

Chapter 6

Artificial Intelligence in Banking and Ombudsman Services: Addressing Cybersecurity Challenges While Ensuring Justice

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Abstract

This paper explores the transformative role of Artificial Intelligence (AI) and technology in banking and Ombudsman services. The research questions focus on identifying risks and proposing mitigation strategies for fair AI adoption. A qualitative methodology was adopted, analyzing legal statutes, literature, and expert opinions. The thematic analysis categorized risks into legal, technological, ethical, and operational domains. The paper discussed AI's integration into banking, highlighting customer support, fraud detection, personalized services, back-end automation, compliance, and cybersecurity. AI-driven chatbots and virtual assistants provide round-the-clock customer support, enhancing service efficiency and customer satisfaction. Fraud detection systems can analyze transactions in real-time, preventing financial crimes effectively. Personalized banking through automated advisors and hyper-personalization improves customer engagement. Back-end automation accelerates operations, reduces errors, and lowers costs. AI also streamlines regulatory reporting and strengthens cybersecurity defenses. These innovations collectively make banking faster, safer, and more customer-centric. The paper also critically examines risks associated with deploying AI in Banking Ombudsman services. It identifies legal challenges such as threats to natural justice and lack of explainability in AI decisions. Technological issues include bias, unreliability, and cybersecurity vulnerabilities. Ethical and institutional risks involve dehumanization, accountability gaps, and erosion of public trust. Regulatory gaps exist due to the absence of specific AI guidelines, risking exclusion of marginalized groups. Results indicate that while AI enhances efficiency, it also risks violating constitutional principles and data privacy. Biases inherited from training data can lead to discriminatory outcomes. Errors and cyber threats compromise decision reliability and data security. The lack of clear liability frameworks complicates accountability. The discussion emphasizes the need for human oversight, ethical guidelines, and regulatory reforms. Strengthening cybersecurity and establishing sector-specific regulations are crucial. Responsible deployment requires balancing innovation with safeguards. Developing AI and ensuring inclusive access are vital. Implementing legal and ethical frameworks will foster trust and justice. AI can significantly improve banking and Ombudsman services if risks are managed effectively. This paper aims to support policymakers, regulators, and financial institutions in fostering trustworthy AI systems. Ultimately, responsible AI use can promote equitable, efficient, and secure banking and dispute resolution services.

Keywords: *Artificial Intelligence; Banking system; Grievance redressal; Ombudsman; policy framework; cybersecurity.*

Introduction

The fast-paced evolution of technology, particularly Artificial Intelligence (AI), has significantly impacted the growth of various sectors around the world, with the banking sector being cited as one of the sectors that have been significantly impacted. The convergence of AI and the banking sector has, in effect, transformed the conventional banking system, resulting in increased efficiency, customer service, and security.¹²⁴ In the context of the country, the banking sector is undergoing a transformation, with the evolution of technology being the major contributor. Moreover, the Reserve Bank of India (RBI), which is the apex bank of the country, has been at the forefront in the promotion of the digital banking system, particularly the adoption of AI, through various measures.¹²⁵ Some of the measures include the introduction of AI-based innovations, including the use of chatbots, virtual assistants, biometric systems, etc.¹²⁶ These innovations have significantly impacted the growth of the banking system, resulting in the provision of faster, more efficient, and customer-centric services. These innovations have significantly impacted the growth of the banking system, resulting in the provision of faster, more efficient, and customer-centric services. Moreover, the evolution of technology has also had an indirect positive impact on the growth of the banking system, resulting in the promotion of financial inclusion.

The present study aims to investigate the application of AI in the banking sector and Ombudsman services, highlighting the legal, ethical, technological, and operational issues arising therefrom. While AI has the advantage of offering a plethora of benefits, it also poses a number of risks, particularly in the context of cybersecurity, data privacy, bias, and transparency, among others. The application of AI in critical sectors, such as dispute resolution and customer grievances, necessitates a high level of oversight to avoid the infringement of constitutional rights, particularly the right to privacy, and the principles of natural justice.¹²⁷ The Banking Ombudsman Scheme, introduced by the RBI, is a vital instrument in the resolution of customer grievances against banks. Traditionally, the Banking Ombudsman Scheme has relied on manual and paper-based documentation. However, with the emergence of AI and digital technologies, there is a tremendous opportunity to transform the existing system, with a view to increasing the efficiency, transparency, and accessibility of the system, although the application of AI in quasi-judicial and administrative functions poses a number of issues, which are critical and require due consideration.

