



A STUDY ON APPROBATION OF TECHNOLOGY IN INDIAN BANKING SECTORS

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ABSTRACT:

The newest Technology in banking has grown even more obvious as phone, online, and mobile banking have completely changed how we manage our accounts. In fact, it could be claimed that technology's influence on the banking sector has eliminated any grounds for overdrafts and late credit card payments.

In the past, the only way to determine how much money you had in the bank was to keep an accurate log book or visit your local branch and request that the teller check the ledger on your behalf. Then the invention of the ATM machine appeared, enabling us to check our balance and withdraw money from a huge number of handy locations.

Another benefit of technology in banking is that it makes it possible for us to make bill payments swiftly and virtually. We can set up a monthly direct debit payment at a time that works for us, or we can make one-time transactions when the bills come in.

This eliminates the requirement for a physical visit to your bank, which increases the likelihood that we will pay our invoices on time. People who have a harder time managing their money can plan to pay as many bills as they can right after their paycheck clears their account so that they know the necessities are taken care of before they spend on luxuries. This study aims to investigate "Technology Adoption in the Indian Banking Sector".

INTRODUCTION:

HISTORICAL PERSPECTIVE

In order to enhance customer service, bookkeeping, and MIS reporting, the Indian banking industry began to feel the need for computerization in the late 1980s. The Reserve Bank of India established a Committee on Bank Computerization in 1988 under the leadership of Dr. C. Rangarajan.

When standalone PCs were first introduced, banks started utilizing information technology. Later, they transitioned to Local Area Network (LAN) connectivity.

Banks adopted the Core Banking platform as technology advanced. Branch banking evolved into bank banking as a result. Through the Anywhere and Anytime Banking feature of the Core Banking Solution (CBS), banks were able to give consumers more comfort features, which is a promising first step toward boosting customer convenience. Numerous Core Banking platforms, including Finacle by Infosys, BaNCS by TCS, and Flexcube by i-flex, became well-known.

With the liberalization of the economy in 1991–1992, the computerization process accelerated. The increased competition from private and foreign banks served as a primary catalyst for this development. In an effort to stay competitive and relevant, several commercial banks started converting to digital consumer services.

By implementing newer technologies, banks have benefited in a number of ways. E-banking has significantly reduced costs and assisted in generating income in a variety of ways. According to the most recent data, the cost of a bank transaction via branch banking is projected to be between Rs. 70 and Rs. 75, compared to between Rs. 15 and Rs. 16 via ATM, Rs. 2 or less via online banking, and Rs. 1 or less via mobile banking. The ease of "Anywhere Banking" has also led to an increase in consumers.

Digitization has reduced human error. Access to and analysis of the data is possible at any time, enabling a powerful reporting system.

The RBI has served as a mentor for the banks in developing regulations and making suggestions to accomplish a variety of goals. With the introduction of MICR-based check processing, electronic funds transfer, interconnection between bank branches, and the use of ATM (Automated Teller Machine) channels, commercial banks in India have advanced toward technology. This has led to the convenience of anytime banking. The Reserve Bank of India has made significant efforts to improve the Payment and Settlement systems in banks.

CURRENT STATUS IN THE DIGITAL SPACE:

Digital transactions are being aggressively promoted by the Indian government. The National Payments Corporation of India (NPCI) has made important efforts toward innovation in the field of payment systems with the introduction of the United Payments Interface (UPI) and Bharat Interface for Money (BHIM). UPI is a smartphone interface that allows users to instantly transfer money between accounts in various banks based on a virtual address without disclosing the actual bank account. Today's banks strive to give their consumers a quick, precise, and high-quality banking service. Digitization is currently at the top of the priority list for all Indian banks.

CHALLENGES:

Security Risks - Security concerns are presented to banks by external threats like hacking, sniffing, and spoofing. Internal hazards to banks include, in particular, fraud committed by or in which personnel collude with consumers.

Financial Literacy / Customer Awareness - The main obstacle in India is a lack of understanding among the populace regarding how to use e-banking services.

Fear factor - The inclination of older generations and, in particular, those from rural areas, to use traditional banking methods is one of the largest barriers to online banking. E-banking usage is hampered by the worry of losing money during an online transaction.

