

# Utilization of Artificial Intelligence in Banking, with Reference to Financial Services in Banks

Veeranjaneyulu Veerla  
Career Point University

**Abstract - According to today's banking news, artificial intelligence (AI) is extremely common, but those headlines have outpaced today's realistic banking truth. At this stage, only a few banks have started development or even full-fledged analysis. Artificial intelligence has infiltrated a variety of industries, including finance. The primary goal of this inquiry was to determine the effect of AI on modern banking. The controversy about how to ensure that citizens at the bottom of the economic spectrum become financially involved is increasingly focused on digital financial inclusion. The deployment of these innovations in developing markets helps financial service companies to further simplify their business processes and use modern and big data sources to address barriers that hinder certain consumers from receiving financial services, such as the high cost of servicing rural and low-income clients and establishing customer identities and creditworthiness. The use of Artificial Intelligence in Banking is examined in this report, with a focus on Financial Services in Banks.**

**Index Terms – Artificial Intelligence, Banking Industry, Banks, Financial Services, etc.**

## I. INTRODUCTION

Intelligence is one of the distinguishing characteristics of being human, and it manifests itself in a variety of ways, including linguistic, physical, statistical, and emotional intelligence. Isdom can be described as the ability to absorb and benefit from experiences; it is the ability to communicate with and solve issues, as well as the ability to adjust to new circumstances.

According to our new primary analysis, AI is going past experimentation to become a strategic differentiator in financial services, providing a hyper-personalized consumer experience, optimizing decision-making, and increasing operating performance. Artificial intelligence advantages for

financial inclusion are contingent on prudent acceptance by businesses, stable market settings, and sustained expenditure in the appropriate infrastructure. To keep up with more forward-thinking players, many financial services businesses would need to intensify their efforts to integrate AI around the value chain while also planning for the next wave of evolutionary neural network technology.

AI software should be used by any company to make financial and accounting choices. The benefits of AI are still being created, meaning that the system will be with us in the future. Learning to use the new technologies and making progress would be critical for companies and the world as a whole. Companies may need to incorporate AI to remain successful, and workers will need to change their ability sets to keep their employment.

## II. ARTIFICIAL INTELLIGENCE

AI is a broad term that refers to technological advances that allow machines to become intelligent. In 1956, John McCarthy invented the word artificial intelligence. Deep learning, artificial learning, image detection, natural language processing “(NLP)”, semantic computing, cognitive augmentation, machine augmented intelligence, and augmented intelligence are only a few of the words used to describe AI. Many of these concepts are used in AI as it is included here.

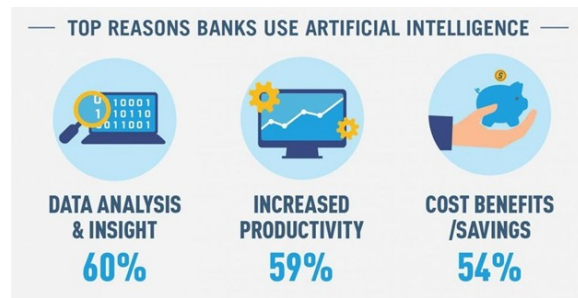
Artificial intelligence is a collection of innovations that, when combined with adaptive predictive capacity and autonomous learning, significantly improve our ability to:

- Anticipate future events
- Recognize patterns
- Communicate with other people

- Make good decisions
- Create good rules

These advancements are increasingly altering what it means to run a profitable financial services company. The aim of AI is to create a machine that is intelligent and self-contained. ML is an AI subset that allows a machine to learn and develop its understanding without having to program it explicitly. There are two ways AI works: one is symbolic, while the other is data-driven. Before the computer will learn on the data base side, named ML, we must feed it a large amount of data. Machines can learn in a far wider range of dimensions. Machines may deduce trends from large amounts of high-dimensional data. Once these models are mastered, they will generate predictions that humans are unable to match.

