A

PROJECT REPORT

ON

"ROLE OF INFORMA TION TECHNOLOGY IN INDIAN BANKING SECTOR"

A PROJECT SUBMITTED TO

UNIVERSITY OF MUMBAI

IN P ARTIAL COMPLETION OF THE DEGREE OF

BACHELOR OF BANKING AND FINANCE

UNDER THE F ACUL TY OF COMMERCE

BY

[redacted] RAMESH SHETTY

(TYBBI)

UNDER THE GUIDANCE OF

PROF. A VNEET KAUR

SUBMITTED TO

BUNTS SANGHA 'S

S.M.SHETTY COLLEGE OF SCIENCE,

COMMERCE AND MANAGEMENT STUDIES,

POW AI-400076

MARCH, 2022

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BY

SUSHANT RAMESH SHETTY

(TYBBI)

UNDER THE GUIDANCE OF

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SUBMITTED TO

BUNTS SANGHA'S

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AND MANAGEMENT STUDIES

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MARCH, 2022

Bunts Sangha's
S.M. Shetty College of Science, Commerce &
Management Studies, Powai, Mumbai
Permanently Affiliated to University of Mumbai
NAAC Accredited 'A' Grade
ISO 21001:2018

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This is to certify that Mr. SUSHANT RAMESH SHETY has worked and duly completed his Project Work for the degree of Bachelor of Banking and Insurance under the Faculty of Commerce in the subject of Banking and Insurance (Commerce) and his project is entitled, **"ROLE OF INFORMATION TECHNOLOGY IN INDIAN BANKING SECTOR"** Under my supervision.

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

It is his own work and facts reported by his personal findings and investigation.

Signature of

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Signature of

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Declaration by Learner

I, the undersigned Mr. SUSHANT RAMESH SHETTY hereby, declare that the work embodied in this project work titled

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Acknowledgement

Working on this project has been a good experience. I would like to thank a number of people who helped me directly or indirectly for this project.

I want to express my gratitude towards my college, BUNTS SANGH'S S.M. SHETTY COLLEGE OF SCIENCE, COMMERCE AND MANAGEMENT STUDIES, and the Principal of my college Dr. Sridhara Shetty, Vice Principals Dr. Liji Santosh and Prof. Sandesha Shetty, our Department Coordinator Prof. Sahana Raviprasad.

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I am grateful to my guide Prof. Avneet Kaur who guided me throughout the procedure in doing my research and in preparing this project report.

I would like to thank my classmates, friends and my family members who supported me in collecting information and making my project better.

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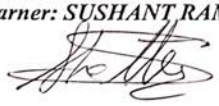

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INTRODUCTION

A bank is a monetary institution or an entity that collects deposits from individuals and uses those deposits for lending purposes in the capital market, either directly or indirectly. The word bank comes from the Italian word banco, which means bench. In the Middle Century, the Italians performed their business while sitting on a bench. The word banco became the term bank after enduring changes. Banks and banking systems now exist throughout the world. When banks first started operating, they simply had two functions: to accept cash in the form of deposits and to advance funds in the form of loans in exchange for interest. Many other services are now available from banks, including lockers for important valuables and papers, credit cards, debit cards, fund transfers, overdraft facilities, cash credit, bill discounting, letter of credit, foreign exchange, and many others. A bank is an organization or agency that accepts deposits, lends loans, pays bills, and offers financial or monetary services to its customers. It serves as a financial intermediary, assisting people in safeguarding, moving, exchanging, and lending their money. The basic function of banks is to act as a bridge between the one who has money, such as investors and depositors, with those who need money, such as individuals, borrowers, and so on. It acts as a link between consumers with capital deficits and those who have capital surpluses.

Definition of Bank and Banking

"A bank is an establishment, which makes to individuals such advances of money as may be required and safely made, and to which individuals entrust money when not required by them for use."[1]

"Banking is defined as accepting for the purpose of lending or investment of deposits of money from the public, repayable on demand or otherwise and withdrawable by cheque, draft, order or otherwise"[2]

History of Banking in India

In India, banking is the foundation for the country's economic progress. With the development of technology and consideration of people's demands, major changes in the banking system and administration have occurred over time. Banking in India has a long history dating back to before the country's independence in 1947. The history of the banking system in India can be divided into two parts.

1. Pre-Independence period (1786–1947)
2. Post-Independence period (1947-till date),

The Post-Independence period is further divided into 3 parts.

a. The period preceding nationalization (1947–1969),
b. Period of post-nationalization (1969–1991) and
c. Liberalization period (1991-till date).

Pre Independence Period (1786-1947)

The first bank which was established in India was the "Bank of Hindustan", formed in 1770 in Calcutta. However, this bank did not succeed and ceased its operations, and liquidated in 1832. Over 600 banks were registered in India during the pre-independence period, but only a few banks managed to survive. Few banks which followed the path of Bank of Hindustan and were established in India are:

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

The Bank of Bengal, the Bank of Bombay, and the Bank of Madras were the three banks established by the East India Company during the British rule in India and were called the "presidential banks." The main function of these three banks was to manage and handle the East India Company's treasures and accounts. In the year 1921, the three presidential banks—the Bank of Bengal, the Bank of Bombay, and the Bank of Madras were merged into one single bank named the "Imperial Bank of India." The Imperial Bank was authorized to hold the East India Company's balances, manage public debt, and acted as a clearinghouse. The Imperial Bank, on the other hand, struggled to adequately showcase its accomplishments and failed to make any progress as the Central Bank. In 1925, the government asked the Hilton Young Commission to investigate the situation. The commission submitted their findings, stating that a single firm cannot operate as two independent organizations in terms of credit and cash management. As a result, a pristine national bank is required. The Reserve Bank of India was established on 1st April, 1935, as a private shareholders bank with a paid-up capital of Rs 5 crores. It was given the right to print or issue currency notes and act as a banker's bank. The RBI's authority was spread all over undivided India, including Pakistan & Bangladesh now. It was also the banker to the government of Burma and was having the currency-issuing authority there. The pre-independence era saw the presence of over 600 banks. At that time, the banking system mainly served the urban population, and the needs of the rural and agricultural sectors were completely ignored.

Meanwhile, under the swadeshi movement, many Indian owned banks were established such as:

Allahabad Bank (first Indian-owned Bank)	1865
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)

The complete banking sector was in private control at the time of independence. The rural population of the country in order to fulfill their needs had to rely on small money lenders. To solve these issues and to promote economic growth, the government of India began nationalizing the banks. The RBI was the first bank to get nationalized in January 1949, under the Reserve Bank of India (Transfer to Public Ownership) Act, 1948. And in order to look after the functions and activities of commercial banks, the government of India came up with a new act named as the Banking Companies Act 1949, which was later changed to Banking Regulation Act 1949. In the year 1955, the Imperial Bank of India was nationalized and renamed The State Bank of India, which is now the biggest public sector bank in India. In the year 1959, the SBI-Subsidiary Bank Act was passed, allowing the SBI to take over eight former state associate banks.

The names of those banks are:

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

Nationalization Period (1969 to 1991)

Despite the Reserve Bank of India's rules, control, and regulations, banks in India, excluding the State Bank of India (SBI), we're still owned and controlled by private individuals. By the end of the 1960s, the Indian banking system had established itself as a vital tool for the country's economic development. At the same time, it had grown to be a significant employer, creating discussions regarding the banking industry's nationalization. Indira Gandhi, India's then-Prime Minister stated the government's intention in a paper titled "Stray Thoughts on Bank Nationalization" presented at the All India Congress Meeting's annual convention.

Following that, the Government of India passed the Banking Companies (Acquisition and Transfer of Undertakings) Ordinance, 1969, which nationalized the 14 commercial banks which had deposits of more than Rs 50 crore and were the biggest commercial banks on 19th July, 1969, at midnight. These banks held 85 percent of the country's bank deposits. The Banking Companies (Acquisition and Transfer of Undertaking) Bill was passed by Parliament two weeks after the ordinance was issued, and it got presidential approval on August 9, 1969.

In the year 1969, the following banks were nationalized:

1. Allahabad Bank (Todays Indian Bank)
2. Bank of Baroda
3. Bank of India
4. Bank of Maharashtra
5. Central Bank of India
6. Canara Bank
7. Dena Bank (Today's Bank of Baroda)
8. Indian Bank
9. Indian Overseas Bank
10. Punjab National Bank
11. Syndicate Bank (Todays Canara Bank)
12. UCO Bank
13. Union Bank of India
14. United Bank of India (Todays Punjab National Bank)

After nationalization, the Indian banking system grew tremendously, but the rural and weaker sectors of the country remained neglected. In order to solve these issues, the Narasimham Committee recommended the establishment of Regional Rural Banks (RRBs) in 1974 to address these challenges. RRBs were created on 2nd October 1975, with the view of extending credit to the rural people of the community. In view of the expansion of financial services in India, it established banking bodies with specialized functions between the years 1982 and 1990.

- NABARD (1982) – to boost the agricultural activity
- EXIM (1982) – to boost export and import
- National Housing Board – to finance housing projects
- SIDBI – to fund small-scale industries

In the year April 1980, another 6 private banks with deposits of more than Rs 200 crore were nationalized. This Nationalization was ostensibly done to give the government more control over credit delivery. With the second set of nationalizations, the Indian government-owned over 91% of the country's banking industry.

In the year 1980, the following banks were nationalized:

1. Andhra Bank (Todays Union Bank of India)
2. Corporation Bank (Todays Union Bank of India)
3. New Bank of India (Todays Punjab National Bank)
4. Oriental Bank of Commerce (Todays Punjab National Bank)
5. Punjab and Sind Bank
6. Vijaya Bank (Today's Bank of Baroda)\

Until the 1990s, nationalized banks expanded at a rate of roughly 4%, which was near to the Indian economy's average growth rate. This post-Independence period saw significant changes in India's banking sector, as well as in the development of the banking sector.

Reasons Why Banks Were Nationalized in India

- **To Energize Priority Sectors:**

  Banks were falling to pieces at an alarming rate: 361 banks failed between 1947 and 1955, a rate of around 40 banks per year! Customers' deposits were lost and there was no way to get them back.

- **Savings Mobilization:**

  Nationalizing banks would provide individuals more access to banks and encourage them to save, bringing more money into an already cash-strapped economy.

- **The Agricultural Sector Has Been Neglected:**

  The Agricultural Sector Has Been Neglected: Banks have prioritized large industries and corporations while ignoring the rural sector. Nationalization was backed by a promise to help the agriculture industry.

- **Economic and Political Factors:**

  The economy had been severely harmed by the two wars of 1962 and 1965. Increased deposits would be a boon to the Indian economy if banks were nationalized

- **Branches Expansion:**

  Nationalization facilitated the opening of new branches, allowing banks to provide maximum coverage throughout the world.

The Positive Effects of Nationalization

One of the most crucial milestones in the development of Indian banks was the nationalization of banks. India today has 19 nationalized banks.

Nationalization boosted the economy in many ways, some of them are:

- **Increased Savings:**

  The emergence of new branches resulted in a significant increase in savings. In the 1970s, as national income increased, gross domestic savings nearly doubled.

- **Increased Efficient:**

  Banks' efficiency increased as a result of increased accountability. It also strengthened the public's trust in the government.

- **Financial Inclusion:**

  The banking sector's and the Indian economy's general statistics have improved significantly. Since 1969 to 1991, it looked at things like the share of bank deposits in GDP, the gross savings rate, the share of advances in DGP, and the gross investment rate.

- **An Increase in Public Deposits:**

  Banks' expanded reach helped in the development of small businesses, agriculture, and the export sector. This expansion was backed by a corresponding rise in public deposits.

- **Empowering Small Scale Industries:**

  Small Scale Industries (SSIs) were given a boost, which has resulted in a corresponding improvement in the economy.

- **Elevating the Green Revolution:**

  The Green Revolution, which is one of the government's top priorities, has gotten a boost by the recently nationalized banks' support for the agricultural sector.

- **Better Reach:**

  Banks' reach was no longer limited to metropolitan areas. Branches were established in even the most remote parts of the country.

- It provided a significant increase in work opportunities for the people.
- Bank profits were put to good use by the government for the benefit of the people.
- As a result of the reduced competition, work efficiency increased.

The Negative Effects of Nationalization

Here are a few disadvantages of nationalization:

- **Private Bank Competition:**

  Despite government assistance and increasing impetus from increased deposits, public sector banks were never given a chance to outperform private banks in terms of performance.

- **Failure to Achieve Financial Inclusion:**

  Despite the fact that financial inclusion was a major goal of nationalizing banks, it wasn't effectively enabled. It was only realized to a limited extent once the government's Jan Dhan Yojana campaign was launched.

- **Socioeconomic Challenges:**

  Banks were not able to provide sufficient assistance in eradicating poverty or providing adequate funding to the poorest members of society. This was especially evident in rural India.

