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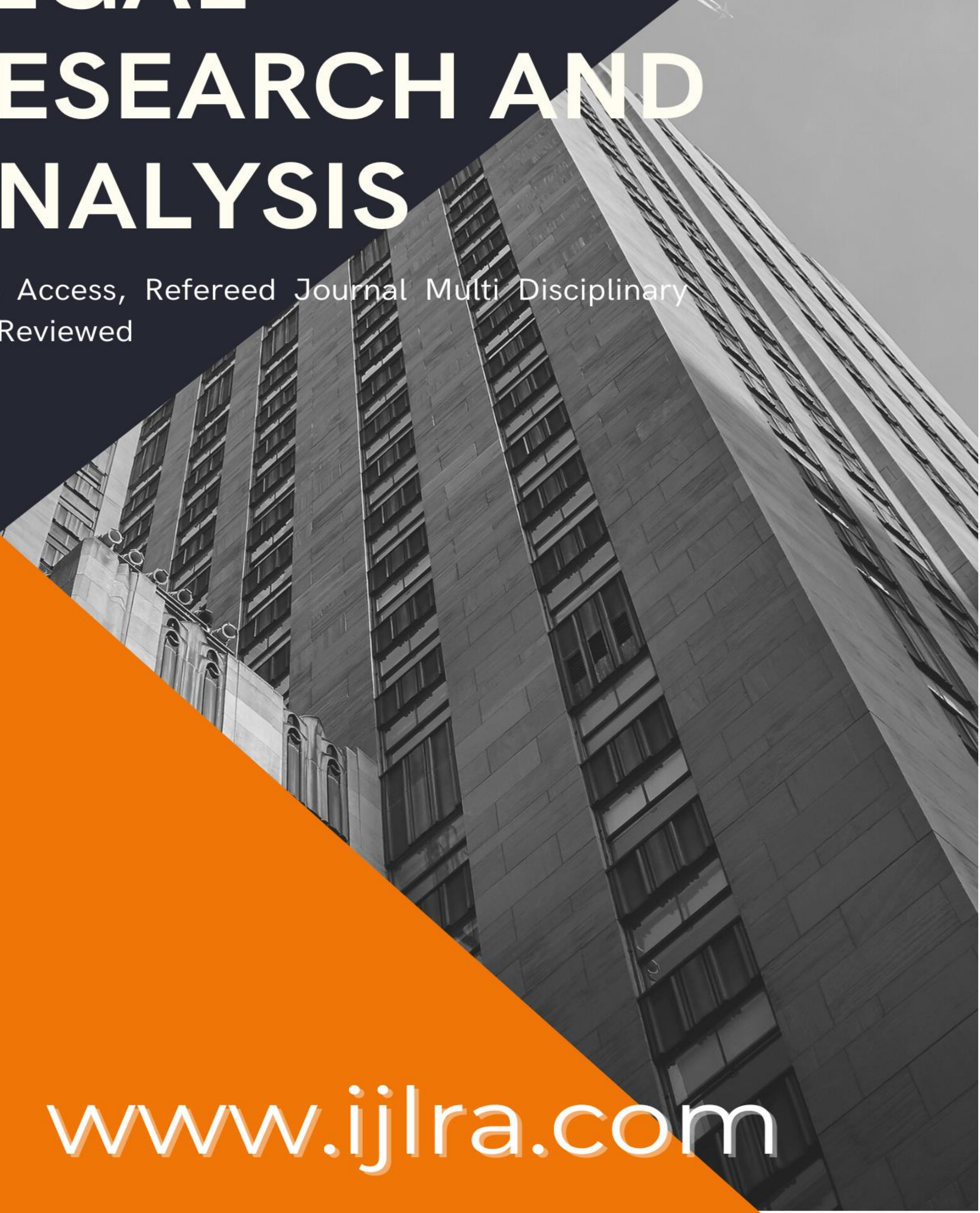

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# THE ROLE OF ARTIFICIAL INTELLIGENCE IN ENHANCING DIGITAL BANKING SERVICES IN INDIA

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**Abstract**:

AI has changed companies by automating ordinary tasks. This research looks into the many subtleties of artificial intelligence and how it has changed the way digital banking works in a big way. Using secondary data, the study looks at the different ways that artificial intelligence (AI) is affecting and changing digital environments. The study paper goes into great detail about how AI is being used in different areas of banking, showing how it is changing old ways of doing things and having a big effect on how happy customers are. As businesses increasingly rely on AI to automate operations, it's important to comprehend its impact on the digital world. This study provides valuable insights for stakeholders navigating the ever-changing landscape of technological advancements, contributing to the ongoing discussion on the implications of AI.

