

Abstract: A paradigm shift is underway in banking and finance driven by artificial intelligence, with Generative AI (GenAI) emerging as a transformative force beyond traditional predictive analytics. This paper provides a comprehensive review of GenAI applications across the financial services ecosystem, extending beyond customer support to areas such as risk management, algorithmic trading, fraud detection, financial reporting, and regulatory compliance. Drawing on advances in deep learning, multimodal systems, and ethical AI, the study examines key technologies—including large language models, generative adversarial networks, and diffusion models—and their role in enabling dynamic interactions, hyper-personalized financial products, and synthetic data generation for model training and stress testing. Comparative analysis shows that GenAI significantly outperforms conventional rule-based systems (e.g., IVR and basic chatbots) in flexibility, contextual understanding, and value creation. However, challenges related to data privacy, model hallucination, regulatory oversight, and ethical concerns remain critical. The paper emphasizes the need for robust governance, explainability, and human–AI collaboration frameworks. Overall, GenAI represents not an incremental improvement but a fundamental rethinking of financial service delivery, offering enhanced accessibility, personalization, and efficiency while introducing new risks that require responsible management.