From the academic and legal viewpoints, there is an immediate need for exploring the interface of AI, banking law, and the constitutional framework, especially in the context of the Indian scenario.

¹²⁴ Shyam Sunder Agrawal, Ninu Rose and K. Prabhu Sahai, 'The fintech revolution: AI's role in disrupting traditional banking and financial services' (2024) 7(1) *Decision Making: Applications in Management and Engineering* 243.

¹²⁵ P Kumar and Rishi Manrai, 'A study on accelerating digital financial inclusion for positioning India through AI-enabled banking services' (2024) 6(4) *International Journal for Multidisciplinary Research*.

¹²⁶ S Agarwal, B Agarwal, and R Gupta, 'Chatbots and virtual assistants: a bibliometric analysis,' *Library Hi Tech*, vol. 40, no. 4, 2022, pp. 1013-1030.

¹²⁷ D. Leslie, C. Burr, M. Aitken, J. Cows, M. Katell, and M. Briggs, 'Artificial intelligence, human rights, democracy, and the rule of law: a primer', arXiv preprint arXiv:2104.04147, 2021. ¹⁰⁴ Justice K.S. Puttaswamy v. Union of India, AIR 2018 SC (SUPP) 1841.

The landmark judgment in Justice K.S. Puttaswamy v. Union of India¹⁰⁴ recognized the right to privacy as an integral aspect of the fundamental right under Article 21 of the Indian Constitution. This underlines the need for the legal framework to ensure the handling of data and the use of AI in the context of dispute resolution in the banking sector.

In the current paper, the legal, ethical, and operational aspects of the integration of AI in the banking sector and the Ombudsman schemes in the Indian context are explored. The focus of the paper is to explore the scope of the use of AI in the context of dispute resolution in the banking sector, while ensuring the constitutional rights of the parties involved in the dispute resolution process.

Research Objectives

This paper aims to give an exhaustive overview of the use of AI in the banking system, including the Ombudsman service, in India. This study aims to critically analyze the myriad implications of the use of AI in the banking sector and the Ombudsman schemes in the Indian legal and regulatory scenario. The objectives of the study are as follows:

1. Analyse the existing legal and regulatory scenario in the context of the use of AI in Indian banking services: This would involve the critical examination of the laws, guidelines, and judicial pronouncements applicable to the use of AI in the context of data privacy and dispute resolution laws and the constitutional provisions in the Indian context.
2. Evaluate the Banking Ombudsman Scheme in the context of the use of AI in the digital age.
3. Identify and critically examine the legal and ethical issues that are linked to the integration of AI in the banking system of dispute resolution.
4. Propose the legal and policy changes that are required to ensure the responsible use of AI in the banking system, including the Ombudsman service.
5. Examine the need for the incorporation of cybersecurity in AI-based banking systems.

Materials and Methods

The methodology that is being followed in this study is doctrinal, qualitative, based on legal analysis, interpretive approaches, and comparative perspectives. The aim is to arrive at an in-depth understanding of the legal and ethical principles that govern the use of AI in the context of banking, along with the dispute resolution mechanisms, particularly in the context of India.

Primary Data Sources

1. Statutes and Regulations:

The basic legal instruments would include the Reserve Bank of India Act, 1934, Banking Regulation Act, 1949, Information Technology Act, 2000, and the Digital Personal Data Protection

Act, 2023. These acts would provide the legal guidelines for banking operations, data protection, and digital dispute resolution. RBI guidelines, circulars, and notifications, such as RBI's Master Directions on 'Digital Payment Security Controls' and 'Integrated Ombudsman Scheme 2021,' would be critically analyzed to understand the current scenario in the country.

2. Judicial Decisions:

Important cases like the Justice K.S. Puttaswamy v. Union of India¹²⁸ would be the guiding principles for understanding the constitutional aspects of the right to privacy. Important cases would include Indian Medical Association v. Union of India¹²⁹, Shreya Singhal v. Union of India,¹⁰⁷ etc. These cases would be analyzed to understand the jurisprudence of the matter and the changing dynamics of the use of AI in the country.

