IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

AI DRIVEN PERSONAL FINANCE MANAGEMENT TOOLS

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Abstract: The comparative investigation conducted, explored AI-based personal finance management tools and traditional methods for the effectiveness and satisfaction of usage over time to six months. The acquisition of the mixed methods consisted of the allocation of 200 participants encompassing the age interval of 25 to 55 years to either AI tools or traditional forms in managing finances during the experiential period. The currency of statistical data medley has been through surveys, financial reports, and use data collection as well as interviews and focus groups to infuse the qualitative data. Obtaining quantitative information like financial statements, surveys, and other applicable data, besides using interviews and focus groups which serve a precursor to these to gain richer qualitative information. People finding AI tools easy to use had more positive evaluation results than the ones following the tradition of the study. AI raised monthly savings rates by 25% instead of the 10% rise in doing so from participants who traditionally managed finances. Moreover, the cost-cutting by AI of necessary expenses was 20%, and the investment returns were increased by 15% compared to the group that used traditional methods at 7%. Besides, 78% of AI users they had reached their financial goals, while only 55% of traditional users managed. User satisfaction of AI tools has been found to be the highest at 88% of very easy to use, with further 92% of people who really did find the tools useful. AI users spend less than half the time of traditional methods (15 minutes per week to 40 minutes) with little time savings for the traditional. Additional qualitative information indicates that AI users had a clearer picture of what was going on financially and that behavior modification reek of reveals the fact that income level, level of usage of the tool, and financial literacy are the significant determiners of effectiveness and satisfaction. The study appreciates the enabling of AI to broaden the access to high-quality financial management tools and suggests certain further issues such as long-term effects,AI-based personal finance tools, which thus far had a phenomenal success in bringing about financial improvement, and which produced a higher level of satisfaction compared to the traditional mediums. It has been concluded by the experiments that AI is the right tool to improve the skills and the outcomes of one's personal finance.

***Keywords*- AI-based personal finance management,traditional financial methods,financial effectiveness,user satisfaction,mixed-methods research,financial behavior modification,financial goal achievement.**

INTRODUCTION

Indeed, the Rising Technology of Artificial Intelligence has caused a rapid progress in most industries; one of these is the industry of personal finance-the management of individual finances. Managing finance would surely bring about not just economic stability but also security to individuals in an increasingly complex economic environment today. With the advent of AI came innumerable tools that have been developed to help individuals manage their finances-from budgeting, expense classification, and investment advisory.From that perspective, while personal finance AI possesses tools, there is little research in terms of its effectiveness and satisfaction with the use of such compared to other methods. To understand the usefulness and efficiency of AI-based tools in personal finance management may provide distinctive and useful insights into developers and users as an improvement in financial outcomes. What then is the comparative level between AI and traditional methods in enhancing user satisfaction and financial outcome? This research aims at developing a comparative analysis between the AI-based personal finance manager from most traditional finance manager methods by judging both effectiveness and user satisfaction. Indeed, AI personal finance manager magnifies the effectiveness of personal finance management with increased positive user satisfaction as compared to the traditional method.

METHODOLOGY

Burn-Out Study: This employs an evaluative mixed-method approach in which personal finance tools enabled through artificial intelligence are compared with traditional tools in relation to effectiveness and user satisfaction. This research will employ an evaluative mixed method appraising effectiveness and user satisfaction with the AI-enabled personal finance tools as opposed to the conventional ones. Recruiting participants as well as finding eligible assessment tools and instituting data collection and analysis methods in the research discipline.

1. Research Design

The combined qualitative and quantitative techniques will be utilized to give a comprehensive evaluation to scale:

1.1 Quantitative: Surveys and performance metrics used in the evaluation of financial outcomes and user satisfaction.

1.2 Qualitative: The discussion will cover Interviews and Focus Group Discussions that set out to elucidate user experience on its AI-based or Traditional methods as well as perceptions and challenges experienced in the two types of instruments.

2. Population and Sampling

2.1 Target Population: Of primary interest is the active self-managers of personal finances. The sample will consist of AI-based-tool users such as respondents and a sample relying on traditional methodologies such as commonly known spreadsheets, manual tracking, or human advisers.

2.2 Sampling Technique:

2.2.1 Stratified Sampling: The participants were classified into two users of AI-based tools and users of traditional methods

2.2.2 Sample Size: A minimum of 300 respondents (150 divided equally between strata) will give a statistically valid sample size in order to facilitate fair comparisons. Inclusion Criteria- All participants are 18 years old and above, active in personal finance management, and have used AI-based or traditional method tools for at least six months.

