SHRI NEHRU MAHA VIDYALAYA
COLLEGE OF ARTS AND SCIENCE
(SNMV)

(Affiliated to Bharathiar University, Coimbatore, Re-accredited with "A+" Grade by NAAC)
Shri Gamdhirmal Bafna Nagar, Malumachampatti, Coimbatore - 641 050, Tamil Nadu, India.

Estd. 1989

Estd. 1964

National Seminar Proceedings on Digital Transformation in Financial Services: Today and Tomorrow

14 March, 2025

Sponsored by

INDIAN COUNCIL OF SOCIAL SCIENCE RESEARCH, NEW DELHI

ICSSR
Indian Council of Social Science Research

Organized by

PG and Research Department of Commerce
Shri Nehru Maha Vidyalaya College of Arts and Science
Coimbatore -641050, Tamil Nadu, India

Editor-in-Chief
Dr.A.Gurunathan

SHRI NEHRU MAHA VIDYALAYA
COLLEGE OF ARTS AND SCIENCE
(SNMV)
(Affiliated to Bharathiar University, Coimbatore, Re-accredited with "A+" Grade by NAAC)
Shri Gambhirmal Bafna Nagar, Malumachampatti, Coimbatore - 641 050. Tamil Nadu, India.

Estd. 1989

Estd. 1964

National Seminar Proceedings on Digital Transformation in Financial Services: Today and Tomorrow

14 March, 2025

Sponsored by
INDIAN COUNCIL OF SOCIAL SCIENCE RESEARCH, NEW DELHI

ICSSR
Indian Council of Social Science Research

Editor-in-Chief
Dr.A.Gurunathan

Organized by
PG and Research Department of Commerce
Shri Nehru Maha Vidyalaya College of Arts and Science
Coimbatore -641050, Tamil Nadu, India

Edition: First

Year: 2025

ISBN: **978-81-985657-5-4**

Publisher

(International Publisher)
Kanyakumari, Chennai, Australia.
Phone: +91 6384730258
E-Mail: editor@multispectrum.org
www.multispectrum.org

AI TOOLS IN BANKING SECTOR

Dr.P.Gomathi Devi
Assistant Professor,
UG Department of Commerce (CA),
Nallamuthu Gounder Mahalingam College, Pollachi

ABSTRACT

Artificial Intelligence is typically described because the ability of a device to perform cognitive functions we companion with human minds, such as perceiving, reasoning, getting to know, interacting with the surroundings, hassle solving, or even exercise creativity. However, Artificial Intelligence (AI) is truly a mixture of superior computational technologies in various tiers of maturity. Artificial intelligence is carried out in banking systems via algorithms with wonderful success in custom management services, Credit Information Services, Frequently Asked Questions (FAQ) services, Financial Assistance Services, and so forth. Artificial intelligence (AI) includes system gaining knowledge of and herbal language, it could be used inside the banking industry, Machine studying is a method of statistics evaluation which automates analytical version constructing, Machine learning occurs while computers trade their parameters/algorithms on exposure to new statistics without people having to reprogram them.

Key Words: Artificial intelligence, Banking Industry and Human minds

INTRODUCTION

AI in banking is an increasingly important technology for the banking sector. When used as a tool to power internal operations and customer-facing applications, it can help banks improve customer service, fraud detection and money and investment management. Artificial Intelligence is the future of banking as it brings the power of advanced data analytics to combat fraudulent transactions and improve compliance. AI algorithm accomplishes anti-money laundering activities in few seconds, which otherwise take hs and days. AI also enables banks to manage huge volumes of data at record speed to derive valuable insights from it. Features such as AI bots, digital payment advisers and biometric fraud detection mechanisms lead to higher quality of services to a wider customer base. All this translates to increased revenue, reduced costs and boost in profits

ROLE OF ARTIFICIAL INTELLIGENCE IN BANKING

- **Fraud detection**: Identifies and prevents fraudulent transactions in real-time.
- **Customer support**: Automates responses via chatbots and virtual assistants.
- **Personalization**: Offers tailored financial advice and product recommendations.
- **Risk management**: Analyzes data to assess and mitigate financial risks.
- **Credit scoring**: Provides more accurate lending decisions using diverse data.
- **Compliance**: Automates regulatory tasks and reporting.
- **Operational efficiency**: Streamlines processes and reduces costs through automation.

