government agencies. The Publication of the Reserve Bank of India, Indian Banks Association, Indian Computer Emergency Response Team – India (CERT In), Press Information Bureau of India, Ministry of Finance publications and Government of India publications provide source of trustworthy and authentic data of the secondary nature. A questionnaire method and primary data source was not selected as the data relating Commercial Banks through published sources is more reliable. As the Bank management would not share the information as it is treated as confidential hence primary source of data collection is not adopted.

Statistical data of Government organizations like Reserve Bank of India (RBI), National Crime Record Bureau (NCRB), Indian Computer Emergency Response Team – India (CERT In) published on their official website has been collected and used in the present study. Similarly, annual publication by RBI on Banking and Finance, Quarterly RBI Bulletins, Publication of Indian Banks Association Chartered Accountants of India and Government of India is also consulted in this study. Data published by the Banks and institutions like the SBI, IDBI, PNB and Nationalized and foreign Banks is also used for this research work.) and published on their official websites as well as in the monthly, quarterly and annual publications of the individual banks is also consulted and collected from there for the present study.

## **DATA ANALYSIS**

The secondary data collected from authentic sources like the RBI, CERT In and others have been arranged in a series and analyzed the data by using percentage to compare a series of data to describe the relationship among the variables. For statistical analysis of data and testing the hypothesis, “t-test” is used.



## **CHAPTER-II**

### **PROGRESS OF BANKS IN INDIA, MEANING AND CONCEPT OF E-BANKING, CYBER CRIMES IN BANKING SECTOR AND OFFENSES RELATED WITH BANKS.**

Banks are the oldest form of trade and business in the world and its existence from ancient times in India. The last decade of the previous century 2000- 2020 acknowledged as 'Information Technology Revolution Decade'. These technological improvements mainly in information technology have made the changeover possible from paper to paperless transactions in banking. Therefore, traditional banking is shifted to electronic banking popularly known as e-banking.

Information technology furnishes as an apt example of what has been stated above<sup>9</sup>. Growth in Information Technology has also contained the various challenges which have to face by the society. The cyber threat landscape is also changing over the years and needs to be factored in while considering mitigating measures.

In the age of information technology the swift expansion of, telecommunications, computers and other technologies has led to new forms of worldwide crime known as 'Cyber Crime'. Cyber crimes have practically no boundaries and may affect all over the world. Mounting Cyber crimes across the world is a very stern warning in the up-coming time and produces one of the most complicated challenges before the law enforcement machinery.

#### **DEFINITION OF E-BANKING**

E-banking is defined as the automated delivery of new & traditional banking products & services directly to customers through electronic, interactive communication channels. E-banking includes the systems that enable financial institution, customers, individuals & businesses to access accounts, transact business or obtain information on financial products & services through a network including the internet.<sup>8</sup> In general E-banking is an umbrella term for the process by

---

<sup>8</sup>Dr. P. M. Bakshi and Dr.R.K.Suri" Handbook of Cyber and E-commerce Laws" by Pentagon 2002 p1

which a customer may perform banking transactions electronically without visiting a brick-and mortar institution. The following terms all refer to one form or another of electronic banking: personal computer (PC) banking, Internet banking, virtual banking, online banking, home banking, remote electronic banking, and phone are banking. PC banking and Internet or online banking is the most frequently used designations. It should be noted, however, that the terms used to describe the various types of electronic banking are often used interchangeably.

The progress of E-banking, after the liberalization and globalization processes began since 1991, influencing the financial sector, particularly on the banking sector. The advancement has thoroughly and perceptibility revamps the operational environment of the bank. The E commerce drastic change has completely altered the way of client banking, banks are providing different services cash deposits to cash withdrawals through electronic means therefore we can say number of electronic transactions are increasing the world is going to be a cyber world where each and everyone would be connected through internet. The world is becoming a global market, characterized by economic interdependence. National boundaries have become less significant with the interlinked effect of technology, information flows and foreign investment mobility. In past thirty years, operational efficiency of banks has increased, the time taken by the banks in different transaction has been reduced with the advancement of competition has also increased .Banks are interested to acquire more and more customer to increase their revenue and using different tools of technology to increase the number of their clients. E-banking is the service which the banks are providing now a day to provide 24X7 . In these days clients are not visiting the banks often as they are using cyber banking for each transactions as it also helps a bank to reduce its operating cost.

## **FUNCTIONS OF E-BANKING'**

### **a) Inquiry about the Information of Account<sup>9</sup>**

The client inquires about the details of his own account information such as the cards / account's balance and the detailed historical records of the account and

---

<sup>9</sup>[www.businessdictionary.com/definition/electronic-banking.html](http://www.businessdictionary.com/definition/electronic-banking.html)

downloads the report list.

**b) Card Accounts' Transfer**

The client can achieve the fund to another person's Credit Card in the same city.

**c) Bank-Securities Accounts Transfer**

The client can achieve the fund transfer between his own bank savings accounts of his own Credit Card account and his own capital account in the security company.

Moreover, the client can inquire about the present balance at real time.

**d) The Transaction of Foreign Exchange:**

The client can trade the foreign exchange, cancel orders and inquire about the information of the transaction of foreign exchange according to the exchange rate given by our bank on net.

**e) The B2C Disbursement on Net**

The client can do the real-time transfer and get the feedback information about payment from our bank when the client does shopping in the appointed web-site

**f) Client Service :**

The client can modify the login password, information of the Credit Card and the client information in e-bank on net.

**g) Account Management :**

The client can modify his own limits of right and state of the registered account in the personal e bank, such as modifying his own login password, freezing or deleting some cards and so on.

**h) Reporting the Loss of the Account :**

The client can report the loss in the local area (not nationwide) when the clients Credit Card or passbook is missing or stolen.

### **E-BANKING FACILITIES OFFERED BY FINANCIAL INSTITUTIONS**

Online banking facilities offered by various financial institutions have many features and capabilities in common, but also have some that are application specific.

**A bank customer can perform some non-transactional tasks through online banking, including -**

- ❖ viewing account balances
- ❖ viewing recent transactions
- ❖ downloading bank statements, for example in PDF format
- ❖ viewing images of paid cheques
- ❖ ordering cheque books
- ❖ download periodic account statements
- ❖ Downloading applications for M-banking, E-banking etc.
- ❖ Bank customers can transact banking tasks through online banking, including -
  - Funds transfers between the customer's linked accounts
- ❖ Paying third parties, including bill payments (see, e.g., BPAY) and telegraphic/wire transfers
- ❖ Investment purchase or sale
- ❖ Loan applications and transactions, such as repayments of enrollments · Register utility billers and make bill payments
- ❖ Financial institution administration
- ❖ Management of multiple users having varying levels of authority
- ❖ Transaction approval process
- ❖ the process of banking has become much faster

## RISE OF E-BANKING IN INDIA

Banking system plays a significant role in the society. No financial transactions are possible without support of the banks. Banks are considered as the most dependable institution in managing the money matters. Banking is the only system which provides security to our cash, which gives us money as and when required and even safe guards from fraudulent money tenders.

Indian banking industry has witnessed a tremendous developments due to sweeping changes that are taking place in the information technology. Electronic banking has emerged from such an innovative development. The most striking is its extensive reach. It is no longer confined to only metropolitans or cosmopolitans in India. In fact, Indian banking system has reached even to the remote corners of the country. This is one of the main reasons of India's growth process.

In the past, the business operations in the traditional banking were carried out manually but with the frisky changes in the trend and with the advent of Information Technology, the concept of Electronic Banking arises all over the world. Banking today is technology driven. With technological advancement the conventional branch banking is giving way to "Anytime Anywhere Banking.

In India e-banking is of fairly recent origin. The traditional model for banking has been through branch banking. Only in the early 1990s there has been start of non-branch banking services. The good old manual systems on which Indian Banking depended upon for centuries seem to have no place today. The credit of launching internet banking in India goes to ICICI Bank. Citibank and HDFC Bank followed with internet banking services in 1999. Several initiatives have been taken by the Government of India as well as the Reserve Bank to facilitate the development of e banking in India. The Government of India enacted the IT Act, 2000 with effect from October 17, 2000 which provided legal recognition to electronic transactions and other means of electronic commerce. The Reserve Bank is monitoring and reviewing the legal and other requirements of e-banking on a continuous basis to ensure that e-banking would develop on sound lines and e-banking related challenges would not pose a threat to financial stability. A high level Committee under chairmanship of Dr. K.C. Chakrabarty and members from IIT, IIM, IDRBT,

Banks and the Reserve Bank prepared the „IT Vision Document- 2011-17, for the Reserve Bank and banks which provides an indicative road map for enhanced usage of IT in the banking sector<sup>10</sup>.

To cope with the pressure of growing competition, Indian commercial banks have adopted several initiatives and e-banking is one of them. The competition has been especially tough for the public sector banks, as the newly established private sector and foreign banks are leaders in the adoption of e-banking. Indian banks offer to their customers following e-banking products and services:

1. Automated Teller Machines (ATMs)
2. Internet Banking
3. Mobile Banking
4. Phone Banking
5. Telebanking
6. Electronic Clearing Services
7. Electronic Clearing Cards
8. Smart Cards
9. Door Step Banking
10. Electronic Fund Transfer

### **IMPACT OF E-BANKING ON TRADITIONAL SERVICES**

- 1) E-banking transactions are much cheaper than branch or even phone transactions.
- 2) E-banks are easy to set up, so lots of new entrants may join .
- 3) E-banking gives consumers much more choice. Consumers will be less inclined to

---

<sup>10</sup><http://www.rbi.org.in/rdoc.in/Publications>

remain loyal.

- 4) Portal providers are likely to attract the most significant share of banking profits.
- 5) Traditional banks may simply be left with payment and settlement business
- 6) Traditional banks will find it difficult to evolve.
- 7) E-banking is just banking offered via a new delivery channel.

### **THE EVOLUTION OF TECHNOLOGY IN INDIAN BANKING**

Information technology is one of the most important facilitators for the transformation of the Indian banking industry in terms of its transactions processing as well as for various other internal systems and processes. The technological evolution of the Indian banking industry has been largely directed by the various committees set up by the RBI and the government of India to review the implementation of technological change. No major breakthrough in technology implementation was achieved by the industry till the early 80s, though some working groups and committees made stray references to the need for mechanization of some banking processes. This was largely due to the stiff resistance by the very strong bank employees unions. The early 1980s were instrumental in the introduction of mechanisation and computerisation in Indian banks. This was the period when banks as well as the RBI went very slow on mechanisation, carefully avoiding the use of 'computers' to avoid resistance from employee unions. However, this was the critical period acting as the icebreaker, which led to the slow and steady move towards large scale technology adoption. The first blueprints of adaptation of IT in banks were drawn with the establishment of Working Group to consider feasibility of introducing MICR/OCR Technology for Cheque Processing under the Chairman-ship of Dr.Y.B.Damle, Adviser of Management Services Department, Reserve Bank of India<sup>11</sup> The technological evolution of the Indian banking industry has been largely directed by the various committees set up by the RBI and the government of India to review the implementation of technological change. No major breakthrough in technology implementation was achieved by the industry till the early 80s, though some working groups and committees made stray references to the need for mechanization of some banking processes. This was largely due to the stiff resistance by the very strong bank employees unions. The early 1980s were

---

<sup>11</sup> 8 IBA Bulletin (Various issues)

instrumental in the introduction of mechanisation and computerisation in Indian banks. This was the period when banks as well as the RBI went very slow on mechanisation, carefully avoiding the use of 'computers' to avoid resistance from employee unions. However, this was the critical period acting as the icebreaker, which led to the slow and steady move towards large scale technology adoption. In March 1987 the All India Bank Employees Association (AIBEA) and the National Confederation of Banking Employees (NCBE) signed a new settlement with the IBA, it allowed for an extension of new technology in both the operations computerized and the equipment used, the concern was largely still with ways of restricting and controlling the use of computers to protect existing staff and preserve the prospects for future staff. Electronic Fund Transfer and Delivery versus Payment systems have been introduced in banks. From Advance Ledger Posting Machines (ALPMs) and mini computers, technology in banking moved on to MICR clearing and International interconnectivity of computers for cross border transactions (SWIFT), Electronic Data Interchange (EDI), Electronic Fund Transfer at Point of Sales (EFTPoS), Credit & Debit Cards, Automated Teller Machines (ATMs), Telephone Banking and the like. The landmark development of setting up of Indian financial Network (INFINET) a Wide Area Satellite based network based on VSAT technology is facilitating an efficient and integrated interbank payment system in the country. As Dr. Rangrajan has put it, in banking industry, technology is finding its use in five key areas viz, convenience in product delivery and access, managing productivity and performance, product design, adapting to market and customer needs and access to customer market. Through the most modern electronic delivery channels, banks are able to deliver their products more cheaply than the traditional branch networks loaded with expensive staff. Information Technology has enabled banks to increase the range of their products and market them more effectively. This has resulted in cutting costs of banks and improving results. Information Technology has also enabled banks to meet the new challenges of Asset Liability Management and Credit Risk Management in the new deregulated environment, through better Management Information System. The other major advantages of technology adaptation are quick and effective customer service, better housekeeping, increase in productivity and profitability, faster decision making, better operational efficiency, and increase in volume.



