UNIT – III
E-BANKING TRANSACTIONS AND MODELS FOR E-BANKING

Meaning

The provision, implementation and allocation of financial services and resources using electronic means such as the Internet is known as E-Banking.

Online banking also known as internet banking, e-banking, or virtual banking, is an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through internet.

Features of E-Banking/ Advantages of E-Banking.

1. Paper Work Reduced :-

The traditional procedure of financing is manual and paper based. Electronic Banking is gradually replacing the paper transactions in the financial institutions which has reduced the paper work.

2. Easy Transactions :-

Electronic financing has reduced the problems of the customers like writing cheques, filing taxes, and transforming of cash. Now in ATM facility there is no need of cheque book.

3. Security :-

E-Banking provides the safe system of payment. Now transactions are made in the accounts through internet.

4. Saving of Time :-

E-Banking has saved the time and money of the customers and also the bank. Now burden of work on employees has been also reduced. Now by using electronic banking the number of employees has been reduced.

5.Reduction In Cost :-

In case of manual operations, large number of employees were hired at higher wages, so operating cost was very high. Now by using electronic financing the number of employees has been reduced.

6. Market Expanded :-

Due to electronic financing, national international market of various goods and services has been expanded. Now we can purchases and make payment in any place in the world.

7. Increase In Customers :-

As the industry is expanding due the modern facilities, it is attracting more and more customers. So number of customers are increasing day by day.

8. Branches Reduced :-

Now there is no need to open the branches on every place in the city because due to electronic facilities, there is no rush of customers in the financial institutions. Because there is no need to visit institutions physically. So heavy cost of opening the new branches has been reduced and facilities are provided at low cost.

9. Checking Of Account :-

Every customer can check his balance of account sitting at home and makes the payments without travelling. It saves his time and expenses.

10. Utility Bills Payment :-

Bills, like telephone, gas, electricity and water can be easily paid to the concerned departments without going to the bank physically. Even he is sitting in any other country, he can make the payment.

11. Transferring Of Money :-

There is no need of writing the deposit slip cheques and drafts. By using the electronic banking money can be transferred easily.

12. Credit Cards :-

It is also very important facility for the customers that he can purchase the goods and can make the payment by using the credit cards.

13. Convenience:

Banks that offer internet banking are open for business transactions anywhere a client might be as long as there is internet connection. Customer services are provided round the clock via telephone.

14. Quality service:

E-Banking helps the bank to provide efficient, economic and quality service to the customers. It helps the bank to create new customer and retaining the old ones successfully.

15. Any time cash facility:

The customer can obtain funds at any time from ATM machines.

Constrains / Disadvantages of E-Banking

1. High start-up cost:

E-financing requires high initial start up cost. It includes internet installation cost, cost of advanced hardware and software, modem, computers and cost of maintenance of all computers.

2. Security Concerns:

One of the biggest disadvantages of doing e-financing is the question of security. People worry that their accounts can be hacked and accessed without their knowledge or that the funds they transfer may not reach the intended recipients.

3. Training and Maintenance:

E-Banking requires 24 hours supportive environment, support of qualified staff. Financial institutions has to spend a lot on training to its employees. Shortage of trained and qualified staff is a major obstacle in e-banking activities.

4. Transaction problems:

Face to face meeting is better in handling complex transactions and problems. Banks may call for meetings and seek expert advice to solve issues.

5.Internet Connection

Not everyone enjoys the luxury of having a stable and fast Internet connection at home. Aside from having a personal computer or laptop, having stable Internet access at home is a basic prerequisite to performing electronic banking. Of course, people can always

use a public computer with Internet access; however, the security of public computers is always a concern.

6.Computer Know-How

Conducting a successful electronic banking transaction, like paying bills online, requires basic computer skills and knowing your way around the Internet. Being computer-literate is not common to everyone.

7.Delayed Statements

When performing online banking there is not a standard at which payments made will show up on your online bank statements; they might show up two to three days later, depending upon the bank.

8. Lack of personal contact between customer and banker:

Customary approach allows creation of a personal touch between a bank and its clients. A personal touch with a manager can enable the manager to change terms in our account.