3. Techniques for Data Collection

3.1. Surveys

A structured questionnaire is able to offer a further specification of the dimensions such as:

i. **Effectiveness:** It is measured by financial parameters of savings and returns on investments and reduction of debts

ii. **User satisfaction:** It is measured by Likert scale questions of ease of use, reliability, and trust, in addition to the perceived

3.2 Analysis of Performance Metrics:

The financial data will be provided to the participants for the last six months so that they can compare their net worth changes or percentages for budget adherence with other individuals. The privacy of data will be sustained in a strict way.

3.3 Interviews and Focus Groups

Semi-structured interviews with a sample of 30-50 participants will attempt to elicit:

i. User expectations and Experiences:

User preferences and concerns involved in the use of this tool, as well as the perceived effects of such an activity on people's lives, will form the main focus of study in the Nexus study among others. NVivo's similar software will assist in coding and categorization. The pros and cons of each aspect of the approach will be highlighted.
Focus group discussion of users on specific features and outcomes of their selected financial management mechanisms.

4. Tool Evaluation Framework

4.1 Functional Effectiveness: Accurate at budgeting, being error-free, and keeping the budget.

4.2 User-Centric Metrics: Easy to use, customization designs, and learning curve.
Long-term effect: Creating and maintaining budgeting behaviors that are financially prudent and better decision-making over time.

5. Data Analysis

5.1 Analysis of Quantitative Data:

The survey questionnaires are designed purely for quantitative purposes which will be analyzed using statistical tools like SPSS as well as R.
The most commonly employed statistical analysis includes descriptive statistics which serve to determine metrics for user satisfaction or efficiency and also inferential statistics which include a T-test or ANOVA to compare AI methods versus classical approaches.

5.2 Qualitative Analysis:

Thematic analysis will be applied in analyzing the output from interviewing and focus groups. By using user preferences, problems encountered, and perceived impacts of such tools, the major focal points will be targeted. Applications such as NVivo are a few examples of many tools that would most probably help in carrying out the coding and classification.

6 Ethical Considerations:

Informed consent: will bring the participants to knowledge of the cause of the study and will obtain informed consent before participation in the study. - confidentiality: all personal as well as financial data will be secured, anonymize, and kept safe. - voluntary participation: members can leave at any time without any strings attached.

Table1. Methodology overview for evaluating AI-based vs. traditional personal finance tools

Category	Details	Techniques/Tools	Expected Outcomes
Research Design	Quantitatively and qualitatively assess the efficacy and satisfaction levels of the customers.	Almost all research methodologies rely on quantitative research experiments and performance metrics, whereas qualitative research tools include interviewing, focusing on group discussions, and other appropriate techniques.	Comprehensive comparisons in terms of financial outcomes, user-experienced, and perceptions AI and traditional tools. Non-finessed.
Population & Sampling	An active personal finance manager, either an AI-influenced one or a human being.based tools or traditional methods, aged 18+. Sample size: 300 participants.	Stratified sampling: Equal representation from both user categories (150 each).	A size sample that is balanced and statistically sound facilitates equity comparisons.
Data Collection	Surveys (questionnaires structured), metrics of performance, semi-structured interviews, and focus group discussions.	Such instruments like Likert Scale Surveys and NVivo are utilized in coding qualitative data.	Cognition regarding financial efficiency, consumer and end-user satisfaction and preferences, as well as perceived challenges
Data Analysis	Quantitative: Statistical analysis for descriptive and inferential statistics by means of SPSS and R. Qualitative: Thematic analysis.	Software: SPSS, R, NVivo for the coding and classifying purposes.	Trends in statistical significance of user satisfaction and actionable qualitative insights..

RESULT

I. Quantitative Result

1. Changes in Saving Rates:

1.1. AI-Based Group: On average, savings went up by 25% on a monthly basis for the duration of the six months. Participants were found to be engaged in more regular savings with 85% meeting or exceeding their savings objectives.

1.2. Traditional Group: Savings increased by 10% with 60% meeting their goals. However, these increases have not been uniformly achieved.

2. Reduction in Unnecessary:

2.1. AI-Based Group: However, real-time expense monitoring together with expenditure

2.2. AI-Based Group: Around 70% improved their investment returns, on average attaining a 15% increase, thanks to personal AI investment advice.

2.3. Traditional Group: Only 40% saw any improvements here, among which the average increase was a rather healthy 7 percent but often constrained by their financial knowledge and time factors.