## COMPUTERISATION IN PUBLIC SECTOR BANKS'<sup>12</sup>

Various committees like the second Rangrajan Committee, Saraf Committee, Shere Committee and the Vasudevan Committee had gone into various aspects of computerization in the banking sector. As a culmination of the implementation of the recommendations of these various committees, all large branches of banks have been computerized and banks have moved into the direction of inter-branch and interbank connectivity. The process of computerization marked the beginning of all technological initiatives in the banking industry. Computerization of bank branches had started with installation of simple computers to automate the functioning of branches, especially at high traffic branches. Thereafter, Total Branch Automation was in use, which did not involve bank level branch networking, and did not mean much to the customer. Computerisation as well as the adoption of core banking solutions was one of the major steps in improving the efficiency of banking services. It is important to note that as on 31st March 2010 almost 98 percent of branches of public sector banks are fully computerised and within which almost 90 percent of branches are on core banking platform. As on 31st March 2013 100% Computerization & Core banking solution is implemented.

The major and upcoming channels of distribution in the banking industry, besides branches are ATMs, internet banking, mobile and telephone banking and card based delivery systems. Due to IT adaptation in banking, there is a market shift from conventional banking to convenience banking. ATMs have now emerged as a marketing tool to target the Indian Middle Class-the segment that provides bulk of deposits. After years of putting up with endless public holidays and bank strikes, Indians are catching up with the concept of banking 24x7 through ATMs. Off site ATM kiosks of many banks are virtual branches, as customer can conduct any transactions, through the touch screens, which will enables customers to log in and do banking net. Most banks are networking the ATMs. A network of connected ATMs of various banks (Swadhan system) is operational in Mumbai. The Shared Payment Network System (SPNS) symbolizes the use of technology for the direct improvement of customer services.

---

<sup>12</sup><http://www.rbi.org.in/rdoc.in/Publications>

## **AUTOMATED TELLER MACHINES**

ATMs were introduced to the Indian banking industry in the early 1990s initiated by foreign banks. Most foreign banks and some private sector players suffered from a serious handicap at that time- lack of a strong branch network.. Public sector banks have also now entered the race for expansion of ATM networks. Development of ATM networks is not only leveraged for lowering the transaction costs, but also as an effective marketing channel resource.

Installation of multilingual ATMs has also entered pilot implementation stage for many large banks in the country. This technological innovation is also aimed at the rural banking business believed to have large untapped potential. The language diversity of India has proved to be a major impediment to the active adoption of new technology, restrained by the lack of knowledge of English.

## **ATM NETWORK SWITCHES**

ATM switches are used to connect the ATMs to the accounting platforms of the respective banks. In order to connect the ATM networks of different banks, apex level switches are required that connect the various switches of individual banks. Through this technology, ATM cards of one bank can be used at the ATMs of other banks, facilitating better customer convenience. Under the current mechanism, banks owning the ATM charge a fee for allowing the customers of some other bank to access its ATM.

Among the various ATM network switches are Cash Tree, BANCS, Cashnet Mitr and National Financial Switch. Most ATM switches are also linked to Visa or MasterCard gateways. In order to reduce the cost of operation for banks, IDRBT, which administers the National Financial Switch, has waived the switching fee with effect from December 3, 2007.

## **INTERNET BANKING**

Indian banks adopted Internet banking from the early 2000s. Due to the adoption of IT technology Internet has become the most powerful instrument in Internet Banking as a reflective electronic delivery channel. Due to the adoption of technology there is a

decline tend in traditional branch network and customers now prefer the transact their business on internet banking from their homes, or office using PC and browser, making Anywhere, Anytime Banking a reality.

Internet banking services are offered to the customers in three levels. On first level only queries are handled with the help of the bank's information website; the second level which enables customers to give instructions, online applications and balance enquiries with the help of Simple Transactional Websites, no fund based transactions are allowed to be conducted. Third level is the fully transactional websites, which allow for fund transfers and value added services. Internet banking in India has reached to the level three. This has controlled the development of internet banking in India. Internet Banking reduces banks operating expenses and does wonders in the bottom-line of banks. It is estimated that cost per transaction in Internet banking will be only one tenth of a regular branch transaction. It has much to offer in terms of cost reduction to all customers. Successfully integrating brick less banking into a bank's operating strategy will bring a greater challenge for banks. Internet banking can be offered only by banks licensed and supervised in India, having a physical presence in India. Overseas branches of Indian banks are allowed to undertake internet banking only after satisfying the host supervisor in addition to the home supervisor.

### **PHONE BANKING**

A service provided by a bank or other financial institution, that enables customers to perform financial transactions over the telephone, without the need to visit a bank branch or automated teller machine. Telephone banking times can be longer than branch opening times, and some financial institutions offer the service on a 24 hour basis.<sup>148</sup> A customer could conduct the following transaction via Phone Banking:

- i) Account Balance Information & list of latest transaction
- ii) Electronic Bill Payments
- iii) Funds transfers between a customers' accounts

### **MOBILE BANKING**

Mobile banking is a system that allows customers of a financial institution to

conduct a number of financial transactions through a mobile device such as a mobile phone or personal digital assistant. Mobile banking differs from mobile payments, which involve the use of a mobile device to pay for goods or services either at the point of sale or remotely, analogously to the use of a debit or credit card to effect an EFTPOS payment. The earliest mobile banking services were offered over SMS, a service known as SMS banking. With the introduction of smart phones with WAP support enabling the use of the mobile web in 1999, the first European banks started to offer mobile banking on this platform to their customers.<sup>13</sup>

### **M-Banking provides the following banking services to a customer –**

Account Balance Information & list of latest transaction

- Electronic Bill Payments
- Micro Payments
- Mobile Recharge
- Cheque Book Request
- Cheque Status
- Stop Payment Instructions
- Funds Transfer from Customer's Accounts

The provision of real time updates of critical banking transactions is the main benefit of M-Banking- for example soon after a transactions like ATM cash withdrawal customer gets a mobile alert about it through M-Banking

### **CARD BASED DELIVERY SYSTEMS**

Among the card based delivery mechanisms for various banking services, are credit cards, debit cards, smart cards etc. These have been immensely successful in India since their launch. Penetration of these card based systems have increased manifold over the past decade. Aided by expanding ATM networks and Point of Sale (POS)

<sup>13</sup>[http://en.wikipedia.org/wiki/Mobile\\_banking](http://en.wikipedia.org/wiki/Mobile_banking)

terminals, banks have been able to increase the transition of customers towards these channels, thereby reducing their costs too. The Smart card technology has brought a dramatic change in our daily lives. Smart card, which is a chip based card, is a kind of an electronic purse. A smart card is truly powerful financial token, which carries out all the functions of magnetic stripe cards like ATM card, credit & debit card etc.<sup>14</sup>

### **SATELLITE BANKING**

Satellite banking is also an upcoming technological innovation in the Indian banking industry, which is expected to help in solving the problem of weak terrestrial communication links in many parts of the country. The use of satellites for establishing connectivity between branches will help banks to reach rural and hilly areas in a better way, and offer better facilities, particularly in relation to electronic funds transfers.

### **NATIONAL ELECTRONIC FUND TRANSFER (NEFT) SCHEME**

A new variant of the EFT called the National EFT (NEFT) was decided to implemented (November 2005) so as to broad base the facilities of EFT.. NEFT provided for integration with the Structured Financial Messaging Solution (SFMS) of the Indian Financial Network (INFINET).<sup>15</sup>

### **PROGRESS OF BANKING IN INDIA**

#### **HISTORY OF BANKING**

The Banking industry is one of the oldest in the world. Banking originated about 4000 years ago in places such as Babylon, Mesopotamia and Egypt where grain & other valuable commodities were stored and receipts given as proof of sale on purchase.<sup>16</sup>

---

<sup>14</sup>ibid

<sup>15</sup>ibid

<sup>16</sup> E-Banking & Development of Banks By S.B.Verma,S.K.Gupta&M.K.Sharma Deep & Deep Publications Pvt.Ltd. Delhi 2007 Edition ISBN978-81-8450-004-2

The word bank was borrowed in Middle English from Middle French banque, from Old Italian banca, from Old High German banc, bank "bench, counter". Benches were used as desks or exchange counters during the Renaissance by Florentine bankers, who used to make their transactions atop desks covered by green table cloths<sup>17</sup>.

There are the different opinions on the origin of the word "bank". According to different opinions, the word "BANK" itself is derived from the word "bancus" or "bankue" that is a bench. The Jews in Lombardy were termed as early bankers those were transacting their business on benches in the market place. This opinion is, however, rejected by Henry Dunning Macleod, a Scottish economist, on the ground that "The Italian money changers as such were never called "Banchieri" in the Middle Ages. Others opinion in this regard is that the word "bank" is originally derived from the German word "back" meaning a joint stock fund. When the Germans captured a great part of Italy, this word "bank" was later Italianized into "banco". M.I.Tannon supported this view. But "whatever be the origin of the word "bank," as Professor Ramchandra Rao says (Present-Day Banking in India, 1st edition, p.88) "It would trace the history from the Middle Ages.

**EARLY BANKING SYSTEM** The History of Banking is very old and we find its roots at about 2000 BC within the boundaries of Assyria and Babylonia where the banks which were the first of its kinds and were controlled by the merchant of ancient world. These banks granted grain loans to farmers and traders those who were carrying goods between the cities. In ancient Greece and during the regime of Roman Empire, the temples of Babylon were used as banks and such great temples as those of Ephesus and of Delphi made loans. Those temples were the most powerful of Greek banking institutions during those days. During these periods two important innovations were occurred those were the accepting of deposits and the changing of money.

The Greeks organize the State Owned Banks while Romans did not organize their State owned Banks; the conduct of their private banking earned & created the public confidence in their system. With the end of the civilization of antiquity,

---

<sup>17</sup>Martim de Albuquerque, (1855). Notes and Queries London: George Bell. p. 431.source <http://www.wikipedia.com>

banking system deteriorated for a period of so many centuries into a system of financial change. In the middle of the 12th century, some banks were established at Venice and Geneva, due to growing requirement of the society. During the 14th Century, some of the famous bankers throughout Europe were Bardi, Acciajuoli, Peruzzi, Pitti and Medici. 45 During the 15th century the Peruzzi Family opened various branches in Europe &, played a notable role in financing to “Christopher Columbus” and “John Cabo” for some of their early voyages of discovery to America.

