

## Impact Assessment of Technological Advancement on Investment Decisions of Individual Investors

Kuldeep Singh<sup>1\*</sup> | Prof. Shwetabh Mittal<sup>2</sup>

<sup>1</sup>Research Scholar, Faculty of Commerce and Business Administration, M.M.H. College, Ghaziabad, U.P., India.

<sup>2</sup>Professor, Faculty of Commerce and Business Administration, M.M.H. College, Ghaziabad, U.P., India.

\*Corresponding Author: kuldeepsingh7361@live.com

**Citation:** Singh, K., & Mittal, S. (2025). *Impact Assessment of Technological Advancement on Investment Decisions of Individual Investors*. *International Journal of Advanced Research in Commerce, Management & Social Science*, 08(04(I)), 39–49. [https://doi.org/10.62823/ijarcms/8.4\(i\).8132](https://doi.org/10.62823/ijarcms/8.4(i).8132)

### ABSTRACT

*This research explores how recent technological innovations, especially artificial intelligence (AI), big data, and financial technology, shape the way individuals make investment decisions. As digital tools and automated systems become central to financial markets, they have transformed how investors access information, manage portfolios, and evaluate opportunities. The study surveyed 131 investors using a structured online questionnaire to understand their views on AI features such as real-time updates, automated portfolios, data visualization, predictive insights, and compliance tools. Statistical techniques, including chi-square and regression analysis in SPSS, were used to test key hypotheses. The results show that investment preferences vary significantly with age ( $\chi^2 = 25.870$ ,  $p = 0.027$ ), while gender differences are not statistically meaningful ( $\chi^2 = 5.904$ ,  $p = 0.551$ ). Regression analysis revealed a strong positive link between AI-related tools and investment behavior ( $r = 0.670$ ,  $p < 0.001$ ), suggesting that technology explains nearly 45% of the variation in investor decisions. Overall, the findings highlight that AI-based technologies not only improve investor confidence and decision accuracy but also reveal that age plays a notable role in shaping financial preferences. The study emphasizes the growing importance of designing AI-driven investment platforms that accommodate different age groups and promote informed, inclusive financial engagement.*

**Keywords:** Artificial Intelligence, Fintech, Investment Behavior, Investor Confidence, Age Factors, Digital Finance.

### Introduction

Technology has long been recognized as a catalyst for business transformation, fundamentally reshaping various industries, including investment and financial markets. The contemporary investment landscape is characterized by rapid advancements in data processing, storage, and transmission, significantly influencing decision-making processes. Investors, both institutional and individual, rely on technology for real-time market insights, algorithmic trading, and automated financial advisory services.

The integration of digital platforms and financial technologies has streamlined investment activities, allowing for quick access to relevant data and sophisticated analytical tools. Systems like Bloomberg and AI-driven algorithms provide market insights, offering traders and investors an edge in decision-making. Additionally, the advent of blockchain technology is revolutionizing transaction security and efficiency, reducing fraud risks and enhancing transparency in financial markets.

Artificial intelligence (AI), machine learning, and big data analytics have further transformed investment strategies, enabling investors to identify market trends and optimize portfolio performance.

The rise of robo-advisors and algorithmic trading platforms has made investment more accessible, reducing reliance on traditional financial advisors. These technological advancements have fostered a new era of investing that is more efficient, inclusive, and transparent.

Moreover, technology has played a pivotal role in democratizing financial markets, allowing investors of varying experience levels to participate. Online trading platforms, social media influencers in finance, and crowdsourced investment insights have reshaped investor behavior and market dynamics. However, while technology offers substantial benefits, it also introduces new challenges, such as cybersecurity risks and the potential for algorithmic biases affecting investment decisions.

As financial markets continue to evolve with emerging technologies like blockchain, the Internet of Things (IoT), and AI-driven automation, investors must remain well-informed to leverage these innovations effectively. Understanding the implications of technological advancements on investment decision-making is crucial for both investors and financial institutions. This study explores the profound impact of information technology on investment choices, highlighting its significance in shaping modern investment strategies.

