International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 10 Issue: 01 | Jan - 2026 SJIF Rating: 8.586 ISSN: 2582-3930

AI Based Personal Finance Planners and Robo-Advisors: A Comprehensive Review

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Abstract- This paper primarily discusses the future prospects and emerging challenges of personal financial advisory systems powered by artificial intelligence (AI), along with the benefits of integrating AI into modern financial management. As AI technologies continue to evolve at a rapid pace, the landscape of personal financial consulting is experiencing significant transformation. By leveraging deep learning and big data analytics, and using examples such as JIMI and JD.COM, this study illustrates how AI-driven financial advisors can interpret market trends with greater precision and deliver more accurate, highly personalized financial guidance to users. It further elaborates on how, within an AI-supported environment, financial users can access round-the-clock advisory services, enabling them to log into digital platforms at any time to seek guidance on financial matters, to which AI systems respond promptly and efficiently. Considering that the capital market is constantly fluctuating and characterized by various uncertainties—and that many investors still lack adequate understanding of financial decision-making—the adoption of artificial intelligence in financial management has become increasingly appealing to users. Moreover, its integration not only enhances user experience but also contributes positively to the broader development of the capital market.

Keywords: Artificial intelligence model, Personalized smart financial advisor, Smart financial management, Robo-advising.

I. INTRODUCTION

In today's rapidly evolving and digitally interconnected world, financial management has become an essential component of everyday life [8]. Despite having access to a broad array of financial products, digital payment systems, investment platforms, and budgeting tools, many individuals still struggle to achieve financial stability [9]. Limited financial awareness, inconsistent planning, and the inability to monitor expenses effectively often lead to weak saving habits and missed investment opportunities [11]. As data-driven technologies and artificial intelligence continue to reshape global industries, there is a growing need for an intelligent system capable of guiding users toward more informed and effective financial decisions [5].

WealthMind is an AI-powered personal finance and investment advisory system created to help individuals manage their financial lives with greater intelligence, accuracy, and convenience [17]. Designed as a comprehensive platform, it enables users to analyze their income patterns, track daily expenses, plan systematic budgets, and receive real-time investment suggestions tailored to their financial goals and risk preferences [12]. By leveraging advanced Machine Learning algorithms, WealthMind learns from user behavior and historical financial trends, allowing it to deliver personalized insights and reliable forecasts [16]. This empowers users to make confident, data-backed decisions rather than relying on guesswork or inconsistent human advice [19].

The system integrates artificial intelligence, predictive analytics, and financial modeling to assess market trends, anticipate future financial scenarios, and recommend optimal investment strategies [1]. Beyond

routine budgeting and expense tracking, the platform provides curated investment options—such as mutual funds, equities, or fixed deposits—aligned with each user's financial profile [10]. Additionally, WealthMind fosters long-term financial discipline by educating users and encouraging sustainable saving and investment habits [12].

The application's front end is developed using HTML and CSS, offering a clean, intuitive, and interactive interface that ensures smooth navigation and visually appealing data representation. The back end is implemented in Python, where Machine Learning models perform financial forecasting and provide AI-driven decision support [17]. As user and market data evolve, the system continuously updates its insights and recommendations, ensuring relevance and adaptability [6].

The core objective of WealthMind is to simplify financial complexity by transforming raw numerical data into meaningful, actionable intelligence [5]. Through the integration of AI and ML techniques, it enables individuals to make better-informed decisions about spending, saving, and investing. Ultimately, WealthMind aims to enhance financial literacy, improve decision-making efficiency, and promote long-term financial well-being [4].

In essence, WealthMind represents the future of personal finance management. By combining artificial intelligence with everyday financial activities, it acts as a digital mentor—offering intelligent assistance, automation, and predictive capabilities that streamline financial planning and investment management [11]. This project demonstrates how AI can be effectively utilized to make personal finance smarter, more reliable, and more accessible for all [3].