3. Official Reports and Policy Documents:

Reports from the RBI, NITI Aayog, OECD, and other international agencies would provide the necessary context for understanding the changing dynamics of the use of AI in the country. RBI reports on fintech, digital banking, and the use of AI would be highly instrumental in understanding the perspectives of the RBI.

4. Case Law and International Jurisprudence:

The study would include the regulations of other nations like the European Union's regulations under the GDPR and AI Act, Singapore's regulations on the use of AI, and the UK's regulatory sandbox initiatives.

Secondary Data Sources

1. Academic Literature:

We will use journal articles, commentaries, and research papers to shed light and challenge the underlying principles of law, the technology issues, and the ethical issues involved.

2. Legal Commentaries and Textbooks:

We will use commentaries and textbooks on banking law, data privacy, and AI ethics to support the underlying principles of law and legal discussions.

Research Techniques

1) Legal and Doctrinal Analysis:

¹²⁸ Justice K.S. Puttaswamy v. Union of India, AIR 2018 SC (SUPP) 1841

¹²⁹ Indian Medical Association vs Union Of India & Ors., AIR 2011 SUPREME COURT 2365

¹⁰⁷ Shreya Singhal vs U.O.I, AIR 2015 SUPREME COURT 1523.

The core of the work will involve the interpretation of the legal provisions to understand the implications of the legal principles in the context of AI in banking and grievance redressal. This will involve an in-depth study of the legal provisions with a critical eye.

2) Comparative Analysis:

The study will also cover the legal frameworks in other jurisdictions to identify the best practices that could be adopted in the Indian legal system.

3) Critical and Thematic Analysis:

The study will cover the risks of bias, opacity, and breaches in the context of AI in banking and grievance redressal, along with the other issues that are connected with the use of AI. This will cover the implications of the use of AI in the context of the legal principles of fairness, transparency, etc.

4) Policy and Regulatory Framework Development:

The study will cover the development of the policy in the context of the legal provisions with the help of the doctrinal study and the comparative study.

5) Interdisciplinary Approach:

The study will cover the different aspects of the use of AI in banking and grievance redressal with the help of the different disciplines.

Limitations

In the context of the nascent stage of legislation related to the field of AI in Indian law, the study relies upon existing laws, judicial decisions, and international best practices. The dynamic nature of the technology and the law in the field of AI implies that the study may require updating in the near future with the enactment of fresh laws. Further, empirical data in the field is limited, which underlines the theoretical nature of the study.

Literature Review

Today, AI has become a mainstay in the lives of various sectors, with banking leading the way. In the past few years, there has been a lot of research and expert opinion on the role of AI in the banking sector, how it is changing the way banking is done, and how it is speeding things up, making it safer, and providing a more personalized service, though there are also risks and challenges that come with the adoption of AI. In this paper, a literature review on the role of AI in the banking sector will be presented, highlighting the benefits, the challenges, the legal and ethical issues, and the role of AI in dispute resolution and customer service.

Benefits of AI in Banking

Many experts are in agreement that AI has a lot to offer to the banking sector. AI is able to help banks sort through large amounts of data in a fast and accurate manner.¹³⁰ Moreover, AI is able to help detect fraud in a timely manner, thereby increasing the safety of the customer.¹³¹

Chatbots and virtual assistants are some of the most popular AI applications used in the banking sector. For example, chatbots are able to communicate with customers online and assist them with a number of issues. For example, banks like HDFC, SBI, and ICICI have their own chatbots, which are referred to as Eva, SIA, and iPal, respectively.¹³² These chatbots are able to operate around the clock, which means that the customer is able to get assistance at any time of the day or night. For example, a customer is able to get the status of a loan application or check the account balance in a matter of a second, whereas in the past, the customer would have had to wait in a queue.¹³³

Advantage of using AI in the banking sector is that it is able to provide the customer with a personalized banking experience. AI is able to help the customer plan their investments with the help of a robo-advisor, which is a device that is able to assist the customer in the creation of a plan to help them achieve their goals.¹¹² The robo-advisor is able to analyze the customer's goals, income, and risk tolerance and provide them with the best investment strategy. AI is able to read the customer's needs and provide them with the most appropriate services. If the customer is a fan of traveling, AI is able to provide them with a credit card that rewards them with miles.