Training - For staff, a fundamental barrier to dealing with the innovative and ever-changing technologies in banks is a lack of proper knowledge and abilities. The current demand for the banks is training at all levels on the evolving IT trends. □

Objectives of Technology Adoption in Indian Banking:

1. To research the idea of technology adoption in the Indian banking industry.
2. To assess Banking Technology Products and Services.
3. To evaluate RBI initiatives and Indian banking services' technological advancements.

THEORETICAL REVIEW:

According to Centeno (2004), the primary driving forces behind consumer use of internet banking include speed, the ease of remote access, 24/7 accessibility, and price incentives. Customers perceive internet banking, ATMs, and phone banking differently than they do traditional banking channels, according to a 2008 study by Calisir and Gumussoy.

The research on Europeans' use of online banking by Guerrero et al. (2007) found that customers' usage of the service is influenced by their ownership of a range of financial goods and services, their attitude toward money, and their trust in the internet as a banking channel. According to a 2003 study by Sohail and Shanmugham, Malaysians' usage of internet banking is influenced by their access to the internet, knowledge of e-banking, and

resistance to change. This finding supports that of earlier studies. Another factor that encourages customers to use internet banking is the availability of vendor assistance (Nilsson, 2007).

METHODOLOGY:

Only secondary data was used in the research paper. Secondary data for this study was gathered from textbooks, newspapers, academic journals, and the internet.

Bank branch Networking application:

Intranet Banking: A bank intranet is a crucial tool that improves employee collaboration, involves and engages personnel, and promotes your company's culture and values along the way. It also equips your staff with the resources they require to do their duties effectively.

Employee Profiles:

The primary advantage that every organization benefits from an intranet is the provision of an online directory wherein profiles of all the employees are conveniently displayed.

Management of Documents and Policies:

Intranet shows to be a convenient platform where all employees can stay updated with new developments because banks constantly alter their regulations or create new ones. If an employee fails to read a deadline-sensitive material, the management may even create reminders for them.

Online work:

As a result of such a platform, banks can abandon manual labor and conduct their operations entirely online. When reading and filling out forms, this efficient office strategy also helps to save time.

Therefore, an intranet for banks also aids in smooth and successful operation in addition to the usual benefits of boosting dialogue and private engagement. Additionally, locate an intranet service provider that can accommodate the unique requirements of a bank, as not all financial institutions operate in the same way. It is advised to contact a firm that offers streamlined and customized financial software to assist in meeting your unique requirements.

One such provider of intranet software with facilities for reading and sharing documents, among other things, is Creative Web Mall.

Banking Technology Products and services

E-banking in India:

There are several names for electronic banking, including e-banking, virtual banking, online banking, and internet banking. Simply put, it is the delivery of various banking products and services via electronic and telecommunications networks. A consumer can use his computer or smartphone to access his account and complete several transactions through e-banking.

Following the lead of India's ICICI Bank, which was the first bank in the country to offer online banking services in 1997, the majority of new-generation banks now provide these services to consumers.

In actuality, all major banks' clients have access to e-banking services.

Importance of e-banking

The significance of electronic banking for banks, individual clients, and corporations will be discussed separately.

BANKS:

1. **Lesser transaction costs** – The cheapest forms of transaction are electronic ones.
2. **A reduced margin for human error** – 1. There is no room for human error because the information is transmitted electronically.
3. **Lesser paperwork** – The process is simplified and paperwork is reduced thanks to digital records. It is also friendly to the environment.
4. **Reduced fixed costs** – A reduction in the requirement for branches, which lowers fixed costs.
5. **More loyal customers** – Because e-banking services are user-friendly, clients are more loyal to banks.

CUSTOMERS:

- 1) **Convenience** – A customer can log in to his account and conduct business from any location, 24/7/365.
- 2) **Lower cost per transaction** – The customer saves time and money because he doesn't have to go to the branch for every transaction.
- 3) **No geographical barriers** – In traditional banking systems, distances between parties may make some banking transactions difficult. E-banking, however, lessens geographical limits.

BUSINESSES:

1. **Account reviews** – Using an internet banking interface, business owners and designated employees can easily access the accounts. This enables them to examine account activities and guarantee the account's efficient operation.
2. **Better productivity** – The productivity of electronic banking has increased. In addition to a number of other features that increase corporate productivity, it enables the automation of regular monthly payments.
3. **Lower costs** – In banking interactions, costs are typically determined by the resources used. The bank will charge a certain business more if it needs more help with wire transfers, deposits, etc. These costs are kept to a minimum with internet banking.