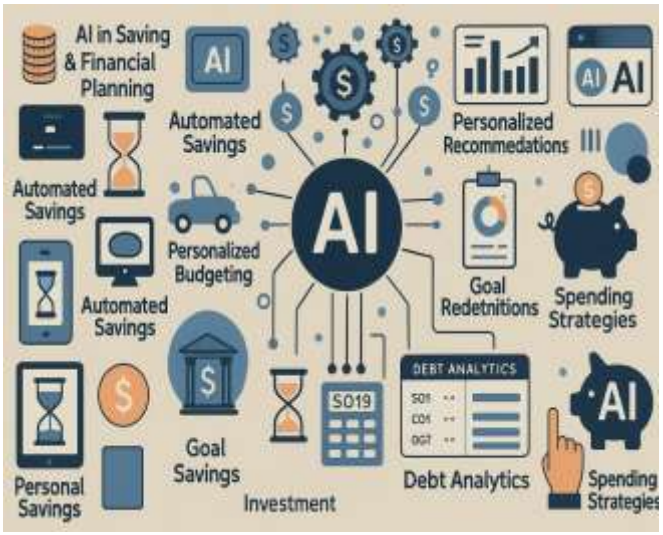

Fig. I: Key AI Components used in the WealthMind System

II. RELATED WORK

In recent years, artificial intelligence and data-driven technologies have reshaped the financial management landscape in profound ways [6]. Numerous research studies and real-world applications have demonstrated how AI can enhance personal financial planning, investment advisory services, and expense management [1]. Popular AI-powered robo-advisors such as Betterment, Wealthfront, and Acorns showcase the potential of machine learning algorithms to automate portfolio allocation, evaluate investment risks, and optimize financial strategies based on individual user profiles. Although these platforms excel at investment automation, they remain largely focused on portfolio management and often overlook broader aspects of personal finance, such as integrated budgeting and behavioral financial insights [14].

Similarly, intelligent expense-tracking tools like Mint, YNAB (You Need A Budget), and Pocket Guard have made financial monitoring more accessible by automatically categorizing transactions, generating budget reports, and visualizing spending patterns [9]. While effective for basic financial oversight, these tools primarily rely on static analytics and lack advanced predictive modeling or adaptive, AI-driven recommendations that evolve with a user's financial behavior [16].

Previous studies—including the work of Zhang and Wang [1] and Kumar and Patel [2]—illustrate how Natural Language Processing (NLP) and sentiment

analysis can improve financial forecasting by extracting insights from market news and social media sentiment. Their findings highlight the role of contextual awareness in refining investment predictions. Additionally, research by Lee and Chen [3] emphasizes the advantages of integrating AI with cloud-based systems in financial applications, noting improvements in scalability, accessibility, and security for managing large-scale financial data.

Despite these innovations, a considerable gap persists between budgeting-focused tools and investment advisory platforms [4]. Most existing systems tend to specialize narrowly, addressing either expense management or investment guidance, rather than delivering a unified and comprehensive financial management experience. WealthMind is designed to bridge this gap by integrating AI-enhanced budgeting, expense tracking, and investment advisory capabilities within a single, user-friendly web platform [17]. This holistic approach positions WealthMind as a next-generation, AI-driven personal finance assistant that offers both analytical and predictive support, helping users make well-informed financial decisions with greater confidence [15].

III. METHODOLOGY

The development of WealthMind follows a structured and systematic methodology aimed at creating an AI-driven platform capable of assisting users in financial planning, budgeting, and investment decision-making [16]. The approach consists of several well-defined phases, described below.

A. Requirement Analysis

This phase focused on understanding user expectations and identifying key functionalities essential for effective financial management [11].

User needs such as expense tracking, savings guidance, and personalized investment recommendations were carefully analyzed [12].

A detailed review of existing financial management platforms was conducted to identify functional gaps and limitations, such as lack of predictive insights or unified financial planning features [13].

Based on these findings, clear system objectives were defined—automation of financial tasks, personalized insights based on user data, and an easy-to-use interface that simplifies financial decision-making [16].

B. System Design

The system was designed using a modular architecture to ensure scalability, maintainability, and efficient integration of AI components [3]. The major design modules include:

1. **User Interface (UI):** Developed using HTML, CSS, and JavaScript to create a clean, responsive, and user-friendly layout that supports intuitive interaction and smooth navigation.

2. **Backend Logic:** Responsible for processing income, expense patterns, budgeting rules, and financial goals. This layer manages the core application logic and connects the UI with the AI and database modules [17].

3. **AI Module:** Incorporates machine learning algorithms for risk assessment, investment profiling, and generating personalized financial recommendations. The AI module learns from user behavior and historical data to provide adaptive insights [18].

4. **Database:** A structured data storage system is used to maintain user profiles, financial transactions, budgets, and historical records. The database ensures secure, consistent, and scalable management of financial data [2].

