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TECHNOLOGICAL DISRUPTIONS IN BANKING – THE NEW AGE DIGITAL REVOLUTION

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Abstract

Geopolitical uncertainty, recessionary environments, new competitors, sustainability pressures, banking and financial markets enterprises are fighting with some strong economic headwinds. Modern fintech competitors are assaulting on the "traditional banks" from all angles and gradually tearing down the barriers that the established players have up over the last many years. New players in the banking industry have more freedom because to emerging digital technology. These emerging digital banking innovators are posing a threat to the banking and broader financial sector in a number of domains, including payments, cash, lending, money transfers, investment management, and lending.

With a new level of online, mobile, and omni-channel services, a progressive bank should remain at the forefront, adopting technologies that meet consumer demands for wealth, trust, security, and financial well-being. Each bank's future rests on its ability to use the newest innovations to better serve its customers' needs, wants, and behaviour. Consumers find using smartphones to manage their finances more convenient than dealing with the hassles of traditional banking.

The purpose of the research paper is to focus on some of the general trends that are influencing how business is conducted, the diagnosis dives into particular problems pertaining to the banking and fintech sectors before concluding with a telescopic perspective on how a bank of the future can arise from the existing state of affairs. This paper's second section will be prognostic and forward-looking, with an emphasis on how ongoing advancements and developments in the mobile banking sector are influencing the sector's future. Furthermore, since radical mobile applications streamline every transaction and provide value for the bank and its clients, mobile banking technologies, in my research, bring speed, security, and ease to financial transactions.

Keywords: *M-Banking, Branch Automation, Digital Technologies, Fintech, Banking Technologies*

The Banking Industry: A Brief of Changing Business Model

Business models need to reflect the digitalization of financial services to help drive growth and performance. Emerging technologies such as blockchain, artificial intelligence, and big data analytics are being harnessed by banks to improve fraud detection, risk management, and customer insights (Dong et al., 2018).

The ubiquity of smartphones has catalysed the growth of mobile banking. Banks are investing in mobile apps and platforms to offer customers convenient, on-the-go access to their financial services (Goyal et al., 2019).

Traditional bank branches are being reimagined with automation technologies like chatbots, AI-driven customer service, and self-service kiosks. This enhances operational efficiency while maintaining a physical presence (Pozin et al., 2020).AI can be of a game changer in both areas— efficiency and value. AI is being used to automate tasks, improve customer service, and develop new products and services. (Shen, Z., & Cheng, E. (2023).

By 2023, the average age in India will be 29 and this young consumer base is internet survey and wants real-time information online. Many traditional banks are collaborating with fintech startups to combine their strengths. This collaborative approach fosters innovation and accelerates the development of customer-centric solutions (Rakshit et al., 2020).

Therefore, with increased digitalization, cybersecurity threats have intensified. Banks are investing heavily in robust cybersecurity measures to protect sensitive customer data and maintain trust (Kshetri, 2020).

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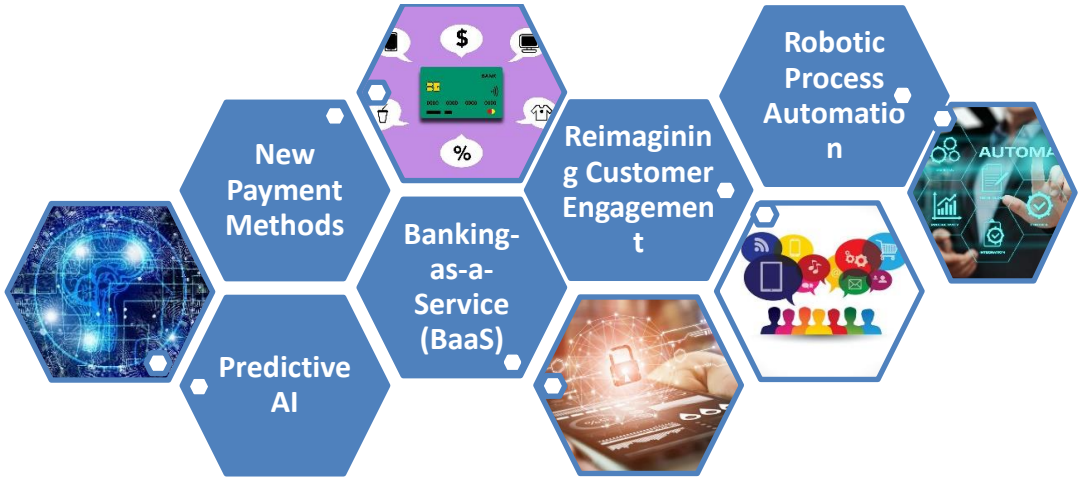