Another advantage of the use of AI in the banking sector is that it is able to help the bank automate a number of back-end operations. The AI is able to help the bank open a number of accounts, verify the details of the customer, and verify the compliance of the customer with the rules and regulations of the bank.¹³⁴ For example, in case the customer wants to open an account with the bank or wants to take a loan, the AI is able to verify the details of the customer in a matter of a second.

The AI also helps the bank in following the rules that are set by the regulators. For example, the AI is able to scan the transactions in the bank to verify whether there is any money laundering or fraud activities going on in the bank. The AI is also able to help the bank in the preparation of the

¹³⁰ Suparna Biswas, Brant Carson, Violet Chung, Shwaitang Singh, and Renny Thomas, AI-bank of the future: Can banks meet the AI challenge (McKinsey & Company 2020) 28.

¹³¹ Rahul Khurana, 'Fraud detection in ecommerce payment systems: The role of predictive AI in real-time transaction security and risk management', *International Journal of Applied Machine Learning and Computational Intelligence*, vol. 10, no. 6, 2020, pp. 1-32.

¹³² Kanika Sachdeva, and Meenakshi Dhingra, 'Role of Bank Chatbots in Managing Business during Crisis: A Study of Customers' Perceptions of ICICI Bank and SBI Bank', in *Building Resilience in Global Business During Crisis*, pp. 38-57. Routledge India, 2024.

¹³³ Everestus Obinwanne Eze, and Adaora Darlington Odunukwe, 'On application of queuing models to customers management in banking system', *American Research Journal of Bio Sciences*, vol. 1, no. 2, 2015, pp. 14-20. ¹¹² P. Sironi, *FinTech innovation: from robo-advisors to goal based investing and gamification*. John Wiley & Sons, 2016.

¹³⁴ Abdel-Rahman Layla, and Yuli Andriansyah, 'The role of artificial intelligence in modern banking: an exploration of AI-driven approaches for enhanced fraud prevention, risk management, and regulatory compliance', *Reviews of Contemporary Business Analytics*, vol. 6, no. 1, 2023, pp. 110-132.

reports that are to be submitted to the regulators.¹³⁵ This way, the AI is able to ensure that the bank is within the law, which is very important in the current digital world.

Risks of Using AI

Despite the many advantages associated with AI, a significant number of researchers and experts also raise concerns about the possible disadvantages of AI. One of the main disadvantages of AI is the bias associated with it. AI learns and makes decisions based on the data available to it, and if the data is biased, it is possible that AI will also be biased in its decision-making process.¹³⁶ For example, if AI is trained with historical data indicating that certain groups of customers are less likely to obtain loans, AI may end up denying loans to those customers disproportionately in the future, thereby encouraging discrimination and unfair treatment of certain classes of customers. The lack of transparency is also a major disadvantage of AI. AI, particularly deep learning, is a black box, and it is difficult to understand how AI makes decisions.¹³⁷ In banking and other areas such as dispute resolution, it is essential for decisions to be transparent so that customers or clients understand the rationale for the decision and, as such, are able to put their trust in AI. AI decisions, if they are not transparent, may also be deemed unfair and against the principles of natural justice.

The other major disadvantage of AI is the lack of data privacy associated with it. AI needs a significant amount of data to make decisions, and this data may include customers' personal information, which may be compromised if AI is mishandled, thereby damaging customers and creating a lack of trust in AI. Experts are of the opinion that data protection legislation is necessary to protect customers' data.

Cybersecurity is another challenge. As AI tools become more advanced, hackers also try to find ways to attack banking systems. Cyberattacks like hacking, phishing, or ransomware can cause huge losses. AI can help prevent some attacks, but it can also be used by hackers to create smarter attacks. Therefore, cybersecurity measures must keep up with AI advancements.

Regulatory gaps are also a problem. Many countries, including India, lack clear rules about how AI should be used in banking. Without proper laws, there is a risk that AI could be misused or cause harm. Experts suggest creating specific laws and guidelines to regulate AI use, especially in areas like dispute resolution.

