

DIGITAL TRANSFORMATION IN BANKING – DRIVERS, SUCCESS FACTORS AND IMPLICATIONS



DR. KIRAN VAZIRANI

Assistant Professor, School of Business and Management
CHRIST (Deemed to be University), Bengaluru, Karnataka, INDIA
ORCID: 0000-0001-5591-6874

DR. RAMEESHA KALRA

Assistant Professor, School of Business and Management
CHRIST (Deemed to be University), Bengaluru, Karnataka, INDIA
ORCID: 0000-0001-6274-6324

ABSTRACT

Financial services are the lifeline of an economy as it encourages both savings and investment. A strong and mature financial system promotes high levels of investment as well as growth of a productive economy. In India, the financial system comprises of financial instruments, institutions, services and markets. Banking sector constitutes the most important segment of financial services as it accounts for around 80 percent of the funds flowing through the financial sector. The role of banking has changed drastically and positively over the last decade with technology permeating in every walk of services offered by the banks. Instead of offering 'conventional banking' services, banks have now started offering 'convenient banking' services to its customers. As new technologies have emerged and customers' expectations have increased, banks have adapted and innovated themselves in order to survive in the rough competitive environment.

In this paper, we the explored drivers, objectives, success factors, and implications of digital transformation in the Indian Banking industry. Also, the present study is an attempt to understand how technology is altering the ways that the banking industry works with a special emphasis on the technological innovations that happened in the last 5 years. This investigation is conducted through a systematic literature review. The article will also include the discussion on the trends in the implementation of innovations in the banking sector along with the challenges and the way ahead.



Keywords	Financial sector, Banking sector, Digitalization transformation, Technological Innovations, Mobile and Online applications
JEL Classification	G21, G20, Q55
Cite this Article	Vazirani, Kiran., Kalra, Ramesha., (2021, September). Digital Transformation in Banking – Drivers, Success Factors and Implications. In Perspectives on Business Management & Economics (Vol. V, pp. 43-53). Retrieved from http://www.pbme.in/papers/515.pdf
Article History	Received: July 25, 2021; Accepted: August 21, 2021; Published: September 30, 2021

INTRODUCTION

The pace of technological advancement and innovation is reshaping the business environment and their operating models. In this current tough competitive scenario, the only mantra to survive and succeed is 'early adoption to new technology'. Technology-driven innovation has not left even the financial sector behind. It has changed the way services were offered earlier. There has been an extensive expansion of the Indian financial system, out of which banking sector is considered as the most significant component.' Banks are the lifeline of an economy and indispensable for its growth. They have a much greater role to play than in the past. Instead of offering 'conventional banking' system, banks now-a-days have started offering 'convenient banking' facilities to its customers. This has even helped them meet changing customer expectations.

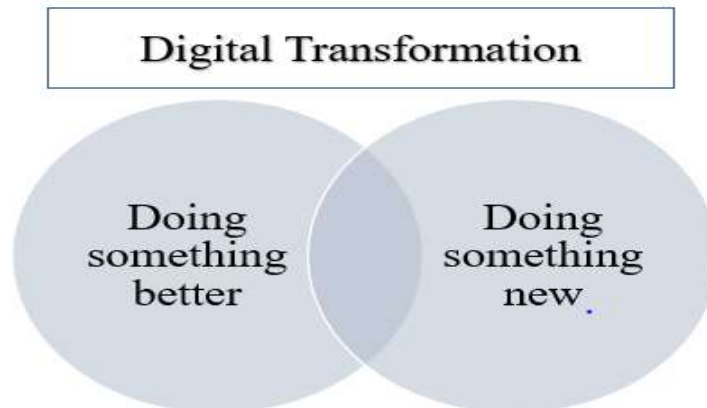
It is a well-known fact that technology accelerates transformation. Undoubtedly technology plays a key role in shaping up next generation banks. It is evident that the major technological innovations have taken place in India since the last two decades, making it possible to reach customers 24*7. The starting point of transformation took place with the computerization of branches in 1980s and thereafter with the establishment of the first ATM in India in the year 1987 by HSBC bank. Gradually, in the 2000s the advent of internet banking, NEFT, RTGS brought a complete breakthrough in the banking sector. The banking sector was seen moving slowly towards cashless, paperless and contactless banking. With the adoption of technology, supportive regulatory landscape and ever-growing customer expectations, banking aims to provide better value to its customers.