### **Literature Review**

Recent Studies underscores the profound impact of technological advancements on investor behavior and financial market dynamics. (Sumana , Mondal , & Kumar , 2025)highlight how innovations such as fintech, algorithmic trading, big data analytics, and artificial intelligence have reshaped investment decision-making and market structures, while simultaneously introducing complexities that demand a deeper understanding of investor psychology in a tech-driven environment. (Zhao, 2024)adds that digitalization exerts a multifaceted influence on individual investors, steering their decisions through both beneficial and adverse channels—particularly affecting less experienced investors who rely heavily on digital social networks for financial guidance. Similarly, (Zhang, 2024)emphasizes that although fintech fosters financial inclusion and market opportunities, it also presents intricate challenges that necessitate continuous strategic adaptation. (Bhatnagar, Prakash, Memon, Kadam, & Sharma, 2022)observe a paradigm shift in customer engagement with financial services, driven by technological progress, which has led to unprecedented investment levels in the sector. (Srivastav & Jain, 2024) further assert that information technology plays a statistically significant role in shaping investment choices, advocating for the integration of technical expertise into financial strategies and identifying mutual funds as a preferred vehicle due to their transparency and accessibility. (Soni & Sisodia, 2024)explore how digital trading platforms influence investor risk behavior, noting that while these platforms enhance accessibility, they also amplify cognitive biases, thereby calling for regulatory and educational interventions to promote responsible investing. Finally, (Kalda, Previtero, Loos, & Hackethal, 2021)reveal that smartphone trading encourages riskier investment patterns, such as trend chasing and preference for lottery-like assets, especially during after-hours trading. These behavioral shifts suggest that while digital convenience enhances market participation, it may compromise portfolio efficiency and long-term performance for retail investors.

### **Research Methodology**

The research, titled "Impact Assessment of Technological Advancement on Investment Decisions of Individual Investors" was designed to investigate the influence of AI-driven technological advancements on investment decisions and the association between age and preferred investment options among individual investors. This section outlines the sample size, data collection methods, study objectives, and statistical tests employed to ensure a robust analysis.

#### **Sample Size**

The study involved 131 individual investors, selected through purposive sampling to capture a diverse range of age groups (Young, Middle-aged, Older) and investment preferences. This sample size was adequate for conducting regression and chi-square analyses, adhering to the guideline of 10–20 observations per predictor variable to ensure statistical reliability.

#### **Data Collection**

Primary data were gathered using a structured online questionnaire distributed to individual investors. The questionnaire comprised 10 Likert-scale items (1 = Strongly Disagree, 5 = Strongly Agree) measuring perceptions of AI-related features (Realtime\_updates, Auto\_Portfolio, Data\_viz, AI\_Insights, Compliance) and investment-related factors (Confident\_IT, Accuracy\_IT, AI\_vsTrad, Difficulty\_IT,

data\_sec). Additionally, respondents provided demographic details (age) and their preferred investment options (e.g., Stocks, Bonds, Mutual Funds).

**Objectives of the Study**

The study pursued Three primary objectives:

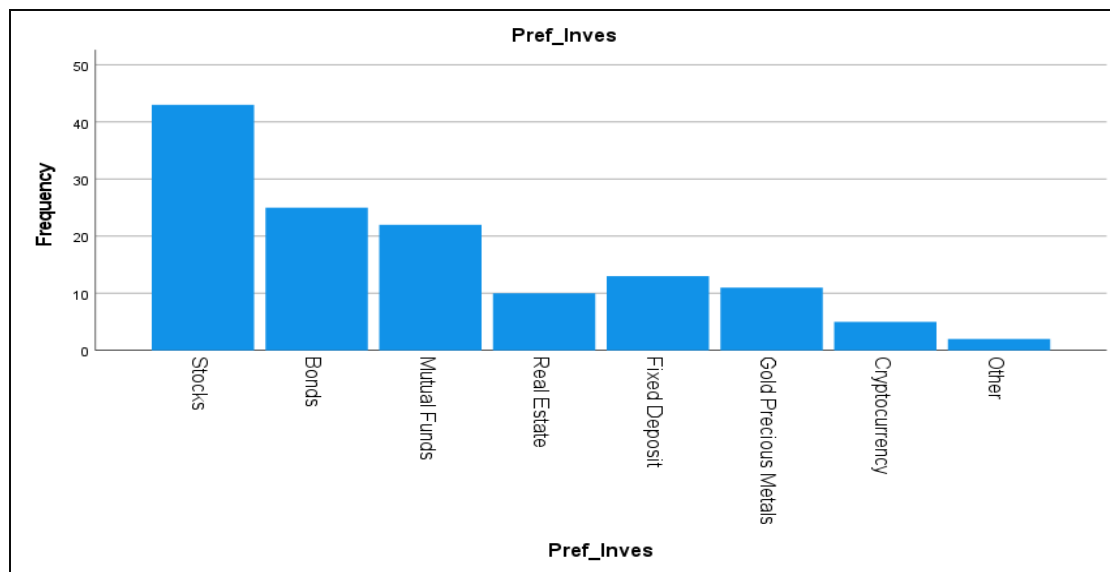
- To examine whether preferred investment options differ significantly across age groups, exploring demographic influences on investment behavior.
- To examine whether preferred investment options differ significantly across Gender, exploring demographic influences on investment behavior.
- To evaluate the impact of AI-driven technological advancements, AI on investment decisions.