Objectives of the Study

- To comprehend the technological trends that help banks deliver products, services, and customer relationship management.
- To assess how technology is affecting the banking sector.

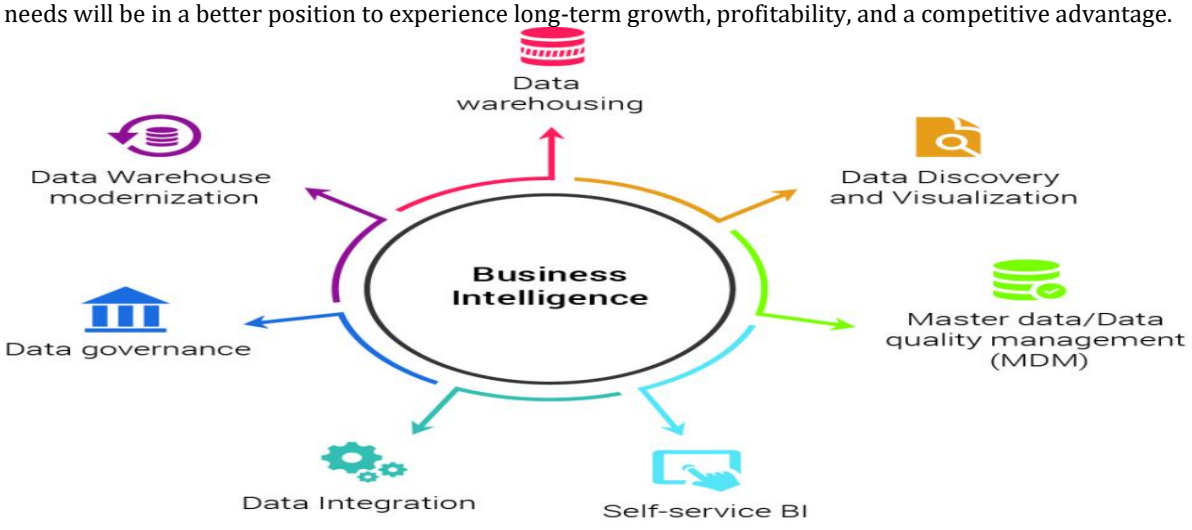
1. Business Intelligence

All industries, including banking, have faced possibilities and challenges as a result of the paradigm change in technology adoption and the instillation of digital habits in daily life. Traditional banking service providers are already facing increased competition as a result of the banking industry's digitization.

With a 7.6% compound annual growth rate (CAGR), the worldwide BI (Business intelligence) market is predicted to reach almost $33.3 billion by 2025 from $23.1 billion in 2020. In order to improve transparency and control over banking operations, the RBI has also urged banks to implement BI.

An important step in this direction is the Automated Data Flow (ADF) initiative, which aims to guarantee that accurate as well as reliable data is transferred from the end of the banking partner to the Reserve Bank of India routinely. Banking companies can automate a simpler and more efficient application and funding process, as well as streamline data collection, cleaning, and insight generation, with the aid of business intelligence. Equipped with such insights, businesses can create new and enhanced financial services and products to better serve customers and gain a competitive advantage. By modernizing their operations, banks can improve their security posture with encryption and cutting-edge security systems, expedite the delivery of IT services, and get rid of shadow IT.

Marketers may find the most lucrative client profile by using BI to examine CRM data according to a variety of factors. Financial companies can find and target the most lucrative clients with the use of BI apps. Additionally, BI is crucial for increasing client loyalty and retention. Additionally, credit portfolio analysis, early detection of possible delinquent instances, and prompt preventative action can all be accomplished with BI tools. Businesses that use BI solutions to control risk, boost productivity, and deliver goods and services that truly satisfy client needs will be in a better position to experience long-term growth, profitability, and a competitive advantage.