**Keywords:** Artificial Intelligence, Digitalization, Banking, Commercial activity

## A. Introduction

Online and mobile banking are increasingly popular in the financial services industry. In today's fast-paced world, people prefer online transactions rather than visiting a physical bank. Banks offer innovative services to attract and retain customers, whereas startups and neo banks deliver disruptive financial advances. AI has the ability to alter financial services, improving customer happiness, productivity, and efficiency. Covid has accelerated the digitization process, attracting even the most hesitant digital consumers. The digital transition is transforming the customer experience, with an estimated 75-80 billion devices online by 2025. The growing desire for rapid financial services has led to an increase in frauds. Daily digital transactions include bill payments, cash withdrawals, check deposits, and other activities. Artificial intelligence (AI) refers to tools and procedures that enable machines to do tasks such as pattern recognition, learning, and problem-solving that would otherwise need human intellect. Methods used include expert systems, machine learning, deep learning, and natural language processing. AI may help banks reduce risks and detect system vulnerabilities, but its implementation rate differs between institutions, making it difficult to quantify. Some banks have swiftly implemented AI-powered services, while others have taken longer. Artificial intelligence (AI) has been increasingly popular in the banking sector and is expected to continue in the future. According to an Accenture survey, AI use among banks increased from 37% in 2019 to 53% in 2020 and continues to climb.

## B) Objective of the Study

1. To present current worldwide trends of AI on the banking sector.
2. To learn how AI protects cyber security in the banking industry.
3. To showcase the benefits of AI in digital banking transactions.

## C) Research Methodology

This research relies solely on secondary data and takes an exploratory approach to the issue. The material is obtained from electronic journals, web portals, and textbooks, allowing for a thorough investigation of the issue.

## D) Literature Review

A research report on AI applications in Indian commercial banks suggests that AI would be crucial for success in the future. AI has a positive reputation when judged based on existing banking features. However, these characteristics have taken center stage in today's real-world banking environment. Currently, just a few banks have used innovative technologies, including AI. Banks are transitioning from conventional to more user-friendly banking practices, notwithstanding the early stages of AI. **(Suma and Anupama, 2021).**

Another research study focusing on analyzing the Impact of Artificial Intelligence in Indian Banking Industries concluded, AI is progressively permeating the banking sector to strengthen financial services. During a period of social separation and quarantine, people are more inclined to transact and stay updated on their bank accounts online. Given these benefits, it is almost a given that most banks and other financial organizations would use AI to maintain their competitiveness and provide superior customer service. Additionally, as the number of manual workers declines, artificial intelligence plays a crucial part in guaranteeing that banks can efficiently serve their clientele. **(Padmanabhan & Princy 2021)**

Analytical research on AI and its influence on the financial industry showed that the "artificial intelligence (AI)" revolution is causing a significant shift in the banking sector, with unprecedented change. Various artificial intelligence technologies have been used in the banking business, like:

Innovative banking services help modern financial firms thrive and expand. AI can improve transaction monitoring, including identifying unusual transactions. AI can enable a unified customer view across national and international databases. AI techniques may help analyze official papers effectively. It makes it easier to retrieve information about shareholders who have ownership interests. Digital technologies have significantly reduced the necessity for customer service executives. Digital banking has opened up new data sources, providing valuable client insights. **(Kalachevali 2023)**

According to a study paper, AI technology has the potential to transform the physical and digital experiences of employees and consumers. Using the most latest AI technologies for banking processes is critical.

The term "cloud" refers to the primary use cases for middle and back-end banking, including bulk transactions, CRM, risk monitoring, and loan processing. Most Indian banks now use chatbots on their web platforms to connect with consumers. Customers frequently ask basic questions on banking websites that may be better answered. **(Chandrima & Manish, 2022)**

## E) An Overview of the Indian Banking System

The Indian banking industry has seen significant challenges and developments. Concerns arose over non-performing assets (NPAs) and the financial soundness of some institutions. To address these issues, the Reserve Bank of India (RBI) has implemented techniques such as frameworks for resolving stressed assets. Digital technology and fintech have played a big role in revolutionizing the banking business.

The following categories of generations in India are relevant to the post-independence period.