**Statistical Tests Applied**

Two key statistical methods were utilized. First, a regression analysis was performed in SPSS to assess the impact of the composite AI variable on Investments. This involved computing the Investments score as the average of the five investment-related variables and evaluating model fit, significance, and predictor effects. Second, a chi-square test of independence was conducted to investigate the association between age groups and preferred investment options, with additional goodness-of-fit tests assumed to analyze response distributions for the Likert-scale variables. These tests evaluated the null hypotheses that AI has no significant impact on Investments and that there is no association between age and investment preferences, respectively.

**Data Analysis and Interpretation**

		Pref_Inves			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Stocks	43	32.8	32.8	32.8
	Bonds	25	19.1	19.1	51.9
	Mutual Funds	22	16.8	16.8	68.7
	Real Estate	10	7.6	7.6	76.3
	Fixed Deposit	13	9.9	9.9	86.3
	Gold Precious Metals	11	8.4	8.4	94.7
	Cryptocurrency	5	3.8	3.8	98.5
	Other	2	1.5	1.5	100.0
Total		131	100.0	100.0	



The frequency table shows that among 131 respondents, Stocks are the most preferred investment option, chosen by 43 respondents (32.8%), followed by Bonds (25 respondents, 19.1%) and Mutual Funds (22 respondents, 16.8%). Real Estate (10 respondents, 7.6%), Fixed Deposits (13 respondents, 9.9%), Gold/Precious Metals (11 respondents, 8.4%), and Cryptocurrency (5 respondents, 3.8%) are less popular, with other investments selected by only 2 respondents (1.5%). This distribution indicates a strong preference for stocks, likely due to their potential for high returns, while bonds and mutual funds also have significant appeal, possibly for their relative stability and diversification. The lower preference for real estate, fixed deposits, gold, and cryptocurrency suggests these may be perceived as less accessible or riskier, with cumulative percentages showing that over 68% of respondents prefer stocks, bonds, or mutual funds, highlighting a focus on traditional and market-based investment options.

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Pref_Inves * Age	131	100.0%	0	0.0%	131	100.0%
Pref_Inves * Gender	131	100.0%	0	0.0%	131	100.0%

### Hypotheses Testing

**Null Hypothesis (H<sub>0</sub>1): There is no association between age and preferred investment options**

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	25.870 <sup>a</sup>	14	.027
Likelihood Ratio	28.559	14	.012
Linear-by-Linear Association	.667	1	.414
N of Valid Cases	131		

a. 15 cells (62.5%) have expected count less than 5. The minimum expected count is .29.

The Chi-Square Tests output for the crosstabulation of 'Pref\_Inves' (preferred investment options) with 'Age' indicates a statistically significant association between investment preferences and age groups, as evidenced by the Pearson Chi-Square value of 25.870 (df = 14, p = 0.027) and the Likelihood Ratio value of 28.559 (df = 14, p = 0.012), both with p-values less than 0.05. This suggests that the choice of investment options (e.g., Stocks, Bonds, Mutual Funds) varies significantly across age groups (Young, Middle-aged, Older). However, the Linear-by-Linear Association test (p = 0.414) is not significant, indicating no linear trend in the relationship (i.e., preferences do not consistently increase or decrease with age).