Liberalization period (1991-till date)

The Indian economy underwent a significant transformation beginning in 1991. The Indian government, led by then-Finance Minister Dr. Manmohan Singh, liberalized and opened up the economy in 1991. The government planned to establish a committee under the leadership of Shri. M Narasimham to oversee the numerous reforms in the Indian banking industry in order to ensure stability and profitability to the Nationalized Public Sector Banks. The committee proposed various types of reforms to the country's banking system. The recommendations' main aim was to make banks more competitive, efficient, and favorable to financial system stability.

- The committee recommended that banks not be nationalized anymore.
- Foreign banks would be permitted to establish branches or subsidiaries in India.
- In order to make banks more competitive, the committee recommended that the government and the RBI treat public and private sector banks equally.
- The importance of encouraging banks to forsake the conservative and traditional banking system in favor of progressive functions such as merchant banking and underwriting, retail banking, and so on was emphasized.
- Foreign and Indian banks are now allowed to enter joint ventures in these and other emerging financial services.
- The RBI granted ten private bodies a license to enter the banking market.

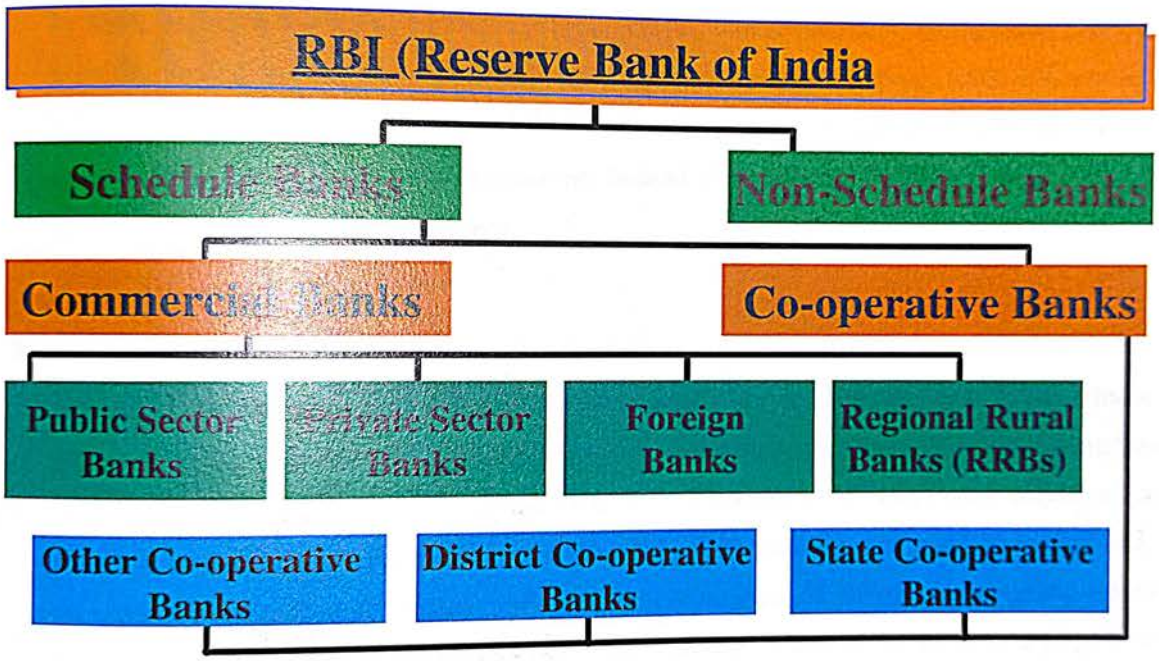
The following private banks have been granted licenses from RBI:

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.

All of the committee's major recommendations were adopted by the Indian government. With the Commencement of LPG in India, private banks and companies were able to participate and grow in the Indian economy. The introduction of private sector banks in India was the most significant change. The history of banking in India illustrates that, as time and people's requirements have evolved, important changes have been made in the banking industry in order to prosper it.

Banking Structure in India

The Indian banking business is split into two categories: organized and unorganized. The Reserve Bank of India, Commercial and Cooperative Banks, and Specialized Financial Institutions make up the organized sector. The Reserve Bank of India is separated into two groups: scheduled banks and non-scheduled banks, with the scheduled banks categorized into commercial banks and cooperative banks. The current banking structure in India has evolved over several decades. The Indian banking system is directed to meet the country's credit and banking services demands. There are various layers in India's banking sector today that look after the particular and diverse demands of different borrowers and clients. The country's banking sector plays an important role in the mobilization of savings and the promotion of economic growth. The banking structure's strength and performance improved immensely after the 1991 financial sector reforms. In comparison to the many developed countries, India's commercial banking system is financially solid.



Let's look at some of the various types of banks in India, as well as some examples.

- **RBI (Reserve Bank of India)**

  The Reserve Bank of India (RBI) is the country's central bank. It is responsible for overseeing the financial system in the country. The Reserve Bank of India (RBI) employs monetary policy instruments to assist the economy in achieving and maintaining financial stability. It is also in charge of overseeing the country's monetary and credit systems. Bombay, Maharashtra's financial hub, is

headquartered to the Reserve Bank of India. As a result, the RBI assists the financial markets in a variety of ways. The overnight interbank lending rate is regulated by India's reserve bank. The RBI's principal aim is to perform comprehensive financial sector oversight in India. As a result, commercial banks, financial institutions, and non-banking financing companies make up the financial realm. The RBI's activities include bank inspections, auditors' roles are being strengthened, and off-site bank surveillance is being implemented, among other things.

A. Non-scheduled Banks

Banks that are not covered under the Reserve Bank of India Act of 1934's second provision are known as non-scheduled banks. They have a paid-up capital of less than Rs 5 lakh. Such banks are not permitted to borrow funds from the RBI for routine banking purposes unless it is an emergency. In some cases, non-scheduled banks are legal entities. The government, on the other hand, does not provide such banks with any procedural assistance. During its active phase, these banks must pay the RBI a compulsory reserve balance of Rs 5 lakh and preserve the capital. Non-scheduled banks are exempt from the RBI's rules and regulations. Instead of keeping CRR (Cash Reserve Ratio) with the RBI, they can keep it with themselves.

B. Scheduled Banks

Scheduled banks are those that fall under the second schedule of the Reserve Bank of India Act of 1934. All scheduled banks in India are eligible for liabilities and loans at the RBI's bank rate. Such banks are automatically granted participation in a clearinghouse. A bank must meet the following standards to be listed in the second schedule of the RBI Act. The total paid-up capital and reserve should not be less than Rs 5 lakh, and the bank's operations should not be damaging to depositors' interests. Such banks must be formed under the Companies Act of 1956, or be a state cooperative bank, a corporation, or any other institution that the Indian government has notified in this regard. The scheduled banks, which include all RRBs, cooperative banks, Indian and foreign commercial banks, are required to give details of their activities to RBI once a week.

Cooperative banks and Commercial banks are two types of scheduled banks.

1. **Co-operative Banks**

The co-operative banks were established in 1912, following the passage of a co-operative credit societies Act in 1904. Cooperative banks' principal purpose is to provide loans to rural communities. From the beginning, cooperative banks have played a key role in the development of the rural economy. A cooperative bank is a financial institution whose members, who are also its clients, own and operate it. Because they provide a wide range of banking and financial services to its members. Cooperative banks are essential promoters of agricultural activities, self-employed people, and small businesses. Individuals band together to form a credit cooperative association, often known as a cooperative bank, at the local level. Individuals in a community can create a group of borrowers who are interested in each other's affairs. Cooperative banks are formed from rural and urban cooperative organizations.

a. **Rural Co-operative Banks**

The nature of rural cooperative banks might be short-term or long-term. Primary agricultural societies, state cooperative banks, and district central cooperative banks are the three types of short-term cooperative banks. Long-term banks, on the other hand, are SCARDBs (State Cooperative Agricultural & Rural Development Banks)

b. **Urban Co-operative Banks**

The primary cooperative banks in urban and/or semi-urban areas are known as urban cooperative banks. Until 1996, these banks were only allowed to lend money for non-agricultural activities. This distinction is no longer valid. Communities, municipalities, and workplace groups were usually the focus of these banks. They mostly lent to small businesses and borrowers. In recent years, the Urban Cooperative Bank's area of operations has greatly grown. The origins of India's urban cooperative banking movement may be traced back to the late nineteenth century, when similar organizations were founded in India, inspired by the success of experiments associated with the British cooperative movement and the German cooperative credit movement.

2. **Commercial Bank**

A commercial bank is one that accepts deposits and extends loans as its principal business. These banks can be commercial schedules or non-commercial schedules. Individuals, businesses, and organizations can use such banks for their banking needs. They offer services such as the opening of

various types of bank accounts and the granting of business loans. In India, commercial banks often focus on short-term loans for agriculture, trade, and industry. Unlike development banks, these banks work directly with customers. Commercial banks in India include SBI, Dena Bank, HDFC Bank, etc. Public sector banks, private sector banks, foreign banks, and regional rural banks are several types of commercial banks.

a. **Public Sector Banks**

The government owns the vast majority of the shares in public sector banks. Two sorts of such institutions are nationalized banks and state banks and their subsidiaries. The central government supervises and directs the operations of nationalized banks. The functions of public sector banks are regulated and controlled by the country's government. As it sells shares in PSU banks, the central government continues to reduce its holdings. This is done to keep the government's stake in these institutions to a minimum. Some of India's public sector banks include the State Bank of India, Bank of Baroda, Canara Bank, and the Central Bank of India. SBI is one of the public sector banks, with the government owning 58.60 percent of the stock. There were 21 public sector banks formerly, however, there are now just 12 public sector banks.

b. **Private Sector Banks**

Apart from the government, private sector banks are banks in which private firms, corporations, institutions, or individuals possess the majority of the equity. These banks are controlled and managed by private promoters. Public sector banks have dominated banking in India since the government nationalized all of the major banks in 1969. Following liberalization in the 1990s, banks such as HDFC, ICICI, and others were granted authorization and are now known as new-age private sector banks. Public sector banks account for 72.9 percent of India's entire banking industry, while private banks account for the remaining. In India, there are now 21 private sector banks in operation. Private sector banks in India include Indusind Bank, HDFC Bank, Axis Bank, and others.

c. **Foreign Banks**

A foreign bank is one with its headquarters in another nation and a branch in our country. Foreign banks must abide by the laws of both their home and host countries. Most banks establish a foreign branch to meet the additional needs and requirements of their multinational business clients. Such banks must have at least Rs 5 billion in capital and must follow the Basel standard's mandated capital

adequacy requirements. These banks must maintain a minimum CRAR of 9%. In countries with high taxes and countries where multinational corporations can quickly enter the market, foreign banks are more effective. Foreign banks work through financial institutions and operate on multiple levels. In actuality, banks become a smaller group of financial entities known as 'dealers,' which are directly involved in massive amounts of foreign exchange trading. In India, there are a total of 46 foreign bank branches and 37 representative offices. HSBC Bank, Citibank, Deutsche Bank, and others are among them.

d. Regional Rural Banks (RRBs)

Under the RRB Act 1976, regional rural banks were created in 1975, following the recommendations of the Narasimha Committee. The major purpose of the RRBs is to close credit gaps and improve financial inclusion among rural people. It provides assistance to small and marginal farmers, agricultural laborers, and other rural entrepreneurs. RRBs are only supposed to function in a specific area for which they have been designated. The NABARD regulates and supervises the Regional Rural Banks. The Reserve Bank of India has granted these banks licenses under the Reserve Bank of India Act of 1934.

Three entities own the RRBs, and their shares are as follows:

- 50% share of Central Government
- 35% share by Sponsor Banks
- 15% share of State Government

In India, there are now 43 RRBs in operation. Prathama Grameen Bank was the first Regional Rural Bank. To be eligible to open a new branch, an RRB must meet the following requirements:

- There have been no defaults in the SLR and/or CRR management in the last two years.
- Profits to be made from operations
- Increased net worth
- The ratio of non-performing assets (NPAs) should not exceed 8%.

Digital Revolution In The Indian Banking Sector

The banking sector is the backbone of the Indian financial system, yet it faces various obstacles. One such force is the information technology revolution. Technology support is critical for the banking sector's successful operation in today's world. We cannot imagine the banking industry's prosperity without IT and communication; it has expanded the banking sector's role in the Indian economy. Technology is crucial in the development of a financially efficient system that can adapt to the needs of a rising economy. In the banking industry, information technology refers to the application of advanced information and communication technologies, as well as computer science, to assist banks in providing better services to their customers in a secure, reliable, and cost-effective manner, as well as maintaining a competitive advantage over other banks. The financial sector understands the value of technology because it gives institutions a competitive edge by improving customer service. In the development of the Indian economy, the banking industry plays a key role. As a result of the use of technology, penetration, production, and efficiency have all increased. It has enhanced the viability of low-value transactions as well as improved cost-effectiveness. In India, the shift from "traditional banking to convenience banking" has been significant. They are now rapidly preparing for 'digital banking.' The Indian banking sector realized the need for computerization in the late 1980s to improve customer service, bookkeeping, and management information reporting. The Reserve Bank of India established a Committee on Computerization in Banks in 1988, which was led by Dr. C. Rangarajan. Banks first began employing information technology with the development of stand-alone PCs, and then progressed to LAN connectivity. As technology advanced, banks began to use the Core Banking platform.. As a result, branch banking gave way to bank banking. As a promising move toward boosting consumer convenience through anywhere and Anytime Banking, Core Banking Solution (CBS) enabled banks to increase the comfort feature for customers. Finacle by Infosys, Bancs by TCS, and FLEXCUBE by i-flex are some of the most prominent Core Banking solutions. With the liberalization of the economy in 1991-92, the computerization process accelerated. Rising competition from private and foreign banks was a major cause of this transformation. To stay competitive and relevant in the race, a number of commercial banks have begun to move toward digital consumer services.