The predecessors of modern banks were frequently licensed for an explicit purpose. For example, the Bank of Venice (1171) and the Bank of England (1694) were chartered in relation with loans to the government; the Bank of Amsterdam (1609) was established to receive deposits of gold and silver. There was a rapid growth of all the way through the 18th and 19th century, supplementing the growth of the industries and trade. Each country of the globe developed the individual structure of banking peculiarly suited to its economic and social life. The importance of banking system was recognized by the people because they had realized the value of money in their life. The importance of banking system has its origin in the earlier centuries only.

## **BACKGROUND OF BANKING IN INDIA**

From the ancient times, the banks & bankers are essential pillars of the Indian society. Previously concept of banking was not present in Indian society due to independence & self support was the customary law. But when division of work was introduced in the society, there were complicatedness in the matter of exchange. Due to this problem, Indian society understood how to make use of money. Existence of money economy is not possible without banking institution.

There are number of evidences to show that India was not an unfamiliar to the notion of the banking. “Loans and usury were well understood in those days and Rishis (who, we should always remember, were worldly men in those days and not solitary person or hermits or anchorites) occasionally laments their state of indeb

ness with the simplicity of primitive times<sup>18</sup>.

To pay off the debt was called as “Rnam-Sam-m”. There are number of citations available in respect of contract of debts were executed without intention of payments. From the above it is evident that as early as the Vedic period the accepting and pay off the credit in one or other form were in existence. However, the changeover from money lending to banking must have occurred before Manu, who has devoted a special section to the subject of deposits and pledges, where he says, “A sensible men should deposit his money with a person of good family, of good conduct, well acquainted with the law, veracious, having many relatives wealthy and honorable(Arya).<sup>19</sup>

In respect of Policy of loans and Rates of Interest were governed by the rules of Manu. Accordingly, the banking business was carried out in ancient India. There are many strotras in the work of Gautama, Brihspati and Kautilya regarding the regulation of the interest. In those days banking meant largely money lending, financing to kings for their war Bankers in India were highly respected as very important member of the community in Government, as well as in society. Banker was often consulted also in financial matters of State as well as on the other matters. When uncertainty, insecurity was prominent aspect of the time disturbed days of civil wars, the Banker was the most trusted person the only shelter in money matters. The Indian banker was extremely admired and considered as commendable example of commercial integrity. There were some transactions very popular in Indian Banking System which has been accepted since long time such as **The Hundi** : - The word hundi is said to be derived from the Sanskrit root “hund” meaning to collect. Its derivation expresses the purpose for which originally instruments were used. The Indian Bankers always enjoyed the public confidence in banking in vogue. This can be understood from the fact that hundis (Inland bill of exchange) are in existence from the days of the Mahabharata. Among the Hindus, the banking was restricted to the issue and discount the bill of exchange, money lending and money changing. Very often banking was also carried on together with dealings in grains, cloths etc. The role of the banker pivotal in the

<sup>18</sup>Dutt R.C.,” Civilization in Ancient India by” Vol.1, revised edition p39

<sup>19</sup> Buhler, “The laws of Manu, the Sacred Books of the East” ,Vol.XXV,p.286.



commercial market as well as in agricultural field. Hundis were effectively used for transfer of funds at a fairly distant places.<sup>21</sup>

**Usury:** - In Bengal, money were frequently lent to farmers at high rate of interest forty, and sometimes, even at sixty percent, per annum, while the standing crop was mortgaged for repayment of the loan. Usury was widely customary in India.

**The Money Lending :** -. The early Indian bankers had comparatively a little deposit or discount business, or dealings in other people's money, which is the unfailing characteristic of modern banking. Therefore he may be called a money lender rather than a banker.

The journey of Indian Banking System from 1786 to 2020 can be segregated into seven distinct phases as mentioned below: <sup>20</sup>

- The General Bank of India (1786-1791)
- Oudh Commercial Bank (1881-1958)
- Bank of Bengal (1809)
- Bank of Bombay (1840)
- Bank of Madras (1843)

Pre-Independence Banks in India	
Bank Name	Year of Establishment
Allahabad Bank	1865

<sup>20</sup> ibid10

Punjab National Bank	1894
Bank of India	1906
Central Bank of India	1911
Canara Bank	1906
Bank of Baroda	1908

### **Post Independence Period (1947-1991)**

Given below is the list of these 14 Banks nationalised in 1969:

1. Allahabad Bank
2. Bank of India
3. Bank of Baroda
4. Bank of Maharashtra
5. Central Bank of India
6. Canara Bank
7. Dena Bank
8. Indian Overseas Bank
9. Indian Bank
10. Punjab National Bank

11. Syndicate Bank
12. Union Bank of India
13. United Bank
14. UCO Bank

In the year 1980, another 6 banks were nationalised, taking the number to 20 banks.

These banks included:

1. Andhra Bank
2. Corporation Bank
3. New Bank of India
4. Oriental Bank of Comm.
5. Punjab & Sind Bank
6. Vijaya Bank

Apart from the above mentioned 20 banks, there were seven subsidiaries of SBI which were nationalised in 1959:

1. State Bank of Patiala
2. State Bank of Hyderabad
3. State Bank of Bikaner & Jaipur
4. State Bank of Mysore
5. State Bank of Travancore
6. State Bank of Saurashtra
7. State Bank of Indore

All these banks were later merged with the State Bank of India in 2017, except for the State Bank of Saurashtra, which was merged in 2008 and State Bank of Indore, which was merged in 2010.

**Liberalisation Period (1991-Till Date)**

Once the banks were established in the country, regular monitoring and regulations need to be followed to continue the profits provided by the banking sector. The last phase or the ongoing phase of the banking sector development plays a significant role. To provide stability and profitability to the Nationalised Public sector Banks, the Government decided to set up a committee under the leadership of Shri. M Narasimham to manage the various reforms in the Indian banking industry. The biggest development was the introduction of Private sector banks in India. RBI gave license to 10 Private sector banks to establish themselves in the country. These banks included:

1. Global Trust Bank
2. ICICI Bank
3. HDFC Bank
4. Axis Bank
5. Bank of Punjab
6. IndusInd Bank
7. Centurion Bank
8. IDBI Bank
9. Times Bank
10. Development Credit Bank

The other measures taken include:

- Setting up of branches of the various Foreign Banks in India
- No more nationalisation of Banks could be done
- The committee announced that RBI and Government would treat both public and private sector banks equally
- Any Foreign Bank could start joint ventures with Indian Banks

- Payments banks were introduced with the development in the field of banking and technology
- Small Finance Banks were allowed to set their branches across India
- A major part of Indian banking moved online with internet banking and apps available for fund transfer

Thus, the history of banking in India shows that with time and the needs of people, major developments have been done in the banking sector with an aim to prosper it.

### **PHASE-I (1786 -1934)**

#### **Early phase of Indian Banking**

Phase I is known as “The Early Phase of Indian Banking”. It describes the progress of banking from establishment of 1st joint stock bank. In the present sense, foot prints of Indian banking can be traced in the last decades of the 18th century. East India Company is pioneer in establishment of banking during the early phase banking in India. This phase witnessed the progress of Indian banking in the following manner: The Rise of Joint Stock Banks in India: - Banking in India set in motion in the last but one decade of the 18th century. The first bank “The General Bank of India” was established in the year 1786 when Warren Hastings was the Governor General of India. “Bank of Hindustan” was founded in 1790. “The State Bank of India”, country's largest & oldest bank was derived from the “Bank of Calcutta” established on 2nd June, 1806, which was renamed as “Bank of Bengal” on 2nd January 1809. In 1862, Bank of Bengal was amalgamated in “Dacca Bank” which was established in 1846. Three “Presidency Banks” were established under charters from the “British East India Company” namely 1) Bank of Bengal, 2) Bank of Bombay established on 15th April, 1840 and 3) Bank of Madras on 1st July 1843. The three banks were amalgamated as “The Imperial Bank of India” on 27th, January 1921. The Reserve Bank of India, being The Central Bank of India, took over the control of The Imperial Bank of India and the Imperial Bank of India was merged on 30 April 1955 as the State Bank of India. Indian merchants in Calcutta established the Union Bank in 1839. Due to “Economic Crisis of 1848-49”, the bank was failed in 1848. In 1865, “Allahabad Bank” was established which is the oldest

Joint Stock bank in India.

In the year 1860, foreign banks also started opening of their branches particularly in Calcutta. In 1860 “The Comptoire d' Escompte de Paris” opened its branch in Calcutta.. In the year 1869, Hong Kong-Shanghai Banking Corporation (HSBC) established itself in Calcutta. Mainly due to trading activities of the British Empire Calcutta became the most dynamic trading port in India and in turn so became a banking center. The Punjab National Bank was established in Lahore. Inspired with the Swadeshi Movement several Swadeshi banks were established but few were survived to the present. Those were Bank of India, Corporation Bank, Indian Bank, Bank of Baroda, Canara Bank and Central Bank of India<sup>21</sup>.

### **Banks Failed During the period of First World War**

The period of First World War was unstable and number of banks were collapsed due to the Indian economy gaining indirect boost due to war-related economic activities. Indian Companies Act was passed during 1913. This act is important because it is the first legislation related to banks Though Indian Companies act contained some sections related to joint sector banks, it is inadequate to control banking activities. As a result of that Swadeshi movement was ended up in a bank failure during 1913-18. Majority of the banks that failed were small and weak. The failure of banks during this period lost the public faith in Indian banks and gave jolt to development of banking in India.

There was a brief interval in bank failures from 1918-21. The growth in economy after World War I gave one more momentum to the formation of new banks. A number of banks were opened; some of them were particularly for financing to industries. But from 1922, the bank failures took momentum due to depression in the economy. An act of amalgamation of three presidency banks 1920 was enacted. Three presidency banks namely Bank of Bombay, Bank of Madras & Bank of Madras were amalgamated into Imperial Bank of India in 192. The Imperial Bank was effectively performing the functions of Central Bank of the country till the establishment of RBI in 1935 .

---

<sup>21</sup>Source: [http://en.wikipedia.org/wiki/Banking\\_in\\_India#History](http://en.wikipedia.org/wiki/Banking_in_India#History)

## **PHASE-II (1935- 1968)**

### **Pre-nationalization phase of Indian Banking**

Phase II elaborates the developments of Indian Banking from 1935 to 1968. It describes after independence how government adopted policy resolution which resulted into greater involvement of the state in different segments of the economy including banking and finance. On the recommendation of Hilton Young Currency commission in 1928 for the creation of a separate bank, Reserve Bank of India was established in 1935 for the performance central banking functions. The important events those were taken place during this phase are as under:

#### **In 1935, Reserve Bank of India was established:**

To counter the economic troubles after the First World War The Reserve Bank of India, was established on 1st April, 1935 in accordance with the provisions of the Reserve Bank of India Act, 1934. It was established according to the guidelines laid down by Dr. Ambedkar. RBI was conceptualized as per the guidelines, working style and outlook presented by Ambedkar in his book "The Problem of the Rupee – It's origin and it's solution" and also in front of the Hilton Young Commission.<sup>22</sup>

#### **1949: Banking Regulation Act was enacted**

The partition of India in 1947 badly affected the financial system of Punjab and West Bengal. The independence of India started the government intervention in the Indian banking.. Government has adopted the Industrial Policy in 1948 by predicting a mixed economy. 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. It 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. To streamline the functioning and activities of commercial banks, the Government of India came up with The Banking Companies Act, 1949 which was later changed to Banking Regulation Act 1949 as per

---

<sup>22</sup>29 Cecil Kisch: Review "The Monetary Policy of the Reserve Bank of India" by K. N. Raj. In: The Economic Journal Vol. 59, No. 235 (Sep., 1949), PP. 436–438, p. 436.

amending Act of 1965 (Act No. 23 of 1965) and Reserve Bank of India was given extensive powers for the supervision of Banking in India as the Central Banking Authority.