AI in Dispute Resolution and Customer Service

The role of AI is also being increasingly used in the resolution of customer complaints and disputes. A significant research literature suggests that AI may facilitate the resolution of customer complaints and disputes by speeding up the process of handling customer complaints and

¹³⁵ Jon Truby, Rafael Brown, and Andrew Dahdal, 'Banking on AI: Mandating a proactive approach to AI regulation in the financial sector', *Law and Financial Markets Review*, vol. 14, no. 2, 2020, pp. 110-120.

¹³⁶ Adheesh Kadiresan, Yuvraj Baweja, and Obi Ogbanufe, 'Bias in AI-based decision-making', in *Bridging Human Intelligence and Artificial Intelligence*, pp. 275-285. Cham: Springer International Publishing, 2022.

¹³⁷ Arun Rai, 'Explainable AI: From black box to glass box', *Journal of the Academy of Marketing Science*, vol. 48, no. 1, 2020, pp. 137-141.

disputes.¹³⁸ This can be done by categorization of complaints, prioritization of urgent complaints, and even providing possible solutions for customer complaints and disputes. Accordingly, the time taken to resolve customer complaints and disputes is reduced, and customer satisfaction is improved.

Some concerns remain with regards to issues of fairness and justice in the resolution of customer complaints and disputes, such as those in the Indian context, where the Banking Ombudsman Scheme is available for customers to raise complaints against banks. Earlier, the process of resolving customer complaints and disputes is manual, where human officials listen to customer complaints and disputes and make decisions. The incorporation of AI may facilitate the resolution of customer complaints and disputes by aiding in the categorization of customer complaints, providing initial responses, and even understanding patterns in customer complaints and disputes.

However, some researchers suggest that AI should not be exclusively used for the resolution of customer complaints and disputes,¹³⁹ as it does not understand human emotions and context, as observed in the resolution of disputes, where human relationships and context play a major role in the resolution of customer complaints and disputes. Secondly, fairness and absence of bias in AI decisions also remain a concern, and AI should be used as a supporting tool for human decisionmakers rather than exclusively using AI for the resolution of customer complaints and disputes.¹¹⁹

Legal and Ethical Issues

Many researchers stress the importance of the protection of constitutional rights, especially the right to privacy under Article 21 of the Indian Constitution. The judgment in the landmark case of Justice K.S. Puttaswamy v. Union of India¹⁴⁰ recognized the right to privacy as a fundamental right. This places the responsibility upon the banks and the regulatory agencies to ensure that the use of AI applications complies with the right to privacy by ensuring the use of personal information with the consent of the parties involved. Therefore, the use of AI must comply with the principles of the right to privacy.

Another issue that needs to be considered is the issue of transparency and interpretability. The ability of clients to understand the decisions made by the AI system needs to be considered. This is because the use of an uninterpretable decision made by the AI system would be in contravention of the principles of natural justice, which emphasize the right to be heard in the decision-making process. Ethical issues in the use of AI are many, especially the issue of discrimination. Many researchers stress the importance of auditing the use of AI in order to ensure that the use of the

¹³⁸ Sonali Chadha, and Sid Sirisukha, 'Empowering Indian banks—AI powered dispute resolution for better customer service', ICL Journal, 2024, p. 85.

¹³⁹ Muhammad Ali Malik, 'The Effect of AI Powered Sentiment Analysis on Consumer Complaint Resolution in Ecommerce: A Comparative Study of Human Vs AI Meditation Support', PhD diss., Business Studies, 2024. ¹¹⁹ Moses Alabi. "Ethical implications of AI: bias, fairness, and transparency." Computer Science and Engineering (2024).

¹⁴⁰ Justice K.S. Puttaswamy v. Union of India, AIR 2018 SC (SUPP) 1841.

technology is fair and non-discriminatory. This is because the use of AI technology in the financial sector could unjustly discriminate against certain classes of people in society, thereby exacerbating the social inequality that already exists in society.

Another issue that needs to be considered in the use of AI in the financial sector is the issue of accountability. This is because the error in the decision made by the AI system could be attributed to many parties, including the developer of the system, the financial institution, and the regulatory agency. Therefore, the development of the use of the technology needs to be well understood in order to ensure the use of the technology in the financial sector.

