

Shivaji University, Kolhapur
Sem-VI

ix) E-Banking and Financial Services

Unit I : Introduction to e-Banking : Concept of e-banking, Impact of IT on banking, IT applications in banks, Hardware and Software requirements, Features and challenges of e-Banking, RBI guidelines for e-banking, Traditional banking V/S Modern banking

Unit II : Innovative Financial Services : Nature, scope and regulatory framework of financial services, E-Commerce, Modes of Payment – SWIFT, NEFT, RTGS, Credit Card, Debit Card, ATMs, CDMs, POS, Phone banking, Mobile banking, internet banking, smart cards

Unit I : Introduction to e-Banking

After studying this unit, students will be able to :

- Understand the concept of e-banking
- Know the impact of IT on banking
- Understand the application of IT in banking
- Differentiate between traditional banking and modern banking

Introduction:

In modern and advanced technological world, banking system has changed its face drastically to come out from traditional ways of banking. Today, Electronic banking is known as virtual banking or online banking or internet banking. E-Banking is the one of the fastest modes of banking transactions. It is nothing but the use of electronic and telecommunications network for providing information and delivering various banking products and services. A customer can access his account and conduct many transactions using his computer or mobile phone by using E-Banking.

Most of the customers are using E-Banking or electronic mode for banking transactions to save their time. Banks are also enjoying the services rendered by them towards the customers. In traditional banking system only the cheques were first introduced in Indian banking system by

Bengal Bank in 1784. ATMs were introduced in 1987. HSBC took the initiative of introducing ATM in India. In India, ICICI introduced internet banking facility. The government introduced IT Act, 2000 for recognizing whether an electronic transaction is legal or not. Further Reserve Bank of India has also taken initiative to develop the electronic banking system in India.

Concept of e-banking :

E-banking, known as Electronic banking aids users to get access to their funds through an electronic medium. It eliminates the requirement for the banks' customers to visit the bank to do financial transactions. Since a greater number of customers are now using the internet for a host of their daily activities, this digital medium of banking makes banking far accessible and convenient for users. Electronic banking is also known with the names, like, e-banking, virtual banking, online banking, or internet banking. In simple words, the electronic banking is the use of electronic and telecommunications network for delivering different sort of banking products and services. Moreover, a customer can easily access his bank account and carry transactions by using his computer or mobile phone with the help of e-banking. In other words, Electronic banking can be described as the use of electronic delivery channels for banking products and services, and is a subset of electronic finance. Some of the important electronic delivery channels include Internet, wireless communication networks, automatic teller machines (ATMs), and telephone banking. The internet banking is a component of e-banking and is primarily carried out by means of the Internet. The term transactional e-banking is generally used to demarcate the use of banking services from the mere provision of information. In simple words, Electronic banking or e-banking, takes under its gamut, the provision of retail and small value banking products and services through electronic banking channels as well as large value electronic payments and such sort of wholesale banking services delivered electronically. Now-a-days, banks offer various types of services through electronic banking platforms. The basic level of services banks offers through their websites. The banks offer information about its products and services to customers through this service. Beside this, some banks receive and reply to queries through e-mail as well. Secondly, banks allow their customers to submit instructions or applications for different services, check their account balance, etc. However, banks do not allow their customers to carry any fund-based transactions on their accounts. Moreover, banks allow their customers to operate their accounts for funds transfer, bill payments, and purchase and redeem securities, etc.

Impact of IT on banking,

Information Technology has made large impact on the banking industry especially in last two decades. This impact has been mostly seen in the following areas.

1. Impact of IT in competition and the amount of contestability in banking: Due to the growth of technology, the bank's incomparability in particulars is deteriorated. Entry barrier has been declining, a new competitor has emerged. Information Communication and Computation Technology have changed the contours of three major functions being performed by the banks viz. access to liquidity, the transformation of assets and monitoring of risks. Information technology and the communication networking systems have a crucial bearing on the efficiency of money, capital, and foreign exchange markets. Some monetary products and services have become more crystal-clear commodities, customer show willing to unbundled the petition for monetary products and services, all these lead to a more competitive market atmosphere. Due to hand down entry and existed construction, for some sub-financial markets, contestability in banking is also raised up
2. Impact of IT on Economy of scale: Competitive pressure force banks to lower their cost. Bank seeks to get economy of scale in bank procession instead of being a big bank. Bank seeks to secure the optimal business structure, and secure the competitive imperative of economy of scale. There are other options to get economy of scale, including joint venture and confederation of financial firms. Small firms also can get economy of scale by outsourcing, i.e. buy in an economy of scale
3. Impact of IT on the economics of delivery: Technology has a major impact on the way banking and financial services are delivered., a wide range of alternative delivery mechanism becomes available, Internet, ATM... these Reduce the dependence on the branch network as a core delivery mechanism. With the development of technology, the financial systems are substantially over-supplied with a delivery system through a duplication of a network, the bank has to change their delivery strategy, rationalize their branch network strategy, and widen the range of delivery option.
4. Impact of IT on Banking Services: Following technology Products have been facilitated by technology advancement in banks.
 - Net Banking: Online banking, also identified as internet banking, is an automated payment scheme that allows customers of a bank or additional financial institution to conduct a choice of financial transactions through the financial institution's website. It is a portion of the central banking system. The operational banking system will characteristically attach to or be part of the fundamental banking system functioned by a bank and is indifference to division banking which was the traditional way customers get into banking services.
 - Credit Card Online: A credit card is a card distributed by a financial corporation which allows the cardholder to borrow funds. Issuance of credit cards has the state that the cardholder will pay back the unique, borrowed amount plus any added agreed-upon charges.
 - One View: A single customer view is an aggregated, consistent and holistic representation of the data held by an organization about its customers that can be viewed in one place, such as a single page. The advantage to an organization of

attaining this unified view comes from the ability it gives to analyze past behavior in order to better target and personalize future customer interactions