Source: IBEF

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2. The foundation of customer connection - Personalization

Modern banking will be more customer-focused and individualized. One strategy to lower technical debt is to transition to a more modern and flexible banking infrastructure. Customers will be able to operate independently and receive more individualized experiences. Banks can provide customers with individualized features and solutions by using technologies like AI and ML to access comprehensive and up-to-date customer data. Banks will concentrate on consumer behavior in 2023 to make sure they are providing individualized and tailored services.

- Co-construction
- CRM aligned to customer experiences
- Deployment of alternative channels
- Operative cross selling and up selling of banking services

3. AI and ML will exert substantial influence

With the help of cutting-edge technologies like AI and ML, the banking industry can achieve amazing results. Real-time AI-based chatbots are already being used by banks to compile customer information and preferences. Additionally, the banking sector can use AI and ML to better understand customer needs and spot issues in the digital banking environment. It is anticipated that the banking industry will use the data gathered by new technologies in 2023 to apply digital strategies for their quick business operations and effective solutions.

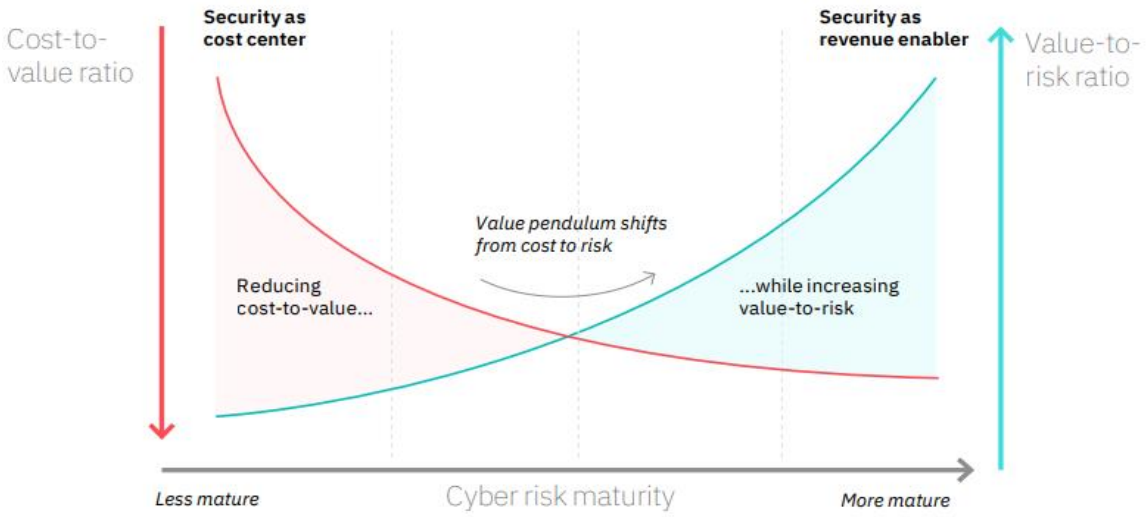
4. Risk management and Security essentially the chief precedence

The Indian Bank's Association (IBA) survey and EY analysis reveals that
In the world of digital banking, security is the most crucial issue. It is clear that the risk environment is evolving due to the introduction of technology related to mobile computing, the spread of social media, incremental improvement in cloud computing last but not the least the increasing complexity used by hackers. As a result, banks can no longer disregard customer privacy. A few other risks include not making the internal adjustments required to stay competitive, such as attracting and keeping the right talent, meeting customer expectations by developing more human relationships, optimizing operations for quality, efficiency, and innovation, leveraging the cloud for agility, collaboration, and security, using data more effectively for decision-making and personalized experiences, and more. Because the upcoming year is expected to be unpredictable and full of risks, banks all over the world have made sizable provisions for credit losses.