Banks have benefited from the use of innovative technologies in a variety of ways. E-banking has helped generate money through a variety of channels and has resulted in significant cost reductions. According to the most recent data, the cost of a bank transaction on Branch Banking is projected to be in the range of Rs.70 to Rs.75, while ATM transactions cost roughly Rs.15 to Rs.16, Online Banking costs Rs.2 or less, and Mobile Banking costs Rs.1 or less. Because of the convenience of 'Anywhere Banking,' the number of

customers has increased as well. Human error has decreased thanks to digitization. Data can be accessed and analyzed at any moment, allowing for a powerful reporting system. The Reserve Bank of India (RBI) has acted as a guide for banks in formulating regulations and providing direction to achieve various objectives. Commercial banks in India have moved towards technology through Bank Mechanization and Automation, resulting in the convenience of Anytime banking, with the introduction of MICR-based cheque processing, Electronic Funds Transfer, Inter-connectivity among bank Branches, and the implementation of ATM (Automated Teller Machine) Channel. The Reserve Bank of India has made tremendous progress in improving bank payment and settlement systems.

Technological Milestones in Indian Banks

- **MICR (Magnetic Ink Character Recognition)**
  MICR was implemented between 1986 and 1988. MICR technology was largely employed in the banking industry to speed up check processing and develop the routing number and account number at the bottom of a cheque. This allowed computers to read information from printed certificates, such as account numbers.

- **Computerization of government business.**
  Since the late 1990s, all branches of government have been using technology to accomplish their tasks in order to facilitate the computerization of government activity.

- **Commencement of Certification Authority(CA)**
  With the establishment of Certification Authority (CA) duties under the Information Technology Act of 2000, IDRBT ensured that e-banking transactions would have the necessary legal protection.

- **IDRBT (Institute for Development & Research in Banking Technology)**
  RBI organized a committee in Hyderabad in 1996 to modernize payment system technology. As a result of the committee's recommendation, IDRBT was founded.

- **IS AUDIT (information systems audit)**
  The motive is to determine the design and effectiveness of a system's internal controls, which includes security mechanisms. To ensure IS audit in banks, guidelines were created and distributed.

- **ATM"s (AUTOMATED TELLER MACHINES)**

  Enabling IT channels that improve bank customer service in areas like cash distribution through card-based transaction settlements, Automated Teller Machines (ATMs), and so on.

- **E-BANKING (INTERNET BANKING)**

  Customers of financial institutions can use e-banking to conduct secure financial transactions via the internet. A customer must register with the institution in order to have personal access to the internet, and a password will be created for customer verification.

- **RTGS (REAL TIME GROSS SETTLEMENT)**

  It is a fund transfer mechanism in which money is moved on a gross and real-time basis from one bank to another. The settlement is in "real-time" as there is no waiting period for a payment transaction. Settlement of transactions on a one-to-one basis without clustering or meshing with other transactions is referred to as "gross" settlement.

The Current State of Affairs in The Digital Space:

The Indian government is encouraging digital transactions vigorously. The National Payments Corporation of India (NPCI) has launched United Payments Interface (UPI) and Bharat Interface for Money (BHIM), which are significant leaps forward in the Payment Systems industry. UPI is a smartphone application that allows people to transfer money across accounts in different banks quickly by entering a virtual address rather than the bank account number. Today's banks strive to give their consumers a quick, accurate, and high-quality banking experience. Digitization is currently the main priority for all Indian banks. A report from the Reserve Bank of India says that in 2016-17, there were 2,22,475 automated teller machines (ATMs) and 25,29,141 point-of-sale devices (POS). Electronic payment systems including NEFT (National Electronic Fund Transfer), ECS (Electronic Clearing Service), RTGS (Real Time Gross Settlement), cheque Truncation System, Mobile Banking, Debit cards, Credit Cards, and Prepaid cards have all achieved widespread adoption in Indian banks. These are all significant milestones in the banking industry's digital transformation. Online banking has revolutionized the face of banking and resulted in significant changes in banking operations. NEFT (National Electronic Funds Transfer) is the most widely utilized electronic payment system in India for moving money from one bank to another. It works in half-hour intervals. For high-value, a "real-time" transaction, the Real-Time Gross Settlement (RTGS) method is frequently employed. The minimum amount that can be sent via RTGS is Rupees Two Lakhs. There is no limit to what

you can do. The Immediate Payment Service (IMPS) of the National Payments Corporation of India is a 24-hour electronic payments transfer system (NPCI).In recent years, the use of prepaid payment instruments (PPIs) for purchases and financial transfers has expanded significantly. PPI Cards (which include mobile prepaid instruments, gift cards, overseas travel cards, and corporate cards) and mobile wallet transactions have increased dramatically from Rs.105 billion and Rs. 82 billion in 2014-15 to Rs. 277 billion and Rs. 532 billion in 2016-17.

Risk and Challenges in IT-Based Banking

In IT-Based Banking Technology fraud in banks is the most contemporary fraud, which is now recognized as the safest method of crime because it does not result in bodily injury. In India, the computerization of banks began in 1994. The Reserve Bank of India devised a working architecture for local area networks and wide area networks by establishing distinct microwave stations in order to have safe and speedy money transactions. Computers in banks are primarily responsible for maintaining account debit-credit records, executing electronic cash transfers, operating automated teller machines, producing monthly balance sheets, and printing account statements, among other tasks. Internet banking, mobile banking, automated teller machine (ATM) service, and other utility services have all raised the risk associated with information technology. The requirement to provide a variety of electronic banking services has prompted banks to make product improvements and improve service delivery times. Banks have no time to adapt to changing technical requirements due to market competitiveness. The development of electronic channels for providing services off-site has increased their risk profile. Because it entails regular modifications of computer systems and increases reliance on vendors for system design and maintenance, electronic banking carries a high level of technological risk. Banks need to develop two websites to provide Internet service to their customers: one for publishing information of product and service, and the other for consumers to utilize to conduct business from their end. Periodic updating of service-related information, such as new product and service introductions, ruling interest rates for loans and deposits, foreign exchange rates, equity prices, and information about special schemes and facilities, is required for the publicity website. Customers can use the functioning website to conduct their financial transactions off-site. Customers can use this website to transfer funds, pay bills, check account balances, pay third parties, and trade equities and other financial products online. As a result, the usage of the network system by clients poses a significant risk to banks. The usage of debit cards, smart cards, and credit cards to conduct electronic money transactions have significantly raised the technology risk. Banks face the challenge of retaining values on both an individual card and a network level. This difficult task puts the network system's security and control at risk. Furthermore, the freedom to

move funds across a network and the use of electronic cards subject banks to the risk of money laundering by dishonest customers, which is difficult to detect. Banks could suffer significant losses as a result of the security system's vulnerability and the uncertainties surrounding legal protection.

International banking has revolted due to computers' internet capacities for transferring payments and substituting data of interest concerning banking and performing other bank operations, as well as by using different passwords and pin codes.

The following are some of the negative effects of Information Technology in Banking:

1. **ATM Frauds**

   Automated teller machines are electronic machines that are linked to banking institutions' accounts and records. Customers can do banking transactions without visiting a bank. ATMs are essentially mini-banks that allow users to withdraw cash, pay bills, deposit cash, and so on. An ATM machine is created using an access drive, such as a card, a code, such as a personal identification number, or other ways of client account access, or any combination thereof. ATM fraud can be committed by both insiders and outsiders. It is well recognized that as the number of transactions grows, so will the number of scams. Frauds can arise as a result of both the cardholder's and the bank's negligence. If the cardholder does not take precautions, he or she is putting themselves at risk. A thief could illegally obtain the card number by looking through carbons or discarded invoices. A dishonest clerk makes an impression on the charge card or credit card for his own use.

2. **Phishing**

   Phishing is at the heart of all Internet scams. Phishing is the practice of sending emails to random recipients that appear to come from a legitimate company functioning on the internet. When clients make an effort, they will be in charge of requesting information from a fake website. The crooks collect the information entered on the phony website and utilize it for their own gain.

3. **Skimming**

   Skimmers, a swipe-card device that reads the information on a consumer's ATM card, are used by fraudsters to create fraudulent ATM cards. Scammers use an ATM to steal information from unsuspecting clients. They take a blank card and, by placing it into an ATM, they are able to encode all of the information. The skimmer then captures the PIN using a tiny camera positioned on the ATM

4. **Spoofing**

The intruder creates a deceptive environment that leads you to make a security-inappropriate decision. False ATM machines, for example, have been set up. They will have enough data to steal from the account if they have the PIN code.

5. **Credit Card Frauds**

A Polyvinyl chloride sheet is used to make credit cards. Core stock is the innermost layer of a credit card. Personal information is stamped on it, and the cards are all the same size. Credit card fraudsters take credit cards from banks, customers, and merchants. Credit card fraud occurs in a variety of ways, including:

- Authentic cards are warped.
- Forged cards are created.
- Credit cards are used in duplicitous telemarketing,
- Forged cards are used on duplicitous applications using other people's addresses and names.

People are concerned that as e-commerce and internet services become more widely available, credit card fraud will skyrocket..

6. **Operational-Transactional Risk**

The impact of fraud, abandonment, error and the failure to maintain expected service levels on capital and earnings is known as transactional risk, also known as IT or security risk. Predicting and managing the amount that the banks wish to obtain is one of the major issues that banks face in the internet economy. Certain elements, such as the structure and complexity of banking products, the types of services supplied, and the difficulty of comprehending and implementing new technology will raise operational risk, particularly when institutions promote innovative services that are not yet standardized.

7. **Financial Literacy / Customer Awareness**

In India, the main stumbling block is people's lack of understanding on how to use e-banking services.

8. **Fear factor**

One of the most significant barriers to online banking is the older generation's and, in particular, those from rural areas' preference for traditional banking methods. The worry of losing money when transacting online is a deterrent to using e-banking.

9. **Lack of Training**

Employees' inability to deal with innovative and evolving technology in banks is hampered by a lack of suitable knowledge and skills. For banks, training at all levels on evolving IT trends is a must of the day.

10. **Credit Risk**

Credit risk refers to a customer's failure to meet his financial obligations. Customers can apply for credit or praise from anywhere in the world using internet banking. When a consumer makes a payment through the internet, banks find it extremely difficult to authenticate the customer's identity. Verifying assurances and, if the person is in another nation, different dominion procedures may pose problems in the event of a conflict.

11. **Information Security Risk**

The risk of insider attacks or malicious hackers, denial-of-service attacks, viruses, data theft, fraud, and data destruction has a negative impact on capital arising and earnings from information security processes, revealing the institution about insider attacks or malicious hackers, denial-of-service attacks, viruses, data theft, fraud, and data destruction. The most sensitive computer systems are used to store highly private information and make high-value payments, both of which require the most stringent security. Viruses, anti-virus software, and security systems all require constant updating.

Transformation of Banking System in India

Indian banking has seen a major transformation in the recent decade. Going from a manual, scale-constrained environment to a technologically leading position has been a miracle. Such a transformation occurs in such a short amount of time and at such a low cost. The introduction of technology into the Indian banking business began in the 1990s, when the banking sector was subjected to a slew of liberalization initiatives. One of the main goals of the Indian banking sector reforms was to promote operational self-sufficiency, flexibility, and competitiveness in the system, as well as to bring Indian banking standards up to international norms. With the relaxation of license requirements, numerous private and international banks with cutting-edge technology have arisen. Deregulation has given banks new avenues to diversify their revenue streams, such as investment banking, insurance, credit cards, mortgage financing, and depository services. Banking's position has shifted from that of a financial supermarket that provides a wide range of financial services under one roof to that of a financial supermarket-style service provider.

Latest IT Trends In Indian Banking System

The banking business is undergoing significant transformation in order to keep up with competitiveness, technological hurdles, and end-user demand. Technology is unquestionably a critical difference in bank performance. Banks must consider product and process innovation in addition to product innovation. Not just the environment, but also the client relationship, is changing as a result of technological advancements. Technology has not only broken down barriers, but it has also resulted in better products and distribution channels. This has emphasized the importance of the client relationship. It's also viewed as a cost-cutting tool and a means of successfully communicating with people in the banking industry. The Reserve Bank of India's top priority is to modernize the banking sector's IT infrastructure. Technology has provided the banking business with new goods and services, as well as new markets and more efficient delivery routes. IT also gives the banking industry the structure it needs to handle the difficulties of today's competitive climate. International fund transfers can be made at a lower cost with the help of technology.