Crosstab				
		Gender		Total
		Male	Female	
Pref_Inves	Stocks	25	18	43
	Bonds	12	13	25
	Mutual Funds	8	14	22
	Real Estate	5	5	10
	Fixed Deposit	6	7	13
	Gold Precious Metals	4	7	11
	Cryptocurrency	3	2	5
	Other	2	0	2
Total	65	66	131	

The crosstabulation of 'Pref\_Inves' (preferred investment options) by 'Gender' reveals the distribution of investment preferences among 65 male and 66 female respondents, totaling 131 respondents. Stocks are the most preferred option for both genders, with 25 males (38.5% of males) and 18 females (27.3% of females) choosing them, followed by Bonds (12 males, 13 females) and Mutual Funds (8 males, 14 females). Females show a slightly higher preference for Mutual Funds (21.2% vs. 12.3% for males) and Gold/Precious Metals (10.6% vs. 6.2% for males), while males have a marginally

higher preference for Stocks. Real Estate, Fixed Deposits, Cryptocurrency, and Other are less popular across both genders, with minimal differences (e.g., Cryptocurrency: 3 males, 2 females; Other: 2 males, 0 females).

**Null Hypothesis (H<sub>0</sub>2): There is no association between Gender and preferred investment options.**

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.904 <sup>a</sup>	7	.551
Likelihood Ratio	6.714	7	.459
Linear-by-Linear Association	.208	1	.649
N of Valid Cases	131		

a. 5 cells (31.3%) have expected count less than 5. The minimum expected count is .99.

The chi-square test results indicate no significant association between gender and preferred investment options (Pearson Chi-Square = 5.904, df = 7, p = 0.551; Likelihood Ratio = 6.714, df = 7, p = 0.459). This suggests that gender does not play a significant role in determining the choice of investment options among individual investors in this study. The non-significant linear-by-linear association (p = 0.649) further confirms that there is no consistent trend in investment preferences related to gender. Despite the warning about low expected cell counts, which may affect the test's reliability, the high p-values provide confidence in the conclusion that investment preferences are independent of gender. This finding implies that investment platforms and financial advisors need not tailor strategies based on gender differences in this context, though further analysis with a larger sample or adjusted categories could address the cell count issue and validate these results.

**Statistics**

N	Realtime_updates	Auto_Portfolio	Data_viz	AI_Insights	Compliance	Confident_IT	Accuracy_IT	AI_vsTrad	Difficulty_IT	data_sec
Valid	131	131	131	131	131	131	131	131	131	131
Missing	0	0	0	0	0	0	0	0	0	0
Mean	3.70	3.83	4.11	4.02	4.05	4.07	4.02	3.89	3.98	3.96
Median	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Mode	4	5	4	4	4	4	4	4	4	4

The means range from 3.70 (Realtime\_updates) to 4.11 (Data\_viz), indicating moderate to high agreement across all variables, with respondents generally agreeing (means close to 4 = Agree) that IT tools are important or effective in investment decision-making. The highest mean for Data\_viz (4.11) suggests the strongest agreement for the use of data visualization tools, while Realtime\_updates (3.70) has the lowest, though still above neutral (3). The median and mode are consistently 4 (Agree) for all variables except Auto\_Portfolio (mode = 5, Strongly Agree), indicating a central tendency toward agreement, with Auto\_Portfolio showing a slight skew toward stronger agreement. These results suggest that respondents view IT tools positively overall, with data visualization and automated portfolio tools particularly well-regarded, and the consistent variability (inferred from means not at the scale's extremes) supports their suitability for further analysis, such as ordinal logistic regression, to explore their impact on confidence in decision-making.

Realtime_updates					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	5.3	5.3	5.3
	Disagree	10	7.6	7.6	13.0
	Neutral	35	26.7	26.7	39.7
	Agree	42	32.1	32.1	71.8
	Strongly Agree	37	28.2	28.2	100.0
Total		131	100.0	100.0	

The frequency distribution of respondents to a survey question about real-time updates reveals a predominantly positive sentiment, with 60.3% of respondents either agreeing (32.1%) or strongly agreeing (28.2%), indicating that real-time updates are generally well-received, likely due to their perceived value or effectiveness. A notable 26.7% remain neutral, suggesting indecision or mixed experiences, while only 12.9% disagree (7.6%) or strongly disagree (5.3%), pointing to limited opposition. This positive skew, with the largest group agreeing, suggests satisfaction with real-time updates, though the neutral and dissenting minorities may warrant further investigation to address potential concerns or improve user experience.