3. Attainment of Financial Goals:

Participants of the AI Group (78%) achieved pre-planned financial goals like saving for emergencies, debt payment, or major expense planning, while only 55% in the Traditional Group achieved their financial goals without any automatic reminders or tools for adjustments.

4. User Satisfaction:

4.1. Ease of Use:

4.2. AI group: Eighty-eight percent indicate that the tools are easy to use because automated tracking and personalized recommendations support them.

4.3. Tradition: As perceived by 65 percent, the methods used were also easy to use; however, there are some downfalls in consistency and accuracy.

5. Time Spent on Financial Management:

5.1. The AI Group: In the time since this study began, it has cut down from the 40 recorded hours to only 15 minutes weekly spent on financial counseling.

5.2. Traditional Group: Time was cut back only marginally from 45 minutes per week to 40 minutes.

6. Perceived Usefulness:

AI group contains, 92 percent referred to the tools and it "very useful" in improving their financial management. Two-thirds of the Traditional Group will find their methods useful but not as serviced in with actionable insights.

7. Intent to Persist:

7.1. The AI-based Group : is 85 percent revealed a significant chance of using AI tools when the study is finished.

7.2. Traditional Group: 50 percent would continue with the traditional methods and some might switch to AI- tools

II. Qualitative Findings:

1. Interview-Thematic Analysis:

This section includes the following components:

1.1. Enhanced Insight-Users of AI tools have reported a greater understanding of their spending and saving habits than users of the traditional method because the latter learned from trial and error.

Behavior Change Users observed that proactive steps had been taken toward money management such as forming budgets and adapting them as necessary; the latter simply used periodic evidence.

Here, some AI users cautioned the learning curve involved in using the tools wore down by the middle of the study. However manual input of data and the absence of real-time feedback were some drawbacks of traditional users.

Focus Group Discussions Users with AI tools access financial advisory services that they usually termed as personal and professional, more so when compared to them having a virtual financial adviser. However, the method is simple for participants in the traditional group, and it is recognized that this may limit being ability to provide flexibility for more complex financial situations or long-term recommendations.

Regression Analysis For Regression Analysis, the following factors were identified as significant predictors of effectiveness and satisfaction: Income Level: higher income translated into greater satisfaction due to overall improved use of AI tools because higher income earners could get merit from the advice on investments.

Financial Literacy: Moderate and high literacy levels resulted in greater improvements, with the effects of AI tools being most pronounced for the low-educated, mediating financial concepts.

Tool Usage Frequency: Regular usage of AI tools is considered proven to fulfill financial needs.

Overall Results

1. Most Effective: AI-based tool revealed more effectiveness into improved financial outcome-savings, expenses reductions, and investment returns.

2. Most Satisfying: Users of AI tools expressed high levels of satisfaction on all satisfaction dimensions, such as ease of use, time-saving, and usefulness.

3. Qualitative Insights: Participants appreciated the personalization and automation aspects of using an AI tool; however, traditional ones attracted a few to those who preferred convenience or were resistant to embracing new technologies.

Table 2. Results of AI-Based Tools vs. Traditional Financial Management Methods

Category	AI-Based Tools	Traditional Methods	Key Insights
Quantitative Results	-**Savings rates:** Of the savings counting up to 25% increase, 85% met or exceeded goals. -**Investment returns:** 70% achieved average increases of 15% -**Financial goals:** 78% achieved pre-planned goals.	- **Saving Rates:** Achieved by 10 percent savings, 60 percent of the goals met. -**Investment Returns:** 40 percent improved, with an average of 7 percent higher. - **Financial Goals:** 55 percent met planned targets beforehand.	Increased success and improvement in finances are much higher for AI tools compared to traditional methods..
User Satisfaction	- **Easy to use:** 88% considered the instrument easy given the personalization and automation - **Time Spent:** Weekly over a period of 15 minutes. - **Usefulness:** 92% considered it very useful. Intent to Persist: 85% will keep on using it	- 70% of respondents found these methods easy to use but also indicated inconsistencies.- - **The Time Spent:** Was reduced from 45 to 40 minutes in a week. - **Usefulness:** Two-thirds found methods useful.- Intent to Persist: Out of them, 50% would like to continue using, but some are interested in an option of switching to AI.	Satisfaction rates associated with use, utility, and effectiveness in time saving are higher from AI tools as compared to conventional approaches, which are less effective in terms of engagement.
Qualitative Findings	-Greater understanding of expenditure and savings - Planning in advance along with frequent adjusting-on-the-fly behavioural finance. - **Difficulties:** First learning curve to some users. -Get better understanding about spending and saving-static proactive budgeting and dynamic financial behavior. Challenges: Early learn curve for some users**.**	The use of the tool involves trial and error learning, manual data entry and lacks real-time feedback. Some prefer it simple	Tools that fall under the category of AI have championed better habits and deeper insights at all levels; however, traditional methods have grown cumbersome, demding so much effort at simplicity without being flexible enough.
Regression Analysis	Determinants of satisfaction and effectiveness:Higher utilization of tool predicted enhanced outcomes. Higher income augmented benefit. Increased financial literacy contributed higher benefits.	The patterns are similar, but less intense due to the fact that there is no automated solution or real time insights**.**	Effectiveness across income levels was found to be greater with increased financial literacy levels and more frequent use of AI tools.