Customers anticipate quick and simple access to their accounts as well as more secure banking through digital platforms, and digital payment solutions are essential for choosing their financial provider. Customers who use digital banking products, however, run the risk of unwelcome cyberattacks. To handle data theft, money laundering, and security breaches, banks need to establish strong cybersecurity and a robust fraud and risk monitoring infrastructure. According to EY research and a survey conducted by the Indian Bank Association (IBA), the Core Banking System (CBS) is extensively utilized for banking transaction supervision by banks. The incorporation of this with associated enterprise-level systems and risk management, however, is still in its early phases.

A few important risk management methods comprise:

- Enterprise Risk Management Systems
- Credit systems
- Liquidity risk systems



Source: https://www.ibm.com/downloads/cas/B21E0GYR

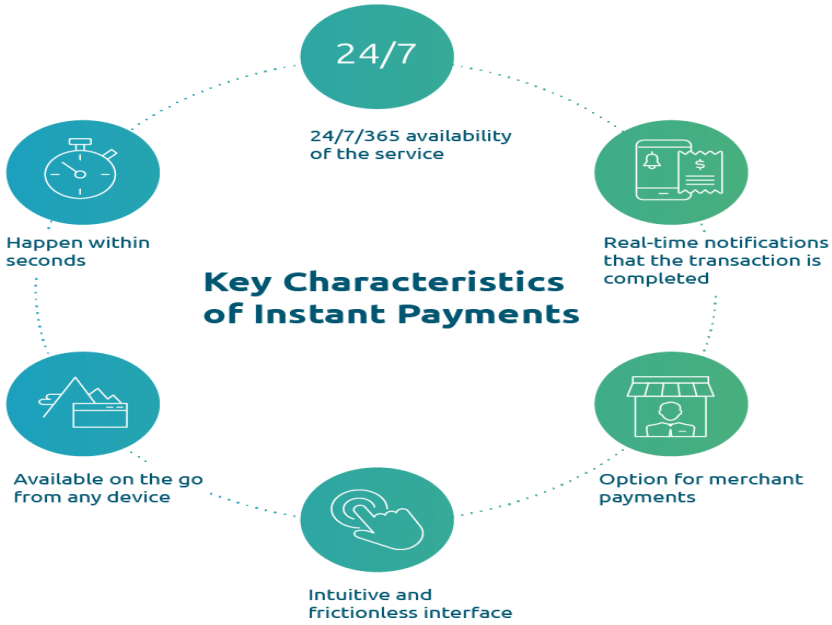
5. Utilizing the Digital Payments upsurge

Contactless and cashless transactions will continue to be in high demand. To enable more digital payments, the banking industry needs to be prepared to make investments and implement new technologies. The Banks are adopting Instant payment solutions which provide simple, convenient, and real-time payments , Banks must make sure that the solutions they offer customers are practical, user-friendly, and interesting in order to address the shifting patterns of consumer behaviour. Additionally, as digital transactions increase, quick payment options will be made available from anywhere at any time.

Providing robust RTGS/NEFT platform, establishing National Payment Corporation of India (NPCI) to act as an umbrella institution for a Providing robust RTGS/NEFT platform, establishing National PaProviding a robust RTGS/NEFT platform, setting up the National Payments Corporation of India (NPCI) to act as an umbrella institution for all retail payment systems.

- Guidelines and promotion of reception channels inclusive of ATMs, POS as well as payment gateway rules.
- Directives and security procedures for each card transaction.

Providing robust RTGS/NEFT platform, establishing National Paymen
Providing robust RTGS/NEFT platform, establishing National Paymen



Source: https://www.softwaregroup.com/

Game Changing Innovations to Re-Boot banking through Cutting-Edge Tech Trends

In order to enable their clients to use their mobile devices for account management, balance checks, and transaction processing, traditional banks and credit unions usually provide mobile banking applications.
FinTech apps, on the other hand, are developed by financial technology firms. We are about to enter a time when self-driving cars outperform humans at parking, mobile apps transport us to virtual reality, and artificially intelligent assistants offer us financial advice. By offering clients a far-ranging gamut of financial amenities and cutting-edge, tech-driven solutions, they hope to upend traditional banking.
1) Peer-to-Peer lending
The way people used to send money to one another has been completely transformed by online payment apps like Google Pay, Apple Pay, and Amazon Pay. Users can lend money straight from their smartphones thanks to P2P payment apps, which promote disintermediation and do away with banks. Users may not yearn for another payment app if your mobile banking app embraces the peer-to-peer payment trend. Value drivers for AI

2) Big Data

Banks hold a goldmine of information on their customers, from everyday transactions to digital interactions. This data offers a powerful lens to truly understand what their customers want and need. By analyzing this data effectively, banks can move beyond guesswork and craft personalized financial experiences that resonate with each individual.