The following are some of the most recent IT devices used in banking:

1. **Electronic Payment and Settlement System**

   The Payment and Settlement Systems Act, 2007 (PSS Act) was passed in December 2007 and is supervised by the Reserve Bank of India and the Board for Regulation and Supervision of Payment and Settlement Systems. The Reserve Bank of India is attempting to encourage alternative payment methods that will increase the security and efficiency of the payment system while also making the process easier for banks. The most common form of receipt and payment through banks is negotiable instruments such as cheque. In the future, these devices may be used as a method of payment. Clearinghouse systems could be used to process interbank checks. Initially, the clearing method was performed manually, but as the number of financial transactions increased, it became necessary to automate it.

2. **Electronic Clearing Services (ECS)**

   The Electronic Clearing Mechanism (ECS) is a system that allows you to move money from one bank account to another electronically. It is commonly used by institutions to make large-scale payments such as dividends, interest, salaries, and pensions. ECS can also be used to pay bills and other costs, such as payments to utility companies like phones, electricity, and water, or equated monthly installment payments on loans and SIP. In India, the ECS was the earliest form of

"Electronic Payments." It is a type of electronic money transfer that uses the clearinghouse process to transfer funds from one bank account to another. It comes in handy when making large payments from one account to multiple accounts or vice versa. The beneficiary must maintain a bank account with the ECS Center's bank.

Electronic Clearing System comes in two varieties:

- Electronic Clearing System Credit clearing is used for transactions such as salary, dividend, pension, and interest payments, and operates on the idea of "one debit many credits."
- Electronic Clearing System debit clearing service, which works on the idea of "single credit multiple debits," is used by utility companies to collect energy bills, phone bills, and other charges, as well as banks, to collect principal and interest repayments.

3. **CTS (Cheque Truncation System)**

The Cheque Truncation System (CTS) is a method of clearing cheques electronically rather than having the presenting bank process the actual cheque as it travels to the paying bank branch. The Reserve Bank of India (RBI) has taken this move to expedite check clearance. Truncation refers to the process of a drawer's physical cheques being sent to the drawee branch being stopped. The actual instrument is truncated at some point on its trip to the drawee bank, and an electronic image of the check is delivered to the drawee branch, including important information such as MICR fields. The date of the presentation, the banks that will be presenting, and so on. Except in exceptional circumstances, this would eliminate the need to move physical instruments between branches, resulting in a significant reduction in the time required for cheque payment, associated transit costs, processing delays, and so on, thus speeding up the cheque collection or realization process.

4. **Use of MICR Technology**

Magnetic ink character recognition (MICR) is a check identification and processing method. On a check, the MICR is the string of characters in the bottom left corner. The three groups of numbers include the bank routing number, account number, and check number. A nine-character routing number, a 12-character account number, and a four-character cheque number are all part of the MICR. A magnetic ink character recognition line is a print technique that allows a machine to read, process, and record information. MICR gets around the requirement of clearing checks during business hours, allowing clients to get credit quickly. These are machine-readable codes applied to the bottom of every check leaf to aid in the sorting of cheques by bank and branch so that they may

be delivered quickly to the banks on which they are drawn. Although this aided in the speeding up of the clearing process, physical delivery of checks continued despite the partial automation.

5. **Electronic Fund Transfer**

Electronic funds transfer (EFT) is the electronic movement of funds from one bank account to another, either within a single financial institution or across numerous institutions, using computer-based systems and without the involvement of bank personnel. EFT was a nationwide electronic funds transfer system that allowed banks to send money to each other's networked branches. The Indian Financial Network's Structured Financial Messaging Solution (SFMS) was integrated with NEFT (INFINET). The NEFT uses SFMS to create and transmit EFT messages from the branch to the bank's gateway and to the NEFT Center, significantly improving the security of financial transfers.

6. **Real-Time Gross Settlement (RTGS)**

The term "real-time gross settlement" (RTGS) describes a fund transfer mechanism that allows money and/or securities to be sent in real time. The real-time gross settlement system (RTGS) is a continuous method of settling payments on a per-order basis without netting debits and credits across a central bank's books. Real-time gross settlement payments are final and irrevocable once finished. In most countries, central banks control and run the systems. A funds transfer takes place in the RTGS system from one bank to another in real-time and on a 'gross basis.' This is the quickest way to move money through the banking system. Payment transactions are settled in real-time,' which implies there is no waiting period. A transaction that is settled on a one-to-one basis without being bundled with other transactions is referred to as "gross settlement."

7. **Core Banking Solutions (CBS)**

Customers may monitor their accounts and use numerous banking services from anywhere in the world due to the Core Banking Solution (CBS), which connects bank branches. To put it another way, you don't need to go to your local branch to conduct banking transactions. You can do it at any time and from any location. You can use any CBS-affiliated bank branch to get banking services, regardless of where you originally created your account. The digitalization of bank branches had a positive impact and began with the installation of modest computers to automate the operation of branches, particularly those with significant traffic. The CBS network allows for centralized data management and facilitates the adoption of online and mobile banking. Furthermore, CBS aids in the consolidation of bank operations onto a single technology platform.

8. **Automated Teller Machine (ATM)**

An automated teller machine (ATM) is a digital banking terminal that enables consumers to carry out simple operations without the help of a bank or branch staff. At most ATMs, anybody with a credit or debit card can get cash. Customers can execute self-service operations such as deposits, withdrawals, bill payments, and account transfers at ATMs, which are handy. ATMs are the most revolutionary aspect of virtual banking. ATMs are accessed using plastic cards with magnetic strips that store information on the customer as well as the bank. ATMs are by far the most helpful tool in today's society for ensuring the concept of "Any Time Banking" and "Anywhere Banking."

9. **Phone Banking**

Customers can now call the bank's allocated phone number and connect to the bank's computer by calling their ID number. Customers can conduct all non-cash banking transactions over the phone by using an automatic voice recorder (AVR) for simple questions and transactions and manned phone terminals for more difficult inquiries and transactions: Anytime and Anywhere.

10. **Internet Banking**

Customers can conduct banking transactions via the bank's site on the internet using internet banking. It is an IT-based system for accessing accounts and basic information about bank products and services either at work or at home. This is also referred to as virtual banking. Anyone with an active bank account or who works for a financial institution who has registered for online banking at the bank can use it. When a customer registers for online banking, he or she eliminates the need to visit a branch every time he or she needs financial services. It is not only practical, but it is also a secure method of banking. Net banking portals are secured using consumer IDs and passwords.

11. **Tele Banking**

Telephone banking is a service provided by a bank or financial institution that allows customers to execute a range of financial activities over the phone without having to visit a bank branch or ATM. In the 1980s, commercial telephone banking became available, with Girobank in the UK becoming the first to do so in 1984 with the debut of a specialized telephone banking service. It's yet another advancement that allows clients to bank at any time of day or night, seven days a week. Telebanking is based on the ability of bank computers to process voice messages. The caller is typically a consumer who phones the bank at any time to inquire about his account balance or other transaction histories.

12. Mobile Banking

The mobile banking service is an extension of the internet banking service. The mobile banking service of a bank or other financial institution allows users to conduct banking transactions remotely using a mobile device. Unlike linked internet banking, it relies on software provided by the financial institution, which is frequently referred to as an App. Mobile banking is frequently accessible around the clock, seven days a week. Some financial organizations place limits on which accounts can be accessed via mobile banking, and also the amounts that can be transacted. Account balances and transaction listings can be obtained via mobile banking, as well as electronic bill payments and fund transfers between a customer's and another account. In today's digital age, mobile banking is highly handy, with several banks offering remarkable apps. People utilize mobile banking for a variety of reasons, including the flexibility to deposit checks, pay for items, send money to a buddy, and locate an ATM quickly. Having a secure network before entering into a mobile banking app, on the other hand, is critical; otherwise, a client's personal information may be exposed.

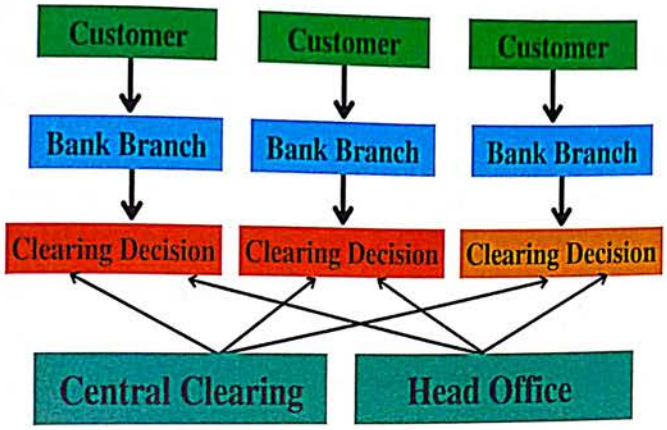
Impact of Information Technology on banks:

The most evident impact of technology may be seen in how banks respond strategically in order to make optimal use of it for efficient service delivery. The following is a summary of the impact on service quality:

Impact on Banking System:

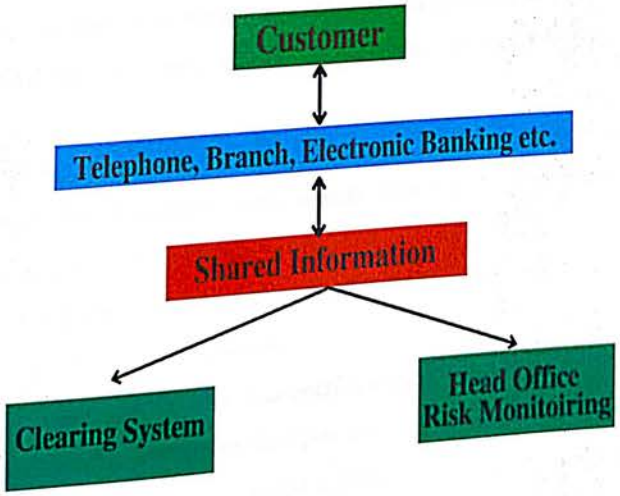
Traditional banking is gradually giving way to relationship banking in the banking industry. The bank's contact with its customers has traditionally been one-to-one through the branch network. Clearing and decision-making tasks were focused at the branch level when this was implemented. The head office was responsible for the overall clearing network, the branch network's size, and the branch network's employee training. The bank kept a record of the performance of the company and set decision-making rules, but branch staff and customers only had access to information from a single geographic location.

Traditional Banking Sector



The modern banking system can no longer rely solely on its branch network. Customers are increasingly seeking new, more efficient delivery systems, and services such as Internet banking fulfill this need. They provide basic banking services as well as much easier access to account information and the bank's numerous other services. Banks must establish account information layers that are available to both bank personnel and clients in order to achieve this. The utilization of interactive electronic links through the Internet could go a long way toward giving consumers more information about their personal financial status as well as the bank's services.

New Relationship Oriented Bank



Impact on the Service Quality:

- Service is no longer just a marketing advantage for huge banks, due to automation. By integrating IT into their operations, small and relatively new banks with a minimal network of branches become better positioned to compete with established banks.

- Some financial services have become commoditized as a result of technological advancements. As a result, banks cannot take a long-term connection with their consumers for granted, and they must work hard to maintain that relationship and maintain customer loyalty.

- On the one hand, technology is a tremendous instrument for customer service, but it also leads to the depersonalization of banking services.

- Banks must automate regular client questions through self-service channels in order to cut service delivery costs. To do so, they must invest in contact centers, kiosks, ATMs, and Internet Banking. Customer-centric businesses today demand IT infrastructure that is linked with their business strategy.

Impact on Privacy and Confidentiality of Data:

Data that was formerly saved on computers is now shown as needed via internet banking, mobile banking, ATMs, and other means. As a result of this, challenges of data privacy and confidentiality have arisen:

- The computer's data processing skills, notably its high throughput, integration, and retrieval capabilities, have led to concerns among individuals about whether their privacy is being undermined.
- Everything appears to be in order as long as individual data pieces are only accessible to individuals directly involved, but the frequency with which data is cross-referenced to construct detailed individual dossiers raises privacy concerns.
- Customers are concerned about the banks' lack of privacy when it comes to their transactions, and they look at electronic methods with suspicion.

Apart from any constitutional implications, many countries regard privacy as a human right, and believe it is the responsibility of those involved in computer data processing to ensure that computer use does not evolve to the point where various data about people can be collected, integrated, and retrieved quickly. Another critical duty is to ensure that the data is only used for the reason intended.

Pros & Cons of Information Technology in Banking

Today many banking services are now available online. Bill payment, payment transfer, and account statement reading are just a few of the possibilities accessible. Banks also use the internet to distribute their most recent products and services. Internet banking is done with the help of a computer or other device that can connect to the bank's website. Using a Wi-Fi or 3G connection, we can now access internet banking on our mobile phones. Online banking has grown in popularity in India and China due to the widespread availability of cyber cafés and mobile phones. To deposit or withdraw money, request an account statement, or stop payment, we no longer need to go to the bank in person. We may complete all of these chores, as well as many others, utilizing the banks' online services. We may also maintain a constant eye on our account's transactions and balance. We don't need to get your passbooks updated to know how much money we have in your account. While there are numerous advantages to IT-Based Banking, there are also some disadvantages.