Auto_Portfolio					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	2.3	2.3	2.3
	Disagree	11	8.4	8.4	10.7
	Neutral	34	26.0	26.0	36.6
	Agree	40	30.5	30.5	67.2
	Strongly Agree	43	32.8	32.8	100.0
Total		131	100.0	100.0	

The frequency distribution of respondents to a survey question about "Auto\_Portfolio" indicates a strongly positive sentiment, with 63.3% of respondents either agreeing (30.5%) or strongly agreeing (32.8%), suggesting that the Auto\_Portfolio feature or concept is generally well-received, likely due to its perceived effectiveness, convenience, or value. A significant 26.0% of respondents are neutral, indicating indecision or mixed experiences, while only 10.7% express disagreement, with 8.4% disagreeing and 2.3% strongly disagreeing, pointing to minimal opposition. This positive skew, with the largest group strongly agreeing, highlights broad satisfaction, though the neutral and dissenting minorities may suggest areas for improvement or specific concerns that could be explored further to enhance user experience.

Data_viz					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.8	.8	.8
	Disagree	7	5.3	5.3	6.1
	Neutral	19	14.5	14.5	20.6
	Agree	53	40.5	40.5	61.1
	Strongly Agree	51	38.9	38.9	100.0
Total		131	100.0	100.0	

The frequency distribution of respondents to a survey question about "Data\_viz" reveals a highly positive sentiment, with 79.4% of respondents either agreeing (40.5%) or strongly agreeing (38.9%), indicating that data visualization features are widely appreciated, likely for their clarity, usability, or effectiveness in presenting information. Only 14.5% of respondents are neutral, suggesting a small group with mixed or undecided views, while a mere 6.1% express disagreement, with 5.3% disagreeing and just 0.8% strongly disagreeing, reflecting minimal opposition. This strong positive skew, with the largest group agreeing, underscores broad satisfaction with data visualization, though the small neutral and dissenting groups may point to minor areas for refinement that could be investigated to further enhance user experience.

AI_Insights					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	1	.8	.8	.8
	Disagree	6	4.6	4.6	5.3
	Neutral	26	19.8	19.8	25.2
	Agree	54	41.2	41.2	66.4
	Strongly Agree	44	33.6	33.6	100.0
Total		131	100.0	100.0	

The frequency distribution of respondents to a survey question about "AI\_Insights" shows a predominantly positive sentiment, with 74.8% of respondents either agreeing (41.2%) or strongly agreeing (33.6%), suggesting that AI-driven insights are highly valued, likely for their accuracy, utility, or impact. A moderate 19.8% of respondents are neutral, indicating some indecision or mixed experiences, while only 5.3% express disagreement, with 4.6% disagreeing and a minimal 0.8% strongly disagreeing, reflecting very low opposition. This strong positive skew, with the largest group agreeing, highlights widespread satisfaction with AI Insights, though the neutral and small dissenting groups may suggest minor areas for improvement or specific concerns that could be explored to further enhance user experience.

Compliance					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.8	.8	.8
	Disagree	6	4.6	4.6	5.3
	Neutral	20	15.3	15.3	20.6
	Agree	62	47.3	47.3	67.9
	Strongly Agree	42	32.1	32.1	100.0
Total		131	100.0	100.0	

The frequency distribution of respondents to a survey question about "Compliance" indicates a strongly positive sentiment, with 79.4% of respondents either agreeing (47.3%) or strongly agreeing (32.1%), suggesting that compliance-related features or processes are widely regarded as effective, reliable, or well-implemented. A modest 15.3% of respondents are neutral, pointing to a small group with mixed or undecided opinions, while only 5.3% express disagreement, with 4.6% disagreeing and a mere 0.8% strongly disagreeing, reflecting minimal opposition. This pronounced positive skew, with the largest group agreeing, underscores broad satisfaction with compliance measures, though the small neutral and dissenting groups may indicate minor areas for improvement or specific concerns that could be investigated to further enhance user experience or address potential issues.