- Instant Alerts: Receive updates about your Bank account when select debit and credit transactions take place without having to step into the branch or ATM. With instant alerts, one can keep a track on banking transactions from mobile phone or email ID.
- Mobile Banking: Mobile banking is a service provided by a bank or other financial institution that allows its customers to conduct financial transactions remotely using a mobile device such as a smartphone or a tablet. Mobile banking is usually available on a 24-hour basis.
- e-Monies : An automated funds transfer system is a transmission scheme in which money can be moved to business or separate accounts without requiring paper-money to alteration hands. Electronic funds transfer schemes are used for payroll payments and all other payments.
- Online payment of taxes and bills: e-banking facilitates payment of direct as well as indirect taxes. Income tax, GST as well other taxes are nowadays paid online by most of the assesses. Electronic bill payment is a feature of e-banking, These payments are typically executed electronically as a direct deposit through a national payment system, operated by the banks or in conjunction with the government. Payment is typically initiated by the payer but can also be set up as a direct debit
- Shopping: A way of conducting transactions from your bank account via your bank's secure website rather than in a branch or over the phone. A payment service for online stores. A particular type of scam, where an email or web message is used to try and trick people into giving up passwords and financial information.
- Other services : IT has facilitated various services in banking industry: A. Automated Teller Machines: • Cash withdrawals • Details of the most recent balance of an account • Mini statement • Statement ordering facility • Deposit facility • Payments to third parties. B. Remote Banking Services: • Balance inquiry • Statement ordering • Funds transfer (payment) to third parties • Funds transfer between customer's different accounts •

IT applications in banks

Computers in the banking sector have enhanced customer service and productivity regarding account management, while streamlining back-office activities. The biggest impact is in the area of competition. Small banking institutions can access the same technology as large banking institutions and, therefore, can compete with them more effectively for business.

Account Management :In banking, activities start with banks automating customer accounts, which allows personnel to create, update and maintain customer records. Banking hardware and software have enhanced the accuracy of accounts that tellers and other banking personnel process. Banking software performs customer transactions through a centralized data record system. Account management is the genesis and backbone of all banking information systems

Hardware Technology :In the 1960s, bank hardware consisted of a mainframe and a punch card machine. Punch cards contained customer account information and were read into the main system by a punch card machine. Midrange and client/server hardware configurations, which are no larger than a minitower system, can run an entire bank in addition to receiving transactions from affiliated bank branches. These new hardware technologies can process more transactions than legacy banking hardware systems. Hardware technologies have enabled advances into wireless banking and telecommunications banking

Electronic Transactions: Banking systems must perform electronic transactions. Direct deposit is an example of an electronic transaction. Computers processing electronic transactions must have hardware and software encryption capabilities to keep data from being compromised during a transmission. After the computer performs electronic transmissions, it transfer the information to the main computer system for processing and updating. Banks have extended electronic transaction capabilities through landline and cell phones, the Internet and ATMs.

Web-based banking: Web-based banking systems use a dedicated server through a bank network system. An area of the banking system is partitioned for Internet applications. Web-based banking systems by law must include secure servers and authenticated certificates regarding transactions from the Federal Deposit Insurance Company and the Federal Reserve Board. Customers who choose to bank online can access their account through a web interface, which integrates with the main computer. A customer's credentials -- user ID and password -- pass through several checkpoints before entering the main system to perform a web-based transaction.

Hardware and Software requirements:

In order to provide full-fledged e-banking services, banks need to have adequate hardware as well as software in place. The system to meet all present and future functional requirements should be highly standardised. Core Banking Solution is the main system that is perhaps the important element in system requirement. The CBS should be able to process a minimum of 10 (OLTP) transactions per second. This is applicable for unit banks, however, banks with more branches need better concurrency. For medium/large banks, the concurrency should be 40% of the user base and should support a minimum of 4000 login users. A proof of benchmarking of the solution and the hardware sizing for the scale of the branch should be documented before the implementation. The hardware sizing has to be done with consent of the application service