Let's look at some of the benefits and drawbacks of internet banking.

Pros of Information Technology In Banking	Cons of Information Technology In Banking
Digitalization in banking makes it easier to open and manage a bank account.	At first, understanding how to use internet banking may be tough. However, some websites provide a demonstration of how to access online accounts (not all banks offer this). As a result, someone who is new to technology may have some difficulties.
It's convenient since you can pay bills and move money between accounts from almost anywhere on the globe.	If you don't have access to the internet, you won't be able to use online banking; consequently, it may not be beneficial if you don't have access to the internet.
It is accessible at all times. You can do your activities from anywhere and at any time, even if the bank is closed at night or on holiday. The only need is that you have internet access.	The use of a password is required. Change and memorize your password after you've received it. Your account could be hacked if you don't do so.
You do not need to wait in line to pay your bills. You also don't need to maintain all of your bills' receipts because you can now simply view your transactions.	The safety of transactions is a major concern. Unauthorized parties may gain access to your account information via the internet.
You can always keep track of your transactions and account balance.	You won't be able to access your accounts if the bank's server is down.

ROLE OF INFORMATION TECHNOLOGY IN BANKS DURING COVID-19

In recent years, the implementation of innovative digital technologies in banking has increased significantly, and the global COVID-19 pandemic has expedited the usage of digital technology much more. This was due to a rise in online banking in traditional banks, not merely because of those who had to work from home or because of an increase in e-government and e-commerce. Banks had a difficult year in 2020. Not only did banks' revenue fall as a result of the economic slowdown, but they also had to adjust their operations and information technology solutions fast to comply with pandemic-related regulations. Banks had to increase the number of online self-service alternatives available to clients while also ensuring that new customer features were not compromised. Last but not least, banks required their clients to be adaptable to these developments. All of this was only feasible because information technology was present in the banking sector. The adoption of information technology by banks helped people maintain their life cycles and supported no-contact banking. Information technology was vital in keeping the economy functioning and preventing the world from crumbling during the COVID-19 pandemic.

RESEARCH METHODOLOGY

OBJECTIVES:

- To assess the use of information technology and its benefits in the Indian banking sector.
- To determine whether the customers prefer traditional banking or IT-based banking.
- To evaluate whether an IT-based banking system is a boon to the Indian banking system.
- To study banking innovation and expansion after the implementation of information technology in the banking system.
- To investigate how an IT-based banking system enabled in the defense against the covid-19 Virus.

SCOPE OF STUDY:

- This research focuses on the role of information technology in the banking sector and whether customers prefer IT-based banking systems over traditional banking systems.
- This research will aid in determining how the introduction of information technology in the banking sector helped its growth and survival.
- This study helps us understand how convenient and quick e-banking services are and how technological innovation and implementation have increased customer service, satisfaction and reduced costs in the banking sector of India.
- It also explains the risks and challenges involved in using an IT-based banking system.
- This research also explains how the computerized banking system has been a boon to the economy in the COVID-19 pandemic era.
- In addition to this, the respondents of this research were randomly selected from those who have a business, those who are serving organizations, and also students who are using various IT-based products and services, and what their opinions are regarding the digitized banking system.

LIMITATIONS:

- Due to time constraints, all banking customers could not be covered.
- The majority of the respondents were young and could not get a lot of perception of the elderly.
- The sample size and the geographical area covered were small because of the non-availability of funds.

SIGNIFICANCE OF STUDY

This research relates to the role of information technology in the Indian banking sector. This study will highlight various e-banking products that are used in the banking industry and how they make the customers' and the service providers' jobs easier. This survey can help to answer the queries and concerns of those using IT-based banking products and services. Client delight is the only way to attract and retain customers, and this survey will help you identify the areas that need to be addressed. This will also draw attention to areas of concern, such as data security, privacy, and secrecy, misleading data, and the occurrence of fraud, all of which must be addressed in order to earn customers' trust. This study will also assist in increasing public awareness of the different IT-based banking services available to them. This research also tells us about the benefits that are enjoyed by the customers as well as the banks after the introduction of IT in the banking industry. Hence, this research on the role of information technology in the Indian banking sector will help lay the grounds for improvement of the technology, create more customers, and help satisfy the consumer's needs and expectations.

RESEARCH METHODS:

UNIVERSITY	Mumbai
SOURCES OF DATA COLLECTION	Primary and Secondary Data
METHOD OF PRIMARY DATA COLLECTION	Questionnaire
METHOD OF SAMPLING	Simple Random Sampling / Convenience Sampling
NO. OF RESPONDENTS	148
NO. OF QUESTIONS IN THE QUESTIONNAIRE	
METHOD OF ANALYZING PRIMARY DATA	Google Form Analysis
METHOD OF SECONDARY DATA COLLECTION	Journals, E-Papers, Articles, Research Papers

REVIEW OF LITERATURE

KPMG, "Technology enabled transformation in Banking", The Economic Times Banking Technology, Conclave 2011:

The research suggests that information technology is rapidly evolving and it has been a boon to the banking sector. Information technology has the potential to change the dynamics of banking in the next few years, from enabling banking services to enabling industry revolution. In the Indian banking market, new entrants are aiming to capitalize on their current strengths. The possibility open to these newcomers, by utilizing their knowledge of the technology and marketplaces in which they operate, promises novel business models centered on delivering client value. Over the next four years, the pace of change, backed by regulatory directives, will force banks to shift their strategy to a customer-centric orientation.

Dr. Kanhaiya Singh, Dr. U. S. Pandey, Priya Gupta (2011)

In this research paper they recognize that the technological development in the Indian banking sector and the use of its products examines how transformation is influencing the banking sector and how IT-based products and services have changed the nature of banking in India. It describes the current state of the banking business, as well as the factors that have caused changes in the industry and how these changes have influenced banking development. This article concludes that the financial market has shifted from a seller's market to a buyer's market. Banks have evolved into one-stop supermarkets. Their focus has switched from mass banking to class banking as a result of the introduction of value-added and perfectly suited products and services.

Prabhakar Rao, (Jan, 2004). —Indian banking in 2010

In his research, he explored the dramatic changes that have occurred in the global financial industry. Net worked branches, he stated. The Indian banking sector has been transformed by ATMs, technology-based payment and settlement systems, RBI's technological vision, and floating interest rates. He came to the conclusion that bank branches will become obsolete, and clients will be able to manage their accounts using electronic devices.

Dr. Leela Kumari V, B. Suresh Kumar, "Role of Information Technology in Banking Sector: A Review" (2018)

In this research they have concluded that Indian public sector banks, which account for roughly 75% of the market, have taken the lead in the field of information technology. There is a high level of IT awareness and appreciation. What's required is a "big push," similar to how expansionary operations were boosted after nationalization. The banking sector now has access to immense potential and a plethora of new prospects thanks to information technology. It provides clients with services that are cost-effective, timely, and methodical. IT in banks provides advanced product development, reliable risk management approaches, system transparency and helps the banking sector access geographically distant and diverse markets. Information Technology and communication networking technologies have an impact on the finance, capital, and forex markets. Banks need to have a clear strategy that is driven top-down and must implement rigorous rules, processes, and controls to ensure good risk management in IT-based banking operations. Policymakers and administrators must regularly assess the current framework and make any required adjustments.

Dr.Satish Tanaji Bhosale and Dr. B.S. Sawant (2011)

This research highlights technological advancement in the Indian Banking Sector and looks at the banking sector's importance in the country's economic development. As a result, banks may use technology to boost penetration, raise productivity and efficiency, supply cost-effective products and services, and provide faster, more efficient, and convenient customer service, all while contributing to the country's overall growth and development. Greater penetration of the financial system, better cost-effectiveness, and the possibility of small-value transactions are all made possible by technology. It maintains the viability and profitability of providers while also making banking products and services more inexpensive and accessible.

Shastri R.V, (March, 2003) "Recent trends in Banking Industry IT emergence

In his article stated that, liberalization policies and fierce competition keep every banker on their toes. The use of information technology (IT) aids in the keeping of accurate records, particularly in the decision-making process. He also noted that conveniences such as ATMs, anywhere banking, the Internet, and mobile banking have imported client service, resulting in improved customer relations management. He also discussed the obstacles that banks face as a result of IT deployments, such as employment issues and security concerns. He proposed that the fundamental purpose of all future IT endeavors should be to please customers.

DATA ANALYSIS, INTERPRETATION, AND PRESENTATION

The data gathered by the researcher from numerous respondents was assessed in order to draw findings and provide recommendations.

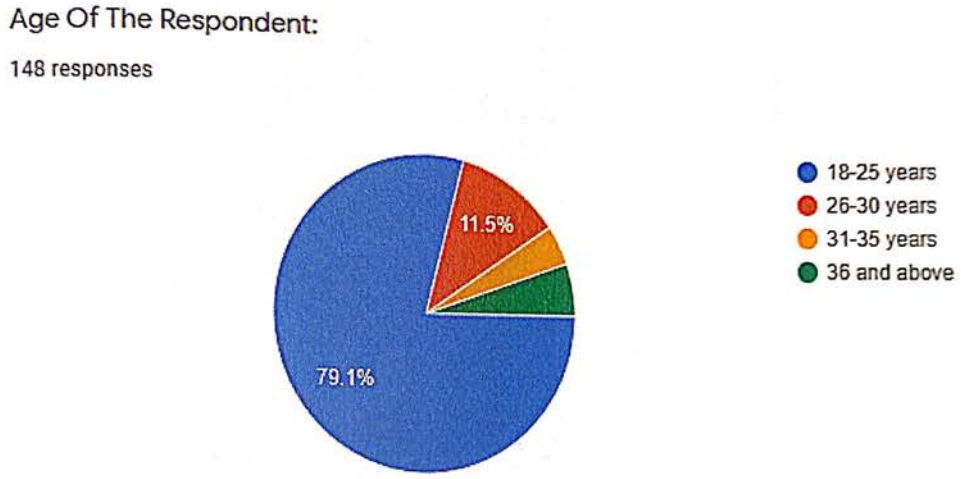
The obtained data has been analyzed and interpreted in this chapter to better understand the respondents' perceptions about the role of information technology in the Indian banking sector.

The information gathered has been organized into tables and can be analyzed using pie charts and bar graphs.

The data collected resulted in the creation of 16 charts in all. The following is a quick description of the analysis and interpretation.

CLASSIFICATION OF RESPONDENTS ON THE BASIS OF AGE

SR.NO	AGE	NO. OF RESPONDENTS	PERCENTAGE
1.	18-25 years	117	79.1
2.	26-30 years	17	11.5
3.	31-35 years	6	4.1
4.	36 and above	8	5.4
	TOTAL	**148**	**100%**



THE ABOVE PIE CHART REPRESENTS THE AGE OF THE RESPONDENTS

The age of a person helps to establish their level of knowledge, work experience, and exposure, all of which differ due to differing perspectives on various areas of the Computerization of Banking. The age profile characteristics were separated into six groups, ranging from 18 to 25, 26 to 30, 31 to 35, and 36 and up.

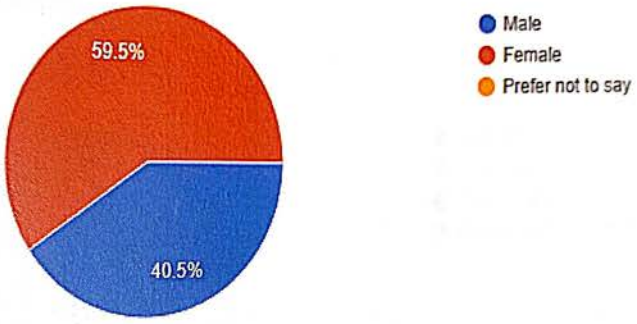
From the graph above, it can be seen that the majority of respondents are between the ages of 18 and 25, accounting for 79.1% of all respondents. As a result, it was possible to conclude that the majority of respondents come from the younger, more socially involved generation.