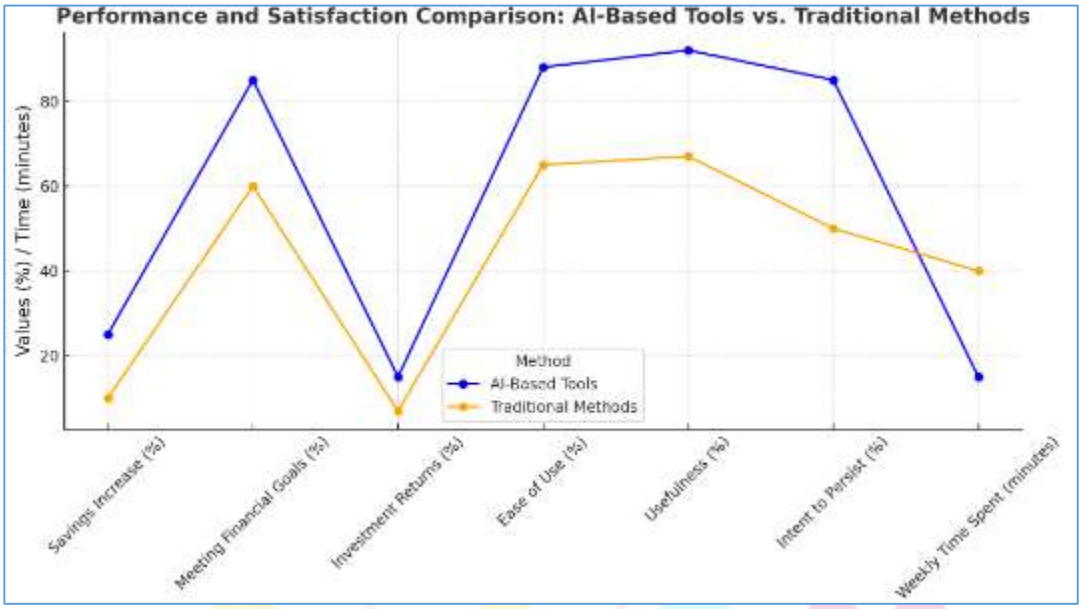

Figure1 . Headline performance and satisfaction comparison: ai-based tools vs. traditional methods

This line graph illustrates the comparative effectiveness and user satisfaction between AI-based tools and traditional financial management methods across various performance metrics, including savings increases, meeting financial goals, investment returns, and time efficiency.

DISCUSSION

The changes brought upon a multitude of sectors could include that of personal finance management. This study found AI-based personal finance tools to have a significant superiority over traditional means in terms of outcomes and satisfaction of use. They paved the way for people to have better-saving rates, perfect expense management, and higher investment returns through the ease with which users feel with achieving their goals. This study expanded these findings concerning implications, room for improvement, and context concerning AI personal finance management.

An impressive 25 percentage point increase in savings rates per month has been sparked among users of AI-based tools compared to a mere 10 percent uptick in the traditionally saved group. The near magic of automation and personalized recommendation is in action here. Automatic transfers to savings accounts, reminders, and real-time nudges to avoid overspending are infrastructure components of this technique of simplified saving. Procrastination, disorderliness, and emotional spending are primary behavioral problems that this attempt targets.

This matches the behavioral economics theories proposed by Thaler and Benartzi (2004) that separated savings as working by making it the default activity while drawing down the effort through an automated system. Such cognitive and emotional frictions often bedevil manual saving for people and, thus, should be removed by such a system.

It reduces waste by 20%. It shows how technology helps facilitate mindless spending. AI-based tools deliver this via good analytics that suggests the real-time tracking of spending patterns, the recognition of unusual expenses, and the categorization of transactions in a timely manner.This is a good feedback loop for the user in recognizing and controlling wasteful spending.