provider. Data centers should comply with Gopalakrishna committee recommendations, ISO 27000 series standards. The system should have data storage capacity for reasonable period. Should have offline and online backup available for any emergency. The data integrity should not be lost. CBS provider should provide the purging activity related entity relationship diagram along with a test report during UAT process. The utilisation of hardware resources should always be within 80% of its capacity. The solution should be scalable with reference to software, hardware and other resources to meet the future needs of the bank. The sizing of the solution is to be done based on the no of transactions per day, peak load, number of accounts, number of users, concurrent users, transactions per second, and transaction time for different type of transactions and no of branches. The hardware provided should support horizontal/vertical scalability. Documentation of L1/L2 helpdesk with improving known error database. CBS must have 3-tier architecture model and documented application architecture diagram with class diagrams and standard design patterns. Standard RDBMS databases with local support should be used. CBS should have the ability to support third party single sign on solutions with active directory (AD) and biometric devices as certified by Standardisation Testing and Quality Certification (STQC). Operating system, database software and any other third-party software used by the CBS software should have valid software assurance agreement for patch deployment. Once user logs on to the system from the client workstation, he/she should be taken to the banking application menu (possibly using a login script) and once he/she logs out of the application session, he/she should get disconnected from the database with no command line access/any other means of connecting to the database (say through SQL prompt). All the functionality should be accessible only through online/menu-driven web interfaces. Application administration should be available only to the bank and may be given only on temporary basis with an end date to application service providers for maintenance activities. Source code of the software version including any updates and upgrades should be deposited with an escrow agent. The network security is paramount as the banks may access the application hosted from third party datacentres. The approach should be 'deny all and allow only' required ports after consen. Datacentre hosting CBS application should have all the required security (firewall, IDS, IPS, SIEM, DDoS protection, etc.) in place. Application should be configured with correct network time to ensure data integrity. A secured VPN connection should be established for accessing CBS software. Security measures for Desktop/Virtual Machines should be used. Deploy CCA approved SSL certificates on servers for access. Recycle SSL certificates every two years. The hardware must have the capability of capturing photograph, signature, fingerprint biometric and retina biometric as in the case of UID (Aadhaar ID). Separate MIS server and report writing tool/application with flexibility of generating ad hoc MIS besides the MIS and regulatory reports is required. The cloud offering normally includes services, infrastructure, and hosting of application software. The following are some of the areas that are to be factored while adopting CBS solution services on cloud.:

- Datacentre: The datacentre shall be of minimum level-3 with n+1 redundancy for its entire infrastructure like HVAC, fire protection systems, ups and so forth.

- It must be secure and reliable. The location of the datacentre is also to be considered while taking cloud services. Its location must be in a safe and secure place, away from crowded areas, fire hazard prone areas and high risk seismic zones.
- This means that cloud application is generally customizable for common requirements and not for specific requirements.

Besides appropriate service levels, the service provider must also agree to resolve issues pertaining to software and other services in a timely manner so that it does not affect the business, if necessary by providing acceptable workarounds. If the issue is not addressed within a reasonable time, there must be a mechanism to escalate the matter to higher authorities. Core Banking Solution requires Data security and confidentiality of that customer data are very important in cloud offers. The service provider must also guarantee the following:

- All services will be provided in a timely, professional manner to comply with industry best practices Adequate training will be provided to the users on the features and usage of software.
- The software will not infringe the intellectual property rights of any third party.
- The software will be free from viruses and other destroying programs.

Features and challenges of e-Banking:

E-banking has changed the way of providing banking services. This has resulted in improved, fast and reliable services. Few features of e-banking have been enlisted given below.

- **Faster Transactions**

E-banking provides the facility of instant transfer of funds to its customers. It saves the time of customers as funds get transferred very fast from one account to another. Whole system of E-banking is automated & works over the internet.

People don't need to wait in queue to transfer their funds or pay off their bills; they can easily do it through their device. It saves the time of customers as they can easily access their account with the help of their device.

- **Lowers Transaction Cost**

E-Banking reduces the cost involved in doing financial transactions. Electronic transactions are termed as the cheapest medium of doing transactions. It has reduced the manpower requirements as workload is reduced.

Whole transactions are done online over the internet. It has also reduced the paperwork in organisations as all transactions are recorded digitally. There is no need to manually enter & store each record.

- **Provides 24×7 Service**

This is the most important feature of E-banking. E-Banking provides customers with all-time access facility to their accounts. Customers can easily access their account anytime & from anywhere with no limitations. It provides convenience to the customers as they can perform transactions as per their wish.

- **Reduces The Chances Of Error**

E-banking has reduced the chance of human error. It has reduced the role of the human in the whole transaction process. E-banking system works fully automated over the internet. All transactions are recorded & stored digitally. There is no need to manually maintain each & every record in books of account. So, the chances of human error are minimised.

- **Develops Loyalty In Customers**

E-banking helps the banks to develop large number of loyal customers. Through E-banking service banks are able to serve their customers well. They are able to provide fast & better service to customers. Customers are able to get a user-friendly interface from the banking website. They are able to avail services any time even from their home comfort. This develops a sense of loyalty among customers when they are happy with the services of their banks.

- **Removes Geographical Barriers**

E-Banking has removed all distance barriers for performing transactions. It has removed all distance barriers that customers used to face in the traditional method of performing transactions.

E-banking provides the facility of instant transfer of funds both nationally & internationally. All systems are connected to each other online which facilitate easy transfer of funds.

- **Provides Better Productivity**

It has an efficient role in increasing the productivity of the businesses. Whole financial transaction system is supported by automated software systems. These systems are specially designed for doing transactions of funds.

It reduces the time required for doing transactions & also reduces the workload of business organisations. Everything is stored digitally and they don't need to store anything manually. It increases the overall productivity of the businesses.

- **Reduce Frauds In Transactions**

Another important feature of e-banking is that it helps in continuously monitoring of accounts. You can easily track each & every transaction of your accounts. You can easily track if any fraud is done by anyone in financial transactions. It provides a complete digital footprint of all those who can modify your banking activities & commit fraud. It thereby adds transparency to your accounts which reduces the overall chances of fraud.