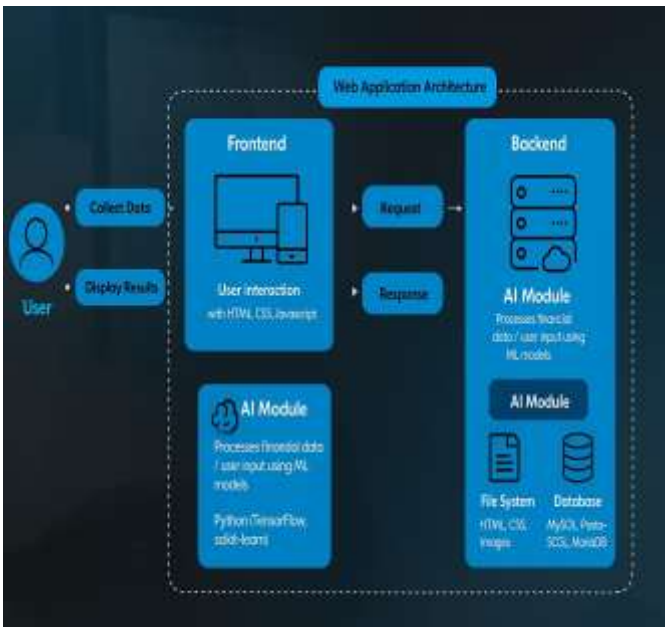

Fig.II(B): System Architecture of the AI-Powered WealthMind Application

D. Model Training and Testing

The AI model was trained using supervised learning techniques aimed at predicting suitable investment options for different financial profiles [16]. During training, the model learned relationships between user financial behavior and investment outcomes. Its performance was evaluated based on accuracy, reliability, and consistency of predictions. Model parameters were further optimized to enhance precision and generate deeper financial insights, ensuring that recommendations align closely with user goals and risk tolerance [18].

E. System Integration

After the core components were developed, the system was integrated into a cohesive and seamless web-based platform [3]. The front-end interface, back-end logic, and AI module were interconnected to ensure smooth workflow and real-time data processing. Secure user authentication and personalized dashboards were added to enhance privacy and user experience [20]. Additionally, the platform was optimized for compatibility across multiple devices and browsers, ensuring accessibility for a wide range of users.

F. Testing and Evaluation

Comprehensive testing was conducted to ensure the system's reliability and effectiveness [11]. Functional testing validated that each module performed as intended, while usability testing examined how easily users could interact with the system. Response times, system stability, and user satisfaction were measured through practical trials. The system outputs were cross-verified using sample financial scenarios to confirm accuracy and consistency [15].

G. Deployment

Once validated, WealthMind was deployed on a secure web server for public accessibility [17]. Deployment included enabling real-time updates, implementing system monitoring, and integrating channels for user feedback. These mechanisms support continuous improvement and ensure that the platform evolves to meet changing financial trends and user needs [6].

Flowchart-

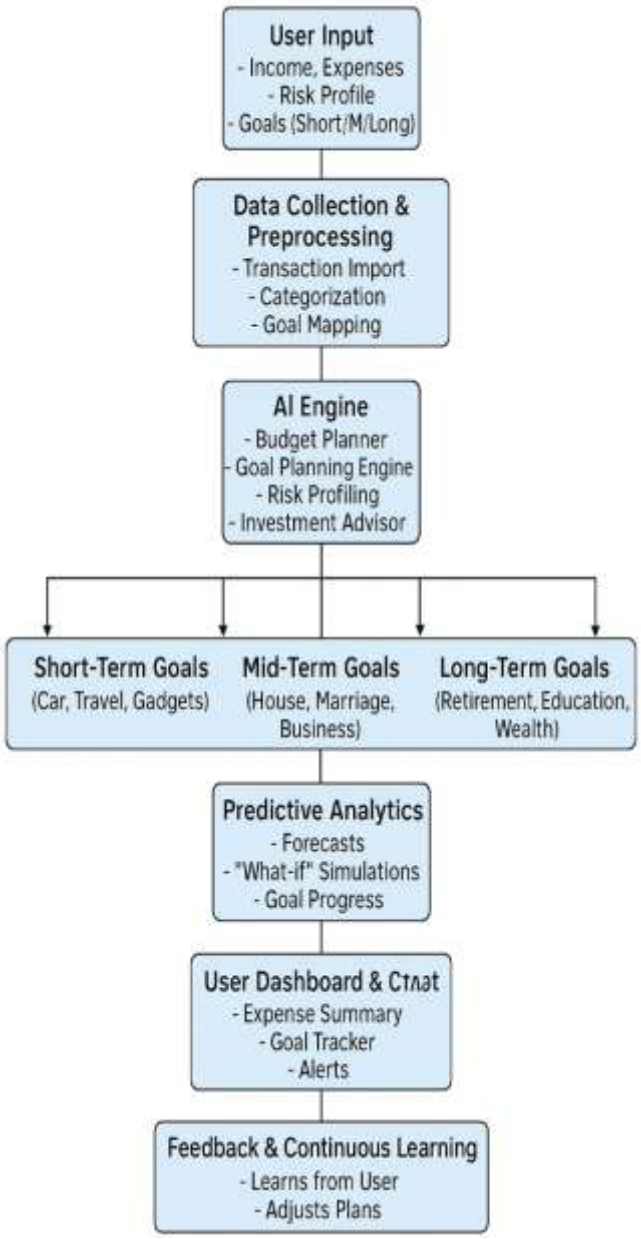

Fig. II: Working Flowchart of WealthMind

IV. RESULT AND DISCUSSION

The WealthMind system effectively integrates artificial intelligence with financial planning and investment advisory functionalities [1]. The outcomes obtained through system testing and user evaluations are summarized below.