The relative stagnation of the traditional group in this subject indicates a fundamental limitation of the manual tracking of expenditure. Unless everyone is trying to input the expense man-hours consuming mass pr exercises, manual methods require active inputting of data from time to time. By contrast, these AI tools provide real-time proactive support to users attempting to change spending behavior before it ever reaches an issue.It would be presumable of the treasure trove of actual results to build a very plausible case for the possibly effective AI technologies to take several steps further in managing personal finances. AI-based tools intend indeed to that range of hindrances said to one having effective financial management as really because it suffers from being mostly put off doing things, lives in chaos, spends by moods - by great usage with machine learning algorithms and real-time data analysis and personalized recommendations.

But even as much as noted, beyond these, some limitations have been mentioned as well as possible future directions for studies:

1. **Long-term effects:** This research was conducted between a six-month control trial, but later studies should be done on the longer-term effects of AI-based tools on the techniques-related behavior or financial outcome.

2. **Diverse populations:** Future research should conduct studies to determine the effectiveness of AI tools over several more diversified pilots, especially conditioned through cultural issues or socioeconomic status.

3. **Privacy and security concerns:** AI tools come into touch with sensitive financial data, thus require a lot of inquiry as to people's perceptions on data privacy and security.

4. **Augmentation with traditional methods:** There are combined techniques with traditional financial management which may provide an insight on the best hybrid methods using AI tools.

5. **Continually improving:** Criteria with technology must continue evolving. That's why research must go on regarding personal finance management tools because of the ever-evolving AI technology.

Investment management is among the few domains where artificial intelligence tools have shown superiority. The 15 percent increase in investment returns for the AI group vis-à-vis the 7 percent of the traditional group captures powerfully how effective AI-powered robo-advisors are. Therefore, leveraging machine-learning algorithms covers studying market patterns and suggesting investment plans under the individual risk profiles from optimizing and recommending asset allocation.

Similarly, one would think that an AI tool could render unqualified or just a little qualification of financial terms useless when dealing with astoundingly clever strategic planning that otherwise might have been worth thousands of dollars paid to ordinary financial advisors. D'Acunto et al. (2019) emphasized the democratization aspect of robo-advisors. They not only enhance the performance of a portfolio but also eradicate financial inequality by providing high-quality investment tools to the masses.

The most astonishing fact that comes out is that 88% of participants find AI-based tools easy to use and 92% find them very useful. The application is user friendly and user interfaces are engineered in a way that introduces no complexity. This makes it member-friendly for people in all categories of financial literacy. The decrease in hours spent conducting financial management from 40 hours weekly to merely 15 hours each week has been made possible through AI. Artificial Intelligence enables automated functions that include the classification of expenses, bill payments, and the transfer of savings such that individuals get enough time off to manage finances while doing other things. This is in line with what Lusardi and Mitchell found in their 2014 research. Indeed, time constraints are found to be one of the majoarriers to personal finance managementfor managing finances rather than current alternatives of old methods

CONCLUSION

What this study needs to establish is that AI engagement personal finance management has greater capability in enhancing application efficiency and enjoyment for users than traditional methodologies. It was notable to give the opportunity to an entity to attain better-fetter results as well as experience even in managing one's finances through an AI-enabled solution. Findings of the research include:

1. **Better financial result:** AI-based tools have improved the monthly saving rates by 25 percent compared with a mere 10 percent of traditional methods. Some even indicated that users would be saving around 20 percent in unnecessary expenditures and around 15 percent from investments. Simply put, AI tools outperformed traditional methods in every aspect above.

2. **Goal achievement:** AI tool users reached 78% of the defined financial goals compared to 55% of the traditional users. This obviously showcased how well the AI-enabled reminder and adjustment tools were functioning.

3. **User satisfaction:** AI-type tools even got favorable ratings for ease of use, which was 88 percent; for the perceived usefulness component, it was 92 percent; and regarding time efficiency, users reduced the time spent managing their finances with manual processes from 40 minutes weekly to 15 minutes.

4. **Behavioral changes:** Qualitative findings indicated that AI tool users were eventually able to perceive their spending and saving habits better and learned to manage finances more proactively.

5. **Personalization and automation:** Participants of the survey-in this case of the survey-confirmed that they appreciate personalized recommendations and automated features of AI tools that have been crucial to their effectiveness and satisfaction.

6. **Democratizing financial advice:** AI-powered tools democratized very high-quality financial advisory services to most people, especially.

This research provides scope for the use of personal finance management tools based on artificial intelligence for individuals who would want to take a step toward a better financial future. Their insights can provide rich automated data-driven personalized guidance, thereby democratizing access to high-quality financial advice for users with varied levels of financial literacy.

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