E-Banking Vs Traditional Banking

Basis	Traditional Banking	E- Banking Practices
Coverage	Traditional Practice provides limited coverage.	E- Banking Practices involves global coverage while sitting at home/office.
Marketing Tool	Traditional Practice does not provide proper marketing tool.	E-Banking provides the facility of marketing of products/ schemes online easily.
Prompt Services	Traditional Practices involves process which requires more time.	E- Banking same lot of line as there is no need to stand in long queues.
Reduction of errors/ Frauds	Traditional banking practices do not provide complete check on banking transactions.	With the system of reconciliation of inter-branch transactions, frauds and errors could be reduced.
Paper work	Bank executives have to perform lot of paper work which increases both time and cost.	Cost and time could be reduced or everything is to be through some interval and no need of huge paper work.
Risk of carrying cash	In case of traditional business a person has to carry cash at each point of time.	E-banking provides banking without carrying cash as plastic money (ATMs, Credit cards are available)
Presence	Banks exist physically for serving the customers,	Internet banks do not have physical presence as services are provided online.
Time	It consumes a lot of time as customers have to visit banks to carry out bank transactions	It does not consume time as customers do not have to visit banks
Accessibility	People have to visit banks only during the working hours.	Internet banking is available at any time and it provides 24 hours access.
Security	Traditional banking does not encounter e-security threats.	Security is one of the major problems faced by customers.
Finance Control	Customers who often travel abroad cannot pay close attention and control of their finances.	Customers who often travel abroad can have greater control over their finances.

Expensive	Customers have to spend money for visiting banks.	Customers do not have to spend money for visiting banks.
Cost	The cost incurred by traditional banks includes a lot of operating and fixed costs.	Such costs are eliminated as the banks do not have physical presence.
Customer Service	ln traditional banks, the employees and clerical staff of the bank can attend only few customers at a time.	In online banking, the customers do not have to stand in queues to carry out certain bank transactions.
Contact	Customers can have face to face contact in traditional banking.	Customers can have only electronic contacts.

E-Banking Transactions :

The services offered by e-banking are as follows :

1.ATM (Automated Teller Machine) : It is a self-service terminal which can be operated at any time i.e. 24 hours a day. To use an ATM, a client has to insert a plastic card in the machine and enter his identification code. If the code is appropriate, the machine would respond by providing cash, accepting deposits, etc.

2. EFT (Electronic Fund Transfer): Under this system, the fund is directly transferred from one account to another. It is generally used to transfer salaries of an employees by an employer. It saves time and the inconvenience of handling large funds.

3. Debit card : Debit card facility is offered to the account holders to make payment upto the amount of credit balance available in their account. When the customer presents the debit card, the amount is automatically transferred from the customer's bank account to the seller's account using POS Machine.

4. Credit card : It refers to a card which permits overdraft facility to the clients depending upon their credit worthiness. Through this the customer can purchase products by presenting the credit card. It is an important type of support service provided by the banks.

5. On-line payment : It also offers the facility of making online payment of bills, taxes, etc.

6.Internet Banking

Internet banking is the latest and the cheapest technology introduced in the banking industry. At the basic level, interknet banking can mean the setting u of a web-page by a bank to give information about its products and services. At an advance level, it involves provision of facilities such as accessing accounts, fund transfer, and buying financial products or services online.

7.Telephone Banking

Telephone banking refers to dialling one telephone number using a telephone to access the account, transfer funds, request statements or cheque book simply by following recorded message. It allows the customers to check account at convenient time and get simple things done without visiting bank premises. Telephone banking aims at providing 24 hour service that is fast, convenient and secured for all customers.

8.Electronic Cheques

Another mode for internet payments is the electronic cheques. In this method, the payer instructs its bank to pay a specific amount to another party, the payee. The financial EDI systems have performed this function for years using private communication circuits.

9.National Electronic Fund Transfer (NEFT)

National Electronic Funds Transfer (NEFT) is a nation-wide payment system facilitating one-to-one funds transfer. Under this Scheme any one can electronically transfer funds from any bank to any other bank in the country participating in the Scheme. However, such cash remittances will be restricted to a maximum of Rs.10,00,000/- per transaction. . Presently, NEFT operates in hourly batches - there are twelve settlements from 8 am to 6.30 pm on week days (Monday through Friday) and six settlements from 8 am to 1 pm on Saturdays.

10.Real Time Gross Settlement (RTGS)

RTGS is defined Real Time Gross settlement of funds transfers individually on an order by order basis. RTGS takes place in the books of the Reserve Bank of India, the payments are final and irrevocable. The RTGS system is primarily meant for large value transactions. The minimum amount to be remitted through RTGS is 2 lakh. There is no upper ceiling for RTGS transactions. The RTGS service for customer's transactions is available to banks from 8.00 hours to 16.30 hours on week days and from 9.00 hours to 14:00 hours on Saturdays

11.**Electronic Clearing System (ECS)**

ECS is an alternative method for effecting payment transactions in respect of the utility-bill-payments such as telephone bills, electricity bills, insurance premia, card payments and loan repayments, etc.,

12.Immediate Payment Service (IMPS)

IMPS offers an instant, 24X7, interbank electronic fund transfer service through mobile phones. IMPS is an emphatic tool to transfer money instantly within banks across India through mobile..

