



Original Article

**ADOPTION OF ARTIFICIAL INTELLIGENCE IN FINANCIAL SERVICES: A
SECONDARY DATA PERSPECTIVE**

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Manuscript ID:

IJAAR-130321

ISSN: 2347-7075

Impact Factor – 8.141

Volume - 13

Issue - 3

January – February 2026

Pp. 111 - 115

Submitted: 15 Jan.2026

Revised: 20 Jan. 2026

Accepted: 30 Jan. 2026

Published: 10 Feb. 2026

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Quick Response Code:



Website: <https://ijaar.co.in/>



DOI: 10.5281/zenodo.18537574

DOI Link:

<https://doi.org/10.5281/zenodo.18537574>



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Abstract:

Artificial Intelligence has emerged as one of the most influential technological developments shaping the functioning of financial services across the world. In India, the financial services sector has undergone rapid digital transformation driven by increased internet penetration and growth of digital payments. In this evolving environment, Artificial Intelligence is increasingly being adopted by banks, insurance companies, non-banking financial companies, and fintech firms to improve operational efficiency, enhance customer experience, strengthen risk management, and support data-driven decision-making. The present study examines the adoption of Artificial Intelligence in financial services using secondary data sources such as academic literature, industry reports, regulatory publications, and policy documents. The paper focuses on major application areas of AI in Indian financial services, including customer service, credit assessment, fraud detection, investment advisory, and regulatory compliance. It also analyses the benefits of AI adoption along with challenges related to data privacy, ethical concerns, regulatory uncertainty, and skill gaps. The study concludes that while Artificial Intelligence holds significant potential to transform financial services in India, its effective and inclusive adoption requires responsible governance, transparency, and sustained capacity building.

Keywords: Artificial Intelligence, Financial Services, Banking, Fintech, Insurance, Digital Payments.

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How to cite this article:

Dr. Babasaheb Yashvant Saymote. (2026). Adoption Of Artificial Intelligence In Financial Services: A Secondary Data Perspective. International Journal of Advance and Applied Research, 13(3), 111–115. <https://doi.org/10.5281/zenodo.18537574>

Introduction:

The financial services sector occupies a central position in the economic development of any country by facilitating savings mobilisation, credit allocation, risk management, and payment systems. In India, the sector has experienced considerable

structural and technological change over the last two decades. Reforms in banking, expansion of digital infrastructure, and the growth of fintech ecosystems have transformed the way financial services are delivered and accessed. The increasing use of mobile banking, internet banking, and digital



payment platforms has created a data-rich environment, enabling financial institutions to explore advanced technological solutions.

Artificial Intelligence has emerged as a key enabler in this transformation process. AI refers to the capability of machines and computer systems to perform tasks that typically require human intelligence, such as learning from data, recognising patterns, making predictions, and supporting decision-making. In financial services, AI is used to process large volumes of structured and unstructured data, automate routine activities, and enhance analytical capabilities. The relevance of AI has increased in India due to rising competition, growing customer expectations, and the need to manage risks in a complex and rapidly expanding financial system.

The Indian financial sector also faces persistent challenges such as financial exclusion, credit risk, operational inefficiencies, and fraud. Artificial Intelligence offers potential solutions to many of these issues by enabling faster processing, personalised services, and real-time monitoring. Given this background, examining the adoption of Artificial Intelligence in Indian financial services is both timely and relevant. The present study seeks to analyse this adoption from a secondary data perspective, focusing on key application areas, benefits, and challenges within the Indian context.

Artificial Intelligence in Financial Services:

Artificial Intelligence is an umbrella term that encompasses a range of technologies including machine learning, natural language processing, robotic process automation, and predictive analytics. Machine learning enables systems to learn from historical data and improve performance without explicit programming. Natural language processing allows machines to understand and respond to human language, making it particularly useful for customer interaction and support services. Robotic

process automation focuses on automating repetitive and rule-based processes, while predictive analytics uses data-driven models to forecast future outcomes.

In financial services, these AI technologies are applied to handle complex, data-intensive tasks with greater speed and accuracy than traditional methods. Financial institutions generate large volumes of data through transactions, customer interactions, credit records, and market activities. Artificial Intelligence systems can analyse this data in real time to support decisions related to lending, risk management, fraud detection, and investment. The adoption of AI thus represents not only a technological shift but also a strategic and organisational transformation requiring changes in processes, skills, and governance frameworks.

In the Indian context, the relevance of Artificial Intelligence is amplified by the scale and diversity of the financial system. With millions of customers across urban and rural areas, AI-based solutions provide opportunities to improve outreach, reduce costs, and enhance service quality. However, the adoption of AI also raises concerns related to ethics, transparency, and accountability, which must be carefully addressed.

Objectives of the Study:

The main objectives of the present study are as follows:

1. To examine the extent of adoption of Artificial Intelligence in the Indian financial services sector.
2. To study the major application areas of Artificial Intelligence in banking, insurance, and fintech services in India.
3. To analyse the benefits of Artificial Intelligence adoption in financial services.
4. To identify key challenges and issues associated with the adoption of Artificial Intelligence in Indian financial institutions.



Research Methodology:

The present study is based exclusively on secondary data. Information has been collected from academic journals, working papers, industry reports, policy documents, and publications of regulatory and financial institutions related to Artificial Intelligence and financial services. These sources provide insights into the extent, nature, and implications of AI adoption in the Indian financial sector. The collected data has been analysed using a descriptive and interpretative approach to identify key trends, application areas, benefits, and challenges. As the study relies on existing literature and reports, no primary data collection has been undertaken.