- **Security**: Enhances threat detection and response.
- **Market insights**: Analyzes trends for strategic decision-making.
- **Loan processing**: Speeds up approvals by automating tasks.

AI applications in banking

1. Speech Analytics

Implementing speech analytics in y center means you're not just responding to problems; proactively enhancing customer interactions and boosting loyalty. This AI-driven tool analyzes every call to detect patterns and key phrases that might indicate customer dissatisfaction while ensuring compliance with PII Redaction to protect sensitive information. By pinpointing issues like frustration or intent to switch banks, Speech Analytics helps you address problems before they escalate. Moreover, with advanced natural language processing (NLP), speech analytics helps you understand customer sentiment and anticipate their needs, providing agents with real-time support. Imagine knowing which calls need immediate attention or identifying trends in customer complaints. This insight enables you to enhance y service, reduce call volume, and train y agents more effectively.

2. Predictive Call Routing

Many contact centers struggle with ensuring each customer speaks to the right agent who can resolve their issue quickly and effectively. Predictive call routing can change this.By using AI to analyze customer profiles, call history, and inquiry types, predictive call routing matches each caller to the most suitable agent. This means y customers are more likely to get their problems resolved on the first call, reducing frustration and wait times. Not only does this boost first contact resolutions, but it also lightens the load for agents and improves overall contact center efficiency. With predictive call routing, y customers and agents will both benefit from a smoother, more effective service experience.

3. Sentimental Analysis

Sentiment analysis in banking contact centers uses AI to gauge customer emotions during interactions. By analyzing conversations through Natural Language Processing (NLP) algorithms, sentiment analysis helps identify whether customers feel positive, negative, or neutral about their experiences. This real-time understanding allows agents to tailor their responses, addressing issues empathetically and efficiently. For example, if a customer expresses frustration, the system alerts agents to quickly prioritize and resolve the issue. Additionally, sentiment scores provide insights into agent performance and help refine training programs, ultimately enhancing overall customer satisfaction and service quality.

4. Predictive Analytics

By analyzing historical data, predictive analytics anticipates future customer behaviors and needs in y financial call center. This means you can predict who might need a

call back, identify potential issues before they arise, and better understand customer preferences. For instance, it can forecast which customers are likely to churn, allowing you to address their concerns proactively. Moreover, predictive analytics helps tailor marketing offers and optimize staffing by predicting call volumes. By leveraging these insights, you improve operational efficiency and provide a more personalized and proactive customer experience.

5.Agent Quality Analysis and Training

Embracing artificial intelligence in banking call centers ensures y team is well-trained, compliant, and ready to excel. By automating performance monitoring, AI evaluates 100% of calls for quality and compliance, providing an objective view that ensures all interactions meet standards. This leaves more time for solving call handling issues and less time spent on manual QA checks. In addition, AI delivers real-time feedback and insights, which helps in enhancing training programs. It supports continuous learning and improvement by pinpointing areas for development and boosting overall agent performance.

6. Conversation bots/ virtual agents

In today's call centers, AI-powered conversation bots, also known as virtual agents, don't just answer questions; they engage in natural, human-like conversations, understanding the intent behind customer queries. By handling routine tasks like scheduling, troubleshooting, and providing account information, they free up human agents to focus on more complex issues. Virtual agents work 24/7, offering personalized support and faster response times, ultimately improving customer satisfaction while reducing operating costs.

7. Customer Behavior Analysis

With AI-powered customer behavior analysis in y banking call center, you gain a deep understanding of client's needs and preferences. The AI analyzes past interactions, transaction patterns, and inquiries to identify key behaviors. For example, if a customer frequently inquires about loan products, the AI can prompt agents to offer tailored financial advice or promotions. This proactive approach not only enhances customer satisfaction but also strengthens loyalty by anticipating their needs.

8. Fraud Detection

By continuously learning and adapting, AI makes it harder for fraudulent activities in banks to go unnoticed, enhancing overall security. AI-powered solutions help you analyze vast amounts of transaction data in real-time, identifying suspicious patterns that may indicate fraud. For example, if someone tries to access a customer's account from an unusual location or makes an unexpectedly large withdrawal, the AI system flags it immediately, prompting further investigation. This proactive approach helps banks stay ahead of fraudsters, ensuring a secure and trustworthy environment for customers.