DIGITAL TRANSFORMATION

Digital transformation happens in three different phases, starting with Digitization which means converting all the content and process from analog to digital. Second phase is called as Digitalization which means improving on the existing digital technologies by adding multiple software and technology to the existing system. The last phase is called as Digital Transformation which occurs as the last stage in the process and includes leveraging new and emerging technologies, incorporating with existing ones to enhance the whole business model, changes in the human capital structure and skills to match with the new model for exploring new business opportunities.



In other words, digital transformation includes, doing something better and doing something new. And this should happen at a larger scale, may be like to the whole organization. This will lead to skill enhancement of employees, explore new ways of customer service and satisfaction, finding ways of improvise the revenue percentage, a better business model with high level of accuracy and innovation.



Source: Author compilation

RESEARCH OBJECTIVES

The major focus of current research is:

1. To examine the drivers, success factors and implications of digital transformation in the Indian banking industry.
2. To infer the implication of digital transformation in the Indian Banking Industry.
3. To examine the transformation journey of Artificial Intelligence in the banking sector.
4. To explain the challenges of implementation of AI in the banking sector and propose suggestions to overcome them.

DRIVERS SUCCESS FACTORS FOR DIGITAL TRANSFORMATION

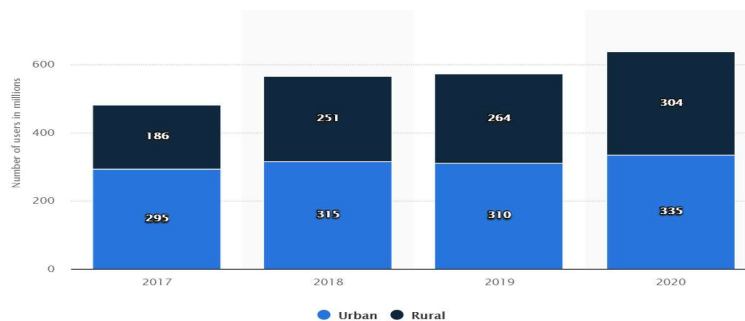
The dictionary meaning of driver is “The impetus, power, or energy behind something in motion”. Or in other words, an internal or external force which pushes the given condition or scenario to continue for coming future. Drivers in case of Digital transformation includes all those factors, practices, areas which triggers or forces the transformation happening in the Indian banking Industry. Every player of the industry is supposed to make a report on these factors and forces, which will help the respective firm to make themselves stand out in the industry during transformation phase. To be very precise about digital transformation, it includes, transforming process, people and Tools required for a specific task or business model.

Indian banking industry comprises of different types of Scheduled banks, Domestic banks, and foreign banks, operating in such a diversified population. Digital transformation in Indian banking industry includes improvising the process, associated people and tools used for betterment of the industry as a whole.



a) Increase in percentage of millennial population – As per the article published in Outlook India on January 17, 2020, India has one of the largest millennial populations in the world, which is approximately 34% of the Indian population and 47% of the Indian workforce population.

b) Increase in internet penetration in Indian Population – As of the data provided by Statista.com in 2020, there are approximately 560 million internet users in India. India stands at second largest online market. As per the previous trends, it is estimated that by year 2020, the total number of internet users will cross the count of 650 million. But still, if we see the penetration of internet remains as approximately to 45% by year 2020. The penetration has increased to its double fold if we compare to last five years, which stood near to about 27%. The growth has not only seen in the urban areas of the country, the internet users have been increasing in the rural areas also.



Source: <https://www.statista.com/statistics/751060/number-of-internet-users-by-region-india/>

c) Increase in the intensity of competition in Indian Banking Industry – as per the report of IBEF, The Indian banking system consists of 12 public sector banks, 22 private sector banks, 46 foreign banks, 56 regional rural banks, 1485 urban cooperative banks and 96,000 rural cooperative banks in addition to cooperative credit institutions. As of November 2020, the total number of ATMs in India increased to 209,282. The report clarifies that in 2019, banking and financial services witnessed 32 M&A (merger and acquisition) activities worth US\$ 1.72 billion.

d) Technological advancement – In the year 2020, India stands at rank 48 in the Global Innovation Index (GII). According to an article in Times of India in the month of February 2021, India occupies the third rank in terms of the most attractive investment destinations for technology transactions globally. McKinsey report claims that by the end of the year 2021, the number of estimated smart phone in India will be around 700 million.