**I) Generation Banking**

Many tiny, local banks existed prior to the Swadeshi Movement, which began in 1947. Internal fraud, connected lending, and combining banking and commercial activities contributed to the majority of these institutions' failures. During the Second Generation of Banking (1947-1967), Indian banks concentrated resources on a select few business families or groups, leading to a lack of credit for the agriculture sector.

**II) Generation Banking (1947-1967)**

Indian banks focused resources from retail deposits on a few commercial families or organizations, limiting credit flow to farmers.

**III) Generation Banking (1967–1991)**

The government dissolved the tie between business and banks by nationalizing 20 private banking institutions in two phases (1969 and 1980), as well as introducing priority sector funding in 1972. These policies encouraged the shift from "class banking" to "mass banking," resulting in a significant development of branch networks in rural India. Furthermore, they significantly increased public deposits and credit flow to agriculture and related businesses.

**IV) Generation (1991–2014)**

During this period, significant changes were implemented, including providing new licenses to foreign and private banks to improve efficiency, productivity, and competition. These modifications included utilizing technology, implementing prudential norms, and ensuring functional autonomy and operational flexibility.

**V) Generation- 2014 Onwards**

India's banks prioritize electronic payment and mobile banking. The adoption of Unified Payments Interface (UPI), which allows for rapid and easy money transfers between banks, has increased dramatically. Indian banks have improved their internet banking capabilities, allowing customers to pay bills and check account balances online. Banks use machines learning (ML) and artificial intelligence (AI) to detect fraud, assess credit, and provide customer service. AI-driven chatbots and virtual assistants, respectively, have been introduced to provide efficient customer assistance. Banks are exploring blockchain technology to improve transaction security and transparency.

## F) Application of AI in Transforming Customer Experience in the Banking Industry

1. **Role of Natural Language Processing in Artificial Intelligence**

   A conversational banking experience involves interacting with a chatbot through a messaging or banking app. The chatbot may be trained to answer inquiries regarding

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account balances, transaction history, and account administration. For example, a consumer might ask the chatbot, "What is my account balance?" The chatbot uses natural language processing to analyze the user's question, get account data, and provide the current amount. Conversational Experience may also refer to modernizing contact centers and using voice assistants.

2. **Artificial Intelligence with Natural Language Processing Capabilities**
   A cognitive banking experience might involve interacting with a chatbot via messaging or a banking app. Chatbots can comprehend and respond to various client requests, including account balances, transaction history, and account management.

3. **Email Phishing Scams**
   This type of cybercrime includes attackers sending fraudulent emails with links to websites. The appearance of real emails can lead to misinterpretation and entry of sensitive information, putting individuals at risk. Machine learning can detect phishing emails and help avoid them.
   These approaches use classic machine learning algorithms for regression and classification.

4. **Credit Card Fraud Detection**
   As the world becomes increasingly digital, credit card theft is on the rise. Financial theft occurs when unsecured internet connections are used to get credit or debit card information. Machine learning algorithms help identify legal and illegal behavior. An ML model can alert the bank and prevent efforts to cheat the system.

5. **Mobile Banking Fraud**
   Incorporating machine learning techniques into anti-fraud systems is crucial as payment methods transition from physical cards to mobile phones. Smartphones now have NFC chips, enabling customers to pay using their phones. This means that cyberthreats and hacking are possible on your smartphone. Machine learning can reduce the risk of mobile fraud in the banking industry by spotting anomalous user activities.

6. **Identity Theft Prevention**
   Cybercriminals can pose a significant risk to sensitive information, including login

credentials, bank account details, user names and passwords. Identity theft poses risks to both individuals and corporations. Machine learning in finance helps detect fraud by comparing identification papers, such passports and driver's licenses, to secure databases in real-time. Machine learning (ML) can battle fake IDs using biometric identification and face recognition. Theft of identity and insurance fraud.

## G. Conclusion

The adoption rate of AI in the banking business varies greatly between institutions, making it difficult to derive a specific figure. Some banks have quickly implemented AI-powered services, while others have been slower to do so. AI has been widely adopted in the banking business and is predicted to continue in the future. The open banking trend requires financial institutions to provide an Omni channel banking experience, allowing consumers to transition between online, mobile, and in-person operations without starting over. Personalizing the user experience based on the consumer's past experiences, requirements, and wants is crucial for its effectiveness. To provide a personalized experience, the bank requires up-to-date data to apply AI and machine learning. This capacity improves awareness of customer demands and allows for more targeted product and service marketing. 70% of banks plan to integrate AI into mobile banking apps to capitalize on its potential benefits.

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