However, e-banking services need certain requirement from banks as well as from customers point of view. The challenges for e-banking have been give herewith:

- Due to technical defaults sometimes there is loss of data, which create insecurity among customers. Lack of awareness in customers. For example- people share ATM card number, CVV and the OTP (One Time Password) by believing in fake calls.
- Temporary not availability of bank's website which create problems for customers while making payment, resetting passwords, checking account statements etc.
- Not in service of toll-free numbers of banks in case of problem faced by customers like loss of ATM card etc.
- Not in service and no availability of cash in ATMs.
- Deduction of amount from account even after the unsuccessful transaction while withdrawing cash from ATM, making payment through card or internet banking.
- Poor response from bank regarding transaction related to E-banking.
- Very delay refund of amount from bank in case of unnecessary deduction.
- Lack of communication between bank and customer.
- Many customers AADHAR card number, present phone numbers, present communication address are not updated with the banks. For example- Sometimes important links, SMS are sent by banks in customer's old contact number which create a trouble.
- Poor services by banks. For example- (A)SMS regarding debit or credit of amount and login of internet banking comes very late e.g. after 4 to 5 days. Sometimes it also happens that no SMS come from bank. (B) Knowing that, they can also solve issue, bank staff send customers for approaching in another branch for solving their issue.
- Banks are over loaded with works. Even for deposit of cash through Pay in Slip many bank staff say to customers for going branch in which they have opened account.
- Lack of ATMs in villages and towns.
- Generation of OTP (One Time Password) even after the entering incorrect CVV.
- Untrained technical staff in Banks.
- Lack of training programs for bank staff and customers.
- Many banks are not following the KYC (Know Your Customer) norms issued by RBI.

RBI guidelines for e-banking,

The Reserve Bank of India had set up a Working Group to examine different aspects of e-banking. The Group had focused on three major areas of e-banking, i.e, (i) technology and security issues, (ii) legal issues and (iii) regulatory and supervisory issues. Accordingly, the guidelines were issued by RBI on June 14, 2001 for implementation by banks. As per original internet banking guidelines, all banks intending to offer transactional services on the Internet were required to obtain prior approval from RBI. However later on July 20 2005, this restriction was removed thus no prior approval of the Reserve Bank of India is required for offering Internet Banking services. The banks intending to offer the internet banking should have Bank's Board approved Internet Banking policy to ensure the compliance of RBI guidelines.

Some of the internet banking guidelines are:

- The bank should also submit a security policy covering recommendations of RBI and a certificate from an independent auditor that the minimum requirements prescribed have been met.
- Banks will report to RBI every breach or failure of security systems and procedure
- The guidelines issued by RBI on Risks and Controls in Computers and Telecommunications should be adhered to.
- Only institutions who are members of the cheque clearing system in the country were permitted to participate in Inter-bank payment gateways for Internet payment. Each gateway must nominate a bank as the clearing bank to settle all transactions. Payments effected using credit cards, payments arising out of cross border e-commerce transactions and all intra-bank payments (i.e., transactions involving only one bank) were excluded for settlement through an inter-bank payment gateway
- All settlement should be intra-day and as far as possible, in real time. However Inter-bank payment gateways must have capabilities for both net and gross settlement
- SSL / 128 bit encryption must be used as minimum level of security.
- Banks must make mandatory disclosures of risks, responsibilities and liabilities of the customers in doing business through Internet
- Banks must ensure that KYC guidelines are followed
- Banks are permitted to offer Internet based foreign exchange services, for permitted underlying transactions, in addition to the local currency products. Internet based platform for dealing in foreign exchange, should allow only reporting and initiation of foreign exchange related transactions, with the actual trade transactions being permitted only after verification of physical documents. Banks should comply with FEMA regulations in respect of instructions involving cross-border transactions

- Banks are permitted internet based operations on Rupee Vostro Accounts maintained by exchange houses or banks outside India with them, provided the banks in India ensure that the software will prevent any unauthorised operation
- Banking Ombudsman Scheme 2006 included deficiencies arising out of internet banking. A customer may lodge a complaint against the bank for its non-adherence to the provisions of the fair practices code for lenders or the Code of Bank's Commitment to Customers issued by the Banking Codes and Standards Board of India (BCSBI)
- All licensed SCBs, DCCBs, UCBs and RRBs which have implemented Core Banking Solution (CBS) and migrated to Internet Protocol Version 6 (IPv6) can offer Internet Banking (View only) facility to their customers, without prior approval of RBI. The cooperative banks offering Internet Banking (View only) facility to their customers should ensure that the facility is strictly for non-transactional services such as balance enquiry, balance viewing, account statement download, request for supply of cheque books, etc. and no online fund-based transactions are allowed.
- All licensed SCBs, DCCBs and UCBs which have implemented CBS and have also migrated to Internet Protocol Version 6 (IPv6) and fulfilling the following criteria may offer e-banking services.
 - CRAR of not less than 10 per cent.
 - Networth is Rs.50 crore or more as on March 31 of the immediate preceding financial year.
 - Gross NPAs less than 7 % and Net NPAs not more than 3%
 - The bank should have made a net profit in the immediate preceding financial year and overall, should have made net profit at least in three out of the preceding four financial years.
 - It should not have defaulted in maintenance of CRR/SLR during the immediate preceding financial year.
 - It has sound internal control system with at least two professional directors on the Board.
 - The bank has a track record of regulatory compliance and no monetary penalty has been imposed on the bank for violation of RBI directives/guidelines during the two financial years, preceding the year in which the application is made.
- All RRBs which have implemented CBS and have also migrated to Internet Protocol Version 6 (IPv6) and fulfilling the following criteria may offer Internet Banking with transactional facility to their customers with prior approval of RBI:
 - CRAR of not less than 10 per cent.
 - Networth is Rs.100 crore or more as on March 31 of the immediate preceding financial year.
 - Gross NPAs less than 7 % and Net NPAs not more than 3%

- The bank should have made a net profit in the immediate preceding financial year and overall, should have made net profit at least in three out of the preceding four financial years.
- It should not have defaulted in maintenance of CRR/SLR during the immediate preceding financial year
- The bank has a track record of regulatory compliance and no monetary penalty has been imposed on the bank for violation of RBI directives/guidelines during the two financial years, preceding the year in which the application is made.
- It has sound internal control system which should be approved by a CISA qualified independent auditor.
- The bank should not have accumulated losses

Traditional banking V/S Modern banking

With the advent of technology, banking system has drastically changed its way of functioning. Lot of changes have taken place in the last two decades.