International Perspectives and Best Practices

There are many countries working on developing regulatory guidelines and standards for AI systems. The European Union, for example, has introduced the AI Act, which categorizes AI systems based on risk and sets rules for high-risk AI applications, including those used in justice and finance systems.¹⁴¹ Singapore has developed its national AI governance framework, which prioritizes transparency, fairness, and safety.¹⁴²

India can take inspiration from these international developments. There are experts who have recommended developing local laws and ethics for AI systems used in banking, with the intention of ensuring that technology is used for the greater good of all citizens and their rights are protected.

Results and Discussion

Drawing from extensive literature, legal frameworks, case laws, and expert opinions, the discussion here explores how AI transforms banking operations, enhances dispute resolution, and raises critical legal and ethical issues. The discussion seeks to emphasize the critical point that, even as the use of AI in the banking sector enhances efficiency, accessibility, and personalization, it presents critical risks that need to be regulated properly.

The study indicates that AI has redefined the operations of the banking sector in many ways, resulting in critical efficiencies in the operations of the sector. In particular, the study discloses that AI tools, such as chatbots and virtual assistants, are integral components of the contemporary banking sector.¹⁴³

Enhanced Customer Support and Accessibility

One of the most prominent benefits of AI is its ability to provide round-the-clock customer service through chatbots and virtual assistants. Banks such as SBI, ICICI, and HDFC have developed their

¹⁴¹ Anat Keller, Clara Martins Pereira, and Martinho Lucas Pires, 'The European Union's approach to artificial intelligence and the challenge of financial systemic risk', in *Multidisciplinary perspectives on artificial intelligence and the law*, pp. 415–439. Cham: Springer International Publishing, 2023.

¹⁴² Philip L. Frana, 'Assessing Smart Nation Singapore as an international model for AI responsibility', *International Journal on Responsibility*, 7, no. 1 (2024): 2.

¹⁴³ Margherita Mori, 'AI-powered virtual assistants in the realms of banking and financial services', (2021).

own AI-powered chatbots—SIA, iPal, and Eva—that respond instantly to customer queries. These tools handle a large volume of routine questions, such as checking account balances, transaction history, or loan status, significantly reducing waiting times and improving customer satisfaction. The deployment of AI in customer support has made banking services more accessible, especially in a vast and diverse country like India.¹⁴⁴ Customers in remote areas or with limited digital literacy can receive assistance via multilingual AI interfaces, ensuring inclusivity. AI-based virtual assistants also help overcome language barriers, catering to India's linguistic diversity.

Personalization and Financial Advisory

AI enhances customer engagement through hyper-personalization. Robo-advisors analyze individual financial data, preferences, and risk profiles to recommend tailored investment options and savings plans. This democratizes wealth management, making sophisticated financial advice available to a broader audience at a lower cost.

Banks leverage AI to offer targeted marketing, customized credit offers, and personalized product suggestions.¹⁴⁵ This not only improves customer experience but also results in increased loyalty and retention. Such personalized services foster a more inclusive financial environment by catering to diverse customer needs.

Fraud Detection and Risk Management

AI systems excel at analyzing large datasets for detecting suspicious activities and potential fraud in real-time.¹⁴⁶ For instance, AI algorithms monitor transactions for anomalies, such as unusual login locations or sudden large withdrawals, and alert banks immediately. This proactive approach enhances security, reduces losses, and builds customer trust.

In credit risk assessment, AI models evaluate multiple data points—social media activity, transaction history, and behavioral patterns—to make faster and more accurate lending decisions. This facilitates financial inclusion by extending credit to individuals with limited credit histories, provided the AI models are designed fairly.

Automation of Back-End Processes and Compliance

AI automates routine back-end operations such as account opening, verification, and compliance checks, significantly reducing operational costs and human errors.¹⁴⁷ Robotic Process Automation (RPA) handles repetitive tasks efficiently, freeing human resources for more complex

¹⁴⁴ Khusboo Mittal, 'Leveraging Artificial Intelligence to enhance customer service in cooperative banks in India', (2025).