**1955, State Bank of India was nationalized**<sup>23</sup>In 1955, it nationalized Imperial Bank of India with extensive banking facilities on a large scale specially in rural and semi-urban areas. It formed State Bank of India to act as the principal agent of RBI and to handle banking transactions of the Union and State Govt. all over the country.

### **1959, Seven Subsidiaries of State Bank of India were nationalized**

After nationalization of State Bank of India ,seven banks forming Subsidiary of State Bank of India were nationalized in 1959 namely 1) State Bank of Bikaner & Jaipur, 2) State Bank of Hyderabad , 3) State Bank of Indore( merged with SBI on 15 July 2010),4) State Bank of Mysore, 5) State Bank of Patiala , 6) State Bank of Saurashtra ( merged with SBI on 13 September 2008) and 7) State Bank of Travancore.

### **1961, Deposit Insurance Corporation was established**

Deposit insurance, was established in India in 1962.Due to the Banking crises and bank failures in the 19th century as well as the early 20th Century (1913-14) the need for depositor protection in India was significantly felt. The banking crisis in Bengal between 1946 and 1948, pave the way for the revision of the issue of deposit insurance.

### **1964, The Industrial Development Bank of India (IDBI) was set up**

The Industrial Development Bank of India (IDBI) was established on 1 July 1964 under an Act of Parliament as a wholly owned subsidiary of the Reserve Bank of India to serve as an Apex institution for Term finance for industries in India.

---

<sup>23</sup>RBI Publications,Source:<http://www.rbi.org.in>



**(C)PHASE-III (1969-1979)****Post-nationalization phase of Indian Banking**

Phase III is known as “The Post Nationalization Phase of Indian Banking” and describes the progress of Indian Banking from 1969 to 1979. It throws the light on nationalisation of banks and explains how the reforms in banking sector have led to the expansion of commercial banks and their branches all over the country. Bank credit was made instrumental for economic development of the country by way of spreading the banking habit among the people under the scheme of ‘Social Control’ of banks introduced in 1968.

**1969, Major 14 Banks were nationalized.**

By the 1960s, the Indian banking industry is instrumental in the development of Indian economy. Indira Gandhi, the then Prime Minister of India, expressed the intention of the Government of India in the annual conference of the All India Congress Meeting in a paper entitled “Stray thoughts on Bank Nationalization.” The meeting received the paper with enthusiasm.<sup>25</sup>

The following 14 largest commercial banks were nationalized with effect from the midnight of July 19, 1969 by issuance of the ordinance by Government of India. 1) Allahabad Bank, 2) Bank of Baroda, 3) Bank of Maharashtra, 4) Central Bank of India, 5) Canara Bank, 6) Dena Bank, 7) Indian Overseas Bank, 8) Indian Bank, 9) New Bank of India, 10) Punjab National Bank, 11) Syndicate Bank, 12) UCO Bank, 13) Union Bank and 14) United Bank of India

The nationalization of 14 Commercial banks in July, 1969 was the height of Social control of banks. India switched over to mass banking from class banking trying to realize the social

**1971, Credit Guarantee Corporation (CGC) established<sup>24</sup>.**

The Reserve Bank promoted a public limited company on January 14, 1971, named

---

<sup>24</sup>Austin, Granville, “Working a Democratic Constitution – A History of the Indian Experience”. New Delhi: Oxford University Press 1999. p. 215

as Credit Guarantee Corporation of India Ltd. (CGCI). The credit guarantee schemes introduced by the CGCI Ltd. with an intention to encourage the commercial banks to provide the credit needs to the neglected sectors of the society.

**1974, Tandon Committee” was constituted for formulation of guidelines for the banks for follow-up of credit effectively.<sup>25</sup>**

In 1974, a study group under the chairmanship of Mr. P. L. Tandon was constituted. Its main recommendations related to norms for inventory and receivables, the approach to lending, style

**Talwar Committee was appointed to look into the Customer Service in banks.**

In 1975, the RBI has appointed the ‘Talwar Committee on Consumer Services in Banks’ and it recommended that, computerization of some functions to avoid delays in customer service in Indian banks.

#### **PHASE-IV (1980-1990)**

##### **Preparatory phase of E-Banking in India**

Phase-IV elaborates the development of Indian Banking since 1980 to 1990. This phase of banking is termed as “The Preparatory Phase of E-Banking in India”.. Indian Banking Sector Reform further gain momentum by way of Second phase of nationalization of six more banks carried out in 1980. The reason for the nationalization was to bring credit delivery under the government control. Due to nationalization of six more banks, around 91% of the banking business of India came under the control of Government of India, The use of computers had led to introduction of online banking in India.

The RBI since 1984 formed various Committees on Mechanization & Computerization in the Banking Industry. This phase witnessed as the preparatory phase of electronic banking. During this decade RBI & Government prepared the

<sup>25</sup> Source: <http://www.mbaknol.com/business-finance/tandon-committee-report-on-working-capital-norms-and-recommendations-of-credit-follow-ups-&-information-system>. With acceptance of major recommendations by Reserve Bank of India, a new era of lending began in India.

platform to takeoff the electronic banking in India to the soaring heights. Followings measures have been initiated by RBI & Government of India in this regards:

i) In 1980, Nationalizations of Six Banks with Deposits over 200 Crore. in order to provide government more power and command over credit delivery, six more commercial banks in India were nationalized i.e. 1) Andhra Bank, 2) New Bank of India,, 3) Oriental Bank of Commerce, 4) Corporation Bank, 5) Punjab & Sind Bank and 6) Vijaya Bank

**Working Group” to consider feasibility of introducing MICR/OCR Technology for Cheque Processing established**

Under the Chairman-ship of Dr.Y.B.Damle, Adviser of Management Services Department, Reserve Bank of India a Working Group to consider feasibility of introducing MICR/OCR Technology for Cheque Processing established in 1982. The working group has recommended the introduction of 'item processing' (sorting and listing of cheques with the help of computers) in three phases.

1983, Committee on Computerization and Mechanization was established<sup>73</sup> to make recommendations for bank computerization and mechanization in the Banking Industry

In 1983 the RBI has appointed another committee under the chairmanship of Dr. C. Rangarajan, Deputy Governor, Reserve Bank of India to make recommendations for bank computerization and mechanization in the Banking Industry and suggest special plan for its implementation.

Dr. C. Rangarajan recommended that computerization and installation of Advanced Ledger Posting Machines (ALPM) at branch, regional and head offices of banks will bring around a new era in banking. Committee on mechanization of banks recommended that banks should set up service branches at centers where they have more than 10 branches. The service branch so set up would exclusively be devoted to clearing operations of the bank at that particular centre. Banks to be in readiness for the introduction of MICR Clearing at the four metropolitan cities by assessing their requirements for encoders, adopting standardized cheque forms and

reorganizing work procedures where necessary, and training staff down to the branch level

1987, HSBC introduced Automated Teller Machine Concept(ATM) in India<sup>26</sup>

### **Committee on Computerisation in Banks established**

In 1988, the RBI set up the Committee on Computerisation in Banks headed by Dr. C.R. Rangarajan, Deputy Governor of Reserve Bank of India. Committee recommended that computerisation of the settlement operations in the clearing houses managed by RBI at Bhubaneswar, Guwahati, Jaipur, Patna and Thiruvananthapuram. Operationalisation of MICR technology and the National Clearing of inter-city cheques at the four metropolitan cities i.e at Chennai , Delhi ,Kolkata& Mumbai. Introduction of one-way collection of cheques drawn on the four metros received from Ahmedabad, Bangalore, Nagpur and Hyderabad. Framing of uniform rules and regulations of clearing houses, branch level computerisation and the establishment of connectivity between branches. Improvements in customer service - introduction of on-line banking. Setting up a network of Automated Teller Machines (ATMs) in Mumbai.Introduction of a single 'All Bank' credit card to reduce the load on cash and cheque transactions.

### **1989, Kisan Credit Card introduced<sup>27</sup>.**

Kisan Credit Card is a credit card was launched on August 5, 1998 designed offering the reasonable credit to Indian farmers. It was the joint venture of Government of India, RBI and NABARD.

### **PHASE-V(1991to2000)**

#### **Emergent phase of E-Banking in India**

This phase is recognized as an emergent phase of e-banking in India and introduced various reforms and lots of products and facilities for implementation of e-banking. The Indian Financial System consisted of titanic network of branches of banks and financial institutions and plenty of financial products. The Indian financial system

<sup>26</sup>[http://wiki.answers.com/Q/Which\\_was\\_the\\_first\\_Indian\\_Bank\\_to\\_introduce\\_credit\\_card](http://wiki.answers.com/Q/Which_was_the_first_Indian_Bank_to_introduce_credit_card)

<sup>27</sup> [http://en.wikipedia.org/wiki/Kisan\\_Credit\\_Card](http://en.wikipedia.org/wiki/Kisan_Credit_Card)

registered its presence among the people since nationalization of major banks and establishment of various financial institutions. The expansion of banking and other financial services to huge section of customers recognized as a noteworthy achievement in nineties. Other prominent measure were taken during this emergent phase of e banking including enactment of ITAct 2000 enlisted as under:

**In the year 1991 The Government of India appointed a Narasimham Committee** called 'The Committee on Financed System' under the Chairmanship of Sri M., exGovernor of Reserve Bank of India which made recommendations in November 1991. The committee recommended that banking structure of the Indian banking should be with 3 to 4 large banks (including SBI) at top and at bottom rural banks engaged in agricultural activities.

**In 1992: Income recognition and asset classification norms introduced**

Provisioning and Capital adequacy standards specified. Indian Banks required to fulfill these norms by 1994 and 1996<sup>81</sup>. Similarly SEBI was established in the year 1988 and given statutory powers on 12 April 1992 through the SEBI Act, 1992. SEBI has also to supervises functions of stock exchanges as well as act as an intermediaries.

**1993, New Bank of India merged with Punjab National Bank (PNB), and guidelines for establishment of 10 Private Sector Banks issued.**<sup>28</sup>

In the first round, RBI issued licenses to 10 private sector banks in 1993-94, shortly after the nation embraced economic liberalization under the P.V. Narasimha Rao government namely

**1998,a) Electronic Commerce Support Act,1998 enacted**<sup>29</sup>

Electronic Commerce Support Act, 1998 enacted. suitable amendments were made to the following acts namely 1)Amendment to the Indian Evidence Act,1872, 2) Amendments to the Indian Contract Act,1872, 3) Amendments to the Indian and Telegraph Act,1885, 4)Amendments to the Bankers Book Evidence Act, 5)

---

<sup>28</sup>ibid

<sup>29</sup> <http://law.indiainfo.com/cyber law/ecommerce-act.html#1>

Evidence Act of 1891 and 6) Amendments to the General Clause Act, 1897.

### **Vasudevan Committee for Technology Up-gradation in the Banking Sector formulated**

The committee, headed by RBI Executive Director, A. Vasudevan was constituted in September 1998. Committee has given recommendations on 1) Communication infrastructure and use of INFINET, 2) Standardisation and security, 3) Outsourcing of Technology and service, 4) Computerisation of Govt. Transaction, 5) Set up date warehousing, mining and MIS by January 1, 2001 and 6) An amendment to the Reserve Bank of India Act, 1934 to enable the central bank regulate and supervise payment and settlement system

### **RBI issued guidelines on Universal Banking**

R.H. Khan Committee had recommended the concept of Universal Banking. Universal Banking means allowing financial institutions (FIs) and banks to undertake all kinds of activity of banking or development financing or activity associated with that, subject to compliance of statutory and requirements prescribed by RBI, Government and related legal Acts.