9. Regulatory compliance

`In a banking call center, AI tools automatically monitor and analyze every interaction, identifying potential risks and flagging non-compliant behavior. AI helps you stay ahead by keeping track of ever-changing regulations, ensuring y team follows the rules. This protects organization from fines and penalties and builds trust with customers. Using AI in banking, you can streamline compliance processes, reduce manual errors, and focus on delivering excellent service, knowing that y regulatory obligations are being met efficiently and accurately.

10. Loan and credit decisions

In the banking sector, AI is revolutionizing how loan and credit decisions are handled. Instead of relying on lengthy manual reviews, AI systems quickly analyze vast amounts of data, such as credit histories and income levels. For example, when a customer applies for a loan, AI algorithms can swiftly evaluate their financial situation and determine their creditworthiness. This speed accelerates loan approvals and reduces the potential for human error and bias. AI in banking ensures consistency in decision-making, which is crucial for maintaining fairness and complying with regulatory standards.

11. Automated Call Summaries

AI-powered automated call summaries transform how banking contact centers handle post-call tasks. Instead of manually reviewing and summarizing each conversation, AI quickly generates concise summaries highlighting key points, actions, and follow-ups.This speeds up the documentation process, ensuring no critical details are missed.With these summaries, agents can quickly review calls, improve their responses, and provide better service in future interactions. Additionally, these summaries help in training and performance assessments by providing clear, consistent insights into each call, ultimately enhancing overall efficiency and customer satisfaction in y call center.

BENEFITS OF AI IN BANKING SECTORS

1. Reduced operational costs

AI helps banks cut costs by automating repetitive tasks like data entry. For instance, robotic process automation (RPA) can handle paperwork and data management more efficiently than human staff, reducing errors and saving time.

2. Enhanced customer experience

With AI-powered chatbots, banks can offer 24/7 customer support. These chatbots handle common queries and transactions at any time, making banking more convenient and accessible for customers.

3. Improved fraud detection

AI excels at spotting fraudulent activities by analyzing vast amounts of data quickly.

It can detect unusual patterns and potential fraud in real-time, offering higher security than traditional methods.

4. Better loan and credit decisions

AI systems analyze more than just credit scores to assess loan applications. They consider various data points and patterns, helping banks make more informed and accurate lending decisions.

5. Automation of investment processes

AI helps banks in investment decisions by analyzing market trends and opportunities. It can identify potential investments and support robo-advisers that guide customers in managing their portfolios.

THE RISE OF AI IN BANKING

Historically, incumbent financial service providers have struggled with innovation. A McKinsey study[1] found that large banks were 40% less productive than digital natives. Many emerging banking startups are pioneering artificial intelligence use cases, making it even more important that traditional banks catch up and innovate themselves. Investment banking firms have long used natural language processing (NLP) to parse the vast amounts of data they have internally or that they pull from third-party sces. They use NLP to examine data sets to make more informed decisions around key investments and wealth management. The banking sector, specifically, is absorbing the desired benefits of AI technologies. Customers want digital banking experiences: apps where they can learn more information about provided services, interact with people or virtual assistants, and better manage their finances. Companies need to improve the user experience to keep those customers happy. Adopting and deploying AI solutions is one way to accomplish that. While AI is powerful on its own, combining it with automation unlocks even more potential. AI-powered automation takes the intelligence of AI with the repeatability of automation. For example, AI can enhance robotic process automation (RPA) to better parse data analytics and take actions based on what the AI decides is best. One example is banks that use RPA to validate customer data needed to meet know y customer (KYC), anti-money laundering (AML) and customer due diligence (CDD) restrictions.

BENEFITS OF AI IN BANKING

There are several key benefits for banks that embrace and deploy AI.

- **Enhanced cyber security and fraud detection:** Cyber attackers increasingly use AI to create more sophisticated ways to defraud financial institutions. They can use AI-created audio to imitate customers, confusing customer service agents. They can use AI to make phishing emails look increasingly legitimate. As a result, those financial

institutions need to use AI algorithms to protect their employees from cyber security threats in real-time, while creating tools to help customers avoid the same tricks. Financial institutions and governmental agencies can also use AI systems to thwart other financial crimes like money laundering or impersonation.

