

“A Comparative Study on Operational Efficiency Achieved through Artificial Intelligence in Public Sector and Public Sector Banks”

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“Machine intelligence is the last invention that humanity will ever need to make.”

Nick Bostrom

Brief Note on Indian Banking Sector

The Indian banking system consist of 27 Public Sector Banks, 22 Private Sector Banks, 44 Foreign Banks, 56 Regional Rural Banks, 1589 Urban Co-operative Banks and 93550 Rural Co-operative Banks.

Indian Banking Industry has innovative banking models for payments and receipts. But the Indian banking industry has to be restructured to suit the needs of large number of people. The bank re-capitalization plan initiated by Government of India may increase credit growth in the Financial year 2019. The Government and Regulator have taken various steps to strengthen banking sector like two year plan to strengthen the public sector banks through reforms and capital infusion of Rs. 2.11 Crore by Government of India and the insolvency and Bankruptcy Code Ordinance 2017.

Objectives of the Study

1. To know the applications of artificial intelligence in various banking operations
2. To assess the operational efficiency achieved through artificial intelligence in public sector and private sector banks

Scope of the Study

This study covers an assessment of operational efficiency achieved through artificial intelligence between SBI and private sector banks like HDFC, ICICI and Axis bank.

Methodology of the Study

The study is descriptive in nature and is based on secondary data. The data are collected from various reports, journals, news articles, various bank portals, RBI portal and internet sources.

Mergers and Acquisitions in Indian Banking Sector

Mergers and acquisitions are combination of two or more companies into one company and acquisition is taking over one company by another company. Mergers and acquisitions are done to reduce the cost of capital, to improve company's performance and growth, to diversify products and markets, to increase market share, to adopt latest technology and to diversify risk.

Mergers and acquisition in few banking organizations are

- Merger of ICICI Bank with Bank of Madura in 2001
- Merger of Centurian bank with bank of Punjab in 2005
- Merger of IDBI bank and United Western Bank Ltd in 2006
- Merger of Five associate banks and BharatiyaMahila Bank with SBI on April 1st in 2017

Merged banks are growing after merger and there is an increase in number of branches and ATMs as well as increase in number of transactions.

Banking Consolidation

In order to run the efficient banking system, consolidation of the banks is a commercial decision, whereas the recapitalization of the public sector banks is an immediate issue. Non performing asset is a major problem most of the public sector banks are facing nowadays. So, in order to sort out this issue RBI has already started recognizing the bad assets provision. The main logic behind this consolidation is cutting the cost and acquiring efficiency which is gained through digital savvy.

SBI has attained the speed of 15000 transactions per second as their current utilization is only 4600 TPS through consolidation. It has increased the ATM servicing to 59263 which makes the "future ready" and to maximize revenues which leads to significant cost savings and reduction in cost to income ratio. It also improved both revenue and cost parameters of operating profit with a growth of 17.55% year on year and the major challenge for the consolidation of banks is integration of technology as various banks are currently operating on different technology platforms.

Emerging Technologies in Banking Sector

- Fintech services
- Innovation labs
- Electronic payment system
- UPI(unified payments interface)
- Digital wallets
- Wearable technology
- Artificial intelligence and Robotics
- Biometrics, Block chain, Big data analytics(3 Big B's)

Artificial Intelligence

Artificial intelligence is a reality today and it is impacting our lives faster than we can imagine. It is omnipresent. Artificial Intelligence has become a crucial and integral part of Banking Industry. Artificial intelligence is the composition of machine learning, natural language processing and cognitive computing. The concept of Artificial Intelligence is to simulate the intelligence of humans into artificial machines with the help of sophisticated machine learning and natural language processing algorithms. The objective behind transferring the intelligence from humans to machines is to overcome all the barrier of human intelligence.

Applications of AI in Indian Banking Sector

1. AML pattern Detection
Anti-money laundering pattern detection is the process of using artificial intelligence which is designed to control the practice of generating income through illegal actions and unethical sources.
2. Chat Bots
Chat bots are mainly used in the banking industry in order to enhance the customer relationship management. These are the automated chat system which simulate human chats without human intervention.
3. Fraud detection
One of the major area where artificial intelligence has excelled by providing accurate results is fraud detection. It is mainly based on neural network shell.
4. Customer Recommendation
Customer recommendation is mainly based on using the customer data from the past and offering them various services from bank like credit card plans, investment strategies and funds based on customer preferences and their history.
5. Customer support and help desk
Humanoid Chatbot interfaces is effective in increasing operational efficiency in customer interactions
6. Risk management
Products can be offered to clients by looking at customer data, analyzing the risk and eliminating human errors
7. Security
Suspicious behavior and spurious emails can be tracked down to prevent and possibly predict security breaches
8. Digitization and automation in back-office processing
To cut down the back office processing times, capturing documents data using OCR is used.
9. Wealth management for masses
Personalized portfolios can be managed by Bot Advisors for clients by taking into account lifestyle, appetite for risk, expected returns on investment
10. ATMs
Image/face recognition using real-time camera images and advanced AI techniques such as deep learning can be used at ATMs to detect and prevent frauds/crimes.