Objectives of IMPS:

- To enable bank customers to use mobile instruments as a channel for accessing their banks accounts and remit funds
- Making payment simpler just with the mobile number of the beneficiary
- To sub-serve the goal of Reserve Bank of India (RBI) in electronification of retail payments
- To facilitate mobile payment systems already introduced in India with the Reserve Bank of India Mobile Payment Guidelines 2008 to be inter-operable across banks and mobile operators in a safe and secured manner
- To build the foundation for a full range of mobile based Banking services.

Basic Difference Between NEFT, RTGS and IMPS

Basis	**NEFT**	**RTGS**	**IMPS**
Minimum transfer value	Rs.1	Rs.2 lakh	Rs.1
Maximum transfer value	Rs.10 lakh	Rs.10 lakh	Rs.2 lakh
Type of settlement	Batches	One-on-one settlement	One-on-one settlement
Speed of settlement	2 hours (subject to cut-off timings and batches)	Immediately	Immediately
Service availability	Weekdays: 12 batches between 8:00 a.m. - 6:30 p.m. Saturday: 6 batches between 8:00 a.m. 1:00	Weekdays: 8:00 a.m. - 4:00 p.m Saturdays: 9:00 a.m. - 4:30 p.m Sunday	24/7

	p.m. Sunday and bank holidays: Unavailable	and bank holidays: Unavailable	
Transaction fee	Up to Rs.10,000 - Rs.2.50 From Rs.10,000 up to Rs.1 lakh - Rs.5 From Rs.1 lakh up to Rs.2 lakh - Rs.15 From Rs.2 lakh up to Rs.5 lakh - Rs.25 From Rs.5 lakh up to Rs.10 lakh - Rs.50	Between Rs.2 lakh up to Rs.5 lakh - Rs.25 From Rs.5 lakh up to Rs.10 lakh - Rs.50	Up to Rs.10,000 - Rs.2.5 From Rs.10,000 up to Rs.1,00,000 - Rs.5 From Rs.1,00,000 up to Rs.2,00,000 - Rs.15
Online/Offline	Both	Both	Online

Security Measures in E Banking (Bankers point of view)

1.Trained employees. Employees in the banking industry are required to sign confidentiality agreements and receive awareness training to keep sensitive data private and protected. In-depth, role-based training is given to those associates in a unique position to ensure security and privacy. Banks must also comply with all data security laws and take reasonable steps to ensure employees do as well.

2.Passwords. Online banking systems use a series of steps to confirm the identity of all customers who log into their accounts. After entering their online banking username, customers are prompted to enter their password. Customers have the option to register their computers or devices for an added layer of security.

3.Automatic logout. If a customer's online banking session is left idle for a period of time, the system automatically logs them out. This helps prevent unauthorized users from accessing customers' accounts if they forget to log out or leave their device unattended.

4.Firewall and SSL. In addition to multi-factor authentication, banks employ multiple layers of firewalls, special software designed to block malicious users, viruses, malware and other potential security threats. They also use Secure Sockets Layer (SSL), a standard security technology that encrypts information sent to and from our site. SSL ensures that all personal information such as credit card numbers, social security numbers, bank account numbers and log-in credentials remains confidential when sent between websites and computer.

5.Internal and external monitoring. Security teams perform daily monitoring of computer systems, looking for security violations and unwanted intrusion. Additionally, internal audit departments perform periodic IT audits of the computing environment to look for potential vulnerabilities.

6.Security alerts. Customers are informed of the latest security measures and information to help prevent banking fraud. As part of no-cost mobile banking services, customers are often sent security text alerts to their devices and via email.

7.Cooling period. Fund Transfer can only be made to the beneficiaries that are added by the Customer. The customer can transfer funds to the payee only after a 30 minutes cooling period. We have also introduced the concept of an additional 30 minutes cooling period after beneficiary addition. In this time period, banks send SMS and Email alerts of the beneficiary addition, which gives the customer time to review the payee if fraudulently/erroneously registered

8.Additional Authentication for Financial transactions

Bank has also implemented additional security form factors like One Time Password (OTP) or Challenge Questions (CQ) to authenticate all financial transactions on Netbanking.

