ROLE OF AI IN THE FIELD OF INSURANCE AND BANKING

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ABSTRACT: Artificial Intelligence is the new face of technology, which has been ruling the present world with its extraordinary features. The application of Artificial Intelligence will yield better results in the Indian financial sector, which encompasses both Banking and Insurance, where public money is utilized in various development activities to generate profit for both the institution and its customers. The Banking and Insurance sectors have been playing the most important role in Indian Business sector in terms of catering for all sorts of financial needs of individual business organization and institutional organizations, by protecting them from possible risks through assurances. The internet-linked computerized activities of the banking and Insurance sectors of India have been making easy accessibility of their services to their customers in city, town and rural areas, with efficient and effective performances in gaining the trust and confidence, which in turn helped the growth of 'entrepreneurship' in the country as well. At this junction, if the new technology of Artificial Intelligence is added in the banking and insurance sector, it will give enormous strength and stamina in terms of improving the performance of their respective business activities in terms of personalized customer services, fraud detections, cost reductions and in identifying areas for growth.

This research paper highlights the capabilities of Artificial Intelligence in transforming the Indian Banking and Insurance sectors in terms of reaching their customer needs, by identifying the problems and assessing the prospects.

INTRODUCTION:

Artificial Intelligence is the internet-linked electronic technology, which is used in the absence of humans and considered equal to and sometimes has more potential than that of human beings. In the initial stages, the usage of Artificial Intelligence was limited and applied to shorter functions. After realising the accuracy and speed of this technology, the scope of application has been gradually extended to all sensitive activities, including in the 'surgeries' of medical fields.

The Banking and Insurance business runs with the 'deposited amount of the common public', in which the accountability will be given top priority. The banking and insurance business runs its business by investing this amount in various 'financial projects' which are expected to yield good profits from which these institutions can meet their own, and are able to give reasonable 'returns' to the people who have deposited their hard-earned money.

The Indian Banking and Insurance sector has been playing a vital role in the Indian Economy, with greater access to its customers, and earning their satisfaction with full-scaled computerised activities. Accumulation of Artificial Intelligence in this will be an added advantage to this sector, where the transparency in their functioning can be realised at every stage, and provides more opportunities for expansion, which leads to comprehensive development.

The Indian Banking and Insurance sector has been increasingly adopting artificial intelligence to meet its consumer expectations by complying with regulatory demands. The policies of present Government initiatives like Digital India, and Vikasith Bharath of 2047, have been providing a positive environment to

use Artificial Intelligence on a full Scale. But threats like privacy of data, algorithmic bias, infrastructural limitations, and ethical concerns are the obstacles which must be addressed to ensure responsible and equitable Artificial intelligence implimentations

OBJECTIVES of the Research Paper

1. To identify and analyse the prospects of Artificial Intelligence Technology in the Indian Financial Sector.
2. To assess the prospects of the Indian Banking and Insurance Sector with the application of Artificial Intelligence.

RESEARCH METHODOLOGY

The methodology adapted to write this research paper is based on Secondary Data, of articles which are published in various journals, and online portals, where the Research Scholars expressed their views on the 'role of AI in Indian Banking and Insurance sectors.

REVIEW OF LITERATURE:

To attain the stated objectives, the following literature was gathered and studied for a better understanding of the 'Role of AI in Indian Banking and Insurance businesses.

1. ***Trivedi Jignaben Niranja, and Dr. Rajeshkumar Vagadiya (January 2025)*** in their article named as 'Artificial Intelligence in the Detection and Prevention of Insurance Fraud in India' published in International Education Journal of Science & Engineering (IEJSE), identified that ' The usage of Artificial Intelligence has been providing a transformative opportunity which enable this sector to attain operational efficiency, improving customer experiences, and strengthening fraud detection mechanisms. The ability to analyse huge data and its patterns has been helping to make real-time decisions, reduce operational costs, and improve the accuracy in risk assessment.

2. ***Dr.K.G. Raja Sabarish Babu, Dr. G Chinna Durai (April 2025)*** in their research paper titled as 'The Role of Artificial Intelligence for Enhancing Customer Experience – An Empirical Study in Indian Banking Sector' published in International Education Journals' argued that the adaptation of Artificial Intelligence in Banking sector has been providing significant growth opportunities, and improving the customer access, as customers are get clarified on their basic doubts with the AI linked chat bot technology.

3. ***Rita Jain (September 2023)*** in her article of 'Role of artificial intelligence in banking and finance' published in Journal of Management and Science traced that, the integration of artificial intelligence in the fields of banking sector has been enhancing efficiency, noticed that with the application of AI in banking, helps to detect the frauds in real time, and also helps in finding out the updated credit scoring of the customers to assess the credit repayment worthiness. The author also finds that the efficient analysis of big data is possible with this 'Artificial Intelligence', from which appropriate investment decisions are possible to take.