CLASSIFICATION OF RESPONDENTS ON THE BASIS OF GENDER

SR.NO	GENDER	NO. OF RESPONDENTS	PERCENTAGE
1.	Male	60	40.5%
2.	Female	88	59.5%
	TOTAL	**148**	**100%**

Gender Of The Respondent:

148 responses



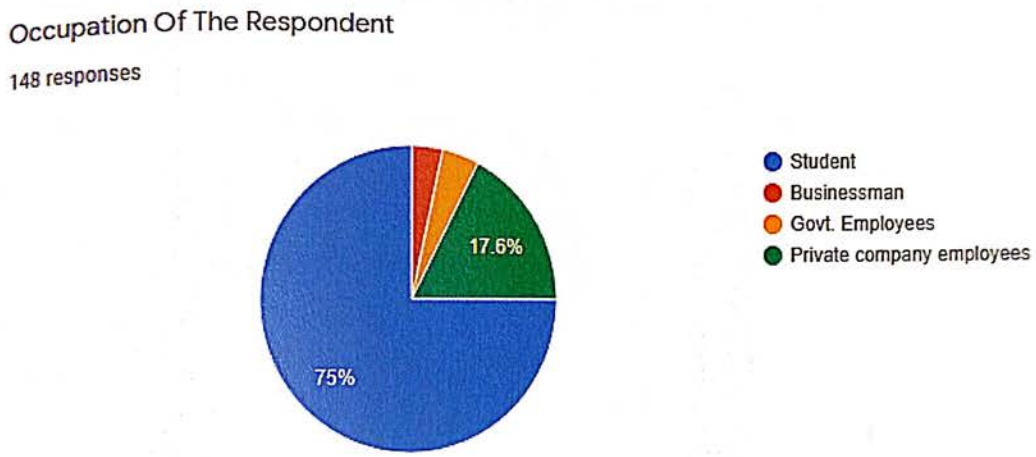
THE ABOVE PIE CHART REPRESENTS THE GENDER OF THE RESPONDENTS

In this study, one of the profiles is the gender of the respondents. To learn about respondents perspective on Role of Information Technology in Indian Banking Sector

It can be seen from the pie chart that the number of female respondents is greater than the number of male respondents. Male respondents account for 60 of the total number of respondents, while female respondents account for 88.

CLASSIFICATION OF RESPONDENTS ON THE BASIS OF OCCUPATION

SR.NO	OCCUPATION	NO. OF RESPONDENTS	PERCENTAGE
1.	Student	111	75%
2.	Businessman	5	3.4%
3.	Govt. Employees	6	4.1%
4.	Private company employees	26	17.6%
	TOTAL	**148**	**100%**



THE ABOVE FIGURE SHOWS THE DIVISION OF THE RESPONDENTS ON THE BASIS OF THEIR OCCUPATION

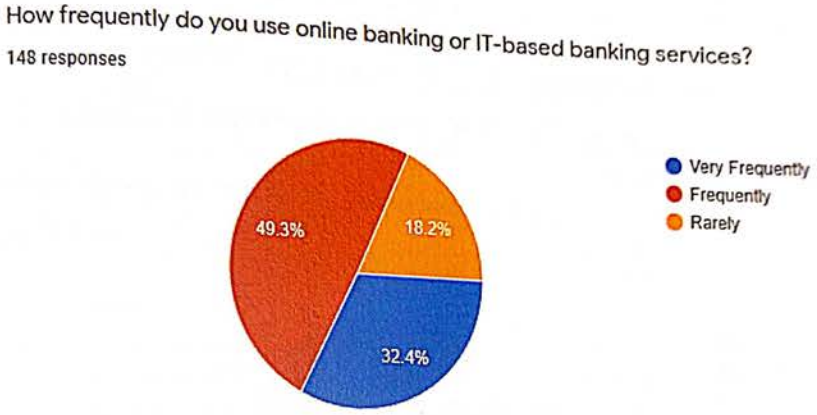
The occupation of the respondents is depicted in the pie chart above. This is a crucial factor in dividing the population into small groups and determining which group uses more IT-based banking goods and services. The occupation graph has been separated into four categories:

Student, Businessman, Government employees, and Private Company Employees.

The majority of the respondents are students, accounting for 75% of the total respondents, followed by businessmen, who account for 3.4% of the total respondents, government employees, who account for 4.1% of the total respondents, and finally private company employees, who account for 17.6% of the total respondents.

CLASSIFICATION OF THE RESPONDENTS ON THE BASIS OF FREQUENCY OF USING ONLINE BANKING OR IT-BASED BANKING SERVICES

SR.NO	FREQUENCY OF USING IT-BASED BANKING SERVICES	NO. OF RESPONDENTS	PERCENTAGE
1.	Very Frequently	48	32.4%
2.	Frequently	73	49.3%
3.	Rarely	27	18.2%
	TOTAL	**148**	**100%**



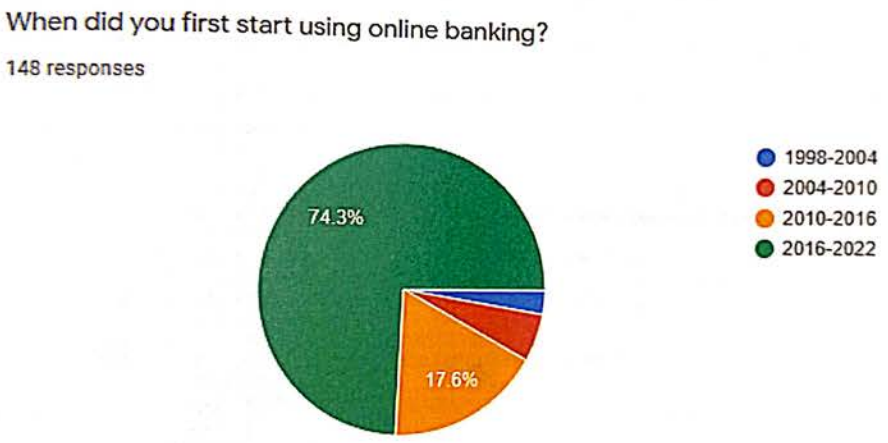
THE ABOVE PIE CHART REPRESENTS THE RESPONDENTS' CLASSIFICATION BASED ON THEIR FREQUENCY OF USING ONLINE BANKING OR IT-BASED BANKING SERVICES.

The graph depicts the respondents' segmentation based on how often they use online or IT-based banking services. The frequency graph is divided into three sections: Very frequently, frequently, and rarely. The frequency with which respondents engage in online or IT-based banking activities indicates how many individuals utilize IT-based banking services and how many have adopted the online banking method for conducting banking transactions. This would assist banks in determining the amount of customers who prefer digitized banking over traditional banking services. According to the research, the majority of the respondents fall into the frequent user category, accounting for 49.3 % respondents. Similarly, 32.4 percent of respondents use IT-based banking services Very Frequently, while the remaining respondents use IT-based banking services Rarely.

CLASSIFICATION OF RESPONDENTS BASED ON WHEN THEY FIRST STARTED USING ONLINE BANKING

SR.NO	Years	NO. OF RESPONDENTS	PERCENTAGE
1.	1998-2004	4	2.7%
2.	2004-2010	8	5.4%
3.	2010-2016	26	17.6%
4.	2016-2022	110	74.3%
	TOTAL	**148**	**100%**

THE ABOVE PIE CHART REPRESENTS THE RESPONDENTS' CLASSIFICATION BASED ON WHEN THEY FIRST BEGAN USING ONLINE BANKING.

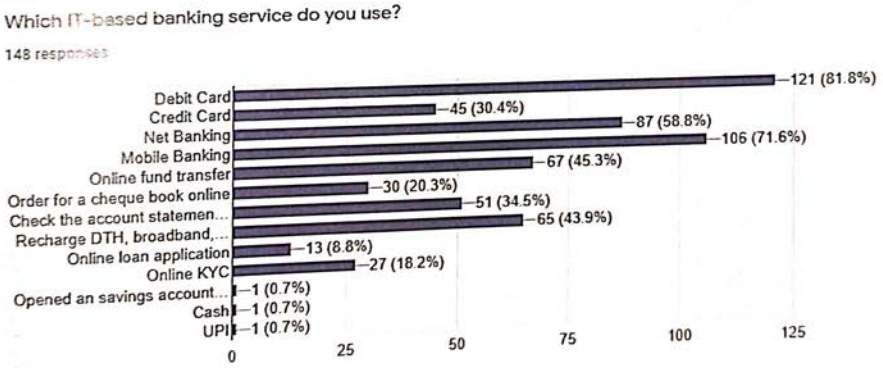


The pie chart above signifies the year that respondents began using IT-based banking services. The years were classified in four groups: Years- 1998-2004, 2005-2010, 2011-2016, and 2017-2022.

It can be seen that 110 of the 148 respondents began using online banking products and services between 2016 and 2022, followed by 26 respondents who began using it between 2010 and 2016. Whereas 8 respondents started using online banking services between 2004 and 2010, and perhaps another 4 respondents began using it from 1998 to 2004.

CLASSIFICATION BASED ON IT-BASED BANKING SERVICES USED BY THE RESPONDENTS

SR.NO	SERVICES USED	NO. OF RESPONDENTS	PERCENTAGE
1.	Debit Card	121	81.8%
2.	Credit Card	45	30.4%
3.	Net Banking	87	58.8%
4.	Mobile Banking	106	71.6%
5.	Online fund transfer	67	45.3%
6.	Order for a cheque book online	30	20.3%
7.	Check the account statement online	51	34.5%
8.	Recharge DTH, broadband, mobile, etc.	65	43.9%
9.	Online loan application	13	8.8%
10.	Online KYC	27	18.2%
11.	Other	3	2.1%

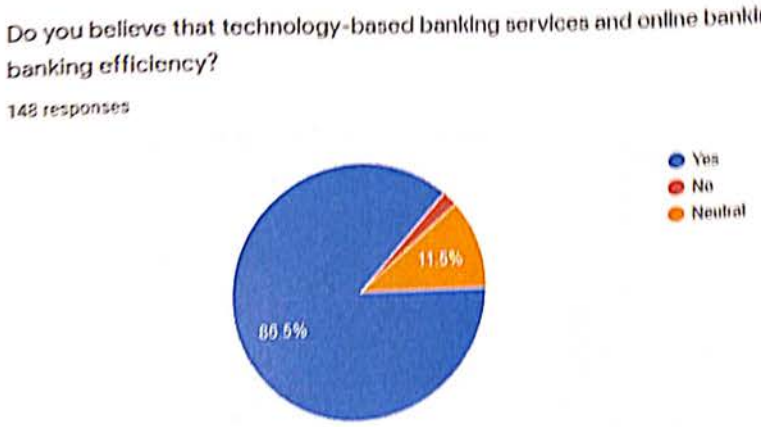


THE ABOVE BAR CHART REPRESENTS THE RESPONDENTS' FREQUENTLY USED ONLINE BANKING SERVICES.

Banks offer a variety of IT-based services, including Debit Card, Credit Card, Net Banking, Mobile Banking, Online Fund Transfer, Recharge DTH, broadband, and mobile, among others. When asked what online banking services they use on a regular basis, respondents were given a variety of options. The most widely used online banking service is debit card, followed by mobile banking, net banking, and so on. This indicates that the respondents commonly utilize debit card services.

CLASSIFICATION OF RESPONDENTS BASED ON THEIR PERCEPTION OF TECHNOLOGY-BASED BANKING SERVICES HAS INCREASED BANKING EFFICIENCY.

SR.NO	TECHNOLOGY-BASED BANKING SERVICES HAS INCREASED BANKING EFFICIENCY	NO. OF RESPONDENTS	PERCENTAGE
1.	Yes	128	86.5%
2.	No	3	2%
3.	Neutral	17	11.5%
	TOTAL	**148**	**100%**



THE ABOVE PIE CHART DEPICTS RESPONDENTS' OPINIONS THAT TECHNOLOGY-BASED BANKING SERVICES HAVE INCREASED BANK EFFICIENCY.

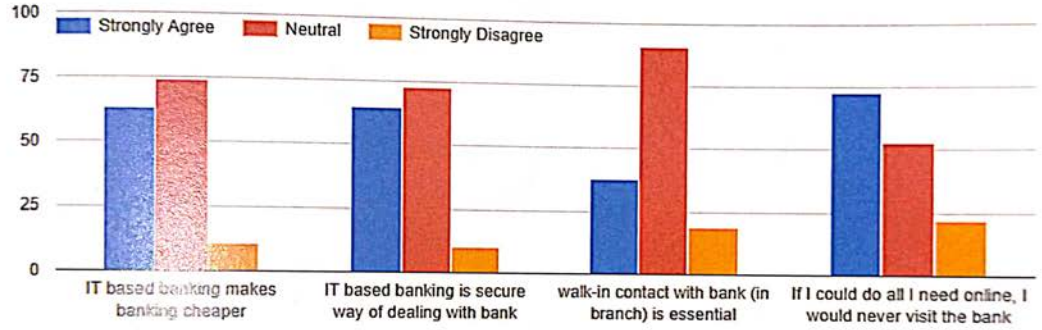
The pie chart above shows whether respondents believe that technologically-based banking services and online banking have improved banking efficiency. The graph is split into three sections: Yes, No, and Neutral.

This graph helps us understand the respondents' perspectives on technology-based banking services, as well as whether they believe technology-based banking services have a future. 128 of the 148 respondents believe that technologically-based banking services have boosted banking efficiency, whereas 3 do not agree with the same and 17 respondents are not sure whether such technological-based banking service has increased banking efficiency.