- The primary difference is that of accessing account, making payments, and reconciling statements using computer in internet banking while in traditional banking one has to go to respective branch or office to operate the account.
- Traditional banks exist physically for serving the customers while e banking does not have a physical appearance as services are provided online.
- Customers who travel in foreign countries cannot pay close attention to their financial transactions in traditional banking while in e banking customers can control their financial transactions from anywhere in the world.
- In traditional banking, customers have to spend money on visiting their respective branches while in e-banking they can avoid these charges.
- In traditional banking, the customers do not encounter e-security threats while security is one of the problems faced by customers in accessing accounts through the e banking is a tempting target for hackers.

Conclusion:

Today, e-banking which is also referred to as online banking or internet banking, has become an important element in everybody's life. E-Banking is the one of the fastest modes of banking transactions. It is nothing but the use of electronic and telecommunications network for providing information and delivering various banking products and services. A customer can access his account and conduct many transactions using his computer or mobile phone by using E-Banking. Most of the customers are using E-Banking or electronic mode for banking transactions to save their time. Banks are also enjoying the services rendered by them towards the customers.

Unit II :Innovative Financial Services

After studying this unit, students will be able to :

- Know the different innovative services provided by banks
- Understand the regulatory framework for innovative services
- Understand the nature of innovative financial services

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IT Act, 2000 for recognizing whether an electronic transaction is legal or not. Further Reserve Bank of India has also taken initiative to develop the electronic banking system in India.

Types/Levels of E-Banking:

There are three types of electronic banking to offer various types of services towards customers. It can be termed as Levels:

1. Level 1 -Information through Web

2. Level 2 – Bank Transactions

3. Level 3 – Funds Transfer

1) Level 1 -Information through Web– This is the basic level of service that banks offer through their websites. It is possible to customers to get information of banking products and services through this level. The banks also get the feedback, queries regarding banking transactions and given information from the customers through email.

2) Level 2 – Bank Transactions-This is the level, banks allow their customers to submit instructions or applications for different services, check their account balance, etc. The banks never permit their customers to do any fund-based transactions on their respective accounts.

3) Level 3 – Funds Transfer-In the third level, banks agree to their customers to operate their accounts for funds transfer, bill payments, and purchase and redeem securities, etc.

Most of the banks offer traditional as well as e-banking services to the customers. The customers should aware about the internet or online banking procedure with authentic bank websites. There are two types of banking websites:

a) Informational Websites – This website provides the basic and general information about the bank and banking transactions with its innovative products and services.

b) Transactional Websites – This website provides facility to do online transactions, balance inquiry, fund transfer etc.

The bank also provides retail services like account management, bill payments, new account opening, loan application and approval, investment and brokerage etc. Similarly, it provides wholesale services such as B2B online business, loan application and approvals, cash management, bank administrations etc.

Importance of e-banking

As we are aware about e-banking benefits it is very important to individual customers as well as businesses. Followings are some of the points show the importance of e-banking:

a) Banks:

1. **Low transaction costs** – E-Banking provides the facilities of electronic transactions at the lowest cost.
2. **No human error** – The transactions are done with electronic way, hence there is no way to human error.
3. **Reduce paperwork** – Most of the banks are automated and doing the business environment friendly. Banks maintain digital records to reduce paperwork.
4. **Minimize fixed costs** – Once the electronic mode applied, it reduces the operational needs of the branches of the banks, hence it minimizes the burden of cost for a long period of time.
5. **Increase in Trust** – The customers gets fast services through the application of e-banking services. As a result, customers' belief and trust are getting increased day by day.

b) Customers:

1. **Access and Convenience** –It is convenient to the bank customer to do the bank transactions from anywhere 24 x 7 x 365. They can access their account as convenience.
2. **Low Cost** – Most of the customers cannot visit to the banks/branches of the bank as they are satisfied with e banking transactions. It saves the time and money of the customers.
3. **No physical barriers** – Due to the e-banking the physical or geographical barrier of distance is to be reduced. The customers can enjoy their banking transactions at own places.

c) Businesses:

1. **Quick Business Information** – One can get the business information very quickly through e-banking system. The businessman and the member of the business also check the accounting information with bank details. It helps to review the business activities.
2. **Efficiency and productivity** – Due to the Electronic banking, businesses have improved their efficiency and productivity. It has made simplification in the business transactions through e banking system.

3. **Lower costs** – It is possible to cut the cost in various bank transactions in case of transfer the fund, cheques or DD charges, other bank charges etc. to the business. It increases the productivity of the business.
4. **Minimize errors** –Electronic banking helps in minimizing errors in regular banking transactions. It helps to check accuracy of the business.
5. **Easy to Detect fraud** –In the business, it is easy to find out fraud if it is taken place. The employees cannot do any malpractices due to digitization of their finger prints and watch by CCTV camera.