¹⁴⁵ Chandrima Bhattacharya, and Manish Sinha, 'The role of artificial intelligence in banking for leveraging customer experience', *Australasian Accounting, Business and Finance Journal*, 16, no. 5 (2022).

¹⁴⁶ N. Al, Faisal, Janifer Nahar, Niger Sultana, and Abdul Awal Mintoo, 'Fraud detection in banking leveraging AI to identify and prevent fraudulent activities in real-time', *Journal of Machine Learning, Data Engineering and Data Science*, 1, no. 01 (2024), pp. 181–197.

¹⁴⁷ Robert N. Boute, Joren Gijsbrechts, and Jan A. Van Mieghem, 'Digital lean operations: Smart automation and artificial intelligence in financial services', in *Innovative Technology at the Interface of Finance and Operations: Volume I*, pp. 175–188. Cham: Springer International Publishing, 2021.

decisionmaking.¹⁴⁸ Furthermore, AI supports regulatory compliance by automating the monitoring of transactions for anti-money laundering (AML) and combating the financing of terrorism (CFT).¹⁴⁹ AI-driven systems generate timely alerts, ensuring banks adhere to legal requirements and avoid penalties. AI enhances cybersecurity by continuously monitoring network activity, identifying threats, and responding to cyberattacks swiftly.¹⁵⁰ Biometric authentication, facial recognition, and fingerprint scans powered by AI improve security and reduce fraud, making digital banking safer.

Challenges of AI Integration

Despite the numerous benefits, the research identifies significant challenges and risks associated with AI in banking, especially concerning legal, ethical, and operational aspects.

Algorithmic Bias and Discrimination

One of the most critical concerns is bias inherited from training data. AI systems, if not properly designed, can perpetuate existing social biases, leading to unfair treatment of certain groups. For example, AI models used for credit scoring might unfairly deny loans to marginalized communities if historical data reflects discriminatory practices. Research highlights those biases in AI can violate principles of equality and non-discrimination enshrined in constitutional and legal frameworks. Regular audits, diverse data training, and transparent algorithms are necessary to mitigate this risk.

Lack of Transparency

Many advanced AI models, particularly deep learning algorithms, operate as “black boxes,” making their decision-making processes opaque. Customers and regulators demand explainability, especially in sensitive areas like dispute resolution and credit approval.

The inability to explain AI decisions can violate the principles of natural justice, which require that decisions affecting individuals’ rights be transparent and justifiable. Courts and regulators are increasingly scrutinizing the explainability of AI systems, emphasizing the need for human oversight and interpretable models.

¹⁴⁸ C. Vijai, and M. Mariyappan, 'Robotic Process Automation (RPA) in human resource functions', *Advances In Management*, no. 16 (2023), p. 3.

¹⁴⁹ Georgios Pavlidis, 'Deploying artificial intelligence for anti-money laundering and asset recovery: the dawn of a new era', *Journal of Money Laundering Control*, vol. 26, no. 7 (2023), pp. 155–166.

¹⁵⁰ Goutham Sunkara, 'AI-driven cybersecurity: Advancing intelligent threat detection and adaptive network security in the era of sophisticated cyber attacks', *Well Testing Journal*, vol. 31, no. 1 (2022), pp. 185–198.

Data Privacy and Security Concerns

AI systems require vast amounts of personal and financial data, raising concerns about privacy breaches and misuse. The recent case of data breaches and cyberattacks illustrates the vulnerability of banking systems to malicious actors.

India's evolving data protection laws, such as the Digital Personal Data Protection Act, 2023, aim to address these concerns. However, the lack of comprehensive legal safeguards and enforcement mechanisms remains a challenge, which could undermine customer trust and violate constitutional rights like privacy under Article 21.

Regulatory Gaps and Lack of Legal Frameworks

The research finds that India lacks specific regulations governing AI use in banking and dispute resolution. Existing laws are inadequate to address issues such as liability for AI errors, accountability, and standards for ethical AI deployment.

International models like the European Union's proposed AI Act and Singapore's AI governance framework provide useful references. India needs to develop sector-specific guidelines and oversight bodies to ensure responsible AI adoption.

Cybersecurity Threats

As AI becomes more integrated into banking systems, cybercriminals also exploit vulnerabilities. AI-driven cyberattacks, such as ransomware and phishing, threaten the security of customer data and financial assets.