e) Change in consumer behaviour, expectations and Need for Speed – As there is an increase in the industry competition intensity, penetration of internet, technological advancement, all these factors have supported to change in the expectations of consumers in terms of products provided by different financial institutions, the service delivery – both in terms of rate and accuracy, the accessibility of the service 24 by 7, high skilled service providers with all sort of related information, assisting in tax saving methodology, etc. this change in the expectations has made each player of the industry to look for transforming their existing



system like including AI, mobile application development, 24 by 7 contact with AI enabled chat box, phone banking, etc.

f) Availability of foreign players in the industry – As mentioned above, currently there are 46 foreign banks operative in different states of the country. These foreign players help to bring the advanced work culture, higher standard of service delivery, better technology, etc which act as drivers to advancement of Indian Banking Industry. The result can be evidently seen as - according to the RBI, India's foreign exchange reserves reached US\$ 582.41 billion, as of April 16, 2021. In April 2021, Unified Payments Interface (UPI) recorded 2.73 billion transactions worth Rs. 4.93 lakh crore (US\$ 67.31 billion).

g) Support from the Government – In a democratic country like India, the government's vision about the nation decides the growth of any industry. In last 5 years, government has taken multiple initiatives for betterment of Indian banking industry, like Pradhan Mantri Jan-dhan Yojana, divestment of banks as well as consolidating 8 small banks under one umbrella, increasing the budget for improvising financial inclusion and digitalisation of banking services to make sure the reach should be improvised. According to the industry report provided by IBEF - The number of transactions through immediate payment service (IMPS) increased to 322.96 million (by volume) and amounted to Rs. 2.99 trillion (US\$ 40.85 billion) by value in April 2021.

h) Enhanced Skills of the employees – According to Deloitte's Millennial survey report – 2019, millennial population assumes that it is the responsibility of Businesses and Employers to make their workforce ready for Industry 4.0. so, with that thought in mind, employees expect a regular skill enhancement session, training for technical upgradation, regular session on briefing about the new product, etc. In the same context, the availability of open sources of learning like NPTEL, MOOCs courses helps to improvise industry specific skills by the employees or the students at their own comfort place and timings. A skilled employee within an industry always acts as a catalyst for the development of the industry.

i) Vision of Leaders – The Liberalization in the investment policies, freedom to appoint the workforce from across the world, technology to have access from any part of the world, gives an immense scope for the different companies providing substitute and complimentary products to look forward a better visionary and guidance for the existing firms. For example, as per the RBI report, On November 6, 2020, WhatsApp started UPI payments service in India on receiving the National Payments Corporation of India (NPCI) approval to 'Go Live' on UPI in a graded manner. This type of moves ensures the tough competition in the industry which in turn result in higher level of innovation and accuracy in the current service system.

j) Growth opportunities in the new Indian market segment – Rural market as a new segment – The Indian Tractor market was segmented on the basis of land ownership among the farmers category. The farmers lesser than 2 acres of land were not taken as a target audience by almost all of the tractor manufacturing units. Mahindra and Mahindra inspected the rural segment of Indian market, and designed mini tractor for this untapped segment. The product was technically advanced, powerful and also backed by financial support provided by M & M finances. This example clearly signifies that before the concept of financial inclusion in India, the rural segment is not being a target segment for financial services. But after year 2000, the rural segment is treated as a huge untapped segment for financial services, including



Banking, Investment, and Life insurance. To continue on improvising the financial inclusion, IRDA has made guidelines to be followed by each player of life insurance industry to meet the targets for rural areas. Non-fulfilment of these criteria will lead to financial penalties.

k) Investment - now everyone is involved – According to a report by RBI, a survey conducted by National Centre for Financial Education says that only 27% of Indians are financially literate. If we see the figures gender wise, financial literacy among the female remains as low as 21%. But still the percentage by the year 2013 was just around 13%. There is a huge increase in the percentage of skilled women workforce, which in turn enhances the financial education, involvement in financial decision, investment in financial products, etc.

l) Availability of large number of substitute and complimentary products – In last 5 years, the Indian market has changed to House of brands – multiple brands under one umbrella, satisfying multiple needs of customers by providing them solution under one roof. This was possible only with the support of government initiatives who has focused upon increasing the financial inclusion in the country.