CLASSIFICATION OF RESPONDENTS BASED ON THEIR VIEW ON IT-BASED BANKING SERVICES

SR.NO	VIEW ON IT-BASED BANKING SERVICES	NO. OF RESPONDENTS			
		IT based banking makes banking cheaper	IT-based banking is secure way of dealing with bank	walk-in contact with bank (inbranch) is essential	If I could do all I need online, I would never visit the bank
1.	Strongly Agree	63	65	38	73
2.	Neutral	74	73	91	53
3.	Strongly Disagree	11	10	19	22

Please state whether you agree or not with the following statements

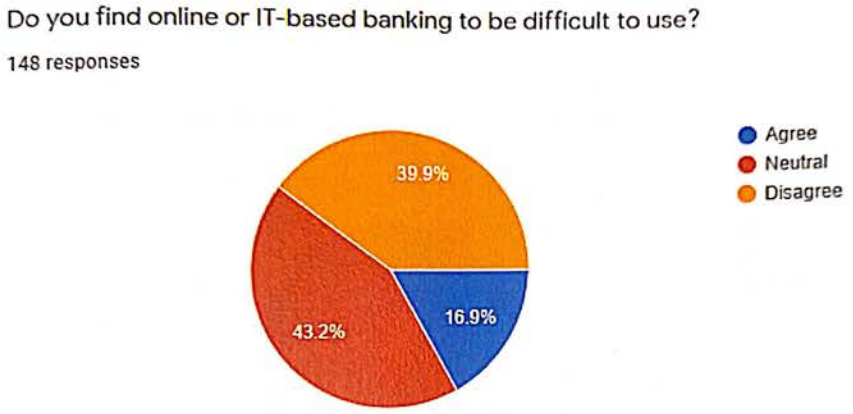


THE ABOVE BAR GRAPH SHOWS THE RESPONDENTS PERCEPTION ON IT-BASED BANKING SERVICES.

The graph above shows how respondents feel about various aspects of the IT-based banking system. The graph is divided into three sections namely Strongly Agree, Neutral and Strongly Disagree. According to the analyzed data, 63 respondents believe that IT-based banking makes banking more affordable, whereas 11 respondents disagree, and the majority of the respondents, 74, have a mixed perspective. When asked whether IT-based banking is a secure means of working with banks, the majority of the respondents, 73, had a neutral opinion, while 65 agreed and 10 disagreed. A total of 91 respondents are undecided on whether face-to-face contact with a bank (at a branch) is necessary, while 38 agree and 19 disagree. When asked if they could accomplish everything they needed online, they would never go to the bank, 73 percent strongly agreed, 53 percent had a mixed attitude, and 22 percent strongly disagreed.

CLASSIFICATION OF RESPONDENTS BASED ON WHETHER THEY FIND ONLINE OR IT-BASED BANKING DIFFICULT TO USE

SR.NO	DO YOU FIND IT-BASED BANKING TO BE DIFFICULT TO USE	NO. OF RESPONDENTS	PERCENTAGE
1.	Agree	25	16.9%
2.	Disagree	59	39.9%
3.	Neutral	64	43.2%
	TOTAL	**148**	**100%**



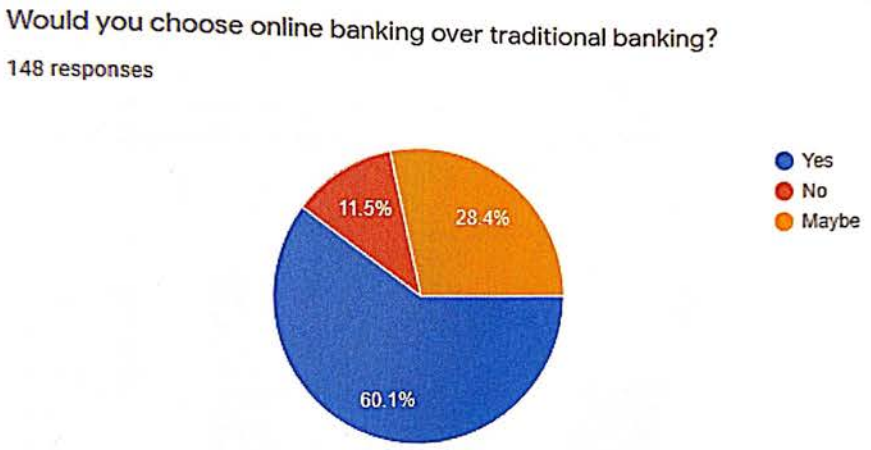
THE ABOVE DIAGRAM CHART DISPLAYS THE RESPONDENTS' OPINIONS REGARDING WHETHER THEY FIND IT-BASED BANKING DIFFICULT TO USE

This graph demonstrates the respondents' comfort level with the IT-based banking service and indicates whether they find it difficult or simple to use. This research will also assist banks in making essential modifications to their online banking services in order to make them more user-friendly and efficient.
The respondents' thoughts on whether online or IT-based banking is difficult to use are depicted in the diagram chart above. Yes, No, and Neutral are the three categories in the diagram.

According to the pie chart, the majority of respondents have a neutral opinion about the difficulty of using IT-based banking services, accounting for 43.2 percent of the total respondents, while 39.9% of the respondents do not find it difficult to use, and the remaining respondents, 16.9% of the total respondents, find IT-based banking services difficult to use.

CLASSIFICATION OF RESPONDENTS BASED ON THEIR PREFERENCE BETWEEN ONLINE BANKING AND TRADITIONAL BANKING?

SR.NO	WOULD YOU CHOOSE ONLINE BANKING OVER TRADITIONAL BANKING	NO. OF RESPONDENTS	PERCENTAGE
1.	Yes	89	60.1%
2.	No	17	11.5%
3.	Maybe	42	28.4%
	TOTAL	**148**	**100%**

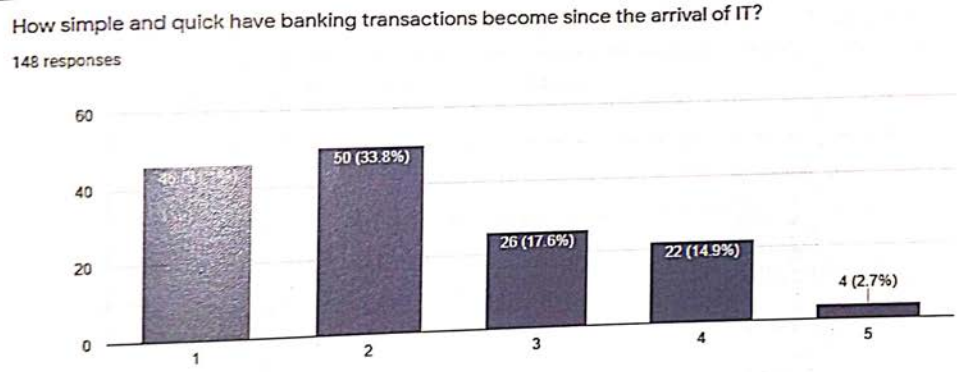


THE ABOVE PIE-CHART DISPLAYS THE RESPONDENTS' PREFERENCE FOR ONLINE BANKING OVER TRADITIONAL BANKING.

The pie chart above shows whether respondents prefer traditional banking services or online banking services. This will assist banks in determining how many consumers are interested in using IT-based banking services to complete all banking transactions, and the bank will be able to make various innovations and upgrades as a result. The diagram is divided into three sections, Yes, No and Maybe
According to the results of the survey, 89 respondents prefer online banking over traditional banking, which is the majority preference. 42 respondents, on the other hand, have a split opinion and are unsure whether they can select online banking over traditional banking. While 17 respondents are certain about avoiding using IT-based banking services.

CLASSIFICATION OF RESPONDENTS BASED ON THEIR PERCEPTIONS OF HOW SIMPLE AND QUICK BANKING TRANSACTIONS HAVE BECOME SINCE THE INTRODUCTION OF IT.

SR.NO	WOULD YOU CHOOSE ONLINE BANKING OVER TRADITIONAL BANKING	NO. OF RESPONDENTS	PERCENTAGE
1.	Very Easy	46	31.1%
2.	Easy	50	33.8%
3.	Neutral	26	17.6%
4.	Difficult	22	14.9%
5.	Very Difficult	4	2.7%
	TOTAL	**148**	**100%**



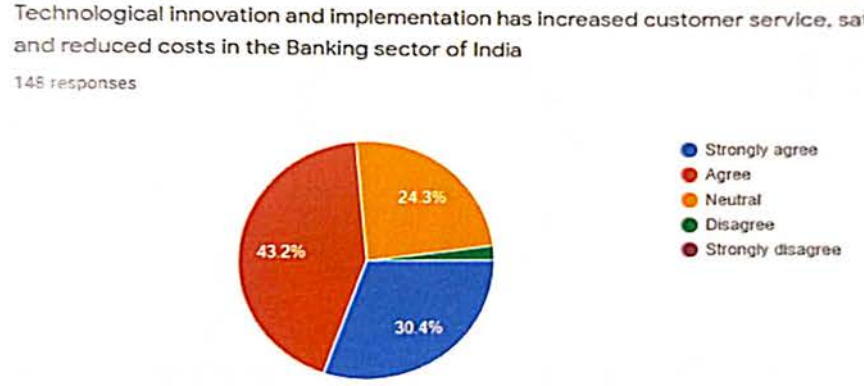
THE GRAPH ABOVE DEPICTS HOW RESPONDENTS FEEL ABOUT HOW SIMPLE AND CONVENIENT BANKING HAS BECOME SINCE THE ARRIVAL OF IT.

The graph above demonstrates how the introduction of IT has simplified banking for customers. This research may also assist banks in making essential service modifications in order to satisfy customer expectations. The graph above is divided into five sections: Very Easy Easy, Neutral, Difficult, and Very Difficult.

According to the findings of the study, 31.1 % find banking very easy since the introduction of IT, whereas the majority of the respondents which is 33.8 % feel banking has become easy. On the other hand, 17.6% of respondents are undecided, claiming that it is neither easy nor difficult. While 14.9 percent of respondents believe banking has grown more difficult with the introduction of IT and 2.7 percent believe banking has become extremely difficult.

CLASSIFICATION OF RESPONDENTS BASED ON THEIR PERCEPTIONS ON TECHNOLOGICAL INNOVATION AND IMPLEMENTATION HAS INCREASED CUSTOMER SERVICE, SATISFACTION AND REDUCED COSTS IN THE BANKING SECTOR OF INDIA

SR.NO	PERCEPTIONS ON TECHNOLOGICAL INNOVATION AND IMPLEMENTATION HAS INCREASED CUSTOMER SERVICE, SATISFACTION AND REDUCED COSTS IN THE BANKING SECTOR OF INDIA	NO. OF RESPONDENTS	PERCENTAGE
1.	Strongly agree	45	30.4%
2.	Agree	64	43.2%
3.	Neutral	36	24.3%
4.	Disagree	3	2%
5.	Strongly disagree	0	0%
	TOTAL	**148**	**100%**



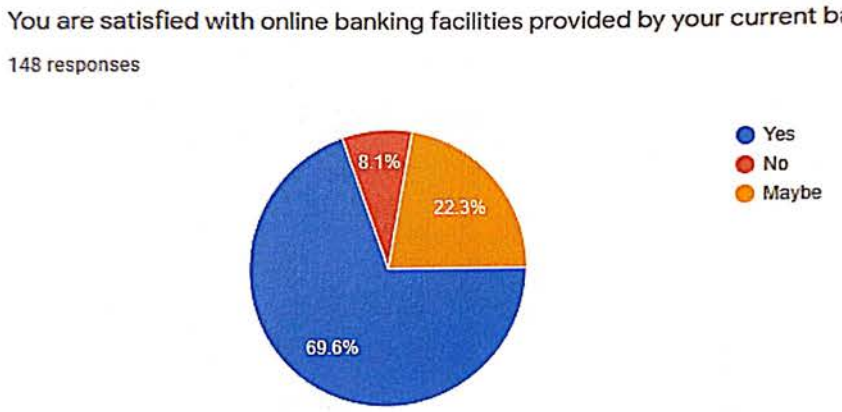
THE GRAPH ABOVE DEPICTS RESPONDENTS' VIEWS ON HOW TECHNOLOGY INNOVATION AND APPLICATION IN INDIA'S BANKING SECTOR HAS IMPROVED CUSTOMER SERVICE, SATISFIED CUSTOMERS, AND REDUCED COSTS.

The pie chart above depicts how technological advancements in India have enhanced banking operations and consumer happiness. Strongly agree, Agree, Neutral, Disagree, and strongly Disagree are the five groupings on the pie chart.

According to the findings, 30.4 percent of respondents strongly agree with the point, and the majority of respondents i.e. 43.2 percent agree that technological innovation has improved the country's banking operations, whereas 24.3 percent of respondents have a neutral opinion, and 2% of respondents disagree with the point.