ConfidentIT					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.8	.8	.8
	Disagree	6	4.6	4.6	5.3
	Neutral	21	16.0	16.0	21.4
	Agree	58	44.3	44.3	65.6
	Strongly Agree	45	34.4	34.4	100.0
Total		131	100.0	100.0	

The frequency distribution of respondents to a survey question about "Confident\_IT" reveals a strongly positive sentiment, with 78.7% of respondents either agreeing (44.3%) or strongly agreeing (34.4%), indicating that the IT-related feature or system is widely perceived as reliable, effective, or user-friendly. A moderate 16.0% of respondents are neutral, suggesting some indecision or mixed experiences, while only 5.3% express disagreement, with 4.6% disagreeing and a minimal 0.8% strongly disagreeing, reflecting very low opposition. This pronounced positive skew, with the largest group agreeing, highlights broad confidence in the IT system or feature, though the small neutral and dissenting groups may point to minor areas for improvement or specific concerns that could be explored to further enhance user satisfaction.

Accuracy IT					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Strongly Disagree	3	2.3	2.3	2.3
	Disagree	3	2.3	2.3	4.6
	Neutral	27	20.6	20.6	25.2
	Agree	54	41.2	41.2	66.4
	Strongly Agree	44	33.6	33.6	100.0
Total		131	100.0	100.0	

The frequency distribution of respondents to a survey question about "Accuracy\_IT" shows a predominantly positive sentiment, with 74.8% of respondents either agreeing (41.2%) or strongly agreeing (33.6%), indicating that the IT system's accuracy is widely regarded as reliable and effective. A notable 20.6% of respondents are neutral, suggesting some indecision or mixed experiences, while only 4.6% express disagreement, with an equal split of 2.3% disagreeing and 2.3% strongly disagreeing, reflecting minimal opposition. This strong positive skew, with the largest group agreeing, underscores broad satisfaction with the IT system's accuracy, though the neutral and small dissenting groups may indicate minor inconsistencies or areas for improvement that could be investigated to further enhance user trust and experience.

AI_vsTrad					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	1.5	1.5	1.5
	Disagree	10	7.6	7.6	9.2
	Neutral	25	19.1	19.1	28.2
	Agree	57	43.5	43.5	71.8
	Strongly Agree	37	28.2	28.2	100.0
Total		131	100.0	100.0	

The frequency distribution of respondents to a survey question about "AI vsTrad" reveals a strongly positive sentiment, with 71.7% of respondents either agreeing (43.5%) or strongly agreeing (28.2%), suggesting that AI-based approaches are widely preferred over traditional methods, likely due to perceived advantages in efficiency, effectiveness, or innovation. A moderate 19.1% of respondents are neutral, indicating some indecision or mixed opinions, possibly reflecting uncertainty about AI's benefits or familiarity with traditional methods. Only 9.2% express disagreement, with 7.6% disagreeing and 1.5% strongly disagreeing, indicating minimal opposition. This pronounced positive skew, with the largest group agreeing, highlights a strong preference for AI over traditional approaches, though the neutral and small dissenting groups may suggest areas for further education or refinement to address concerns and enhance adoption.

Difficulty_IT					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	1.5	1.5	1.5
	Disagree	4	3.1	3.1	4.6
	Neutral	29	22.1	22.1	26.7
	Agree	56	42.7	42.7	69.5
	Strongly Agree	40	30.5	30.5	100.0
Total		131	100.0	100.0	

The frequency distribution of respondents to a survey question about "Difficulty IT" indicates a predominantly positive sentiment, with 73.2% of respondents either agreeing (42.7%) or strongly agreeing (30.5%), suggesting that the IT system or feature is widely perceived as challenging or complex, potentially in a way that users find engaging or appropriately demanding. A notable 22.1% of respondents are neutral, indicating some uncertainty or mixed experiences regarding the level of difficulty, while only 4.6% express disagreement, with 3.1% disagreeing and 1.5% strongly disagreeing, reflecting minimal perception of the IT system as easy or non-challenging. This strong positive skew, with the largest group agreeing, suggests that the IT system's difficulty is generally acknowledged and possibly accepted, though the neutral and small dissenting groups may point to a need for further investigation into usability issues or targeted support to enhance user experience for those finding it less challenging.

data_sec					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.8	.8	.8
	Disagree	7	5.3	5.3	6.1

Neutral	28	21.4	21.4	27.5
Agree	55	42.0	42.0	69.5
Strongly Agree	40	30.5	30.5	100.0
Total	131	100.0	100.0	