OBJECTIVES OF DIGITAL TRANSFORMATION

Berghaus and Back (2017) explained that the major objective of any firm to look forward for change or digital transformation is to ensure the readiness for the change expected in the upcoming future. It was also explained that digital transformation brings the scope of innovation, better service delivery, smooth and less disruptive business model. All these practices will improve the competitive position of the firm in the respective industry and explore new ways of generating revenue. The major objectives behind a player of Indian banking industry to look forward for digital transformation includes -

1. To match the industry requirements
2. To match the Employee expectations
3. To match the Standards provided by the Regulatory body
4. To match with the speed and accuracy as expected by customers
5. To match the new upcoming technically advance products

IMPLICATION OF DIGITAL TRANSFORMATION IN INDIAN BANKING INDUSTRY

With the current pandemic, where social distancing was the need of the hour, banks have been successful in ensuring efficient services to their customers with minimum of disruption. Hence, Covid-19 became a complete game changer for banking industry where use of Artificial Intelligence, chatbots, cashless transactions, robo - advisors, AI led credit scores, digital lending have enhanced the scope and reachability of banking services to its customers. As per a report published by KPMG on 'Fintech in India – Powering a digital economy' in the year 2018, "The banking sector will account for 17% of the total AI spending, alongside the retail sector." Government support is a catalyst in the growth of fintech sector in India. To promote and facilitate the Digital India initiatives focusing on AI, big data, research and training, the Government of India has allocated Rs. 3073 crores towards the initiative. Digital payments have recorded a growth of 30.19 per cent during the year ended March 2021, reflecting adoption and deepening of cashless transactions in the country, RBI data showed. As per the



newly constituted Digital Payments Index (RBI-DPI), the index rose to 270.59 at the end of March 2021, up from 207.84 a year ago (Source: ET News Article).

Table 1: Number of UPI transactions that happened in the year 2021

Months & Year	Volume (in Millions)	Value (in Rs. Billions)	Months & Year	Volume (in Millions)	Value (in Rs. Billions)
20-Jan	1304.9	2162.3	20-Sep	1800.1	3290.1
20-Feb	1325.6	2225	20-Oct	2071.5	3860.9
20-Mar	1246.8	2064.5	20-Nov	2210.1	3909.8
20-Apr	999.5	1511.3	20-Dec	2234.1	4161.6
20-May	1234.4	2183.8	21-Jan	2302.6	4311.7
20-Jun	1336.8	2618.2	21-Feb	2292.8	4250.5
20-Jul	1497.3	2905.2	21-Mar	2731.6	5048.7
20-Aug	1618.7	2982.9	21-Apr	2641	4936.5

Source: NPCI Website

It is clearly evident that the number of transactions per month are exhibiting an increasing trend. Banks and financial institutions stand to benefit significantly from AI. Whether to improve overall customer experience, take more informed decisions on credit underwriting, detect frauds and defaults early, improve collections or increase employee efficiency, AI has the potential to transform India's banks. (Source: Report by Institute of Development and Research in Banking Technology).

Table 2: Transformation journey in the banking sector through AI based solutions:

Banking Service	Details
Instant feedback on service quality	Banks in India are using AI based applications to get instant feedback on the service quality offered to the customers through the capturing of facial expressions of the customers using the camera installed in the bank branches.
Fraud Detection	The use of AI is quite useful in fraud detection which is one of the potential causes of NPAs of banks. AI based machines which

	continuously analyses and processes data. Such machine raises alerts to suspicious behaviour and interprets unusual trends to detect whether a transaction is fraudulent.
Generation of personalized portfolio statements for customers	AI is also used to generate personalized easy-to-understand portfolio statements for their customers in almost four different languages.
Conversational Chatbots	Chatbots are software-based programs that help to facilitate conversations. Chatbots are deployed on banking websites and apps to provide real time customer interaction without any waiting time. It offers the convenience of being available round the clock, instant, converses in easy-to-understand text and guaranteed customer satisfaction.
Digitization of KYC process	Offers the convenience to use digital channels to complete KYC formalities with much ease and speed. During the ongoing Covid pandemic, the RBI even went a step further to allow video KYC to facilitate the onboarding of new customers.
Financial Advisory Services	AI has also proved immensely useful in the financial sector in offering financial advice to its customers. INDWealth is one such AI based platform that offers services like financial planning, portfolio management, tax-saving strategies and so on.
Digital Lending	Disbursement of loans is also made possible using digital platforms. With big data analytics, credit rating tools have been developed which are designed to provide credit rating based on the borrowers' social media activity, spending pattern, repayment capacity, willingness to pay and mobile phone usage. These tools run algorithms, statistical techniques and decision trees to provide a more detailed view of the creditworthiness of the borrower,

	thereby enhancing the quality of credit rating and speedy disbursal of loans.
Robo advisors	Robo advisors are highly specialized bots that support in financial services and investment advice. In City Union bank, the banking robot, Lakshmi interacts with customers on more than 125 topics.