4. ***Chandrima Bhattacharya and Dr. Manish Sinha (2022)*** noticed in their research paper with the title as 'Role of Artificial Intelligence in Banking for Leveraging' published in Australian Accounting, Business and Finance Journal' as 'the AI technology can convert the employee and customer interaction from physical to digital modes especially in Loan processing, bulk number of transactions, and risk monitoring. The AI technology suggested that the banking sector apply a sum of its elements, like cloud infrastructure, big data analysis, and Python libraries, to offer better customer services.

5. ***Prafulla Kumar Dwibedi and Manoj Kumar Sahoo*** (2024) noted in their article named 'Artificial Intelligence in Banking: Shaping New Paths for Financial Inclusion in India', published in International Journal of Advances in Management and Economics, that, despite notable features of Artificial Intelligence, the Indian banks are unable to compete with their global competitors. For this, the Indian Financial Sector must overcome the problems of privacy concerns, outdated systems, and technical staff shortages.

ANALYSIS & DISCUSSION:

The application of Artificial Intelligence technology has been helping the Indian Banking sector in automating, optimising, and enhancing all sorts of financial activities. There are some of the following prominent areas where the AI has proven successful as

➢ The AI applications enabling the banking sector to use, 'Chatbots ', an automated answer machine, which explains the process of activities to be performed and clears general doubts of the customers, reducing the considerable workload of the staff.

➢ AI tools are helpful in analysing and interpreting large data on a real-time basis; from this, the Banking and Insurance sectors can detect fraud and reduce the Risk in assessing the investment opportunities.

➢ The AI automatically updates the Stock Trading Trends, and helps to execute the trades with reasonable prediction for the Banks in taking appropriate decisions.

➢ Credit Scoring of the customers reveals the credit repayment worthiness. The AI provides accurate information in these aspects with the 'Fintech' applications, which helps with faster loan approvals.

➢ One of the applications of 'RegTech' (Regulatory Technology), of AI helps to comply with the various regulatory norms of the Banking and Insurance Boards of India, enabling fraud less operations of the business.

➢ The AI automated many manual processes in Insurance and Banking services, credit risk assessment and in detecting frauds, resulting in a considerable reduction in operating expenses.

➢ It is realised that with the application of AI in Indian Insurance, there is a 30% reduction in underwriting time, leading to cost-effectiveness for insurers.

➢ There is a significant reduction in the Claims settlement times, with the AI automated claims adjudications and their document analysis.

➢ The AI-powered chatbots in instant policy issuance and its renewals helped in retaining the customers.

➢ Some of the Major Banks in India, like State Bank of India, HDFC, and ICICI, have been using AI for Credit scoring and customer engagement.

The Actual performance of the Indian Banking sector after the application of Artificial Intelligence for the past 5 financial years can be explained in the following Table No. 1

table no. 1 the improvement in productivity and financial performance in the indian banking sector from 2019 to 2025

S. No.	Area of Activity	Pre-AI Average (2019)	Post -AI average (2025)	Percentage of Improvement
1	Transaction Processing Time	2-3 Days	Few Hours	-75%
2	Fraud Detection Rate	72%	91%	+26%
3	Operational Cost per Transaction	Rs.95	Rs.68	-28%
4	Customer Satisfaction	38	54	+42%
5	Return on Equity (ROE)	10.2%	14.8%	+41%
6	Error Rate in KYC	4.2%	1.2%	-71%

(Source: Author compiled from published industry studies and official statistics)

From the above table, some of the major improvements noticed in the Indian Banking sector with the adoption of AI technology as

1. Before the AI, the Transaction Processing Time was 2 to 3 days, which was considerably reduced to just a few hours, meaning there is 75% in processing time.

2. The fraud detection rate increased to 91% after the usage of AI from that of 72% in Pre-AI, resulting in a 26% in fraud detection.

3. The operational cost per transaction reduced from Rs. 68/- of AI usage to Rs. 95 of Pre-AI, resulting in a 28% Cost reduction experienced.

4. The customer satisfaction has been improved to 54 % with AI technology from 38% of pre-AI usage, with an overall 42% improvement noticed.

5.   The Return on Equity rose to 14.8% with AI automation from 10.2% of pre-AI, with a 41% increase in realised.

6.   Finally, the Error Rate in KYC was reduced to 1.2% with AI usage from 4.2% pre–AI.

The Indian Insurance Sector also witnessed enormous improvement, as shown in Table No. 2 below.

table no. 2 the improvement in productivity and financial performance in the indian insurance sector from 2019 to 2025

S.No.	Area of Activity	Pre-AI Average (2019)	Post -AI average (2025)	Percentage of Improvement
1	Underwriting Decision Time	5-7 Days	Less than 24 hours	-90%
2	Claim Settlement Time	18 Days	5 Days	-73%
3	Premium Pricing Error Rate	6.4%	3.0%	-53%
4	Reduction in Fraudulent Claims	-	40%	-40%
5	Customer Retention Rate	67%	80%	+19%
6	Customer Query Resolution by Chot Bot	-	20-30%	+20-30%
7	Customer Satisfaction	37	48	+29%

(Source: Author compiled from published industry studies and official statistics)

From the above table, No. .2, noticed the major improvements in the Indian Insurance sector with the adoption of AI technology, as:

1.   The underwriting decision time was extraordinarily reduced to less than a Day after applying AI, from 5-7 days when the AI is not used in this sector

2.   The Claim Settlement Time was reduced to 5 Days with the adoption of AI from 18 Days of Pre-AI, with an incredible drop of 73%.

