



Original Article

Generative AI in Financial Planning for Retail Consumers

Deepak K. Sharma

Researcher at Symbiosis Institute of Digital & Telecom Management (SIDTM), Pune.

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Abstract - Generative Artificial Intelligence (GenAI) is rapidly reshaping the financial services industry. In recent years, large language models, generative predictive systems, and conversational AI platforms have enabled financial institutions to provide scalable and personalized services to retail consumers. Traditional financial planning often relied on human advisors, static financial calculators, or rule-based advisors. These approaches improved access to financial guidance but lacked contextual understanding and dynamic personalization. GenAI introduces a new paradigm where intelligent systems can analyze structured financial data, interpret natural language queries, and generate personalized financial insights in real time. This research paper explores the role of Generative AI in financial planning for retail consumers. The study analyzes the technological architecture behind GenAI financial advisory systems, evaluates real-world use cases across fintech platforms, and reviews supporting academic and industry sources. Additionally, the paper presents example datasets and analytical logic used by AI systems to produce personalized financial recommendations. Case studies demonstrate how GenAI supports budgeting assistance, investment guidance, and retirement planning. The findings indicate that GenAI can significantly enhance financial accessibility, improve decision-making, and reduce the cost of financial advisory services. However, challenges remain regarding regulatory compliance, model transparency, and financial data privacy. Addressing these challenges will be essential for ensuring responsible deployment of GenAI-driven financial planning platforms.

Keywords - Finance, Generative AI, Retail, NLP, Consumer.

1. Introduction

Financial planning is a critical component of personal financial stability. Individuals must make decisions about saving, investing, debt management, insurance coverage, and retirement preparation. These decisions require careful analysis of income, expenses, financial goals, risk tolerance, and market conditions. Historically, professional financial advisors have played a central role in helping individuals navigate these decisions.

Despite their importance, professional financial advisory services remain inaccessible to a large portion of the population. Many retail consumers cannot afford high advisory fees or lack access to financial advisors in their geographic region. As a result, many individuals rely on

limited financial knowledge or basic budgeting tools when making complex financial decisions.

Technology has long been viewed as a mechanism for democratizing financial advice. The first generation of financial technology platforms introduced digital budgeting tools and automated financial calculators. Later, robo-advisors emerged as algorithm-driven platforms capable of managing investment portfolios using predefined rules and modern portfolio theory. These systems improved accessibility but were limited in their ability to interpret unstructured data or interact conversationally with users.

The emergence of artificial Intelligence has significantly expanded the capabilities of financial planning technologies. Machine learning models can identify patterns in financial behavior, detect spending anomalies, and generate predictive forecasts. However, traditional machine learning systems often operate as analytical engines rather than interactive advisors.

Generative Artificial Intelligence represents the next stage in the evolution of financial planning technology. GenAI systems integrate large language models with financial analytics to produce contextual financial recommendations. Unlike traditional rule-based systems, generative models can interpret natural language queries and provide detailed explanations tailored to individual users.

For example, a retail customer may ask a financial AI assistant: "How much should I save each month to retire at age 60?" Gen AI system can analyze income data, savings history, expected inflation, and projected investment returns before generating a personalized response.

GenAI platforms are capable of supporting several core financial planning tasks including:

- Personalized budgeting and spending analysis
- Automated savings recommendations
- Investment portfolio guidance
- Retirement projection simulations
- Debt repayment optimization
- Financial education and literacy support

These capabilities have the potential to transform financial planning into a scalable digital service accessible to millions of users.

Financial institutions and fintech startups are increasingly integrating generative AI into consumer financial products. Digital banking platforms now include AI-powered assistants that help users track spending, understand credit scores, and evaluate investment opportunities. Similarly, investment platforms are incorporating conversational AI interfaces that explain market movements and portfolio allocations in simple language.

Despite these advancements, the deployment of AI in financial services raises important questions. Financial advice is heavily regulated in many jurisdictions, and incorrect recommendations could lead to significant financial harm. Ensuring transparency, fairness, and reliability in AI-generated financial guidance is therefore essential.

This paper examines the role of Generative AI in financial planning for retail consumers. The study reviews supporting literature, analyzes system architecture, evaluates case studies, and presents example datasets used by AI financial planning systems. The goal is to provide a structured overview of how generative AI technologies can support scalable financial planning services while highlighting the technical and ethical considerations involved.