CLASSIFICATION OF RESPONDENTS BASED ON THEIR SATISFACTION WITH THE ONLINE BANKING FACILITIES PROVIDED BY THEIR CURRENT BANK

SR.NO	ARE YOU SATISFIED WITH THE ONLINE BANKING FACILITIES PROVIDED BY THEIR CURRENT BANK.	NO. OF RESPONDENTS	PERCENTAGE
1.	Yes	103	69.6%
2.	No	12	8.1%
3.	Maybe	33	22.3%
	TOTAL	**148**	**100%**



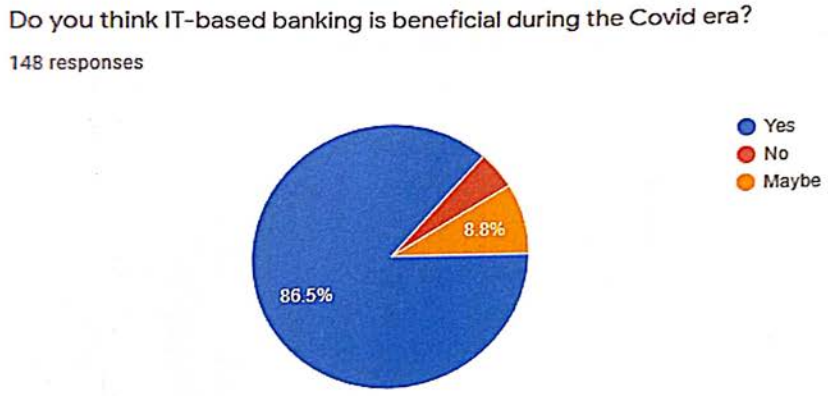
THE ABOVE PIE-CHART HELPS US UNDERSTAND THE RESPONDENTS' SATISFACTION WITH THE ONLINE BANKING FACILITIES PROVIDED BY THEIR CURRENT BANK.

The pie chart above depicts the respondents' satisfaction with their current bank's online banking services. This research can assist banks in determining their clients' satisfaction levels and making the necessary changes and updates as a result. The pie chart is divided in three areas: Yes, No, and Maybe

According to the findings of the study, the majority of respondents i.e. 103 of the total respondents are satisfied with the online banking services provided by their banks. While 33 respondents have a positive outlook, 12 respondents are dissatisfied with their banks' online services.

CLASSIFICATION OF RESPONDENTS BASED ON THEIR VIEWS ON WHETHER IT-BASED BANKING IS BENEFICIAL DURING THE COVID-19 ERA

SR.NO	IS IT-BASED BANKING IS BENEFICIAL DURING THE COVID-19 PANDEMIC	NO. OF RESPONDENTS	PERCENTAGE
1.	Yes	128	86.5%
2.	No	7	4.7%
3.	Maybe	13	8.8%
	TOTAL	**148**	**100%**



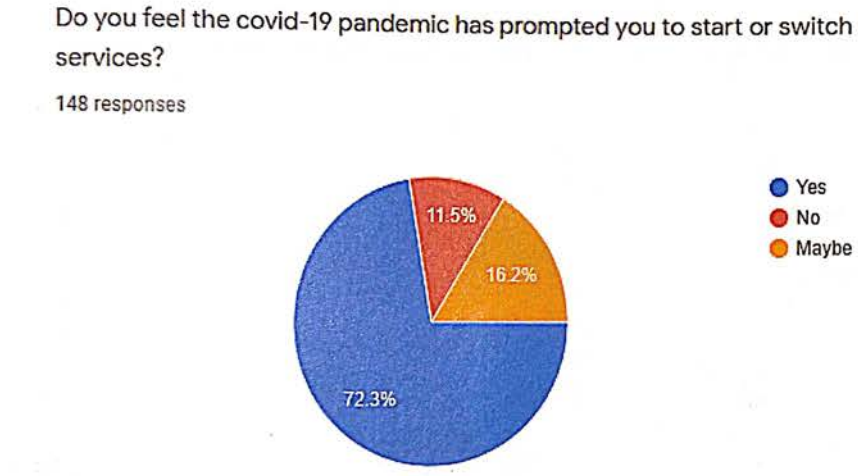
THE GIVEN PIE-CHART ILLUSTRATES THE RESPONDENTS' VIEWS ON WHETHER IT-BASED BANKING IS BENEFICIAL DURING THE COVID-19 ERA.

The pie chart above depicts respondents' opinions on whether it-based banking is beneficial in the covid-19 era. This graph illustrates how advantageous IT-based banking is during a pandemic. The graph below has been divided into three categories: Yes, No, and Maybe.

As can be seen from the graph, the majority of respondents, or 86.5 percent of the total, believes that IT-based banking has been beneficial during the Covid-19 outbreak. While 4.7 percent of respondents disagree with it, and 8.8 percent have conflicting opinions about it.

CLASSIFICATION OF RESPONDENTS BASED ON WHETHER THE COVID-19 PANDEMIC HAS PROMPTED THEM TO START OR SWITCH TO ONLINE BANKING SERVICES

SR.NO	WHETHER THE COVID-19 PANDEMIC HAS PROMPTED THEM TO START OR SWITCH TO ONLINE BANKING SERVICES	NO. OF RESPONDENTS	PERCENTAGE
1.	Yes	107	72.3%
2.	No	17	11.5%
3.	Maybe	24	16.2%
	TOTAL	**148**	**100%**



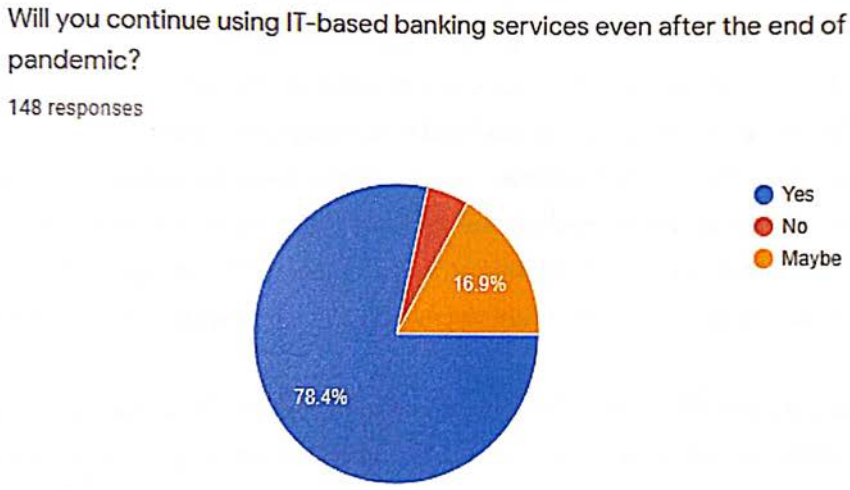
THE PIE-CHART BELOW DESCRIBES THE RESPONDENTS' OPINIONS ON WHETHER THE COVID-19 PANDEMIC HAS PROMPTED THEM TO START OR SWITCH TO ONLINE BANKING SERVICES.

The respondents' views on whether the covid-19 pandemic has led them to start or switch to online banking services are depicted in the pie-chart above. Yes, No, and Maybe have been separated into three areas on the graph.

According to the findings, the majority of respondents i.e. 107 respondents, believe that the covid-19 pandemic has pushed them to begin or switch to online banking services. The 24 respondents who have a split opinion are unsure about the same, and 17 respondents disagree that the covid-19 epidemic has motivated them to start or switch to online banking.

CLASSIFICATION OF RESPONDENTS BASED ON THEIR WILLINGNESS TO USE IT-BASED BANKING SERVICES EVEN AFTER THE END OF THE COVID-19 PANDEMIC

SR.NO	RESPONDENTS WILLINGNESS TO USE IT-BASED BANKING SERVICES EVEN AFTER THE END OF THE COVID-19 PANDEMIC	NO. OF RESPONDENTS	PERCENTAGE
1.	Yes	116	78.4%
2.	No	25	16.9%
3.	Maybe	7	4.7%
	TOTAL	**148**	**100%**



THE ABOVE FIGURE HELPS US UNDERSTAND THE RESPONDENTS' WILLINGNESS TO USE AN IT-BASED BANKING SYSTEM EVEN AFTER THE END OF THE COVID-19 PANDEMIC

The above statistics demonstrate the respondents' willingness to use IT-based banking services even after the pandemic ends.

According to the analysis, the majority of respondents i.e. 78.4 %, are willing to use IT-based banking services even after the epidemic is over. While 4.7 % of respondents are unwilling to continue, 16.9 % are unsure if they would continue to utilize IT-based banking even after the pandemic has ended.

CONCLUSIONS AND SUGGESTIONS

CONCLUSIONS:

According to the findings, the majority of respondents have chosen digital or IT-based banking as their preferred method of conducting banking activities. The results of this study also lead us to the conclusion that the use of information technology in banking has aided the banking sector's advancement to the next level. The introduction of IT has simplified not just the lives of clients, but also the tasks of service providers. This form of IT-based deployment in banking products and services would help banks provide more effective and timely services to their clients while lowering costs. As a result of fierce competition and rising client expectations, Indian banks have become more aware of information technology. The superior technology-based offers provided by foreign and rising private sector banks have driven Indian commercial banks to adopt new technology in their day-to-day operations.. In India, banks are adopting information technology to improve not only their own internal processes but also the facilities and services they provide to their clients. The Indian banking industry is benefiting immensely from the global information technology revolution. By enabling advanced product creation, enhanced market infrastructure, and the deployment of reliable risk control mechanisms, it has benefited financial intermediaries in accessing geographically distant and diversified markets. The effective use of technology has allowed banks to manage the increased transaction volumes that come with a larger customer base in a more accurate and timely manner.

Customers can now bank from anywhere and at any time thanks to the banking industry's digitalization. According to the study, respondents were either impartial or agreed that the advent of IT in the Indian banking sector has made transaction, communication, and other parts of the industry easier and more simple. There are several advantages to using information technology in the banking sector, such as simple procedures, quick and convenient processes, 24 hour availability, and so on. However, there are also some disadvantages, such as the possibility of fraud, a lack of knowledge, server failure, and so on. These disadvantages are areas of concern, and they discourage customers from using IT-based banking systems. If these drawbacks are addressed, and suitable direction is offered to consumers and employees, the use of information technology will elevate the Indian banking sector to new heights.

SUGGESTIONS:

1. The data of the respondents should not be sold or given to a third party, as this will cause the customer to lose money and lose faith in the IT-based banking system.
2. The online banking service provider must maintain the privacy of its consumers.
3. The banks should launch a campaign to encourage locals and people in remote areas to use IT-based banking.
4. Customers should be given proper instructions and demonstrations on how to use the system.
5. Banks should use the block chain system.
6. Customers should also take safeguards on their own, such as not exchanging OTPs and PINs with others, avoiding opening spam or irrelevant emails or messages, and ensuring network connectivity during transactions and by not leaving cards on tables or ATMs.

APPENDIX:

Questionnaire: A Survey on Role of Information Technology in Indian Banking Sector

Age Of The Respondent: *

- ◯ 18-25 years
- ◯ 26-30 years
- ◯ 31-35 years
- ◯ 36 and above

Gender Of The Respondent: *

- ◯ Male
- ◯ Female
- ◯ Prefer not to say

Occupation Of The Respondent *

- ◯ Student
- ◯ Businessman
- ◯ Govt. Employees
- ◯ Private company employees

How frequently do you use online banking or IT-based banking services? *

- ◯ Very Frequently
- ◯ Frequently
- ◯ Rarely

When did you first start using online banking? *

- ◯ 1998-2004
- ◯ 2004-2010
- ◯ 2010-2016
- ◯ 2016-2022

Do you believe that technology-based banking services and online banking have increased banking efficiency? *

- ◯ Yes
- ◯ No
- ◯ Neutral

Which IT-based banking service do you use? *

- [ ] Debit Card
- [ ] Credit Card
- [ ] Net Banking
- [ ] Mobile Banking
- [ ] Online fund transfer
- [ ] Order for a cheque book online
- [ ] Check the account statement online.
- [ ] Recharge DTH, broadband, mobile, etc.
- [ ] Online loan application
- [ ] Online KYC
- [ ] Other:

Do you find online or IT-based banking to be difficult to use? *

- ◯ Agree
- ◯ Neutral
- ◯ Disagree

Please state whether you agree or not with the following statements *

	Strongly Agree	Neutral	Strongly Disagree
IT based banking makes banking cheaper	○	○	○
IT based banking is secure way of dealing with bank	○	○	○
walk-in contact with bank (in branch) is essential	○	○	○
If I could do all I need online, I would never visit the bank	○	○	○

Would you choose online banking over traditional banking? *

- ○ Yes
- ○ No
- ○ Maybe

How simple and quick have banking transactions become since the arrival of IT? *

	1	2	3	4	5	
Easy	◯	◯	◯	◯	◯	Difficult

Technological innovation and implementation has increased customer service, satisfaction and reduced costs in the Banking sector of India *

- ◯ Strongly agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly disagree

You are satisfied with online banking facilities provided by your current bank *

- ◯ Yes
- ◯ No
- ◯ Maybe

Do you think IT-based banking is beneficial during the Covid era? *

- ◯ Yes
- ◯ No
- ◯ Maybe

Do you feel the covid-19 pandemic has prompted you to start or switch to online banking services? *

- ◯ Yes
- ◯ No
- ◯ Maybe

Will you continue using IT-based banking services even after the end of the COVID-19 pandemic? *

- ◯ Yes
- ◯ No
- ◯ Maybe

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