Financial Services

Financial services are the economic services which are provided by various financial institutions and companies for dealing with the management of money. Financial product is an intangible product of financial markets like loans, insurance etc.

Financial services are provided by various institutions like banking firms, insurance companies, investment funds, credit unions, brokerage firms, and consumer finance companies.

Nature of Financial Services:

The following points reveal the nature of financial services:

1. **Customer Oriented:** Financial services are customer oriented services which are provided as per the requirements of customers.
2. **Intangibility:** Financial services are intangible in nature hence it is challenge to offer customers in the society. The marketing of such products is a very difficult task.
3. **Inseparable:** These services cannot be stored. They are inseparable in nature.
4. **Saving of Fund:** Financial services develop the habits of savings amongst the people. It raises the funds of institutions as well as the investment of people.
5. **Scope to lenders & borrowers:** The financial services serves inter-mediators like lenders and borrowers in the financial market to provide financial services.
7. **Market oriented:** Financial services are market oriented. It changes according to economic, financial, social, cultural, geographical conditions of the business environment.
8. **Risk distribution:** The risk is distributed by the institutions providing financial services to the customers in the market.

Scope of Financial Services:

The scope of financial services is classified into following two activities:

1. Traditional Activities.
2. Modern Activities.

1. Traditional Activities:

These services are classified into two groups: –

- a) Fund based activities and
- b) Non-fund based activities.

a) Fund Based Activities.

Fund based activities refers to the activities which are concerned with acquiring funds and assets for the customers. e.g.stock market and money market activities, foreign exchange market activities, hire purchase, venture capital, equipment leasing etc.

b) Non-fund based Activities.

Theservices provided by financial intermediaries fees basis or non fund basis is called Non fund based activities. e.g.services offered on the basis of fees, commission, dividend and brokerage etc. These services like Portfolio management, issue management, stock broking, merchant banking, credit rating etc.

2. Modern Activities

Other than the above-mentioned activities some of the modern activities are also taken into consideration such as Merging and Acquisition planning, trustee to the debenture'sholders, portfolio management, Project advisory, banking services etc.

E-banking Services in India

In India, since 1997, when the ICICI Bank first offered internet banking services, today, most new-generation banks offer the same to their customers. In fact, all major banks provide e-banking services to their customers as given below:

The following services are available in India:

1. **Bill payment** – Every bank has a tie-up with different utility companies, service providers, insurance companies, etc. across the country. The banks use these tie-ups to offer online payment of bills (electricity, telephone, mobile phone, etc.). Also, most banks charge a nominal one-time registration fee for this service. Further, the customer can create a standing instruction to pay recurring bills automatically every month.
2. **Funds transfer** – A customer can transfer funds from his account to another with the same bank or even a different bank, anywhere in India. He needs to log in to his account, specify

the payee's name, account number, his bank, and branch along with the transfer amount. The transfer is affected within a day or so.

3. **Investing** – Through electronic banking, a customer can open a fixed deposit with the bank online through funds transfer. Further, if a customer has a demat account and a linked bank account and trading account, he can buy or sell shares online too. Additionally, some banks allow customers to purchase and redeem mutual fund units from their online platforms as well.
4. **Shopping** – With an e-banking service, a customer can purchase goods or services online and also pay for them using his account. Shopping at his fingertips.

E-Commerce

Electronic Commerce (E-commerce) is the process or activity of buying and selling of goods and services done in electronic way by using internet. It is nothing but online activity done with the help of technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems. Modern electronic commerce uses the World Wide Web (WWW) for at least one part of the transaction's life cycle although it may also use other technologies such as e-mail.

There are three areas of e-commerce mainly i.e. online retailing, electronic markets, and online auctions.

E-commerce is supported by electronic business.

E-commerce businesses may also employ some or all of the followings:

- i. Online shopping for retail sales direct to consumers through WWW, Apps, chatbots etc.
- ii. business-to-consumer (B2C) or consumer-to-consumer (C2C) sales
- iii. Business-to-business (B2B) buying and selling; and interchange
- iv. Collection of demographic data through web contacts and social media
- v. Marketing to customers by e-mail or fax
- vi. Online financial exchanges for currency exchanges for trading

Modes of Payments:

The following are the modes of payment in case of e-banking services.

1. Society for Worldwide Interbank Financial Telecommunications (SWIFT)

SWIFT was then founded in 1973 with 239 banks in 15 countries. By 1977, it expanded to 518 institutions in 22 countries. Nowadays it is easy to transfer money or currency from one country

to another country due to SWIFT. IT is a vast messaging network used by banks and other financial institutions to quickly, accurately, and securely send and receive information, such as money transfer instructions.

It is found that, more than 11,000 SWIFT member institutions sent approximately 33.6 million transactions per day through the network in 2019. It allows individuals and businesses to take electronic or card payments even if the customer or vendor uses a different bank than the payee. Each member is assigned a unique ID code which shows the bank name, country, city and branch. SWIFT assigns each financial institution a unique code having eight characters or 11 characters. The code is interchangeably called the Bank Identifier Code (BIC), SWIFT code, SWIFT ID, or ISO 9362 code.