4. **Lesser errors** – Errors in traditional banking transactions are reduced by electronic banking. Errors can be expensive, and they can be brought on by bad handwriting, inaccurate data, etc. The accuracy of financial transactions is also increased because it is simpler to check account activity.
5. **Reduced fraud** – Electronic banking gives every employee with the authority to change banking actions a digital imprint. As a result, the company has a greater understanding of its transactions, making it more difficult for fraudsters to cause trouble.

Popular services under e-banking in India

Automated Teller Machines (ATMs)

Electronic Clearing Cards

Telephone Banking, Smart Cards

EFT (Electronic Funds Transfer) system

Electronic Clearing Services

Mobile banking

Internet banking

Telebanking and doorstep banking are all examples of electronic payment methods.

Additionally, India offers the following services through Internet banking:

1. **Bill payment** :Each bank has partnerships with numerous utilities, service providers, insurance firms, etc. across the nation. These partnerships enable the banks to provide online bill payment for services including power, phone, and mobile. The majority of banks also tack on a small one-time registration fee for this service. Additionally, the user can set up a standing order to pay recurring invoices automatically each month.
2. **Funds transfer** :Customers can transfer money from one account to another with the same bank or even a different bank, wherever they are in India. He has to sign in to his account and enter the transfer amount, along with the payee's name, account number, bank, and branch. Within a day or two, the transfer is completed.
3. **Investing** : A user can transfer money electronically to the bank to open a fixed deposit through electronic banking. Additionally, customers who have demat accounts, connected bank accounts, and trading accounts can purchase and sell shares online. Additionally, some banks offer online platforms for users to buy and redeem mutual fund units.

Shopping :A consumer can buy products or services online and pay for them using his account while using an e-banking service. Right at his fingertips, shopping

INTERNET BANKING:

Customers of banks and other financial organizations can access banking services online through a service called internet banking, sometimes referred to as online banking, e-banking, or net banking.

Customers can take advantage of all the small services without having to go to a branch office. There are some account holders who cannot use internet banking. You must enroll in the service at the time of account establishment or later if you wish to use internet banking. You must use the registered customer ID and password to log into your internet banking account.

CORPORATE BANKING:

A subcategory of commercial banking known as corporate banking includes a variety of banking services available only to corporations. The offerings include financing options, tools for managing funds, etc.

1. Credit:

For corporate clients, loans and related credit solutions are available. For commercial banks, credit facilities account for the majority of profits. Commercial Bank An organization that deals in financial services is a commercial bank. Deposits and provides fundamental financial services like savings accounts. Due to the high level of risk associated with lending to corporate clients, the interest rates imposed on the loans are very high.

2. Treasury services:

Businesses manage their need for working capital by using treasury services. For multinational corporations, these services are crucial. Worldwide Corporation (MNC): A multinational corporation is a business that conducts business both in and outside of its country of origin. It keeps going as they provide currency exchange.

3. Fixed asset requirement financing:

Services for financing fixed asset requirements are crucial for businesses operating in capital-intensive sectors like manufacturing, information technology, and transportation. For the purchase of equipment, machinery, etc., banks provide specialized loans and lease agreements.

3. Employer services:

Additionally, commercial banks offer staff services, including the option of healthcare and retirement plans, as well as payroll services.

4. Commercial services:

Additionally, banks offer services like portfolio analysis, leverage analysis, debt and equity restructuring, evaluations of real assets, etc. Asset management services and underwriters for initial public offerings (IPOs), among other services, are crucial to corporate clients. The commercial bank's investment banking division provides these services.

Under the guidelines of the Glass-Steagall Act, corporate and investment banking were separated. The Glass-Steagall Act, commonly referred to as the Banking Act of 1933, was a piece of law that separated commercial banking from investment banking. Since it was believed that commercial banks' speculation led to the crash, the Act was passed as an emergency measure in reaction to the Great Depression's widespread bank failures.

ATM:

Customers can do simple financial transactions using an automated teller machine (ATM), an electronic banking facility, without the assistance of a branch person or teller. The majority of ATMs let anyone with a credit card or debit card withdraw money.

ATMs are practical because they let users conduct quick self-service tasks like deposits, cash withdrawals, bill payments, and account transfers. Cash withdrawals are frequently subject to fees from the bank where the account is held, the company running the ATM, or both.