A bank that is open to conversations regarding financial undertones of its clients can analyse spending habits, savings goals, and digital banking preferences to anticipate the customer's needs. This could be anything from recommending a high-yield savings account to streamlining the loan application process.
The key lies in harnessing data from various sources like online transactions, ATM withdrawals, mobile banking app usage, and even the way one verifies identity. Each piece adds to the puzzle, revealing a clearer picture of the unique financial landscape by leveraging this data intelligence, banks can become more than just financial institutions. They can transform into trusted advisors, guiding customers towards a healthier financial future.

3) Voice Banking
Google Assistant, Siri, and Alexa are important examples of voice-enabled services that show how voice-activated commands are incredibly convenient. Voice technology is therefore among the greatest developments in mobile banking apps. The two prime benefits of the trend are user convenience and security. Numerous banks have incorporated the trend into their two-factor authentication systems and use voice commands to transfer funds.

4) Internet of Things
Imagine ATMs that constantly monitor cash levels, detect potential malfunctions, and even optimize security measures based on real-time data. This translates to fewer service disruptions, faster cash refills, and a more secure banking experience for everyone. Beyond ATMs, consider Wearables with biometric authentication (think smartwatches with fingerprint scanners) could be used for secure and convenient transactions.
IoT empowers banks to not only automate routine tasks but also personalize services and enhance security. IoT sensors can detect unusual activity at ATMs or suspicious login attempts from connected devices. This allows banks to intervene and prevent fraudulent transactions before they happen. Banks can leverage data from wearables or smart devices to understand your spending habits and location. This enables them to offer better customized solutions relevant to specific needs.

5) Digital Wallets
The COVID-19-related contactless payment initiative has disrupted digital wallets. These wallets are ubiquitous now as they allow users to make payments online while on the go, directly from their bank accounts. Mobile wallets are useful for many transactions, from regular bill payments to online shopping. A customer can use cryptocurrency in digital wallet to make payments in order to differentiate from the competition.
6) Cloud Computing
Scalable, modular (agile) approaches to creating platforms with plug-and-play functionalities (APIs) have revolutionized the game with the introduction of new cloud-based technology. Cloud computing enables banks to use scalable computing resources on-demand through the internet and store data and apps. By removing reliance on specialized software and hardware, cloud computing improves speed and flexibility while automating corporate procedures. It streamlines and conserves human resources, money, and time. By employing robust data analytics and machine learning to obtain important insights into consumer behaviour, cloud computing can assist financial firms in achieving a high degree of data protection, fault tolerance, and system recovery.
7) API Integration

An entity must follow this trend if it wants to offer a smooth and enhanced customer experience. Third-party businesses can incorporate the banking API into their products, and vice versa. Customers of affiliated businesses will be able to access the banking services, by enhancing their products and areas of expertise to complement one another, API banking helps both sides, following the trend of APIs, smaller banks collaborate with businesses that provide enhanced functionality in order to increase brand recognition and enhance the customer experience.
8) Biometric Authentication
As digital banking reigns supreme, passwords and PINs, the traditional guardians, are proving increasingly vulnerable. Biometric authentication emerges as a powerful knight, offering a paradigm shift in securing financial accounts. In case of user identification, these systems deploy distinctive biological characteristics such as voice patterns, face features, or fingerprints etc**.** These inherent characteristics offer a robust security layer compared to passwords, which can be stolen or forgotten. Biometric scanners and software provide an additional security layer. Biometric verification can expedite onboarding by using iris scans or voice recognition, eliminating the hassle of document verification. In essence, biometrics offer stronger security, a smoother user experience, faster onboarding, and are crucial for mobile banking security. By implementing robust biometric authentication systems, banks can build stronger customer trust and foster a more secure digital banking environment.
9) Smart Bots
Chatbots are platforms powered by artificial intelligence (AI) that give users a data-driven conversational experience. They perform a number of crucial requirements for banks. They can quickly answer consumer

questions, serve as a tool for gathering data, and then assist the bank in offering individualized customer experiences and solutions.