Key elements of a successful AI strategy

- An integrated approach to hardware, software and data
- Speed and flexibility
- The right software and algorithms

The Comparative Study on Operational Efficiencies Achieved through Artificial Intelligence in Public Sector and Private Sector Banks

For our comparative study we have considered SBI one of the largest and leading public sector bank in India and Private banks like HDFCBank, ICICBank and Axis bank

SBI

It has launched SIA and AI powered chat assistant that answers customer's enquiries and helps customers with day to day banking activities. SIA is set up to handle nearly 10000 enquiries per second or 864 million in a day, in and around 25 % of the queries are processed by google everyday. SBI claims that SIA continuously improves after each interaction with customer and gets improved over time

HDFC Bank

It has developed an AI- based chatbot called EVA(electronic virtual assistant) which is built by Bengaluru based senseforth AI research. It addresses over 2.7 million customer queries, interacted with over 5.3 lakh unique users and held 1.2 million conversations. EVA provides answers in less than 0.14 seconds. Immediately after the launch of EVA, it has answered more than 1 lakh queries around the globe.

ICICI Bank

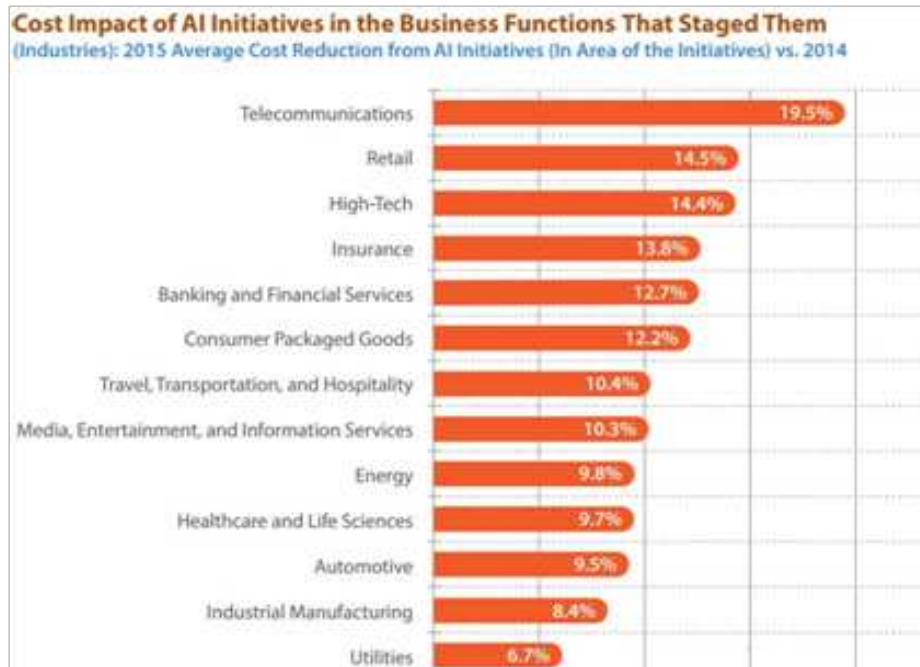
According to spokesperson of ICIC bank, ICICI bank is using software robotics for 200 business processes for various functions. In ICICI banks software robots have reduced customer response time upto 60% and increased accuracy to 100% by improving the banks productivity and efficiency

Axis Bank

Axis bank launched an artificial intelligence and NLP (Natural language processing) enabled application to help customers with financial and non-financial transactions. To help in reducing turn around time(TAT) the bank has implemented artificial intelligence across more than 125 processors which needed repetitive manual labour, according to bank officials (previously an employee spent 15 minutes to do data entry and scrutiny for opening a savings account, but now the bank takes only 2-3 minutes.

Comparison

Parameters	SBI	HDFC	ICICI	Axis Bank
Artificial intelligence used	SIA	EVA	Software robotics	NLP
Operations	Customer interaction	Customer queries	Customer response time(CRT)	Turn around time(TAT)
Efficiency achieved	864 millions enquiries per day	2.7 million customer per day	CRT reduced upto 60%	TAT reduced upto 5 times



(Source-<https://www.consultancy.uk/news/14017/how-artificial-intelligence-is-transforming-the-banking-industry>)

Conclusion

This paper concludes that artificial intelligence reduces the operation time and increases operational efficiency through cost reduction. As per the study each banks has applied artificial intelligence in different operational areas where they have achieved operational efficiency. Still there is a scope for application of artificial intelligence in other areas of banking operations which will further improve their operational efficiency. But there is scarcity of human resources with the right data science skills. All consumers are not comfortable and confident in using artificial intelligence in banking sector. Through the artificial intelligence there is a cost impact of 12.7% in the banking services. Artificial intelligence is always accompanied by the threat of safety and security of customer data and transactions which has to be regulated through stringent cyber laws framed by the central government

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