By using an ATM run directly by the account's holding bank Different parts of the world refer to ATMs as cash machines or automated bank machines (ABM).

Debit Card:

When a debit card is used, the money is taken right away from the user's checking account. These cards, often known as "check cards" or "bank cards," can be used to make purchases, get cash from an ATM, or top off your purchase at a retailer that accepts them.

Credit Card:

A credit card is a compact, rectangular piece of plastic or metal that is issued by a bank or another financial organization. With this card, customers can borrow money to pay for goods and services from merchants who accept credit cards. Credit cards require that the borrowed money be paid back in full by the billing date or over time, together with any relevant interest and any additional charges that were agreed upon. In addition to the standard credit line, the credit card issuer may also offer cardholders a second cash line of credit (LOC), which would enable them to use ATMs, bank teller machines, or credit card convenience checks to get cash advances.

Smart Card:

A physical card with an integrated chip that serves as a smart card as a token for security. A smartcard can be constructed of metal or plastic and is normally the same size as a driver's license or credit card. They establish a connection with a chip and dip, often known as direct physical contact, through a short-range wireless connectivity technology like radio-frequency identification (RFID) or near-field communication.

Electronic Banking Services:

Electronic banking has many names, like e-banking, virtual banking, and online banking. Banking, or internet banking. All of the different banking goods and services are simply delivered through electronic and

telecommunications networks. A user can use his computer or mobile device to access his account and carry out several transactions.

Banking websites are of two types:

1. **Informational Websites** – Customers can learn more about the bank's services and products via these websites.

2. **Transactional Websites** – These websites, which are those of the banks, allow customers to transact. These transactions can also be modest business-to-business money transfers or simple consumer account balance queries. A collection of well-known retail and wholesale e-banking services offered by banks and other financial institutions can be found in the table below:

BANKING TECHNOLOGY IN INDIA -2023

Computing Power:

Computing power has already established its position in the digital age, with nearly every item and appliance now being digitized. It's far more common now that data science experts predict that the computing infrastructure we are now building will only get better over the coming years. As we presently have 5G, get ready for a 6G era where we have greater power in our hands and devices everywhere around us. Even better, more processing capacity is generating jobs in the computer sector, but for these roles, candidates would need to undergo specialized training. From data science to robotics and IT management, this sector will support the highest percentage of jobs in any country. The more computing power needed by our devices, the more

Smarter Devices:

Artificial intelligence has had a big positive impact on our planet. dynamic and intelligent. It goes above and beyond simply reproducing humans in order to lessen the complexity and stress in our lives. There will always be more sophisticated technology. Data scientists are working on AI wearable technology, home appliances, work tools, household robots, and much more that will be available in 2023 and beyond! Almost all of our jobs require sophisticated technological tools to make our work lives easier.

Smarter devices are another breakthrough in the IT industry that is in great demand as more enterprises move into digital spaces. A solid understanding of IT and automation is now required for success in practically every higher-level job. You may therefore learn these using the RPA course offered by Simplilearn.

Datafication:

Datafication is the process of turning everything in our lives into data-driven software, to put it simply. The conversion of manual tasks into data-driven technologies is known as datafication. Data will be used by everything using our cellphones, including office software, industrial gear, AI-powered goods, and more, for a

longer time than we can reasonably imagine. Therefore, maintaining our data has become a sought-after competence in our economy.

Artificial Intelligence and Machine Learning:

Artificial Intelligence and Machine Learning: Although artificial intelligence (AI) has received a lot of attention over the past ten years and has a significant impact on how we live, work, and play, it is still one of the most recent technological developments. Image and speech recognition, navigation apps, smartphone personal assistants, ride-sharing apps, and many more applications are already quite proficient with AI.

Extended Reality: All simulation-based technologies, such as Virtual Reality, Augmented Reality, Mixed Reality, and everything in between, are referred to as extended reality. This is a major technical trend right now as we all aspire to transcend the ostensibly real boundaries of the planet. Since this technology generates a reality without any physical presence, it is quite popular among gamers, medical experts, shops, and models.

Digital Trust:

Because of how well they accommodate people and entangle them with technologies, digital technologies have acquired the trust and faith of the public.

A major trend that will inspire new technologies is well-known digital trust.