9. Mobile Number Masking : To safeguard the customer from the risk of mobile number compromise through net banking, only the last five digits of the mobile number are displayed to the customer.

10. Virtual Keyboard : Our customers can use a Virtual Keyboard to enter their passwords while logging into NetBanking. This protects the customers credentials from being compromised by key-logger software installed on untrusted/shared computers, e. g, cyber cafes.

Security Measures in E Banking (customer point of view)

1. Choose an account with two factor authentication

These days many, but not all, banks offer a small device that can be used to generate a unique code each time you log in. This code is only valid for a very short period of time and is required in addition to login credentials in order to gain access to online account.

2. Create a strong password

If bank requires a user-generated password in order to access online accounts it should be strong one. The best way to achieve this is by making it long and a mix of upper and lower case letters, numbers, and special characters.

3. Secure your computer and keep it up-to-date

Security software is essential these days. As a minimum, computer should have a firewall turned on and are running antivirus software. This will ensure the computer protected from Trojans, keyloggers and other forms of malware that could be used to gain access to financial data. Also the computer operating system and other software should be up-to-date to ensure that there are no security holes present.

4. Avoid clicking through emails

No financial institution worth their salt will send you an email asking to provide any of your login details. If an email that appears to be from your bank that asks for such details it may well be a phishing attempt to trick into handing the credentials over.

It is always safer to access online bank account by typing the address into your browser directly. Also, care should be taken of unsolicited phone calls that purport to be from the bank. While your financial institution may require you to answer a security question, they never ask for passwords or PINs

5. Access your accounts from a secure location

It's always best practice to connect to bank using computers and networks of secure places. But if there is a need to access r bank online from remote locations that can be done with VPN (Virtual Private Network) so that an encrypted connection can be established.

6. Always log out

It is good practice to always log out of your online banking session. This will lessen the chances of falling prey to session hijacking and cross-site scripting exploits. Extra precaution should be taken of private browsing on your computer or smart phone, and set browser to clear its cache at the end of each session.

7. Set up account notifications (if available)

Some banks offer a facility for customers to set up text or email notifications to alert them to certain activities on their account. For example, if a withdrawal matches or exceeds a specified amount or the account balance dips below a certain point then a message will be sent.

8. Monitor your accounts regularly

It should go without saying that monitoring the bank statement each month is good practice to check any unauthorised transactions.

Truncated Cheque:

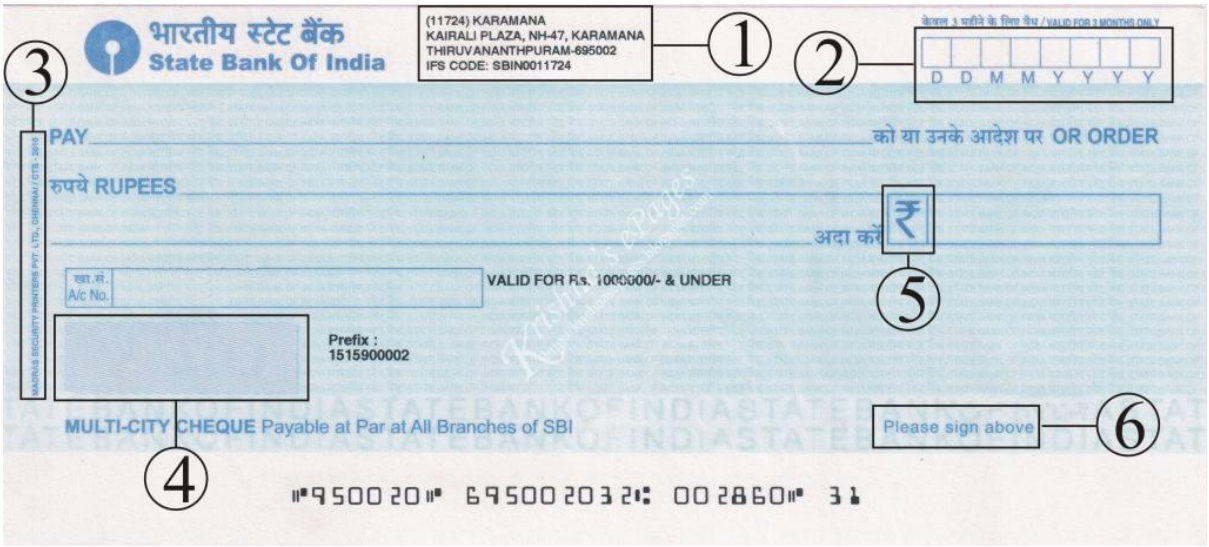
Truncation means conversion into another form, In this case, the physical cheque is converted into an electronic image. Now all the branches of all commercial banks have been computerised except some cooperative banks.