### III. BANKING AND ARTIFICIAL INTELLIGENCE



Banks who will revisit their approaches to staff and systems are the most likely to profit from AI. There is a need to evolve at size and speed, which necessitates the use of humans and artificial intelligence to improve organizational and process efficiency. Through both consumer and employee interactions, AI applications can generate growth.

According to the AI in Financial Services global survey, 85 percent of all respondents are currently using AI to improve performance and quality, with 77 percent claiming it is one of their most significant investment areas in the future.

Artificial intelligence isn't the potential of banking; it's still here. Banking is undergoing a transition as more data becomes accessible and emerging technologies such as quantum, edge, and cloud computing begins to disrupt the industry. Now is the time for all financial companies to invest in AI solutions. The days of waiting to see how customers

respond are no longer with us. Any service that people use should provide them with unique experiences and outstanding service. If their banks are unable to do this, there are several exciting fintech solutions available.

Banks must bring together staff, systems, to data and have them all function together. The finance sector would welcome AI's transformative potential in a new age of AI-driven businesses.

#### 3.1 Need for Adoption of AI

- Data collection: To take advantage of AI's enormous potential, an organization needs to invest in the creation and storage of a large amounts of data to train AI algorithms. The dividends yielded by AI are related to the quality and the quantity of the data that has been recorded or stored by these companies.
- AI strategy: In order to successfully adopt disruptive technologies, organizations need to have a clear vision on what they want this technology to achieve; how they want to integrate it within their organization; the feasibility and impact of the technology; and its possible consequences for the internal dynamics of the organization.
- Developing safe systems: The banking ecosystem functions on trust. This makes it imperative for banks to invest in cybersecurity and to develop AI systems. Due to the sensitive nature of data stored by banks, they are prone to data breaches by online hackers. Banks need to increasingly invest in cybersecurity collaborations with technology firms to identify and plug potential threats.
- Talent creation: Acquisition of talent is one of the biggest challenges to AI adoption. To gain advantage in AI, most organizations either hire AI experts or train them. Due to competition among firms for AI experts, and the unique needs of each organization, most companies prefer to develop their own talent pools.
- Internal digitization: A large impact of AI on business is in the improvement and streamlining of cumbersome internal processes. Organizations that are looking to adopt AI should undertake internal digitization, promote a pro-technology culture and familiarize their employees with emerging technologies.

#### IV. ARTIFICIAL INTELLIGENCE AND FINANCIAL SERVICES

The consumer financial services industry, as well as customers' interactions with the financial services environment, are being transformed by artificial intelligence. This transition has been fueled by the maturation of AI algorithms, increased AI spending, increased competitiveness, and dramatic shifts in customer tastes for AI-assisted digital financial goods. Artificial intelligence (AI) and machine learning (ML) are increasingly evolving and transforming emerging economies' political, technological, and social landscapes. As a result, AI-based technologies are expected to emerge as a game-changer with significant consequences for increasing financial access to the vulnerable. Because of the high processing costs and costly systems associated with making small loans to these customers, typical banks are unwilling and reluctant to support small-scale borrowers such as low-income people and small businesses.

AI has crept into financial services under various titles, aided in no small part by associated innovations including digitalization, immersive voice response, image detection, and data mining for personal identity validation. Many of the early AI projects centered on chatbots and other conversational interfaces to improve customer experience by encouraging consumers to converse in their natural language rather than having to choose from preset menus.

Not only by automating jobs, but even by inventing better ways to complete them, AI can boost efficiency.

The following are few examples of possible applications:

- Amelia by IPSoft is a cognitive agent that can cover a wide variety of service desk roles and transform the customer experience using natural language in applications. For example, it can help customers open new bank accounts.
- MasterCard Labs uses Kasisto, a financial services AI platform, to support more natural interactions within a messaging app. Specifically, the company is developing

MasterCard KAI (text-based AI) for messaging platforms such as Facebook Messenger.

