


# Chapter 17

## The AI Revolution: Financial Services in the Age of Intelligent Machines

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### ABSTRACT

*The financial services industry is undergoing a considerable transition due to the fast-paced development of artificial intelligence (AI) and allied technologies. This chapter explores the influence of AI on financial services, including its origins, fundamental ideas, and diverse applications. Credit scoring, fraud detection, customer service, investment strategies, financial education, customized banking, portfolio management, marketing strategies, and regulatory compliance are just a few areas where AI have been deployed. There are various concerns regarding the use of AI in financial services, such as issues with data security and privacy, the need for localization to serve a variety of customer bases, operationalization difficulties, the necessity for trust and transparency, the dearth of necessary skills, and the complexity of AI-driven decisions. This chapter highlights the crucial part AI will play in deciding the direction of financial services in the future and the need of preserving ethical standards to make sure AI continues to be a driver for progress in the sector.*

### 1. INTRODUCTION

The development of artificial intelligence (AI) applications, the number of pertinent alliances, the emergence of AI providers, the evolving complexity of corporate structures, and the desire for highly personalized services all point to a significant expansion of the AI market worldwide. The size of the worldwide artificial intelligence industry was estimated at \$428 billion in 2022 and is expected to increase to \$2,025.1 billion by 2030 from \$515.31 billion in 2023 which shows (Compounded Annual

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Growth Rate) CAGR of 21.6% (Artificial Intelligence, Market Size, Share and Forecast 2023, 2023). The financial services (FS) sector, which is considered the global bellwether industry, has started on an AI-led transformation journey that includes advanced technologies like collaborative filtering, support vector machines, deep learning, automated manual tasks, robotic assistance/chatbots, and predictive modelling based on AI (Uncovering the ground truth - AI in Indian financial services, 2022).

Advances in AI and associated technologies are primarily responsible for the tremendous upheaval the financial services sector is currently going through. According to a report released by the Federation of Indian Chambers of Commerce & Industry (FICCI) in partnership with PricewaterhouseCoopers (PwC), AI has become a crucial component of the financial service sector and 83% of Indian financial organizations accept that AI act as an effective tool in enhancing customer service experience (Outlook, 2022). In this industry, AI has transformed how financial institutions function, service clients, manage risk, and make investment choices. Industries and societies are being disrupted and transformed by the rising application of AI in financial systems (Li & Tang, 2020; Wall, 2018). Numerous financial institutions are making substantial investments in obtaining expertise in data science and AI skills today, including hedge fund management firms, as well as retail and financial advisory firms, and contemporary financial technology (FinTech) service providers (Holzinger et al., 2018; Wall, 2018). With its ability to analyse massive volumes of data, spot trends, and forecast outcomes, AI has transformed many of the industry's key processes. The uses of AI in the financial services industry are numerous and significant, ranging from algorithmic trading that carries out orders in microseconds to chatbots powered by AI that offer real-time client care. AI is frequently utilized in tasks such as loan and insurance, fraud detection, underwriting, algorithm trading, and investment portfolio management (Xie, 2019). Moreover, chatbots and virtual assistants, relationship manager augmentation, customised banking, process automation, credit scoring, and analytics are all examples of how AI is used in the financial services industry (Riikkinen et al., 2018). Financial services have witnessed the rise of robo-advisors. The rise of "robo advisors" in the financial sector has made it easier for customers to create accounts, monitor their portfolios, and change them without interacting with a human (Abraham et al., 2019; Bhardwaj et al, 2023a). Financial advisors worldwide are interested in using technology-based algorithms to predict financial market trends because clients are constantly interested in understanding the logic of a transaction in the financial markets so that it may be analysed and predicted (Li et al., 2016). AI is profound in understanding customer behaviour towards financial services. The impact of AI in the financial service regime is expected to be profound, and the impact of AI on financial services is likely to be transformative. However, that impact remains complex and uncertain (Bholat & Susskind, 2021). AI and robot advisory in delivering financial services can be seen as supplementary, not as complete substitutes, as human interventions are required to understand emotions while delivering financial services (Bhatia et al., 2021; Bhardwaj et al, 2023b). Financial institutions are empowered by AI-driven technology, such as machine learning algorithms and natural language processing, to better understand the interests and habits of their consumers, enabling tailored and targeted marketing efforts. Big data has been utilised in marketing to create hyper-personalised client profiles, which has been made possible by AI technology (Payne et al., 2021). To harness this power of artificial intelligence, financial firms are responding to implementing AI in financial services operations. Financial institutions are using them not just for regular banking and investing tasks but also for innovative functions to transform the delivery of financial services. The seamless integration of data analytics, machine learning, and automated decision-making underpins this revolutionary journey. It enables financial institutions to adapt and prosper in an era of data-driven intelligence.

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