### **RBI National Electronic Fund Transfer (NEFT) System was established<sup>30</sup>.**

RBI has introduced an electronic funds transfer system called "The RBI National Electronic Funds Transfer System" (herein after may be referred to as "NEFT System" or "System") in November 2005. The objects of the NEFT System are to establish an Electronic Funds Transfer System to facilitate an efficient, secure, economical, reliable and expeditious system of funds transfer and clearing in the banking sector throughout India, and to relieve the stress on the existing paper based funds transfer and clearing system. A lot of transactions are settled in one go in each batches

### **The National Electronic Clearing Services (NECS) system was implemented.**

Shri V. Leeladhar, Deputy Governor, Reserve Bank of India inaugurated the

<sup>30</sup> Source: <http://rbidocs.rbi.org.in/rdocs/content/pdfs/67253.pdf>

National Electronic Clearing Service (NECS) at a function at the Reserve Bank's National Clearing Centre (NCC), Mumbai in September 2008. The service was implemented with an aim to centralize the Electronic Clearing Service (ECS) operation and bring in uniformity and efficiency to the system

### **Mobile Banking Transactions in India –RBI issued Guidelines for Banks**

RBI issued Operative Guidelines for Banks on Mobile Banking Transactions in India on September 19, 2008. Mobile phones as a delivery channel for extending banking services have off-late been attaining greater significance. The rapid growth in users and wider coverage of mobile phone networks have made this channel an important platform for extending banking services to customer.

### **Information Technology (Amended) Act, 2008 enacted**

The Information Technology Act, 2000 was amended by Information Technology Amendment Bill 2006. The Information Technology (Amendment) Bill, 2008 (Bill No.96- F of 2008) was passed by the both houses of parliament on December, 2008 and received the assent of the president on 5th February, 2009. However, after the wait of almost more than 8 months, the Information Technology (Amendment) Act, 2008 (ITAA, 2008) has been notified with effect from 27/10/2009 and is now become operational.

### **PHASE-VII (2009-2013)**

#### **Matured Phase of E-Banking in India**

After enactment of ITAA-2008, Indian Banking Industry entered into to the matured phase E Banking.

#### **In 2009, Branch Licensing Policy 2009-RBI**

To address the issue of uneven spread of Bank Branches, since December 2009, domestic scheduled commercial banks are permitted to freely open branches in Tier 3 to Tier 6 centers with population of less than 50,000 under general permission, subject to reporting. In the North Eastern States and Sikkim, domestic scheduled

commercial banks can now open branches in rural, semi urban and urban centers without the need to take permission from RBI in each case, subject to reporting. Reserve Bank advised commercial banks that while preparing their Annual Branch Expansion Plan (ABEP), they should allocate at least 25 per cent of the total number of branches proposed to be opened during the year in unbanked rural centers. For this purpose, the centers are classified based on population, viz.

Tier-I: Population of 1,00,000 and above ,Tier-II : Population of 50,000 to 99,999  
 Tier-III: Population of 20,000 to 49,999. Tier-IV: Population of 10,000 to 19,999  
 Tier-V: Population of 5,000 to 9,999 and Tier-VI: Population of less than 5,000.  
 (Source: RBI Cir. BL. BC/65/22.01.001/2009-10 dt. 1st Dec. 2009)

### **Electronic Benefit Transfer (EBT) and its convergence with Financial Inclusion Plan (FIP) Launched.**

Vide circular RBI/2011-12/153RPCD.CO.BC.FID.No. 16/12.01.019/2011-12 dated August 12, 2011 RBI issued operational guidelines for implementation of Electronic Benefit Transfer and its convergence with Financial Inclusion Plan. Electronic Benefit Transfer (EBT) implementation will enable the beneficiaries to get the social security benefits directly credited to their accounts and at the same time it will relieve the Government functionaries of the cost and time involved in manually administering the high volume and low value payment.

### **In 2012**

RBI releases guidelines on White Label Automated Teller Machines (WLAs)

The Reserve Bank of India, on its website, the final guidelines on "White Label Automated Teller Machines (WLAs) in India". White Label ATMs are ATMs set up, owned and operated by non-bank entities incorporated in India under the Companies Act, 1956. Till now, only banks were permitted to set up Automated Teller Machines (ATMs) as extended delivery channels. In order to deep penetration on ATMs in unbanked and under banked areas, RBI has permitted 'White Label ATMs' in the country to supplement the existing ATMs.

### **In 2013, Master circular on Mobile Banking Transactions in India –RBI**



RBI has issued Operative Guidelines for Banks vide circular no RBI/2013-14/116 DPSS.CO.PD. Mobile Banking. No./02.23.001/2013-14 dated July 1, 2013. The Master Circular has been updated by incorporating all the instructions/ guidelines issued on Mobile Banking up to June 30, 2013.

Banking industry has gone through major amendments in recent past. These amendments have been taken place due to deregulation policy of government, to make open the regional markets to the global entities due to the adoption of digital net work by the customers. The development and growth of internet banking is definitely one of the most powerful drivers in the restructuring of banking services. The previous dependence on large networks of branch offices has been replaced by digital services.<sup>31</sup>

### **TRANSFORMATION OF INDIAN BANKING SECTOR**

There are various elements which have an impact on the Indian banking sector for adoption of technology.

- 1) Government of India introduced the economic reforms in 1991 which open the doors for new opportunities for banks all over the world.
- 2) As a part of strategy of the government Indian banking was made available for private sector banks. Private sector banks utilized the opportunity and they boost up the technology and created an environment to use it for back office as well as and frontoffice operations..With the result of such competitions among the banks, entire banking system became more vibrant and more efficient. The banks and customer both became techno savvy.
- 3) In the last few years, with the development of telecom sector, communication infrastructure, the entire cities and places of India got connected with each other. This contributes to reduce the cost of the banks in India. During the same period banks adopted the CBS technology for connecting the branches in the country by offering banking services anywhere and anytime.

---

<sup>31</sup>4 International Journal of Management (IJM), Volume 3, Issue 3, September- December (2012)

4) Indian software industry has also contributed the Indian banking sector. The customer service provided by the Banks to their customers, software companies came forward to help banks by providing web based portals, wide area network (WAN), local area network, internet, etc. at affordable prices and at the high time.

5) Fifthly, as per the directives of RBI to adopt the changes in order to improve the operational efficiencies, security measures, risk reduction and quality up-gradation maximum banks in the country have adopted the new technology.

After liberalization RBI has designed several changes in the structure of banking sector and made compulsory several guidelines on electronic banking, fund transfer, core banking solution, payment system, clearing services, and internet banking. So, it becomes obligatory for the banks to adapt broad changes in technology. Indian Banking Association (IBA) has extended its helping hand to banks in this regard.<sup>32</sup>

### **SCHEDULED BANKS**

A scheduled bank is a bank that is listed under the second schedule of the RBI Act, 1934. In order to be included under this schedule of the RBI Act, banks have to fulfill certain conditions such as having a paid up capital and reserves of at least 0.5 million and satisfying the Reserve Bank that its affairs are not being conducted in a manner prejudicial to the interests of its depositors.

Scheduled banks are further classified into commercial and cooperative banks.

#### **Schedule Commercial Banks**

Scheduled Commercial Banks (SCBs) account for a major proportion of the business of the scheduled banks. As at end-March, 2013, 169 SCBs were operational in India. SCBs in India are categorized into the five groups based on their ownership and/or their nature of operations. State Bank of India and its five associates (excluding State Bank of Saurashtra, which has been merged with the SBI with effect from August 13, 2008 and State Bank of Indore since merged with SBI w.e.f. 15 July 2010) are recognized as a separate category of SCBs, because of SBI Act, 1955 and SBI Subsidiary Banks Act, 1959. Nationalized banks (20) and

---

<sup>32</sup>ibid

SBI and associates (6), together form the public sector banks group and control around 70% of the total credit and deposits businesses in India. IDBI ltd. has been included in the nationalized banks group since December 2004. As at end-March 2013, there were 13 old and 7 new generation private sector banks operating in India. Foreign banks are present in the country either through complete branch/subsidiary route presence or through their representative offices. At end-March 2013, 41 foreign banks were operating in India with 331 branches. Regional Rural Banks (RRBs) were set up in September 1975 in order to develop the rural economy by providing banking services in such areas by combining the cooperative. RRBs have a unique structure, in the sense that their equity holding is jointly held by the central government, the concerned state government and the sponsor bank (in the ratio 50:15:35), which is responsible for assisting the RRB by providing financial, managerial and training aid and also subscribing to its share capital. Between 1975 and 1987, 196 RRBs were established. RRBs have grown in geographical coverage, reaching out to increasing number of rural clientele. At the end of June 2008, they covered 585 out of the 622 districts of the country. As a result of state wise amalgamation of RRBs sponsored by the same sponsor bank, the number of RRBs fell to 82 by end March 2013.

### **Scheduled Cooperative Banks**

Scheduled cooperative banks in India can be broadly classified into urban credit cooperative institutions and rural cooperative credit institutions. Rural cooperative banks undertake long term as well as short term lending. Credit cooperatives in most states have a three tier structure (primary, district and state level)

### **NON-SCHEDULED BANKS**

Non-scheduled banks also function in the Indian banking space, in the form of Local Area Banks (LAB). As at end-March 2013 there were only 4 LABs operating in India. Local area banks are banks that are set up under the scheme announced by the government of India in 1996, for the establishment of new private banks of a local nature; with jurisdiction over a maximum of three contiguous districts. LABs aid in the mobilisation of funds of rural and semi urban districts. Six LABs were originally licensed, but the license of one of them was cancelled due to irregularities

in operations, and the other was amalgamated with Bank of Baroda in 2004 due to its weak financial position

### **Information Technology (Amended) Act, 2008 enacted.<sup>33</sup>**

The Information Technology Act, 2000 was amended by Information Technology Amendment Bill 2006. The Information Technology (Amendment) Bill, 2008 (Bill No.96- F of 2008) was passed by the both houses of parliament on December, 2008 and received the assent of the president on 5th February, 2009. However, after the wait of almost more than 8 months, the Information Technology (Amendment) Act, 2008 (ITAA, 2008) has been notified with effect from 27/10/2009 and is now become operational.

### **PHASE-VII (2009-2013)**

After enactment of ITAA-2008, Indian Banking Industry entered into to the matured phase E Banking.

**In 2009,**

### **Branch Licensing Policy 2009-RBI**

To address the issue of uneven spread of Bank Branches, since December 2009, domestic scheduled commercial banks are permitted to freely open branches in Tier 3 to Tier 6 centers with population of less than 50,000 under general permission, subject to reporting. In the North Eastern States and Sikkim, domestic scheduled commercial banks can now open branches in rural, semi urban and urban centers without the need to take permission from RBI in each case, subject to reporting. Reserve Bank advised commercial banks that while preparing their Annual Branch Expansion Plan (ABEP), they should allocate at least 25 per cent of the total number of branches proposed to be opened during the year in unbanked rural centers. For this purpose, the centers are classified based on population, viz.

Tier-I: Population of 1,00,000 and above ,Tier-II : Population of 50,000 to 99,999

<sup>33</sup>[http://cactusblog.files.wordpress.com/2010/01/it\\_act\\_2008.pdf](http://cactusblog.files.wordpress.com/2010/01/it_act_2008.pdf)

Tier-III: Population of 20,000 to 49,999. Tier-IV: Population of 10,000 to 19,999  
 Tier-V: Population of 5,000 to 9,999 and Tier-VI: Population of less than 5,000.  
 (Source: RBI Cir. BL. BC/65/22.01.001/2009-10 dt. 1st Dec. 2009)

**2013, Master circular on Mobile Banking Transactions in India** -RBI RBI has issued Operative Guidelines for Banks vide circular no RBI/2013-14/116 DPSS.CO.PD. Mobile Banking. No./02.23.001/2013-14 dated July 1, 2013. The Master Circular has been updated by incorporating all the instructions/ guidelines issued on Mobile Banking up to June 30, 2013.