Digital conviction is the conviction that technology can provide a trustworthy, safe, and secure digital environment so that firms can develop without having to worry about upholding the public's confidence. To help make the internet a safer environment for humans, you should focus on ethical hacking and cybersecurity. In these two, from junior to senior levels, you can discover a wide range of jobs. For cybersecurity, a degree or even a master's degree is sufficient, while ethical hacking may require professional certifications.

3D Printing:

Prototyping using 3D printing is a key breakthrough and technological trend. This method has had an effect on the industrial and biomedical sectors. Although it is now feasible, we had never contemplated printing a real thing on a printer. As a result, 3D printing is another innovation that will stick around. Businesses in the data and healthcare industries that require a lot of 3D printing for their goods can choose from a wide variety of opportunities that pay well and are available internationally. All you require is a working knowledge of modeling, artificial intelligence, machine learning, and 3D printing. Let's look at the highest positions in this field.

Genomics:

Prototypes are created using 3D printing, a significant technological advancement. This method has have an effect on the industrial and biomedical sectors. While it is currently a reality, none of us had ever considered employing a printer to create an actual product. As a result, 3D printing is another innovation that will stick around. Businesses in the data and healthcare industries that require a lot of 3D printing for their goods can

choose from a wide variety of opportunities that pay well and are available internationally. All you require is a working knowledge of modeling, artificial intelligence, machine learning, and 3D printing. Let's look at the highest positions in this field.

Genomics: Think about a technology that can analyze your DNA and utilize it to help you battle diseases and

New Energy Solutions:

To protect its landscapes and the environment, the world has committed to becoming greener. As a result, homes use greener options like solar and renewable energy, while cars run on electricity or batteries. Even better is that individuals are mindful of their waste and carbon footprints, thereby It's even better to convert them into renewable energy. Environmental and data-focused occupations are also growing in the alternative energy sector. These professions are relevant to people with social science training and science specialties.

Robotic Process Automation (RPA):

Similar to AI and machine learning, robotic process automation, or RPA, automates tasks in the workplace. RPA is the use of software to automate corporate operations like data management, application interpretation, transaction processing, and even email response. RPA automates regular tasks that previously required human labor.

Blockchain:

Although most people identify blockchain technology with virtual currencies like Bitcoin, it actually offers security that is useful in a variety of different applications. The essence of blockchain can be summed up as data that can only be added to, not subtracted from, or altered. The word "chain" is appropriate because you are producing a data chain. Being unable to change the past, it is incredibly secure thanks to blocks. Furthermore, no one entity may acquire ownership of the data because blockchains are consensus-driven. Blockchain eliminates the need for third-party oversight or certification of transactions.

5G:

The development of 5G technology is proceeding in the IoT. While 3G and 4G technologies allowed us to use data-driven applications, access the internet, increase streaming bandwidths for services like Spotify or YouTube, and do much more, 5G services are expected to completely change how we live. by enabling services like Google Stadia, NVidia GeForce Now, and many others that offer cloud-based gaming and rely on cutting-edge technologies like AR and VR. It is projected that it will also be used in smart retail, traffic management and safety HD cameras, manufacturing, and smart grid management. What changes will be brought about by 5G technology? Almost every telecom company is now working on 5G applications, including Verizon, T-Mobile, Apple, Nokia Corp., and Qualcomm. Memberships to 5G Networks

Cyber Security:

Given that it was first developed in the 1990s, cyber security may not seem like it has been around for some time, yet it is always changing, just like other technology. Threats are always evolving, which contributes to this. The nefarious hackers who are attempting to get unauthorized access to data are not going to give up easily, and they will keep trying to find methods around even the most stringent security measures. The deployment of new technology to improve security is also a contributing factor. As long as there are hackers, cyber security will continue to be a popular technology since it is continually changing to thwart them. The fact that there has been a three-fold increase in the number of cyber security positions is evidence of the critical demand for specialists in this field.

CONCLUSION:

In 1997, technology was introduced in the Indian banking sector. According to research, inter-account transfers, payments to other personal accounts, transfers to credit card accounts, and recharges are the most popular e-banking services. Mobile devices, standing orders, savings, current accounts, and fixed deposits. Debit/credit card application and account opening. Banks have raised clients' satisfaction levels by offering e-banking services as well as customers. People in India are still mostly unaware of the benefits of technology in banking, but tech-savvy individuals are successfully utilizing e-banking. When people used to visit banks, insurance agencies, and railroad stations for a variety of reasons and stand in long lines for hours on end, things have changed.

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