Following are the main users of SWIFT:

- Banks
- Brokerage Institutes and Trading Houses
- Securities Dealers
- Asset Management Companies
- Clearing Houses
- Depositories
- Exchanges
- Corporate Business Houses
- Treasury Market Participants and Service Providers
- Foreign Exchange and Money Brokers

2. National Electronic Fund Transfer (NEFT)

- The National Electronic Fund Transfer (NEFT) is one of the most common ways of transferring money online from one bank account to another. There is no cap on the amount of money that can be transferred. However, individual banks may have set their own limits. The limit of transferring money cannot exceed Rs 50,000. For NEFT transfer, we must have the bank IFSC code, along with details such as bank account number, bank branch, and account holder name, among other details. one can transfer money with this method between 9 am and 7 pm on weekdays, and between 9 am and 1 pm on Saturdays.
- **Benefits/Advantages NEFT are:**
 - Safe and secure
 - Economical
 - Reliable and error-free
 - Organized and batch-wide settlement
 - Paperless

3. Real Time Gross Settlement (RTGS)

- RTGS is another E-banking service of fund transfer. It ensures that the money is sent in 'real time' without any delay. The minimum amount for this transaction is Rs 2 lakh, and there is no cap on the maximum amount that can be transferred. The transfer happens on a real-time basis throughout the RTGS business hours, which are 9 am to 4.30 pm on weekdays, and 9 am to 2 pm on Saturdays. It takes approximately half an hour for the money to be credited into the account of the beneficiary.
- **Benefits/Advantages of RTGS:**
- Real-time online fund transfer
- Used for high value transactions
- Safe and secure
- Reliable and backed by RBI
- Immediate clearing
- Funds credited on a one-on-one basis
- Transactions executed on an individual and gross basis

4. Immediate Payment Service (IMPS)

- One of the advantages of using this method to transfer funds is that it is available round the clock, 365 days a year (even on Sundays and bank holidays). IMPS is a real-time electronic fund transfer service. By using this services, inter-bank transfers can be initiated through multiple channels such as mobile banking, internet banking, SMS, ATMs, etc. It provides quick services of transferring funds and credit the amount on beneficiary's account. The bank collects minor charges for the transaction from customer.
- **Benefits/Advantages of IMPS:**
- Safe and secure
- Ease of transferring funds
- Fastest method of transferring funds
- The recipient gets the amount credited instantly without any delay.
- People do not need to share their bank details, especially, their account numbers for the transfer of funds in this platform. Money can be sent to anyone, simply with their cell phone number.
- The service is available throughout the year, 24×7.

- **Difference between NEFT, RTGS and IMPS**

- The following points relate to difference between NEFT, RTGS and IMPS

Comparison Category	NEFT	RTGS	IMPS
Settlement Type	Half hourly batches	Real time	Real time
Minimum Transfer Limit	Re.1	Rs.2 lakh	Re.1
Maximum Transfer Limit	No Limit However, maximum amount per transaction is limited to Rs.50,000/- for cash-based remittances within India and to Nepal under the Indo-Nepal Remittance Facility Scheme.	No limit	Rs.2 lakh
Service Timings	8:00 AM – 7:00 PM all working days except 2 nd and 4 th Saturday of the month Unavailable on Sunday and Bank Holidays Operates in 23 half-hourly settlement batches	8:00 AM – 6:00 PM all working days Unavailable on Sunday and Bank Holidays	Available 365 days 24/7
Transaction Charges	No charges for inward transactions (at	No charges for inward transactions	Charges for remittance through IMPS are decided by the individual member

Comparison Category	NEFT	RTGS	IMPS
	destination bank branches for credit to beneficiary accounts)	Charges applicable for outward transactions for amount: Rs.2 lakh – Rs.5 lakh: not exceeding Rs.25 Above Rs.5 lakh: not exceeding Rs.50 GST is also applicable	banks and PPIs. The taxes are included.
Payment Options	Online and Offline	Online and Offline	Online

5. Credit Card:

This card is known as a payment card which is issued to users to enable the cash holders to pay the commercial or business merchant for goods and services. There are certain charges on credit card. Generally, Bank or institutions issues credit card with certain limit of amount on terms and conditions. It is always advised to keep credit utilization ratio below 30%. This card is used for shopping, entertainment, hoteling and travelling etc. It is an opportunity to build credit in the society by using this card. It provides free credit score information, increase purchasing power etc.

6. Debit Card:

Debit card is an electronic instrument well known as Plastic card or Bank card or Payment card. It is consumer oriented and makes the banking transactions easy. It is used instead of cash while making purchases. Debit card allows instant withdrawals of cash and working as ATM card for this purpose. A debit card is a payment card that deducts money directly from a consumer's checking account to pay for purchases or shopping, payment of fees etc. It eliminates the need to carry cash or physical checks to make purchases directly from one's savings. It is not possible to

make a large purchase with a debit card. Some banks offer reward points on various transactions.

7. ATMs

Introduction:

The Automated Teller Machine (ATM) was invented by John Shepherd-Barron in the year of 1960. ATM is an easy and simple machine to handle bank transactions. The automated teller machine (ATM) is an automatic banking machine (ABM) which helps the customers in fulfilling their transactions without any help of banking staff. Automated Teller Machines (ATMs) are of two types i.e. only for drawing of cash (withdrawal) with amount verification. The customers used debit card facility for this purpose. The other is of accepting the deposit, provides credit card payment facilities with account reports. These plastic cards are encoded with the users' information and identification code on magnetic strip. Such two machines are used by customers individually.

Types of ATM Machines

Most of the host processors can support either leased-line or dial-up machines

- Leased line machines
- Dial-up machines

Leased Line ATM Machines:

The leased line machines connect directly to the host processor through a four-wire point to point dedicated telephone line. These types of machines are preferred in place. The operating cost of these machines is very high.