**Master Circular – Mobile Banking transactions in India – Operative Guidelines for Banks**

As you are aware, the Reserve Bank of India has, from time to time, issued a number of circulars containing guidelines on Mobile Banking. This Master Circular has been prepared to facilitate the banks and other stakeholders to have all the extant instructions on the subject at one place.

**Master Circular – Mobile Banking transactions in India – Operative Guidelines for Banks**

As you are aware, the Reserve Bank of India has, from time to time, issued a number of circulars containing guidelines on Mobile Banking. This Master Circular has been prepared to facilitate the banks and other stakeholders to have all the extant instructions on the subject at one place.

5.1 Mobile phones, as a medium for extending banking services, have attained greater significance because of their ubiquitous nature. The rapid growth of mobile users in India, through wider coverage of mobile phone networks, have made this medium an important platform for extending banking services to every segment of banking clientele in general and the unbanked segment in particular.

The Reserve Bank of India has issued a number of guidelines/instructions on Lead Bank Scheme from time to time. This Master Circular consolidates the relevant

guidelines/instructions issued by Reserve Bank of India on Lead Bank Scheme up to June 30, 2018 as listed in the Appendix.

### **Master Circular – Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM)**

Please refer to the Master Circular FIDD.GSSD.CO.BC.No.05/09.01.01/2018-19 dated July 03, 2018 on Deendayal Antyodaya Yojana - National Rural Livelihoods Mission.

The Ministry of Rural Development, Government of India launched a new programme known as National Rural Livelihoods Mission (NRLM) by restructuring and replacing the Swarnjayanti Gram Swarozgar Yojana (SGSY) scheme with effect from April 01, 2013. Detailed ‘Guidelines’ were circulated to all Scheduled Commercial Banks including Regional Rural Banks vide RBI circular RPCD.GSSD.CO.No.81/09.01.03/2012-13 dated June 27, 2013. NRLM was renamed as Deendayal Antyodaya Yojana – National Livelihoods Mission (DAY-NRLM) with effect from March 29, 2016.

### **TRANSFORMATION OF INDIAN BANKING SECTOR**

There are various elements which have an impact on the Indian banking sector for adoption of technology<sup>34</sup>.

- 1) Government of India introduced the economic reforms in 1991 which open the doors for new opportunities for banks all over the world.
- 2) As a part of strategy of the government Indian banking was made available for private sector banks. Private sector banks utilized the opportunity and they boost up the technology and created an environment to use it for back office as well as and frontoffice operations..With the result of such competitions among the banks, entire banking system became more vibrant and more efficient. The banks and customer both became techno savvy.
- 3) In the last few years, with the development of telecom sector, communication

---

<sup>34</sup>. International Journal of Management (IJM), Volume 3, Issue 3, September- December (2012)

infrastructure, the entire cities and places of India got connected with each other. This contributes to reduce the cost of the banks in India. During the same period banks adopted the CBS technology for connecting the branches in the country by offering banking services anywhere and anytime.

4) Indian software industry has also contributed the Indian banking sector. The customer service provided by the Banks to their customers, software companies came forward to help banks by providing web based portals, wide area network (WAN), local area network, internet, etc. at affordable prices and at the high time.

5) Fifthly, as per the directives of RBI to adopt the changes in order to improve the operational efficiencies, security measures, risk reduction and quality up-gradation maximum banks in the country have adopted the new technology.

After liberalization RBI has designed several changes in the structure of banking sector and made compulsory several guidelines on electronic banking, fund transfer, core banking solution, payment system, clearing services, and internet banking. So, it becomes obligatory for the banks to adapt broad changes in technology. Indian Banking Association (IBA) has extended its helping hand to banks in this regard.<sup>35</sup>

---

<sup>35</sup> ibid

**CHAPTER- III****CYBER CRIME IN BANKING INDUSTRY- A GLOBAL  
SCENARIO**

These are challenging times for the banking industry globally, thought provoking and extremely rewarding at the same time. Due to volatile geopolitical and global macroeconomic conditions, many financial institutions have been forced to evaluate their current operating practices and think about where they would like to be in future and more importantly, how to manage growth as well as risk management in line with stakeholder expectations. In financial domain, technology is no longer an enabler, but a business driver. In last decade phenomenal growth of IT, mobile penetration and communication network has facilitated growth in extending financial services to masses. Technology has facilitated delivery of banking services to masses and changed the way of functioning of financial institutions. Technology made banking services affordable and accessible by optimizing the way these institutions operate today. Regulatory bodies, banks and other institutions/agencies have taken paradigm shift in areas of respective operations, service delivery and consumer satisfaction. Financial institutions gained efficiency, outreach, spread through technology in last two decades.

The benefits of technology such as scale, speed and low error rate are also reflecting in the performance, productivity and profitability of banks, which have improved tremendously in the past decade. Technology initiatives are taken by banks in the areas of financial inclusion, mobile banking, electronic payments, IT implementation and management, managing IT risk, internal effectiveness, CRM initiatives and business innovation<sup>38</sup>.

**HIGH LIGHTS OF CYBER CRIMES AGAINST BANKING SECTOR'<sup>36</sup>**

As per “Symantec Cyber Crime Report 2011”

- 1) Currently, there are nearly 2 billion internet users and over 5 billion mobile phone connections worldwide.

---

<sup>36</sup>Cybercrimes - A Financial Sector View - KPMG



- 2) Everyday, 294 billion emails and 5 billion phone messages are exchanged.
- 3) 50,000 Victims every hour
- 4) 820 Victims every minute
- 5) 14 Victims every second

### **TIME AND MONEYSPENT BANKING RELATED CYBER CRIME.<sup>37</sup>**

USD 114 Billion is total loss of cash in 12 months USD 274 Billion is the total loss of time for victims of cyber crime On an average, 10 days were spent by victims to satisfactorily resolve hassles of cyber crime)

### **CYBER CRIME IN BANKING INDUSTRY-INDIAN SCENARIO**

The increasing use of technology, particularly by businesses to drive its operations and to deliver world class services has led to the evolution of a new threat. The growth of complexity and access to technology has made us more susceptible to 'hi-tech crime' which is also a new form of business threat that requires a fundamental shift in risk management arena of businesses, particularly in the financial domain where the risk is very high.

#### **Cyber Crimes Increasing with Rising of E-Banking in India**

India is vulnerable to cyber crimes as 97% of Indians, who use information technology, are not aware of how to be secure. The people need to be made aware this as many get Emails as if they are coming from their banks to ask their account IDs and passwords for verification purposes. They should divulge information because this personal information can be used by cyber criminals, who sent the E-mails and in turn money could be withdrawn from their account.<sup>41</sup>

#### **Time and Money spent in Banking related Cyber crimes- An Indian Scenario<sup>38</sup>**

USD 4 billion is the total loss of cash in 12 months

USD 3.6 billion is the total loss of time for victims of cyber crime On an average 15 days were spent by victims to satisfactorily resolve hassles of cyber crime

<sup>37</sup> Article posted by ShaikhAnish on 01/09/2009 on web Source:<http://www.anishshaikh.com/2009/09/india-could-become-cyber-crime-hub.html>

<sup>38</sup> Symantec Cyber Crime Report 2011

**CYBER FRAUDS IN SCHEDULED COMMERCIAL BANKS** The Minister of State for Finance, Shri Namo Narian Meena in a written reply to a question in the Lok Sabha on 22nd February 2013 replied in the following manner –

The details furnished by Reserve Bank of India (RBI) in respect of Scheduled Commercial Banks pertaining to frauds relating to ATMS/Debit Cards/Internet Banking & Credit Cards Retrieved from www.rbi.org.in (2013) and put in order as per sector wise i.e Public Sector Banks, Private Sector Bank & Foreign Banks in India.

### **CYBER FRAUD CASES IN PUBLIC SECTOR BANK(2016-2020)**

#### **NATIONALISED BANKS FUNCTIONING IN INDIA**

Public Sector Banks: It is observed from the above that the number of cases in Nationalised Banks & State Bank Group were very meager but they went up & mounted during the period 2016 to 2020 with a little slanting in 2019. In the year 2016, PNB recorded the substantial growth of cyber crime cases afterward IDBI bank. In 2017, PNB recorded highest number of cases afterward IDBI, but amount wise, PNB was ahead of Andhra Bank, Union Bank of India and IDBI respectively. IDBI was highest afterward PNB in 2016 in terms of cases, but in terms of amount wise, IOB, PNB and Bank of Patiala registered a substantial growth. In 2019, IDBI topped the list. Afterward are Corporation Bank and PNB. IDBI, Bank of Maharashtra and PNB recorded highest positions respectively in respect of amount involved

At the age of digital era, Information Technology is a very powerful instrument. Banks & other Financial Institutions are playing the important role in the Indian economy. Therefore these institutions are termed as the backbone of the economy. At this juncture, Indian Banking Industry is facing the challenges of an IT revolution. Almost all the banks in India have adopted IT solutions for rendering the banking services to their customers by using the IT tools & techniques to fulfill the needs of the customers. Due to the adoption of IT in Banks, the manual operations are negligible and maximum banking operations are performed through IT solutions. Due to the dawn of e-banking, conventional banking has been

disappeared from the Indian banking panorama. In this day and age, banks have shifted from traditional banking to Core Banking Solutions Banking, which confirm the impact of IT on banks. The increasing use of technology, particularly by Indian banks to drive its operations and to deliver world class services has led to the evolution of a new threat. The Indian banking industry, almost in keeping with the considerate commercial approach of the country's business, has come to the present stage. Rapid strides in Information Technology (IT) and its swift adoption by the commercial banks in India have enabled banks to use IT extensively to offer products and services to customers apart from automating internal processes. E-Banking is nothing more than traditional banking services delivered through an electronic communication, viz, Internet. These banking technologies have it's own merits & demerits. The merits of the technology are "Benefits and Advantages" but the demerits of the technology are named as "Cyber Crime". These developments in banking technology for the benefit of the people have also brought opportunities for criminal activity. This is done through many methods by using internet either computers or mobile phones. Such types of crimes are termed as Cyber Crimes against E Banking.

### **CYBER-CRIMES COMMONLY PERPETRATED AGAINST BANKS**

Perpetrators against banks can use several kinds of cyber-crimes.

The most common are Following cyber crimes are generally committed against electronics banking are

1. Spreading Viruses and worms,
2. Trojan Horse
3. Website Compromise and Malware Propagation
4. Denial-of-Service attack& Distributed Denial of Service Attack(Dos & DDoS attacks)
5. Phishing or Vishing Attacks
6. Hacking,
7. Spamming
8. Network scanning/Probing
9. Money Laundering

10. Fiscal Fraud

11. Other Offences like carders and Internet Search Engine/Google “Hacking etc.

## **MONEY LAUNDERING**

Use of banking to hold back detection of “black” money so it can be used as a legal trade tool, casually utilized by the organized crime. Money laundering is the process of changing large amounts of money that have been gained through illegitimate means. Money evidently gained through crime is "dirty" money, and money that has been "laundered" to appear as if it came from a legitimate source is "clean" money by using the bank.