Instead of sending the cheques through representatives, the electronic images of the cheques are sent to the clearing house. This process involves very little time and the files received at the clearing house are sorted using software and the cheques meant for the branches are sent in electronic form and this is also done using electronic images of the cheques

The original cheques once truncated are treated as cancelled and they are kept at the collecting branch for any future verification. This process is known as CTS namely - cheque truncation system. The present day cheques have the following details apart from the name of the bank and branch

- MICR code
- IFSC code
- CTS code (a small rectangle box below the space meant for amount in words)

The scanner can read the information available within the CTS code and MICR code.
IFSC code is meant for knowing the branch code



Features of CTS-2010 Standard Cheque

1. Branch address with IFSC code printed top of the cheque.
2. Date in dd/mm/yyyy format with boxs.
3. Printers name with CTS-2010 in left side of cheque.
4. A pantograph which shows VOID/COPY while taking photocopy of the cheque below the account number.
5. New rupee symbol instead of bilingual format.

6. "Please sign above" is mentioned on bottom right of the cheque
7. Watermark "CTS INDIA" to be visible cheque is held against any light.
8. Ultra Violet logo of Bank printed at upper left corner of cheque to be visible in UV lamps.

Benefits of Truncated cheque.

1. It eliminates the time, money and manpower wasted during physical movement of cheques (from banks to clearing house).
2. The main feature of the CTS 2010 cheque is that the physical movement of the cheque is stopped and the images of cheques are transmitted electronically thereby speeding up the process of cheque clearance and settlement between banks. This obviously means quicker clearance, shorter clearing cycle and speedier credit of the amount to your account.
3. With the movement of cheques from one bank to another having been stopped, there is no fear of loss of cheques in transit and chances of cheques being lost due to mishandling, etc are totally avoided.
4. At present clearing is restricted to banks operating within a city or within a restricted geographical area. Under the CTS, it is proposed to integrate multiple clearing locations managed by different banks in different centres so that cheques drawn on upcountry banks too can be cleared electronically without any geographical restrictions. Eventually, this will result in integration of clearing houses into a nation-wide standard clearing system, thereby making clearance of cheques drawn on any bank in India within 24 hours possible.
5. The cheques in transit are most susceptible to frauds and customers of banks are the worst sufferers in the present system of physical movement of cheques from one place to another. Under the CTS system moving of physical cheques at different points is obviated as only electronic images are transmitted between banks, and this will considerably reduce the scope for perpetuation of frauds inherent in paper instruments.
6. With the introduction of homogeneity in security features under CTS standards 2010 such as embedded verifiable features like bar codes, encrypted codes, logos, watermarks, holograms, etc in every cheque leaf, it is now possible to detect frauds easily through interception of altered and forged instruments while passing through the electronic imaging system. This is expected to considerably reduce operational risks and risks associated with paper clearing for the benefit of all bank customers.
7. The CTS is expected to improve operational efficiency of the entire banking system, resulting in better customer service, improved liquidity position for banks' customers and safe and secure banking for the entire banking public.

Electronic Check

An electronic check, also referred to as an e-check, is a form of payment made via the internet, or other data network, designed to perform the same function as a conventional paper check. Since the check is in an electronic format, it can be processed in fewer steps. Additionally, it has more security features than standard paper checks including authentication, public key cryptography, digital signatures and encryption, among others.

Key features

- It is in PDF format. It has similar layout of a paper cheque with the display of a standardized e-Cheque logo on the face of e-Cheque
- It has the same legal status as paper cheque
- It is not negotiable nor transferable
- It must be addressed to a payee and deposited to the payee's bank account only
- It can be used to make Hong Kong Dollar, US Dollar and Renminbi payments
- Simply put, an eCheck is the electronic version or representation of a paper check.