Chatbots offer prompt, reliable customer service around-the-clock, resolve minor problems, respond to inquiries right away, and more. With an emphasis on customer retention, personalization, and improved data-gathering initiatives, customer experience is at the forefront of digital-only banking. Chatbots are becoming the preferred technology and will only get better and help mobile banking, making it the perfect trend for mobile banking.

10) Blockchain in mobile banking Apps

Blockchains are distributed ledgers that speed up and lower the cost of transactions like the technology underlying Ethereum and Bitcoin, It is widely expected to be used in mobile banking as also in banking in general . Blockchain is anticipated to speed up loan processing, settlement and clearances, payments, and other processes in digital banks. Money is converted into cryptocurrency by a bank and sent to the destination nation, which then exchanges it for local currency and completes the transaction. Blockchain technology will streamline peer-to-peer transactions, enhance digital identity verification, facilitate quicker payments, and detect fraud in mobile banking. Users of mobile banking will benefit from simpler sign-up procedures, 24/7 access, real-time updates, and more thanks to blockchain.

Blockchain technology is now more widely known in the financial industry thanks to cryptocurrencies. Numerous FinTech businesses are using blockchain technology to provide safe and open financial services. Blockchain is a quickly developing trend in mobile banking that speeds up payments while reducing processing costs. Redefining mobile banking and improving digital security are two more benefits of using blockchain to root a decentralized channel.

Certain integral advantages of blockchain technology include:

- Simplify Accounting & Auditing.
- Faster Payments.
- Digital Identity Authentication.
- Efficient Settlement Structures.
- Peer-To-Peer (P2P) Transmissions.
- Blockchain Accelerates Fundraising Method.

11) Gamification

Gamification is the superlative way to increase user engagement and educate users about any banking app. Therefore, implementing this banking trend in 2023 will make banking tasks more gratifying by lowering the churn rate and increasing session lengths and daily active users.

12) Unique user-experience

The collection and processing of data at an entirely new level can be achieved with the help of AI, Big Data, and ML technologies, in order to obtain a reasonable return on investment, one needs to act upon the enormous data. So, to say, use this data to give users of the mobile banking app experiences that are unique and customized. Their loyalty will be inextricably linked to the bank and services once they experience such a unique handling. This also helps eventually to increase profitability by providing a customized user experience.

13) International Money transfer

The mix of comfort, access, cost-viability, better trade rates, and upgraded security has brought in worldwide cash movement through portable banking applications.

Furthermore, furnishing clients with the capacity to move cash across boundaries to companions or family without leaving the portable banking application provides an upper hand.

14) Low-Code, No-Code Solutions

The pattern of Low-Code and No-Code arrangements alludes to the improvement of programming stages with insignificant or no coding to make a computerized interaction very cost-effective. It is exactly the same thing that we know as a Minimum Viable Product in the product improvement realm. It can become one of the top versatile financial patterns in 2023.

The explanation is, it permits banks and FinTech new businesses to get their item in the market with essential usefulness in a brief time frame.

15) Green Banking

Banks will emerge as environmental stewards, using data to assess borrowers' impact. Imagine prioritizing loans for renewable energy or energy-efficient buildings, channelising capital towards a greener future. Investment portfolios will also line up corporates which are aligned to robust environmental, social, and corporate governance practices. Banks can even offer preferential rates for customers choosing sustainable options like electric vehicles or energy-efficient upgrades.

Mobile Banking App Trends as also any alterations in customer expectations mandate agility and out of box preparations.