While AI can strengthen cybersecurity, over-reliance on automated systems without robust safeguards can lead to vulnerabilities.¹⁵¹ Continuous updates, threat intelligence, and human oversight are essential to counteract evolving cyber threats.

Digital Divide and Inclusivity

The deployment of AI-based systems might unintentionally exclude marginalized groups lacking digital literacy, internet access, or regional language support. This digital divide undermines the goal of financial inclusion and equitable access to grievance redressal mechanisms.¹⁵² AI interfaces need to be designed with inclusivity in mind, incorporating regional languages, accessible formats, and offline options.

¹⁵¹ Khang, Alex, ed., *AI-Powered Cybersecurity for Banking and Finance: How to Enhance Security, Protect Data, and Prevent Attacks* (CRC Press, 2025).

¹⁵² Abhijit Ghosh and Ankita Bhatia, 'Bridging the Digital Divide: Leveraging Technological Innovations for Inclusive and Sustainable Finance', *Financial Innovation for Global Sustainability* (2025), pp. 305–336.

¹⁵³ Justice K.S. Puttaswamy v. Union of India, AIR 2018 SC (SUPP) 1841.

Judicial and Legal Developments

The judiciary in India has played a vital role in shaping the legal landscape related to AI, privacy, and digital evidence. Landmark cases like Justice K.S. Puttaswamy affirm the constitutional right to privacy, emphasizing that data collection and processing by AI systems must respect individual rights.¹³³

Courts have increasingly recognized that AI decisions must be fair, transparent, and accountable. Judicial decisions have also clarified that electronic evidence, such as transaction logs and chatbot transcripts, must be supported by proper certification to be admissible in courts, which is crucial for AI-driven dispute resolution. The courts are also examining the scope of natural justice in AI-based decisions, emphasizing that decisions must be explainable and provide individuals with a fair opportunity to be heard. As AI becomes more prevalent, judicial scrutiny will intensify to ensure that technological innovations do not violate constitutional principles.

Recommendations

The research indicates that AI's future in Indian banking and dispute resolution is promising but requires careful regulation and oversight. Policymakers should develop comprehensive legal frameworks that address AI-specific issues such as liability, bias, explainability, and data privacy. Establishing regulatory sandboxes, as seen in the UK and Singapore, can facilitate experimentation with AI while ensuring compliance with safety standards. International best practices suggest that AI governance should be based on principles of transparency, fairness, accountability, and inclusivity. Regular audits, impact assessments, and stakeholder engagement are necessary to monitor AI systems' performance and address emerging risks. Building awareness among consumers about their rights and the role of AI in banking will foster trust and confidence. Finally, a hybrid model combining AI automation with human oversight is recommended. Human judgment is vital in complex disputes, ensuring that decisions are empathetic, fair, and legally sound.

Conclusion

Research and expert opinions agree that AI has great potential to transform banking and dispute resolution in India. Its benefits include faster services, better fraud detection, personalized advice, and improved regulatory compliance. However, risks related to bias, transparency, privacy, and accountability must be carefully managed. Creating clear laws, ethical standards, and oversight mechanisms is crucial for responsible AI use. Regular audits, transparency in decision-making, and human oversight are necessary to ensure fairness and justice. International best practices can serve as models for India to develop a balanced approach that harnesses AI's power while protecting citizens' rights. Overall, the literature emphasizes that AI can bring many benefits to banking and dispute resolution if used responsibly. The focus should be on creating an inclusive, fair, and safe environment where technology enhances trust and confidence in the financial system.

The integration of AI into banking and Ombudsman services offers immense potential to improve efficiency, accessibility, and customer satisfaction. However, the associated risks—bias, lack of transparency, data privacy, and legal gaps—must be addressed proactively. The legal and regulatory environment must evolve to keep pace with technological innovations, balancing progress with constitutional safeguards. As India advances in AI adoption, the focus should be on responsible innovation, ensuring that AI serves justice, promotes financial inclusion, and upholds individual rights. The future of AI in banking depends on creating a resilient, transparent, and inclusive ecosystem that leverages technology's benefits while safeguarding against its risks.