2. Sources

Generative AI in financial services is built on several foundational technologies that combine machine learning, natural language processing, and financial data analytics. Academic research and industry reports have highlighted the growing importance of these technologies in enabling scalable financial advisory services.

Large language models represent one of the most significant advancements in artificial intelligence. These models are trained on massive text corpora and learn statistical relationships between words and concepts. When applied to financial contexts, language models can interpret consumer questions, summarize financial reports, and generate personalized explanations of financial strategies.

Another critical component of AI-driven financial planning systems is data aggregation. Retail consumers typically maintain financial accounts across multiple institutions, including banks, credit cards, investment platforms, and loan providers. Modern fintech platforms use secure APIs to aggregate financial data from these sources and create a unified view of consumer financial activity.

Once financial data has been aggregated, feature engineering techniques are applied to transform raw financial data into structured analytical variables. These variables may include monthly income stability, discretionary spending

ratios, debt-to-income ratios, and savings rates. Machine learning algorithms analyze these variables to identify patterns and generate predictive insights.

Generative AI systems integrate these analytical outputs with natural language capabilities. The system can translate complex financial calculations into understandable explanations. For example, an AI system may analyze a consumer's spending patterns and generate a recommendation such as: "If you reduce discretionary spending by 10 percent, you could increase your retirement savings by approximately \$120 per month."

Industry reports from consulting firms have emphasized the potential of AI to expand financial advisory services. According to several studies, a large portion of retail investors currently receive little or no professional financial guidance. AI-driven advisory platforms could significantly reduce the cost of delivering financial advice and increase access to financial planning tools.

Academic research has also examined the behavioral impact of automated financial guidance. Studies suggest that individuals who receive automated savings recommendations are more likely to increase their savings rates and maintain consistent budgeting practices.

The architecture of a typical GenAI financial planning system consists of four core components:

- User Interaction Layer – Conversational interface where users ask financial questions.
- Data Aggregation Layer – Secure integration with banking and financial APIs.
- Analytical Engine – Machine learning models that analyze financial behavior.
- Generative Layer – Large language models that generate financial explanations and recommendations.

Table 1: Example Dataset Used for AI Financial Planning Model

UserID	MonthlyIncome	Savings	Debt	RiskScore
1	4500	500	12000	3
2	5200	900	8000	4
3	6100	1000	15000	2
4	3900	300	6000	3
5	7200	1500	5000	5

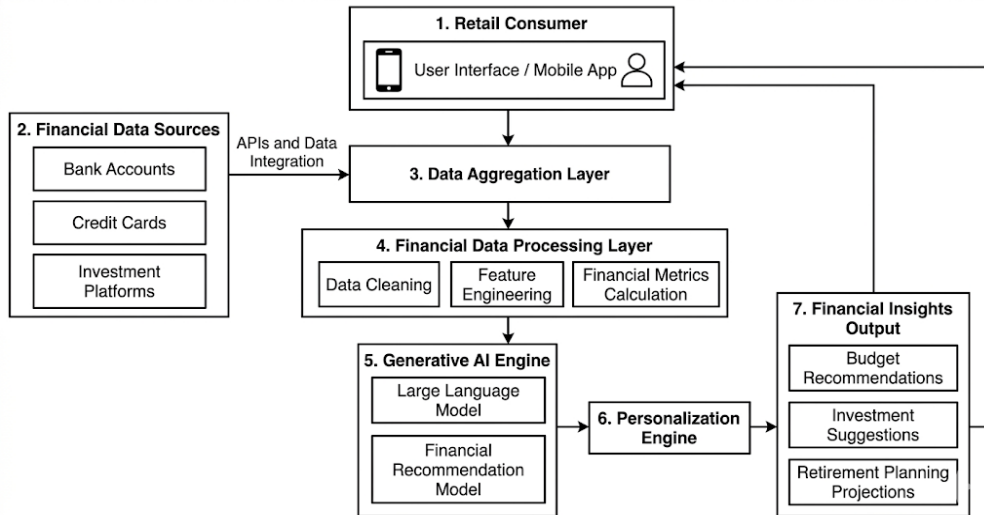


Fig 1: Together, these components transform raw financial data into actionable insights for retail consumers

3. Analytical Dataset and Calculation Logic

Financial planning AI systems often rely on analytical formulas to generate recommendations.