- Swiss Reinsurance Co. is working with IBM's Watson to develop a range of underwriting solutions and achieve more accurate risk pricing. Cognitive computing helps them leverage unstructured information around risk to make better informed decisions.
- Blend Labs is accommodating complex rules and regulations changes in its mortgage loans process with intelligent and automatic compliance features.
- For Credit Suisse, Narrative Science's Quill has helped to summarise information by scaling investment research with natural language generation (NLG). This AI technology has enabled people to augment human intelligence with consistent and comprehensive research summaries.

That the financial services sector is heavily supervised. Regulators would not tolerate a black box, or applications in which the scientific methods are inaccessible and unable to justify themselves. A degree of transparency—one that enables users to inspect decisions taken by intelligent systems—is needed for AI to work broadly in the financial services sector. Although some AI innovations, such as deep learning, lack clarity, others, such as natural language generation, a subfield of AI that converts structured data into explanatory language, are making steady progress. Transparency will begin to increase in value, and any financial services institution contemplating building or adopting AI technology now or in the future should include it in their protocol preparation.

##### 4.1 AI-powered predictive analytics

For several years, financial institutions have employed predictive analytics by making human researchers utilizing mathematical modeling and data analysis to detect trends and create forecasts. AI is already being used to take predictive analytics to the next stage. Existing AI systems will recognize and test any mixture of factors, such as consumer characteristics and product functions, that a team of human analysts might be unable to do. Analyses may provide a broad range of nontraditional data points, including newspaper reports, social media updates,

consumer feedback, and government filings, among others, through using NLP. The whole financial services value chain is being impacted by AI-powered predictive analytics. Several fields where these developments as having a significant impact are mentioned below.

**Investment products & trading:** Many FIs are already applying AI to the design of investment products and to trading decisions. These applications analyse and act on vast troves of information more accurately and quickly than any human trader. AI tools are being used to assess the significance of a wide variety of alternative sources that are relevant to the value of a stock.

**Financial advice:** Robo-advisors provide customers with automated, algorithm-driven financial planning services, typically at low cost. They can suggest an appropriate asset allocation based on a client's needs and risk tolerance, automatically rebalance a client's portfolio and prompt a human financial advisor to call at the appropriate time to offer assistance, if required.

**Risk management & compliance:** AI tools are being used to identify potential instances of inappropriate behaviour that can open a bank to substantial regulatory fines as well as significant damage to its reputation. The fintech firm Digital Reasoning has received investments from major FIs such as BNP Paribas, Barclays and Goldman Sachs. Its technology, Synthesys, uses ML and NLP to analyse huge volumes of data in order to identify potential instances of market manipulation, unauthorized trading and insider trading.

**Collections:** Traditional debt collection strategies are time-consuming and only work 20% of the time. Many of the customer lawsuits filed with regulators are related to debt management activities. ML apps will focus collection efforts on the most indebted borrowers, as well as determine the best contact medium, time of day, and communications for each borrower.

It can be inferred that AI software can be used by any company to make financial and accounting decisions. "The benefits of AI are still being created, meaning that the system will be with us in the future."

Learning to use the new technologies and making progress would be critical for companies and the world as a whole. Companies may need to incorporate AI to remain successful, and workers will need to change their ability sets to keep their employment.

## V. CONCLUSION

Learning about AI and adjusting to it is a trip. It is a ride of fiscal, social, and political transition as headwinds and tailwinds. It is also a trip that no company can undertake alone. The opportunity to truly profit from emerging technology is critical to the success of financial services. AI is a disruptive platform that can transform front- and back-office processes, trigger big changes in financial market structure and policy, and pose crucial problems for society to address. Only a collaborative approach would be able to overcome these obstacles and unleash AI's advantages for the good of industry and community. Many decision-making functions would be taken over by intelligent systems from individuals in the coming years, thanks to AI's beneficial influence.

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