The frequency distribution of respondents to a survey question about "data\_sec" (likely referring to data security) shows a strongly positive sentiment, with 72.5% of respondents either agreeing (42.0%) or strongly agreeing (30.5%), indicating that data security measures are widely perceived as effective, reliable, or trustworthy. A notable 21.4% of respondents are neutral, suggesting some indecision or mixed experiences, possibly due to uncertainty about the robustness of security protocols or lack of direct experience. Only 6.1% express disagreement, with 5.3% disagreeing and 0.8% strongly disagreeing, reflecting minimal concerns about data security. This pronounced positive skew, with the largest group agreeing, underscores broad confidence in data security measures, though the neutral and small dissenting groups may indicate areas for further improvement or communication to address uncertainties and enhance user trust.

**Null Hypothesis (H<sub>0</sub>3): There is no significant Impact of AI on Investments.**

Descriptive Statistics			
	Mean	Std. Deviation	N
Investments	3.9832	.70864	131
AI	3.9450	.64357	131

Correlations			
	Investments	AI	
Pearson Correlation	Investments	1.000	.670
	AI	.670	1.000
Sig. (1-tailed)	Investments	.	.000
	AI	.000	.
N	Investments	131	131
	AI	131	131

The correlation matrix shows a strong, positive Pearson correlation of 0.670 ( $p = 0.000$ , 1-tailed) between Investments and AI, based on 131 respondents. This indicates that higher agreement with AI-related features (e.g., real-time updates, data visualization) is associated with more favorable investment decisions (e.g., confidence, trust in IT). The correlation suggests AI explains about 44.9% of the variance in Investments, with the highly significant p-value confirming the relationship is not due to chance, though causation requires further analysis.

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.670 <sup>a</sup>	.449	.445	.52815	.449	105.037	1	129	.000

a. Predictors: (Constant), AI

The Model Summary from the regression analysis shows that the predictor variable AI has a strong positive correlation with Investments ( $R = 0.670$ ), explaining 44.9% of the variance in Investments ( $R^2 = 0.449$ ). The Adjusted  $R^2$  of 0.445 accounts for the number of predictors, indicating a robust model fit. The standard error of the estimate is 0.52815, reflecting the model's prediction accuracy. The F-statistic ( $F = 105.037$ ,  $df_1 = 1$ ,  $df_2 = 129$ ,  $p = 0.000$ ) confirms the model is statistically significant, rejecting the null hypothesis and indicating that AI significantly predicts Investments.

ANOVA <sup>a</sup>						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.299	1	29.299	105.037	.000 <sup>b</sup>
	Residual	35.984	129	.279		
	Total	65.283	130			

a. Dependent Variable: Investments  
b. Predictors: (Constant), AI

The ANOVA table from the regression analysis indicates that the model with AI as the predictor significantly predicts the dependent variable, Investments ( $F(1, 129) = 105.037, p = 0.000$ ). The regression sum of squares (29.299) represents the variance explained by AI, while the residual sum of squares (35.984) reflects unexplained variance. The significant p-value ( $< 0.001$ ) rejects the null hypothesis, confirming that AI has a statistically significant impact on Investments, supporting the model's overall predictive validity.

Model		Coefficients <sup>a</sup>				
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.073	.288		3.730	.000
	AI	.738	.072	.670	10.249	.000

a. Dependent Variable: Investments

The Coefficients table from the regression analysis shows that the predictor variable AI significantly impacts the dependent variable, Investments. The unstandardized coefficient ( $B = 0.738$ ) indicates that a one-unit increase in the AI score (e.g., from Neutral to Agree) increases the Investments score by 0.738 units. The standardized coefficient ( $Beta = 0.670$ ) reflects a strong positive relationship, indicating AI's substantial influence. Both the constant ( $t = 3.730, p = 0.000$ ) and AI ( $t = 10.249, p = 0.000$ ) are statistically significant, rejecting the null hypothesis and confirming that AI significantly predicts Investments.

### Conclusion

The study aimed to investigate the impact of AI-related technological advancements on individual investors' decisions and the association between age and preferred investment options, utilizing survey data from 131 respondents. Two key hypotheses were tested. The first null hypothesis ( $H_0$ ), stating no association between age and preferred investment options, was rejected based on the Chi-Square Tests results, which showed a significant association (Pearson Chi-Square = 25.870,  $df = 14, p = 0.027$ ; Likelihood Ratio = 28.559,  $df = 14, p = 0.012$ ). This indicates that investment preferences (e.g., Stocks, Bonds, Mutual Funds) vary significantly across age groups (Young, Middle-aged, Older), though the non-significant Linear-by-Linear Association test ( $p = 0.414$ ) suggests no consistent linear trend in preferences with age.