One commonly used calculation is the savings rate:

$$\text{Savings Rate} = \text{Monthly Savings} / \text{Monthly Income}$$

Another important metric is the debt-to-income ratio:

$$\text{Debt-to-Income Ratio} = \text{Total Monthly Debt Payments} / \text{Monthly Income}$$

AI systems combine these metrics with predictive models to generate financial insights.

For example, if a user’s savings rate is below a target threshold of 20 percent, the system may generate recommendations to reduce discretionary spending.

Retirement projections typically use compound interest calculations:

$$\text{Future Value} = \text{Present Savings} \times (1 + r)^n$$

Where:

r = expected investment return

n = number of years until retirement

Using these calculations, AI systems can simulate long-term financial outcomes and provide personalized retirement planning recommendations.

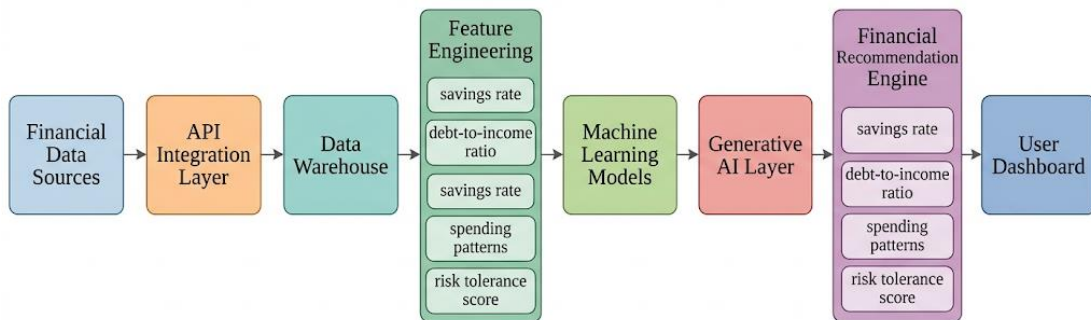


Fig 2: Architecture of AI-Driven Financial Recommendation System

4. Case Studies

Several financial technology platforms have begun integrating generative AI capabilities into consumer financial products.

4.1. Case Study 1: AI Budgeting Assistants

Digital banking platforms increasingly deploy AI-powered budgeting assistants. These assistants categorize transactions, detect unusual spending patterns, and provide automated insights.

For example, a system may analyze a user’s transaction history and recommend reducing restaurant spending by a specific amount in order to meet savings goals.

4.2. Case Study 2: Investment Advisory Platforms

Investment platforms are integrating conversational AI interfaces that explain portfolio allocations and market trends. Retail investors can ask questions such as “Why did my portfolio decline this month?” The AI system analyzes market conditions and portfolio composition before generating a detailed explanation.

4.3. Case Study 3: Retirement Planning Simulations

Generative AI models can simulate long-term retirement outcomes using stochastic financial models. These simulations incorporate variables such as salary growth, inflation rates, and investment returns to generate probability-based retirement scenarios. These real-world

examples demonstrate that GenAI can function as a digital financial advisor capable of delivering personalized insights at scale.

5. Conclusion

Generative Artificial Intelligence is poised to significantly transform financial planning for retail consumers. By integrating advanced machine learning techniques with conversational interfaces, GenAI systems can deliver personalized financial insights that were previously available only through professional advisors.

The research presented in this paper demonstrates how GenAI systems combine financial data aggregation, predictive analytics, and natural language generation to support financial decision-making. Architecture diagrams illustrate the technological infrastructure required to deliver AI-driven financial planning services, while example datasets and analytical formulas highlight the computational logic used by these systems.

The adoption of GenAI-driven financial advisory platforms has the potential to increase financial accessibility, reduce advisory costs, and improve consumer financial literacy. Retail consumers can receive real-time insights regarding budgeting, investment planning, and retirement preparation through conversational AI assistants.

However, several challenges remain. Financial institutions must ensure that AI-generated recommendations comply with regulatory requirements and maintain high levels of accuracy. Protecting sensitive financial data is also critical for maintaining consumer trust.

Future research should focus on improving model explainability, developing regulatory frameworks for AI-generated financial advice, and integrating GenAI systems with existing financial planning methodologies. With responsible implementation and continued technological

advancement, Generative AI has the potential to redefine how individuals manage their financial futures.

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