### **Internet Banking and Money Laundering.<sup>39</sup>**

One of the major concerns associated with Internet Banking has been that the Internet banking transactions may become untraceable and are incredibly mobile and may easily be anonymous and may not leave a traditional audit trail by allowing instantaneous transfer of funds. It is pertinent to note that money-laundering transactions are cash transactions leaving no paper trail. Such an apprehension will be more in the case of use of electronic money or e-cash. In the case of Internet Banking the transactions are initiated and concluded between designated accounts. Further Section 11 of the proposed Prevention of Money Laundering Bill, 1999 imposes an obligation on every Banking Company, Financial Institution and intermediary to maintain a record of all the transactions or series of transactions taking place within a month, the nature and value of which may be prescribed by the Central Government. These records are to be maintained for a period of five years from the date of cessation of the transaction between the client and the banking company or the financial institution or the intermediary. This would apply to banks offering physical or Internet banking services. This will adequately guard against any misuse of the Internet banking services for the purpose of money laundering. Further the requirement of the banking companies to preserve specified

---

<sup>39</sup>[rbidocs.rbi.org.in/rdocs/Publication Report/](http://rbidocs.rbi.org.in/rdocs/Publication%20Report/)

By targeting official online payment channels, cyber attackers can hamper processes such as tax collection or make fraudulent claims for benefits

ledgers, registers and other records for a period of 5 to 8 years, as per the Banking Companies (Period of Preservation of Records) Rules, 1985 promulgated by the Central Government also adequately takes care of this concern.

### **FISCAL FRAUD OTHER CYBER CRIMES RELATED WITH BANKING**

**I) Data Theft in E-Banking in India** Cyber Crimes problems are not limited to any statute alone but occur in all the existing statute likes for example, Contract Law, Banking Law, Criminal Law, Evidence Law and Intellectual Property Law. Data Theft is the brain child of Information Technology.

**II) Cyber Terrorism against E-Banking in India:** Following are the tools of cyber terrorism against banking (a) Hacking (b) Trojans (c) Computer Viruses (d) Computer Worms (e) E-Mail Related Crime (f) Denial of Service (g) Money Laundering (h) Terrorist financing

**III) Jurisdictional Problem against E-Banking in India** Cyber crime does not know by any geographical boundaries and crime committed by the miscreants beyond the boundaries of state makes the state helpless to take any stringent action related to jurisdiction against such miscreants

**IV) Extradition of offenders Jurisdiction In case of Cyber Crime:** The whole trouble with the jurisdiction of internet is there are so many parties involved in the crime are residing in various parts of the world who do not have real connection with each other

**V) Evidence related problems of cyber crimes in e-banking :** There are various problems faced by the banking industry related with electronic evidence. As a result of development of technology, a new variety of crime called the cyber crime has emerged which is radically different from the traditional crimes. The cyber crimes are growing day by day and the existing cyber regulations are not efficient to control the growth of such crimes. To control cyber crimes in the country there should be an effective cyber law the country.

## **CHAPTER-IV**

### **LEGAL PROBLEMS TO CONTROL CYBER CRIMES AGAINST E-BANKING IN INDIA.**

The Narasimham Committee deserves mention in that it was instrumental in forcing Indian banks to become competitive. Fleet footed private sector banks, forced the public sector banks to embrace technology and improve their level of customer service. Next, the Khan Committee was highly important in that it recommended the setting up of universal banks..But most importantly, the Verma Committee recommended the need for greater use of IT even in the weak Public sector banks. Actually, the nationalization of banks back in the 80s is proving to be a major obstacle in bringing about the required technological changes.

.The ICICI Bank kicked off online banking in 1996, followed by a host of other banks. But even for the Internet as a whole, 1996 to 1998 marked the adoption phase, while usage increased only in 1999, owing to lower ISP online charges, increased PC penetration and a tech-friendly atmosphere. On the other hand, the Public Sector Banks (PSUs) lagged in the race for adopting Internet banking practices. While, among the PSUs, the State Bank of India took the lead, others are yet to catch up on Internet banking services. Some banks blame it on the lack of regulations and procedures to go online. But, not many are willing to buy the argument. More than a lack of regulatory framework, it is a lack of zeal and a mindset in tune towards resisting any new technology that is holding back the nationalized banks.

Internet banking is an extension of traditional banking services. However, there are several instances, which contradict the legal framework for internet banking in India: Banking Regulations Act, 1949, the Reserve Bank of India Act, 1934 and the Foreign Exchange Management Act, 1999.

Information Technology solutions have paved a way to a new world of internet, business networking and e-banking, budding as a solution to reduce costs, change the sophisticated economic affairs to more easier, speedy, efficient, and time saving

method of transactions. Various criminals like hackers, crackers have been able to pave their way to interfere with the internet accounts through various techniques like hacking the Domain Name Server (DNS),

Internet Providers (IP) address, spoofing, phishing, internet phishing etc. and have been successful in gaining un authorised access to the users computer system and stolen useful data to gain huge profits from customers accounts.

Intentional use of information technology by cyber terrorists for producing destructive and harmful effects to tangible and intangible property of others is called cyber crime. Cyber crime is clearly an international problem with no national boundaries. Hacking attacks can be launched from any corner of the world without any fear of being traced or prosecuted easily. Cyber terrorist can collapse the economic structure of a country from a place where that country might not have any arrangements like extradition treaty to deal with that criminal. The only safeguard would be better technology to combat such technology already evolved and known to the Hackers. But that still has threat of being taken over by the intellect computer criminals.

To meet the challenges of cyber crime and to curb the threat, the Information Technology Act 2000 was enacted on 17 Oct 2000, to address a number of ecommerce regulatory issues after the United Nation General Assembly Resolution A/RES/51/162, dated the 30th January, 1997 by adopting the Model Law on Electronic Commerce adopted by the United Nations Commission.

This chapter contributes an understanding of the effects of negative use of Information technology, and how far the present law in India is successful in dealing with the issue, and what way is the legal structure lagging to curb the crime. Possible changes needed in the system and the ways to combat cyber terrorism having safe and trustworthy transactions.

### **Adoption of Information Technology in Banking Sector**

RBI had constituted various committees to work on adoption of Information

Technology in banking sector. The reports of various committees are summed up in brief as under

1) **Dr. C. Rangarajan Committee (1983)**<sup>40</sup>(A committee constituted for Mechanisation in Banking Industry) The committee in its report in 1984 recommended introduction of Computerisation and Mechanisation at branch, regional office / zonal office and head office levels of banks.

**Narasimham Committee (199)**<sup>41</sup>

**(A committee was constituted for the up gradation of technology)**

The committee has also emphasized need on the following issues:-

- a. Encryption on Public Switching Telephone Network (PSTN) lines
- b. Admission of electronic files as evidence
- c. Treating EFT on par with crossed cheques / drafts for purposes of Income Tax d. Electronic Record keeping
- e. Provide data protection
- f. Implementation of digital signatures
- g. Clarification on payment finality in case of EFT

## **INTERNET BANKING**

A NEW MEDIUM Internet in India is growing rapidly. It has given rise to new opportunities in every field we can think of, be it entertainment, business, sports or education. Internet also has its own disadvantages. One of the major disadvantages is Cybercrime – illegal activity committed on the internet.

## **MOBILE BANKING ON THE RISE IN INDIA**

Increasing “Smart-Phone” adoption and initiatives such as media promotions and

<sup>40</sup>Reserve Bank of India (1984) Report of the Committee on Mechanisation in Banking Industry.

<sup>41</sup> RBI (1998) Report of the committee on Banking sector reforms (The Narasimham committee) : RBI Mumbai



customer education programmes for mobile banking have led to this uptrend. For customers, mobile banking is convenient while banks benefit through a low-cost channel. For the country's largest bank State Bank of India, of its total customer base of 200 million, about 5.2 million have registered for its mobile banking services.

According to a KPMG report, with mobile Internet usage is expected to exceed desktop Internet use by 2014, mobile banking services will become even more important. It is particularly true of the Generation-Y group (18-32-year olds) who are three times more likely to adopt mobile banking than older users, the report said. Most big banks have seen a 100 per cent growth in mobile banking with more services waiting to be launched in the upcoming year. The Reserve Bank of India said, "The growth in mobile banking that has taken place in the country till date, though at a rapid pace, is yet to reach the critical mass that will enable it to deliver on its promise of reaching banking, including payment services, at a cheaper, secure and seamless manner to the existing and potential customers." In private sector bank ICICI leads by 14.5 percent followed by Axis Bank with 9.4 per cent and Citi bank with 3.5 per cent. Around three per cent of SBI's total customer base is into mobile banking transactions. For ICICI Bank, over 10 million customers have currently registered for mobile banking.

### **DEVELOPMENTS IN INDIAN CYBER LAW AFTER THE ENACTMENT OF INFORMATION TECHNOLOGY ACT 2000.**

- ❖ On 17th October 2000, the Information Technology (Certifying Authorities) Rules, 2000 also enacted. These rules stipulate the eligibility, appointment and working of Certifying Authorities. These rules also set down the technical standards, procedures and security methods to be used by a Certifying Authority. <sup>3/4</sup> The Cyber Regulations Appellate Tribunal (Procedure) Rules, 2000 also enacted on 17th October 2000. These rules are related with the appointment and working of the Cyber Regulations Appellate Tribunal whose is responsible to hear appeals against orders of the Adjudicating Officers.
- ❖ Minor errors in the Act were rectified by the Information Technology (Removal of

Difficulties) Order, 2002 which was passed on 19 Sep. 2002.

- ❖ An Executive Order dated 12 September 2002 contained instructions relating provisions of the Act in regard to protected systems and application for the issue of a Digital Signature Certificate.
- ❖ The IT Act was amended by the Negotiable Instruments (Amendments and Miscellaneous Provisions) Act, 2002. This introduced the concept of electronic cheques and truncated cheques.
- ❖ Information Technology (Use of Electronic Records and Digital Signatures) Rules, 2004 has provided the necessary legal framework for filing of documents with the Government as well as issue of licenses by the Government. It also provides for payment and receipt of fees in relation to the Government bodies.
- ❖ On the same day, the Information Technology (Certifying Authorities) Rules, 2000 also came into force. These rules prescribe the eligibility, appointment and working of Certifying Authorities (CA). These rules also lay down the technical standards, procedures and security methods to be used by a CA. These rules were amended in 2003, 2004 and 2006.
  - ❖ Information Technology (Certifying Authority) Regulations, 2001 came into force on 9 July 2001. They provide further technical standards and procedures to be used by a CA. Two important guidelines relating to CAs were issued. The first are the Guidelines for submission of application for license to operate as a Certifying Authority under the IT Act. These guidelines were issued on 9th July 2001.
  - ❖ Next were the Guidelines for submission of certificates and certification revocation lists to the Controller of Certifying Authorities for publishing in National Repository of Digital Certificates. These were issued on 16th December 2002.
  - ❖ The Cyber Regulations Appellate Tribunal (Procedure) Rules, 2000 also came into force on 17th October 2000. These rules prescribe the appointment and working of the Cyber Regulations Appellate Tribunal (CRAT) whose primary role is to hear appeals against orders of the Adjudicating Officers.
  - ❖ Information Technology (Other powers of Civil Court vested in Cyber Appellate Tribunal) Rules 2003 provided some additional powers to the CRAT.

On 17th March 2003, the Information Technology (Qualification and Experience of Adjudicating Officers and Manner of Holding Enquiry) Rules, 2003 were passed. These rules prescribe the qualifications and experience of Adjudicating Officers, whose chief responsibility under the IT Act is to adjudicate on cases such as unauthorized access, unauthorized copying of data, spread of viruses, denial of service attacks, disruption of computers, computer manipulation etc. These rules also prescribe the manner and mode of inquiry and adjudication by these officers. The Information Technology (Security Procedure) Rules, 2004 came into force on 29th October 2004. They prescribe provisions relating to secure digital signatures and secure electronic records.

Also relevant are the Information Technology (Other Standards) Rules, 2003. An important order relating to blocking of websites was passed on 27<sup>th</sup> February, 2003. Computer Emergency Response Team (CERT-IND) can instruct Department of Telecommunications (DOT) to block a website.<sup>42</sup>

The Indian Penal Code is amended by the Information Technology Act to control various cyber crimes like forgery of electronic records, cyber frauds, destroying electronic evidence etc. Indian Evidence Act is amended by the Information Technology Act to detect, to collect, to preserve and to prove the Digital Evidence in the court as per the provisions of the law

Bankers' Book Evidence Act is amended by the Information Technology Act to make the provisions of this act relevant to digital bank records,

Code of Criminal Procedure is amended by the Information Technology Act in such a efficient manner to Investigate and adjudicate the cyber crimes in accordance with the provisions of the Information Technology Act.