- **Enhanced APIs:** Banking operations increasingly depend on the use of application programming interfaces (APIs) to enable customers to track their money on various applications. For example, banks must give API permission to third-party budgeting apps so customers can monitor multiple bank accounts. AI enhances API usage by enabling more security measures and automating repetitive tasks, making them more powerful.
- **Embeddable banking:** This is the introduction of banking into nontraditional experiences, such as when Starbucks started its own payments app[3]. Embeddable banking is expected to grow as a service, especially as AI helps retailers and other companies collect and analyze data about potential market opportunities, predict creditworthiness, and better personalize services to customers.
- **More intelligent customer tools:** The rise of generative AI powered by deep learning means that the investment and banking industries can deploy more sophisticated tools to streamline customer service. AI-powered chatbots and virtual assistants can enhance customer support, helping customers solve small problems on their own. AI can also power budgeting apps that help customers better manage their finances and save more money.
- **New markets and opportunities:** They also use AI for predictive analytics to have better insights into their customers. AI-driven predictive analytics can identify new areas of growth for their business and their customers and can better estimate which customers are a churn risk. For example, banks can analyze their customers' habits, such as how often they log in or deposit money, and compare it to other data points to determine whether individual customers might be on the verge of canceling their accounts.
- **Smarter credit card and credit scoring:** Determining creditworthiness is a critical banking service activity. Banks need to crunch significant amounts of customer data to make important credit decisions, such as whether they accept a credit card application or approve a credit increase. AI algorithms and machine learning can help financial institutions approve or deny credit cards, credit increases and other customer requests at fast speeds.

CHALLENGES TO AI IN BANKING

- **Cyber security:** Generative AI technology can be used for fraud prevention and compliance management, but it also produces risks. Embedding open AI tools and technologies into banking IT systems creates some security challenges because AI models are especially valuable targets for malicious actors. That's why banks need a holistic AI governance approach that effectively balances innovation and risk management.

- **Legal uncertainty related to operations:** Generative AI models need training on existing data sets to be effective. There are still some unsolved issues on whether analyzing publicly available data, like news stories and explainer videos, constitutes copyright infringement[4]. One way to avoid this issue is to use AI models that have been trained on data that the bank owns, such as customer service interactions or its own proprietary research.
- **Difficulties in controlling outcome accuracy:** Currently, AI models do not reason or "understand" their outputs. Instead, AI models detect patterns[5] in the data they're given and generate results. Therefore, the model cannot tell the human employee if the data is incorrect or inaccurate.
- **Prejudice from model bias:** Banks are increasingly investing in environmental, social and governance (ESG) initiatives as a way to demonstrate transparency and accountability for their actions. Since AI models are trained on human-created data, they can inherit some of the biases that influence humans. Banks need to eliminate bias in how they market products and determine factors like creditworthiness, which historically has negatively affected certain demographics.

THE FUTURE OF BANKING IS AI-DRIVEN

Banking institutions are under increased pressure for digital transformation. Customers demand automated experiences with self-service capabilities, but they also want interactions to feel personalized and uniquely human. Banks continue to prioritize AI investment to stay ahead of the competition and offer customers increasingly sophisticated tools to manage their money and investments. Customers continue to prioritize banks that can offer personalized AI applications that help them gain visibility on their financial opportunities. In the future, banks will advertise their use of AI and how they can deploy advancements faster than competitors. AI will help banks transition to new operating models, embrace digitization and smart automation, and achieve continued profitability in a new era of commercial and retail banking.

CONCLUSION

In recent years, India is focusing on technology, it is a key component of economic development. AI enhances business results exponentially as it is evolving as the go-to technology across the world. Banking sector is becoming one of the first adopters of AI and implementing the technology in different ways. The applications of AI include smarter chatbots for customer service, personalizing services for individuals and even placing an AI robot for self- service at banks. Beyond these basic applications, banks can implement the technology enhance the efficacy of back-office and also reduce the fraud and security risks. Thus, Artificial intelligence is set to become the sole determinant of the competitive position of Indian banks.