Dial-Up ATM Machines:

The dial-up ATMs connect to the host processor through a normal phone line using a modem. These require a normal connection their and their initial installation cost is very less. The operating cost of these machines is low compared with leased line machines.

ATM Security:

The ATM card is secured with a PIN which is kept secret. There is no way to get the PIN from your card. It is encrypted by strong software like Triple data Encryption Slandered.

Advantages of Automated Teller Machine:

- 24 hours service
- privacy in banking communications
- reduce the workload banks staff

- may give customer new currency notes
- convenient for banks customers
- very beneficial for travelers
- provides services without any error

Features of Automated Teller Machine:

- Transfer funds between linked bank accounts
- Receive account balance
- Prints recent transactions list
- Change your pin
- Deposit your cash
- Prepaid mobile recharge
- Bill payments
- Cash withdrawal
- Perform a range of features in your foreign language.

8. Cash Deposit Machine (CDMs):

This is another e-banking service provided by very few selected banks in the society. The Services are available within selected branches only. The Cash Deposit Machine (CDM) is a self-service terminal which helps to the customers in deposit and payment transactions in the form of cash. It shows the credit effect on account of customers after successful transaction. We get messaging by mobile banking or internet banking. Also, the customer will get the print copy of certain transactions. Such transactions are possible through ATM or Credit Cards of a person.

Services available on the CDM:

- Cash Deposit
- Cash Deposit to Account
- Credit Card Payment
- Cheque Deposit to Account

9. Point of Sale (POS):

Point of Sale (POS) transaction is a purchase made with Visa debit card and the customer has required to enter his/her PIN on a keypad. POS transactions post to the customer account immediately. A POS statement indicates transaction amount and the address and the name of the merchant. Cloud based POS systems are becoming increasingly popular among merchants.

10. Phone banking:

One of the most convenient and useful banking services provided by the various banks and financial institutions is known as phone banking. It makes easy transactions with the help of phone banking. People can enjoy the flexibility of time with 24-hour phone banking service. The account holder can get facilities of knowing account balance, to make bill payments, transfer funds to another account etc.

Merits of Phone Banking:

a) To Bank:

- It reduces the heavy task of the employees of bank.
- Avoid overload of transactions
- less complaints
- employee satisfaction
- fast transactions
- efficient system

b) To Customers:

- easier for account holder
- quick transactions
- flexible services
- enjoy 24 x 7 transactions
- Use of ATM services
- quick Messaging of transactions
- payment of various bills

11. Mobile banking:

Mobile banking was also popular as SMS banking. In Mobile banking, mobile device is used by people to do the several transactions. The customers get SMS alerts while any transaction is done either it fails or success. It intimates the summary of debit-credit transactions, balance check, mini statement etc. It is easy to do the transaction of payments, deposits, withdrawals, bank transfer etc with the help of mobile banking. Currently, people use various applications on mobile to do the banking transactions.

Mobile Banking Services

Mobile banking serves following services:

1. Account information access

2. Transactions
3. Investments
4. Support services
5. Content and news

Challenges before Mobile Banking

Some of the challenges before mobile banking consist of -

- Accessibility
- Security
- Reliability and scalability
- Personalization ability
- Application distribution
- Upgrade synchronization abilities

12. Internet banking

Internet Banking is a convenient and easy way to do banking transactions from any place like home, office, surroundings etc. It provides quick service in few minutes or seconds; hence there is no requirement to wait for transaction at bank. It saves the time to stay in queue in bank. The customer can do transactions by using their login ID and Password.

Features of Internet Banking

- Update Nominee for account
- Check Account Statement
- Payments using Net Banking
- Transfer Funds
- Open accounts
- Pay Utility Bills
- Recharge prepaid mobile/DTH and a lot more.
- Buy General Insurance
- Pay Taxes
- Order Cheque Book
- Track your Deliverables
- And many more financial and non-financial services
- Banking transactions at figure prints
- Bill payments anytime, anywhere

- Safe & Secure
- easy access

13. Smart Cards:

A smart card is known as a chip card or integrated circuit card. Smart cards provide personal identification, authentication, data storage, and application processing. The universal integrated circuit card or SIM card is also one of the types of smart card.

14. Mobile wallets

Mobile wallets are an e-version of the physical wallet. A mobile wallet can be used instead of debit cards, credit cards or money, and a customer can make the payment by simply tapping their smartphone or tablet.

There are various mobile wallets available in the different app stores on our smartphones which make it convenient for the user.

Some of the benefits of this method are:

- Cashless transactions at the tap of a button
- Secure and safe
- Convenient
- Fast and streamlined payments

While each of these services makes it convenient for the customer to transfer money and make purchases online, remember to exercise caution while using them. Always crosscheck the account details and amount entered before clicking on any button.

List of best Mobile Wallets in India to Make Online Payments

Mobile wallets allow us to make bill payments, mobile recharge, transfer funds and a lot more using mobile. With e-Wallet apps installed on your mobile, we never need of carrying cash

1. PayTM
2. Mobikwik
3. FreeCharge
4. State Bank Buddy
5. HDFC PayZapp
6. ICICI Pockets

7. LIME
8. PhonePe
9. Ola Money
10. Airtel Money

Conclusion:

Financial services are the economic services which are provided by various financial institutions and companies for dealing with the management of money. Financial product is an intangible product of financial markets like loans, insurance etc. Financial services are provided by various institutions like banking firms, insurance companies, investment funds, credit unions, brokerage firms, and consumer finance companies. In modern times, innovative financial services have been provided by the banks and financial institutions with the help of technology.

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