- eChecks have the following features:
- contain the same information as paper checks contain
- are based on the same rich legal framework as paper checks
- can be linked with unlimited information and exchanged directly between parties
- can be used in any and all remote transactions where paper checks are used today
- enhance the functions and features provided by bank checking accounts
- expand on the usefulness of paper checks by providing value-added information

Benefits

- It can be issued anytime anywhere
- It removes the need for physical delivery and deposit
- It carries enhanced security features
- It removes the need of physical cheque book. The e-Cheque book is kept by the paying bank
- It is environmentally friendly

HOW ECHECKS WORK

eChecks work the same way a check does. The process works like this:

1. the check writer "writes" the eCheck using one of many types of electronic devices and "gives" the eCheck to the payee electronically.
2. the payee "deposits" the Electronic Check, receives credit, and the payee's bank "clears" the eCheck to the paying bank.
3. the paying bank validates the eCheck and then "charges" the check writer's account for the check.

Advantages and Disadvantages E-Cheque

The only difference between normal paper cheques and electronic cheques is that e-cheque is an online and virtual version. Conversion here means transforming the paper cheque to an electronic one. The information given by you in paper cheque is used for extracting bank name, payer's name, account number and other such information. Once this is done, there is a single time electronic money transaction from your account to beneficiary.

Advantages of e-cheques:

1. The conversion is absolutely electronic and hence, the process includes electronic scanning to money transfer. So, there is very less amount of human intervention in this process which results in reduced processing fee. You end up saving about 60-70% of the fee that you may be paying through paper cheques.

2. Conversion is very easy and all it requires is scanning of physical cheque and all the details would be read.

3. The laws and regulations related to e-cheques are absolutely similar to that of paper ones and those of electronic money transfers. This makes this method a secured and safe one.

4. While the software employed for this system are highly advanced and leading ones, it also results in lesser usage of physical resources that are consumed for transfers of paper cheques to make funds transfers.

Disadvantages of Electronic Cheques:

1. E-cheques can be processed and accessed using specific equipments that ask for investments from financial institutions who offer this system. The investment would directly depend on the size of institution.

2. Unauthorized transactions can give you a great pain, in case of any information breach. So, maintaining paper cheque records is even hectic, but has to be done for surety.

3. Since the transactions are dependent on networking, any fault in it will delay the transfer. This means that for successful transfer to take place, the system has to be working all the time. But, is it really possible?

MODELS OF E-BANKING

To implement effectively E-banking and augment the level of technology the following models have been suggested:-

1) Complete Centralised Solution (CCS).
2) Cluster Approach.
3) High Tech Bank within Bank.

(1) COMPLETE CENTRALISED SOLUTION (CCS).

This is an ideal branch network model on which E-banking activities can be implemented uniformly and effectively. Under this model, the bank has to provide web-server and the requisite software which is connected to the main server. Once the required hardware and software are set in, the customers can access the web-server for their basic banking operations using any standard browser at any location.

FEATURES : The following are the features of complete centralized solution:-

1. The entire system software, data for the entire bank etc are stored in a centralised server with its hot standby server being replaced at different location and connected through high speed and efficient network.
2. Branches are provided online nodes to receive requests from customers and provide them services across the counter.
3. The nodes provided at remote branches are connected through effective satellite links with enough redundancy to provide reliability as well as adequate bandwith.
4. The skilled manpower is required only at the centralized location.

(2) CLUSTER APPROACH.

Under this model, computerized branches of each city are connected with Regional Processor located at each such city which are then connected through reliable media to a centralized High end server. Under this approach, it is necessary that an integrated computerization is available at all branches so that connectivity amongst various branches can be established through Regional clusters.

FEATURES: The following are the important features of the cluster approach.

1. The entire branch network of the bank should be computerized through integrated software.
2. All these branches should be interconnected with Regional servers through reliable network media.

(3) HIGH TECH BANK WITH BANK:

Under this model, complete computerization of all branches is avoided. Within each bank, two different types of banks would function concurrently. High Tech banking providing E-Banking facilities through selected branches and traditional bank offering traditional services through other branches. This approach enables the banks to play a balanced role to offer state of the art service to ever demanding customers of major cities and simultaneously continue to offer traditional personalized services to the mass customers who still dominate the banking scene.

FEATURES: The following are the features of High Tech Bank within bank:-

1. Out of the entire branch network of the bank, only certain branches are selected to offer E-banking depending upon the customers needs, business potential, infrastructure facilities available etc.
2. The accounts of all the customers in those branches should be automated under a centralized system offering various electronic channels including Internet Banking.
3. The High network customers may be encouraged to use E-Banking services through these selected branches.
4. It would not impose any technological burden on the customers who do not want to enjoy E-banking services.
5. The banks could get a gestation period to cover more branches under the umbrella of High-Tech bank in a phased manner.