Civil Procedure Code is amended by the Information Technology Act in such a efficient manner to Investigate and adjudicate the cyber crimes in accordance with the provisions of the Information Technology Act.

The Reserve Bank of India Act was also amended by the Information Technology Act. **THE MAJOR ACTS, AMENDED AFTER ENACTMENT OF IT ACT**

---

<sup>42</sup>Information Technology Act 2000

### **2000 The Indian Penal Code, 1860**

The Indian Penal Code was amended by inserting the word 'electronic' thereby treating the electronic records and documents on a par with physical records and documents. The Sections dealing with false entry in a record or false document etc (e.g. 192, 204, 463, 464, 464, 468 to 470, 471, 474, 476 etc) have since been amended as 'electronic record and electronic document' thereby bringing within the ambit of IPC. Now, electronic record and electronic documents has been treated just like physical records and documents during commission of acts of forgery or falsification of physical records in a crime. After the above amendment, the investigating agencies file the cases/ charge-sheet quoting the relevant sections from IPC under section 463,464, 468 and 469 read with the ITA/ITAA under Sections 43 and 66 in like offences to ensure the evidence and/or punishment can be covered and proved under either of these or under both legislation.

### **The Indian Evidence Act 1872**

Prior to enactment of ITA, all evidences in a court were in the physical form only. After existence of ITA, the electronic records and documents were recognized. The definition part of Indian Evidence Act was amended as "all documents including electronic records" were substituted. Other words e.g. 'digital signature', 'electronic form', 'secure electronic record' 'information' as used in the ITA, were also inserted to make them part of the evidentiary importance under the Act. The important amendment was seen by admissibility of electronic records as evidence as enshrined in Section 65B of the Act assumes significance. This is a highly structured section and a milestone of legislation in the area of evidences produced from a computer or electronic device. Any information contained in an electronic record which is printed on a paper, stored, recorded or copied in optical or magnetic media produced by a computer shall be treated like a document, without further proof or production of the original, if the conditions are satisfied as mentioned in the section.

### **The Bankers' Books Evidence (BBE) Act 1891**

Before passing of ITA, a bank was supposed to produce the original ledger or other

physical register or document during evidence before a Court. After enactment of ITA, the definitions part of the BBE Act stood amended as: "'bankers ' books' include ledgers, day-books, cashbooks, account-books and all other books used in the ordinary business of a bank whether kept in the written form or as printouts of data stored in a floppy, disc, tape or any other form of electro magnetic data storage device". When the books consist of printouts of data stored in a floppy, disc, tape etc, a printout of such entry certified in accordance with the provisions to the effect that it is a printout of such entry or a copy of such printout by the principal accountant or branch manager; and a certificate by a person in-charge of computer system containing a brief description of the computer system and the particulars of the safeguards adopted by the system to ensure that data is entered or any other operation performed only by authorized persons; the safeguards adopted to prevent and detect unauthorized change of data to retrieve data that is lost due to system failure. The above amendment in the provisions in Bankers Books Evidence Act recognized the printout from a computer system and other electronic document as a valid document during course of evidence, provided, such print-out or electronic document is accompanied by a certificate in terms as mentioned above.

#### **Amendment to the Reserve Bank of India Act,1934 ( 2 of 1934)**

The Reserve Bank of India Act, 1934 shall be amended in the manner specified in the Fourth Schedule to this Act.

#### **Fourth Schedule of Information Technology Act, 2000**

In the Reserve Bank of India Act, 1934, in section 58, in sub-section (2), after clause (p), the following clause shall be inserted, namely Clause (pp) the regulation of fund transfer through electronic means between the banks or between the banks and other financial institutions referred to in clause(c) of section 45-1, including the laying down of the conditions subject to which banks and other financial institutions shall participate in such fund transfers, the manner of such fund transfers and the rights and obligations of the participants in such fund transfers".

**Civil Procedure Code, 1908**

The Cyber Appellate Tribunal has, for the purposes of discharging its functions under the IT Act, the same powers as are vested in a civil court under the Code of Civil Procedure, 1908. However, is not bound by the procedure laid down by the Code of Civil Procedure, 1908 but is guided by the principles of natural justice and, subject to the other provisions of this Act and of any rules.

The Cyber Appellate Tribunal has powers to regulate its own procedure including the place at which it has its sitting.

**Code of Criminal Procedure, 1973**

Every proceeding before the Cyber Appellate Tribunal shall be deemed to be a judicial proceeding within the meaning of sections 193 and 228, and for the purposes of section 196 of the Indian Penal Code and the Cyber Appellate Tribunal shall be deemed to be a civil court for the purposes of section 195 and Chapter XXVI of the Code of Criminal Procedure, 1973.

**RULES & NOTIFICATIONS ISSUES BY GOVERNMENT OF INDIA**

Use of Information Technology by banks has grown rapidly and is now an important part of the operational strategy of banks. The number, frequency and impact of cyber incidents/attacks have increased manifold in the recent past, more so in the case of financial sector including banks. There is an urgent need to put in place a robust cyber security/resilience framework at UCBs to ensure adequate security of their assets on a continuous basis. It has, therefore, become essential to enhance the security of the UCBs from cyber threats by improving the current defences in addressing cyber risks.

2. It is observed that the level of technology adoption is also different across the banks in this sector – some banks offering state of the art digital products to its customers and some banks maintaining their books of account in a standalone computer and using e-mail for communicating with its customers/supervisors/other banks. Hence, it has been decided to issue basic cyber security guidelines

applicable to all UCBs. However, any UCB, depending on its Self-Risk Assessment, complexity of its Information Technology (IT)/ Information Security (IS) systems, nature of digital products offered, etc. is free to adopt advanced cyber security norms as decided by their Boards.

3. An indicative but not exhaustive, basic cyber security framework to be implemented by all the UCBs is given in Annex I.

4. Need for a Board approved Cyber Security Policy –

All UCBs should immediately put in place a Cyber Security policy, duly approved by their Board/Administrator, giving a framework and the strategy containing a suitable approach to check cyber threats depending on the level of complexity of business and acceptable levels of risk. On completion of the process of policy formulation by the Board, a confirmation shall be sent to Department of Co-operative Bank Supervision, Central Office, C-9, 1st Floor, BKC, Mumbai – 400051 by email within three months from the date of circular. It shall be ensured that the cyber security policy deals with the following broad aspects, keeping in view the level of technology adoption and digital products offered to the customers:

## **CONCLUSION & SUGGESTIONS**

### **CONCLUSION**

The study has provided an overview to the concept of E-banking by discussing deeply various cyber-crimes, identified specifically in the banking sector. The Banking system is the lifeblood and backbone of the economy. Information Technology has become the backbone of the banking system. It provides a tremendous support to the ever increasing challenges and banking requirements. Presently, banks cannot think of introducing financial product without the presence of Information Technology. However Information Technology has an adverse impact too on our banking sector where crimes like, phishing, hacking, forgery, cheating etc. are committed. There is a necessity to prevent cyber-crime by ensuring authentication, identification and verification techniques when a person enters into any kind of banking transaction in electronic medium. The growth in cyber-crime and complexity of its investigation procedure requires appropriate measures to be adopted. It is imperative to increase the cooperation between the stakeholders to tackle cyber-crime. According to National Crime Records Bureau it was found that there has been a huge increase in the number of cyber-crimes in India in past three years. Electronic crime is a serious problem. In cases of cyber-crime, there is not only financial loss to the banks but the faith of the customer upon banks is also undermined. Indian banking sector cannot avoid banking activities carried out through electronic medium as the study suggest that there has been an increase in the number of payments in e-banking. However, the change in the banking industry must be such which suits the Indian market. Lastly, it can be concluded that to eliminate and eradicate cybercrime from the cyber space is not a seemingly possible task but it is possible to have a regular check on banking activities and transactions. The only propitious step is to create awareness among people about their rights and duties and to further making the implementation of the laws more firm and stringent to check crime.



## **SUGGESTION**

In last after the analysis the whole research and finding in the conclusion what are the missing missing elements in the world of cyber law and policies.

- ❖ That the proper law implementation with advance steps.
- ❖ That the citizens should also takes the part for gaining of the cyber crime knowledge.
- ❖ NGOs should take the steps for the promotion of the cyber laws regarding the citizen ( children to senior)
- ❖ RBI dispute settlement should be very effective and providing quick action upon the subordinates bank .
- ❖ Remedies should be relevant with the costs claim and losses of consumers .



## **BIBLIOGRAPHY**

### **WEBSITE:**

- [www.cybercellmumbai.com](http://www.cybercellmumbai.com)
- [www.britannica.com](http://www.britannica.com)

### **BOOKS:**

1. Tewari R.K, Sastry P.K and Ravikumar K.V “Computer Crime and Computer Forensics” Select Publishers Delhi 2002
2. Tannan M.L “Banking Law and Practice in India”, 28th edition, India Law House Connaught Place, New Delhi.
3. Hogson, N. F. Banking through the Ages, (1926) New York, Dodd, Mead & Company.
4. Verma S.B., Gupta S.K. and Sharma M.K.”E-Banking & Development of Banks”, Deep & Deep Publications Pvt.Ltd. Delhi 2007.
5. Dutt R.C.”Civilization in Ancient India “Vol.1, revised edition.
6. Buhler, “The laws of Manu, the Sacred Books of the East” ,Vol.XXV,
7. Granville Austin,”Working a Democratic Constitution – A History of the Indian Experience”. New Delhi: Oxford University Press1999
8. Singh Yatindra Justice, Cyber Laws, Universal Law Publishing Co. Pvt. Ltd2010
9. Toor, N. Handbook of Banking Information,Skylark Publications, 28th edition 2009
10. Manikyam K.Sita Mrs. “Cyber Crimes Law & policy perspectives” published by Hind Law House Pune. 2009.

### **ARTICLES**

1. Jagadeesh, S. (2005) “Credit Card Fraud: Causes and cures from professional’s perspective. C.A Journal of the Institute of CAI, Vol. 53 No. 7, January
2. Pipliya Bhagwati R,“An Empirical study on Consumer Awareness on Internet Banking in Gujarat” published in edu.philica.com
3. Haq S and Khan B.L.“ E-Banking Challenges and opportunities in The Indian Banking Sector” published in Innovative Journal of Business and Management 2 : 4 July – August (2013) available at [www.innovativejournal](http://www.innovativejournal)
4. Uppal R.K.“Internet banking in India: Emerging Risks and New Dimensions” published in Prime Journal, Business Administration and Management (BAM) Vol. 1(3), March 10th 2011 visit [www.primejournal.org/bam](http://www.primejournal.org/bam).

5. Khan, M.S., Mahapatra, S.S. and Shreekumar (2009) Service quality evaluation in Internet banking: an empirical study in India”, International Journal of Indian Culture and Business Management, Vol.2, No. 1, pp. 30-46
6. Hota J. “Growth of ATM Industry in India” published in CSI Communications February 2013
7. Behra A. “Cyber Crime and Law in India”, Indian Journal of Criminology and Criminalistics, 2010; p. 16-30. available on <http://www.nicfs.nic.in/janjune2010>
8. Mittal R.K. & Dhigra S. “Technology in Banking Sector: Issues and Challenges”, Vinimay, Vol.XXVII, No.4, 2006-07

### **WEBSITES**

A number of standard websites such as those of Internet Corporation for Assigned Names and Numbers,

- 1) <http://www.rbi.org.in>
- 2) <http://www.iba.org.in>
- 3) <http://www.banknetindia.com>
- 4) <http://www.iamai.in>
- 5) <http://www.ideasrepec.co>
- 6) <http://www.arraydev.com>