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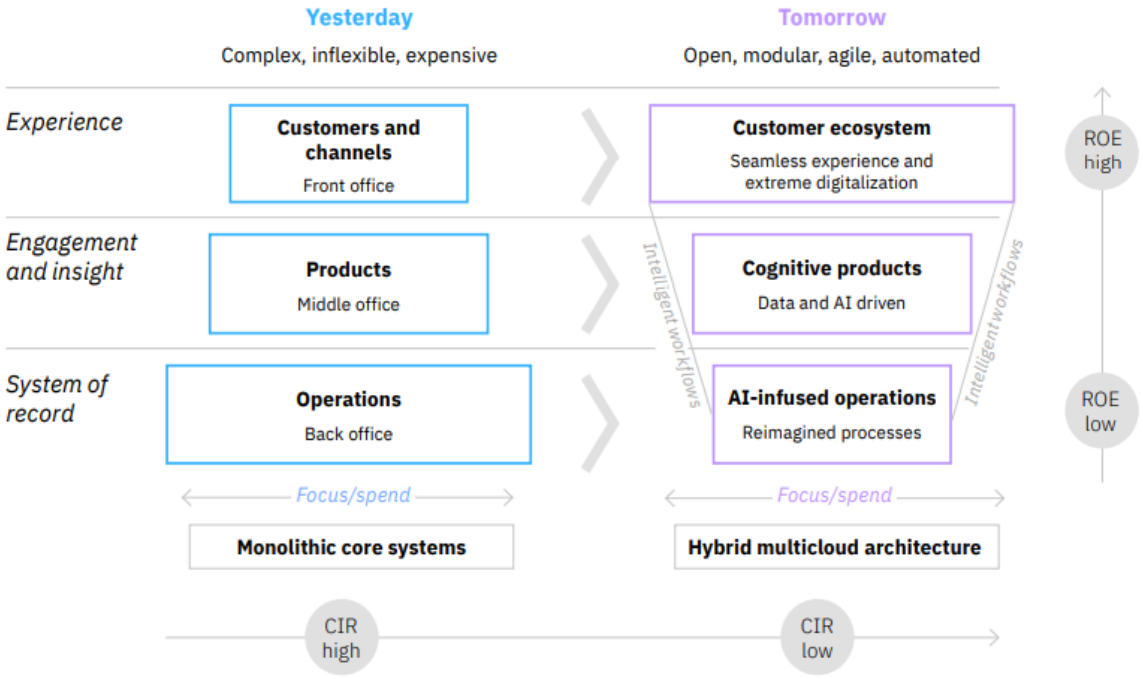
- Exclusion of ATM cards for cash withdrawal
- Biometric authentication to use the app
- AI-supported customer service
- A-B-C-D verification process
- Mobile apps to execute banking activities
- Convenient debt management
- Voice banking facility

The Future of Banking Services

the traditional business architecture is reshaped by exponential technology, by 2030 India, expects a banking revolution driven by exponential tech. Traditional, branch-centric models will be overturned on their head. AI-powered chatbots and mobile apps will become the primary touchpoints, contributing hyper-personalized financial services. Open banking APIs will unlock a wave of innovative fintech partnerships, while blockchain could streamline cross-border transactions and secure instant settlements. This tech surge will surely redefine Indian banking, making it faster, further inclusive, and hyper-focused on the budding needs of its customers.



Source: IBM

CONCLUSION

The proliferation of mobile phones and digital connectivity has produced fascinating prospects for financial inclusion in India. With a new level of online, mobile, and omni-channel services, a progressive bank should remain in the forefront, adopting technologies that meet consumer demands for wealth, trust, security, and financial well-being.

Specifically, because of its availability, cost associated being low as well as the ease of use, technology holds the promise to make financial services available to hundreds of millions of individuals. India is experimenting with a number of novel concepts in financial inclusion in practically every area, together with technological platforms, banking and payment methods as well as regulations.

- Digital Change: Modernizing retail banking items to prepare them future.

- Risk and Consistence: Hazard and consistence arrangements guarantee that the bank conforms to guidelines like AML and KYC and keeping in mind that additionally shielding them from misrepresentation.

- Open Banking: Open financial arrangement keeps client information safe and gives more noteworthy monetary straightforwardness.

- Payment Arrangements: Giving P2P, B2B, and other continuous, simple, and safe instalment arrangements.

- Data-Driven banking: simulated intelligence and ML-based arrangements can assist keeps money with giving a consistent and bother free insight to their clients.

- RPA: Computerize administrative operational activities to lessen functional costs.

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