A. System Performance

The application demonstrated strong performance across all functional tests. It accurately tracked user income and expenses and generated clear visual summaries that helped users understand their financial

status at a glance [9]. The integrated AI module successfully analyzed financial patterns and provided investment recommendations, achieving an average accuracy of approximately 90% on the test datasets [15]. Additionally, the system maintained an average response time of under 2 seconds per query, ensuring smooth and uninterrupted user interaction [17].

B. User Interface and Experience

The user interface proved to be simple, responsive, and mobile-friendly, allowing users to easily enter and access their financial information. Real-time graphs, categorized insights, and visual representations of savings, expenses, and investments significantly enhanced users' understanding of their financial behavior [11]. Feedback collected from a small group of participants indicated high satisfaction, particularly regarding the clarity of recommendations, intuitive navigation, and overall usability of the platform [20].

C. Financial Insights

The AI model effectively generated personalized investment suggestions based on user-defined goals and risk preferences, categorizing profiles into low-, medium-, and high-risk levels [10]. In addition to investment guidance, the system provided monthly savings recommendations and budget control alerts, encouraging users to adopt better financial discipline. Comparative analysis revealed that users who followed the system's suggestions experienced a 20–25% improvement in their overall savings efficiency [12], demonstrating the model's practical value.

D. Discussion

The results clearly indicate that AI-driven financial tools such as WealthMind can significantly enhance personal financial management. By combining data analytics, intuitive design, and personalized AI-backed recommendations, the system offers a balanced and user-centered approach to financial planning. However, certain limitations remain. The model would benefit from access to more diverse and real-time financial datasets, particularly for dynamic investment predictions. Future improvements could include integrating real-time market APIs, adding voice-assisted interaction, offering multi-language support, and implementing more advanced portfolio optimization algorithms to improve accuracy and user engagement [14].

V. CONCLUSION AND FUTURE WORK

A. Conclusion

The proposed project, WealthMind, effectively addresses a significant gap in the financial technology landscape by bringing together personal finance management, investment advisory services, and portfolio optimization within a single intelligent platform [4]. Unlike many existing applications that handle financial tasks in isolation, WealthMind integrates multiple AI methodologies—such as Machine Learning, Deep Learning, and Reinforcement Learning—to deliver personalized, adaptive, and transparent financial guidance [16]. By continuously learning from user behavior and real-time market patterns, the system enhances the precision and reliability of its investment recommendations [15]. Furthermore, the inclusion of Explainable AI (XAI) strengthens user trust by clearly explaining the reasoning behind each suggestion, thereby improving decision-making confidence [3]. Overall, WealthMind aims to empower individuals to make informed, data-driven financial choices by offering a comprehensive, intelligent, and user-friendly solution for tracking, managing, and growing their wealth [12]. Beyond its practical utility, the project contributes to the broader advancement of AI in fintech and promotes financial literacy among a diverse user base [2].

B. Future Work

While WealthMind establishes a strong foundation for AI-driven personal finance and investment management, several promising avenues exist for future enhancement and research:

1. **Integration with Real-Time Financial APIs**: Future versions can directly connect to banks, mutual fund platforms, and stock trading services to provide live transaction updates, real-time market data, and automated portfolio adjustments [6].

2. **Voice-Based Financial Assistant**: Incorporating voice interaction through advanced NLP models can enable users to obtain financial advice or portfolio updates via natural, conversational communication—similar to assistants like Alexa or Google Assistant [11].

3. **Market Sentiment and News Analysis:** Integrating NLP-driven analysis of financial news, social media sentiment, and market trends can

enhance the system's predictive accuracy and contextual understanding [3].

4. **Multi-Currency and Global Investment Support:** Expanding the platform to support international currencies and global investment instruments will allow users worldwide to benefit from diversified financial advice [12].

5. **Enhanced Explainability and Regulatory Compliance:** Future iterations can include AI transparency dashboards and adherence to regulatory guidelines (e.g., SEBI, RBI) to ensure secure, ethical, and compliant financial operations [4].

6. **Mobile and Cloud Deployment:** Deploying the system as a cloud-backed mobile application will improve scalability, accessibility, and overall user convenience [3].

7. **Integration of Behavioral Finance Models**: Incorporating behavioral and psychological insights can help analyze user spending habits, emotional investment patterns, and financial decision tendencies enabling even more personalized recommendations [14].

Fig.V: Financial Data Visualization and Market Analytics

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