Source: Authors compilation

KPMG in India's CEO Outlook 2018 survey indicates that 94 per cent of CEOs look at technology disruption as an opportunity and 54 per cent CEOs have already begun implementing artificial intelligence for specific processes. According to HIS Markit's report, global spending on Artificial Intelligence is predicted reach \$ 300 billion by 2030.

BANKING DURING PANDEMIC

Fortunately, the building blocks of usage of AI and big data were laid much before the pandemic. Hence, retail banks were able to weather the storm of Covid-19 pretty well. They have successfully enabled their employees to work from home, and have been able to serve their customers with very little disruption through digital channels. A recent survey by McKinsey found that the expectations of almost nine out of ten consumers were met, or exceeded, by banks during the COVID-19 crisis. (Source: Banking beyond the pandemic (globalbankingandfinance.com)). The pandemic has indeed accelerated the digital transformation of the banking sector. When physically visiting the bank branches were considered to be a potential health risk, chatbots and e-banking services provided seamless customer services effectively.

CHALLENGES FOR AI ADOPTION

Considering the importance of AI in reducing human intervention and mundane tasks, it is suggested that AI is deployed across a range of banking functions for improving overall customer experience provided few bottlenecks and challenges are addressed to:

1. Availability of trained manpower/professionals in supporting successful usage and implementation of AI in various banking functions.
2. Implementation of AI can lead to a potential threat of unemployment to the employees who fail to adapt and implement the same.
3. AI based communication services can be effectively used if it is able to cater to India's diverse used languages as it should be able to comprehend the customer's language and respond in the similar manner.
4. Safeguarding and confidentiality of the customer data is a must. According to a report by the Data Security Council of India, India faced the second-highest number of cyber-attacks between 2016 and 2018. Hence safety and security of customers details and documents have to be ensured.



5. AI based solutions are dependent on the availability of the right amount of data which would be a challenge if the data is not correctly available.

If the challenges are converted into opportunities and are capitalized upon, the use of AI is surely going to spur on new innovation, new opportunities and better functioning of the banking sector.

FUTURE OF ARTIFICIAL INTELLIGENCE IN THE BANKING SECTOR

Banking is among one of the top sectors which have adopted AI rapidly. Artificial Intelligence will become an integral part of the financial service industry and make the whole experience of banking valuable and convenient for its customers without manual intervention. AI will play a pivotal role in helping banks automate their processes taking away monotony, cost-saving and seamless services, saving of human resources for more complex tasks and overall bringing efficiency when it comes to banking services. Digital Banking experience will be a game changer for enhancing customer satisfaction post-COVID.

CONCLUSION & SUGGESTIONS

The Indian Banking Industry has seen the three phases of Digitalisation. And the current pandemic situation is acting as a catalyst for the digitalization of major aspects of the economies. The application of AI in the banking services sector have not only helped in automation of services but also in extending these services to the underbanked sections of the society. However though in India, the usage of AI has improved but still it is in nascent stage with several unexplored opportunities. One of the important challenges faced by banks in India is the availability of right people with right skill set on data science and analytics. The Universities and colleges have started offering courses related to big data, business analytics and artificial intelligence to develop right pool of talent who can leverage technology for a better future.

The data mentioned in the chapter clearly states that there is an improvisation in the skill set of work force, which can be further utilized by the corporate and the banking firms is the human capital is being trained upon. The Deloitte survey clearly says that the millennial population is more inclined towards change or learning new skills or technology. Regular training sessions by banking firms will work as catalyst for an advanced and strong banking service in the diversified country like India. The penetration of AI enabled services by banks can be more improvised if the content is enabled with regional languages too. Because of the increase in the mobile and internet users, the reach of the financial services can be improvised with mobile banking applications and AI services.



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