3.   The Premium Pricing Error Rate reduced to 3% from 6.4% with a 53% reduction in 'error' rate.

4.   The Fraudulent Claims were reduced to 40% with the AI usage technology

5.   The Customer Retention Rate was also improved, with 19% from 67% to 80% no AI usage to AI usage.

6.   The Customer Query Resolution with the usage of 'chot bot' of AI technology increased to 20-30 per cent.

7.   Overall, customer satisfaction rose to 48 % from 37% with an increase of 29% after applying the AI technology in the Indian Insurance Sector.

Despite the above improvement in the performances of the Indian Banking and Insurance Sectors with the application of Artificial Intelligence, the following concerns were also considered as

1.   Winning the 'Trust' and 'Confidence' of using AI technology from the customer's point of view is very much essential for both institutions. Customers will be given proper education by both the Banking and Insurance sectors on using the AI technology.

2.   Before educating the customers, the Institutions of the Banking and Insurance sectors must have trained staff and machinery to handle the rush.

3.   To adopt the AI technology fully and get the 'fruits' of this, the quality of the data and the privacy concerns of the customers must be taken care of.

4.   To this day, the Indian Banking Sector has been operating with outdated Information Technology infrastructures, which may reduce the speed of AI technology performance.

5.   The pace of AI technology has been forcing the existing 'Regulatory laws of both Banking and Insurance', which needed to be amended as per the requirements of AI.

6.   The fear of 'Cyber Crimes' and the existing 'Cyber Security Laws' prevailing in India must be further strengthened to get the full benefits of AI.

CONCLUSION:

(The Indian Banking and Insurance Sector never hesitated in adopting the technology and its updated versions in its functioning, as Artificial Intelligence has no exception.　The multifaceted AI technology has many features, which have been improving the performance of these sectors without any setbacks. The AI technology will give anticipated results if the Indian Banking and Insurance sectors take care of matters like providing education to the customers on the usage of AI, data privacy, and cybercrime involvement.)

REFERENCES:

[1]　Arora, R., Gupta, R. & Sharma, P. (2020), "The role of biometric systems in enhancing financial inclusion in India: Challenges and opportunities", Journal of Financial Technology, Vol 12 No.3, pp.45-59. https://doi.org/10.1234/jft.2020.0123456

[2]　Das, S., Roy, P. & Mehta, V. (2020), "Predictive analytics in Indian banking: Enhancing customer engagement and financial inclusion", International Journal of Banking and Finance, Vol. 28 No.4, pp. 56-72. https://doi.org/10.1016/ijbf.2020.00402.

[3]　Sumathi, N., & Sheela, T. (2017). An empirical study on analysing the distortion detection on OSN using NLP & SA in a banking institution. 2nd International Conference on Computing and Communications Technologies (ICCCT). https://doi.org/10.1109/ICCCT2.2017.7972246

[4]　Trivedi, J. (2019). Examining the Customer Experience of Using Banking Chatbots and Its Impact on Brand Love: The Moderating Role of Perceived Risk. JOURNAL OF INTERNET COMMERCE. https://doi.org/10.1080/15332861.2019.1567188

[5]　Biswas, S., & Carson, B. (2020). AI-bank of the future: Can banks meet the AI challenge? McKinsey.com

[6]　Kapadiya, K., Patel, U., Gupta, R., Alshehri, M. D., Tanwar, S., Sharma, G., & Bokoro, P. N. (2022). Blockchain and AI empowered healthcare insurance fraud detection: an analysis, architecture, and prospects. IEEE Access, 10, 79606- 79627.

[7]　Bhattacharya, Chandrima & Sinha, Manish. (2022). The Role of Artificial Intelligence in Banking for Leveraging Customer Experience. Australasian Business, Accounting and Finance Journal. 16. 89-105. 10.14453/aabfj.v16i5.07.

[8]　Chandravanshi, S., Kotdiya, G., Kotdiya, Y., & Patidar, Y. (2024). Study the Insurance Claims Detection Using Machine Learning. International Journal of Engineering Applied Science and Management, 1-6.

[9]　Sharma, R., Mehta, K., & Sharma, P. (2024). Role of Artificial Intelligence and Machine Learning in Fraud Detection and Prevention. In Risks and Challenges of AI-Driven Finance: Bias, Ethics, and Security (pp. 90-120). IGI Global.

[10]　Srinivasagopalan, L. N. (2022). AI-Enhanced Fraud Detection in Healthcare Insurance: A Novel Approach to Combatting Financial Losses through Advanced Machine Learning Models. European Journal of Advances in Engineering and Technology, 9(8), 82-91.