Adoption of Artificial Intelligence in Indian Financial Services:

The adoption of Artificial Intelligence in Indian financial services has increased steadily over recent years, driven by digitalisation, regulatory encouragement for innovation, and competitive pressures. Banks, insurance companies, non-banking financial companies, and fintech firms have begun integrating AI-based tools into their operations, though the depth and sophistication of adoption vary across institutions.

One of the most prominent areas of AI adoption is customer service. Financial institutions increasingly use AI-powered chatbots and virtual assistants to manage routine customer queries related to account information, transactions, and service requests. For instance, State Bank of India has introduced an AI-based chatbot to handle customer interactions, helping reduce workload at branches and call centres. Private sector banks such as HDFC Bank and ICICI Bank have also adopted similar systems to provide continuous customer support and faster service delivery. These applications represent an initial yet impactful level of AI adoption in Indian banking.

At the managerial and decision-support level, Artificial Intelligence is increasingly used for credit assessment and loan processing. Machine learning models analyse customer transaction behaviour, repayment patterns, and alternative data to evaluate creditworthiness more accurately. This approach reduces loan approval time and improves risk assessment. In a country like India, where many individuals and small businesses lack formal credit histories, AI-based credit evaluation supports financial inclusion while maintaining credit discipline.

Risk management and fraud detection constitute another major area of AI adoption. The rapid growth of digital payments has increased exposure to cyber fraud and financial crime. Payment platforms and financial service providers such as Paytm and PhonePe use AI-driven systems to monitor transactions in real time and identify suspicious patterns. These systems enhance security and customer trust by detecting potential fraud more effectively than traditional rule-based mechanisms.

In the investment and wealth management segment, Artificial Intelligence is gradually being integrated into advisory services. Brokerage platforms such as Zerodha offer AI-assisted analytical tools that support retail investors in understanding market trends and investment risks. Robo-advisory platforms provide automated investment recommendations based on individual risk profiles and financial goals. Although these services do not replace human advisors entirely, they offer affordable and data-driven alternatives, particularly for young and first-time investors.

The insurance sector in India has also adopted Artificial Intelligence for operational efficiency and risk assessment. Insurance companies such as ICICI Prudential and Bajaj Allianz use AI-based tools for customer onboarding, claims processing, and fraud detection. Image recognition and data analytics help verify claims more quickly,



reduce fraudulent activities, and improve customer satisfaction through faster settlement.

At an institutional level, Artificial Intelligence is increasingly relevant for regulatory compliance and supervision. Financial institutions use AI systems to monitor transactions and generate alerts for potential compliance risks. Regulatory authorities such as the Reserve Bank of India have acknowledged the growing role of AI in financial supervision while emphasising the importance of responsible adoption, transparency, and data security. These developments indicate that AI adoption in India extends beyond individual firms and influences broader regulatory and policy frameworks.

Benefits of AI Adoption in Financial Services:

The adoption of Artificial Intelligence offers several benefits to Indian financial services. One of the most important advantages is improved operational efficiency. Automation of routine processes reduces processing time and operational costs, enabling institutions to utilise resources more effectively. Enhanced customer experience is another significant benefit, as AI enables personalised services based on customer preferences and behaviour.

Artificial Intelligence also supports better decision-making through data-driven insights. AI models can analyse large datasets to identify trends and risks, improving credit appraisal, fraud detection, and investment strategies. From a developmental perspective, AI adoption can promote financial inclusion by enabling innovative lending models and expanding access to financial services for underserved populations.

Challenges, Ethical Concerns and Future Outlook:

Despite its advantages, AI adoption in financial services presents several challenges. Data

privacy and security remain major concerns due to the sensitive nature of financial information. Algorithmic bias and lack of transparency in AI decision-making can result in unfair outcomes, particularly in lending and credit assessment. Regulatory uncertainty and skill shortages further constrain effective implementation. Addressing these challenges is essential for responsible and sustainable AI adoption.

The future of Artificial Intelligence in Indian financial services appears promising, with increasing investments and policy support. Collaboration between banks, fintech firms, and technology providers is expected to accelerate adoption. However, responsible governance, ethical frameworks, and capacity building will be critical to ensure inclusive and sustainable growth.

Findings & Suggestions:

The study reveals that Artificial Intelligence adoption in Indian financial services is increasing steadily, particularly in areas such as customer service automation, credit assessment, fraud detection, and digital payments. Banks and fintech companies are using AI-powered chatbots and virtual assistants to improve customer interaction and reduce operational workload. Artificial Intelligence-based credit assessment models are helping financial institutions improve loan processing efficiency and expand credit access to underserved segments. The use of AI in fraud detection has strengthened transaction security, especially in digital payment platforms.

The findings also indicate that while large banks and fintech firms are leading in AI adoption, smaller financial institutions are adopting AI at a slower pace due to cost, infrastructure, and skill constraints. Data privacy, algorithmic bias, lack of transparency, and regulatory uncertainty remain significant concerns in the Indian context.



Based on these findings, the study suggests that financial institutions should adopt a phased and responsible approach to Artificial Intelligence implementation. Greater emphasis should be placed on data security, ethical AI practices, and transparency in decision-making systems. Regulatory bodies should continue to develop clear guidelines for AI governance in financial services. In addition, capacity building and skill development in AI-related areas are essential to ensure effective and inclusive adoption across the sector.

Conclusion:

The study concludes that Artificial Intelligence is emerging as a transformative force in Indian financial services. Based on secondary data analysis, AI adoption is evident across customer service, credit assessment, fraud detection, investment advisory, and regulatory compliance. While AI offers significant benefits in efficiency, decision-making, and inclusion, challenges related to ethics, regulation, and skills must be addressed. With responsible implementation, Artificial Intelligence can contribute meaningfully to the long-term development and stability of India's financial system.

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