The second null hypothesis ( $H_02$ ), which stated that there is no association between gender and preferred investment options, was supported by the chi-square test results (Pearson Chi-Square = 5.904,  $df = 7, p = 0.551$ ; Likelihood Ratio = 6.714,  $df = 7, p = 0.459$ ). These findings indicate that gender does not significantly influence the choice of investment options (e.g., Stocks, Bonds, Mutual Funds) among the 131 individual investors surveyed.

The third null hypothesis ( $H_03$ ), stating that the independent variables (Realtime\_updates, Auto\_Portfolio, Data\_viz, AI\_Insights, Compliance) collectively have no significant impact on Investments, was also rejected. The regression analysis revealed a strong positive correlation ( $R = 0.670, R^2 = 0.449, p < 0.001$ ), with AI explaining 44.9% of the variance in Investments and a significant model fit ( $F(1, 129) = 105.037, p = 0.000$ ), confirming that AI-driven features significantly predict investment decisions. In conclusion, the findings underscore that AI technologies, including real-time updates, automated portfolios, data visualization, AI insights, and compliance measures, substantially influence investor behavior, while age plays a significant role in shaping investment preferences. These results highlight the importance of tailoring AI-driven investment platforms to diverse age groups to enhance decision-making, with further research needed to explore non-linear patterns in age-related preferences and optimize technological adoption for varied investor profiles.

### References

1. Bhatnagar, A. B., Prakash, V., Memon, S. A., Kadam, M., & Sharma, M. (2022). Mobile Technology and Digital Platforms in Behavioural Finance. *2022 International Conference on Smart and Sustainable Technologies in Energy and Power Sectors (SSTEPS)* (pp. 155-158). Mahendragarh, India: Institute of Electrical and Electronics Engineers. doi:10.1109/SSTEPS57475.2022.00047

2. Kalda, A., Previtero, A., Loos, B., & Hackethal, A. (2021, January). SMART(PHONE) INVESTING? A WITHIN INVESTOR-TIME ANALYSIS OF NEW TECHNOLOGIES AND TRADING BEHAVIOR. *NATIONAL BUREAU OF ECONOMIC RESEARCH*, 1-56. Retrieved from <https://www.nber.org/papers/w28363>
3. Soni, R. K., & Sisodia, S. (2024). Influence of Digital Trading Platforms on the Risk- Taking Behaviour of Stock Investors. In *Digital Living: Redefining Culture with Technology for Industries, Education, Society & Entrepreneurship* (pp. 176-184). Chikkamagaluru , Karnataka, India: IIP Series. Retrieved from <https://www.doi.org/10.58532/V3BFLT6P2CH420>
4. Srivastav, S. K., & Jain, J. K. (2024, October). Impact assessment of information technology on investment choice decision of academic professionals. *EPRA International Journal of Economics, Business and Management Studies (EBMS)*, 11(10), 52-59. doi:10.36713/epra18638
5. Sumana , Mondal , & Kumar , S. (2025). A Critical Review of Influence of Technology on Financial Decision Making and Investor Psychology. (F. Liao , & O. K. Loang, Eds.) *Investment Strategies in the Age of Technological Innovation and Emerging Markets*, 103-134. doi:10.4018/979-8-3693-8583-8.ch004
6. Zhang, R. (2024). The Impact of Fintech Innovation on Investor Behavior from. In U. Faura-Martínez (Ed.), *Proceedings of the 3rd International Conference on Financial Technology and Business Analysis.138*, pp. 47-53. EWA Publishing, Oxford. doi:10.54254/2754-1169/138/2024.19205
7. Zhao, Z. (2024). Research on the Impact of Digitalization on Individual Investors' Behavior from the Perspective of Behavioral Finance. *Proceedings of the 7th International Conference on Economic Management and Green Development, Applied Economics and Policy Studies* (pp. 146–154). Singapore: Springer. doi:10.1007/978-981-97-0523-8\_13.

