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An Empirical Study on Factors Influencing the Adoption of Robo-Advisory Services among Young Investors using TAM and UTAUT Models

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Abstract
Wealth management is being greatly impacted by recent advancements in financial technologies (fintech), specifically the emergence of robo-advisors as an affordable and accessible means of receiving investment advice as opposed to traditional means. There continues to be numerous technological, behavioral, and psychological variables influencing the adoption of robo-advisors amongst younger investors, even though they are increasing adopted by this demographic. The goal of this study is to establish the antecedents of the adoption of robo-advisory services amongst young investors using the Technology Acceptance Model and the Unified Theory of Acceptance and Use of Technology as the theoretical framework. The study is based upon primary data collected from the administered structured questionnaire survey of recent college graduates and other young, prospective investors. The analysis includes the following constructs: Perceived Usefulness, Perceived Ease of Use, Social Influence, Facilitating Conditions, Trust, and Perceived Risk, and examining how these constructs affect both Behavioral Intent and Actual Adoption of robo-advisory services. Reliability analyses, Factor Analyses, and regression analyses will be conducted to validate the proposed research model. The expected outcomes of the study will show that Perceived Usefulness, Perceived Ease of Use, and Trust have a strong, positive influence on the adoption of robo-advisory services, while Perceived Risk will serve as a significant hindrance to that process. Young investors will be highly influenced by social factor and facilitating conditions; these aspects will significantly impact their ability to use fintech platforms successfully. This research adds new information on the increasing number of studies available in the area of fintech adoption and will provide practical guidance for fintech vendors looking to enhance trust and engagement among young investors.

Keywords: *Robo-Advisory, Technology Acceptance Model, Unified Theory of Acceptance and Use of Technology*

1. Introduction
The rapid digital transformation of the financial sector has significantly altered the way individuals manage investments and financial planning. Financial Technology (FinTech) has emerged as one of the most disruptive innovations in the financial services industry, introducing automated and technology-driven solutions that improve accessibility, efficiency, and affordability. Among these innovations, robo-advisory services have gained considerable attention due to their ability to provide personalized investment recommendations through sophisticated algorithms and artificial intelligence. Robo-advisors are digital platforms that offer automated financial planning and portfolio management services with minimal human intervention. These platforms analyze an investor's financial goals, risk tolerance, and investment preferences to generate customized investment strategies. Compared to traditional financial advisors, robo-advisors provide lower fees, increased transparency, and greater accessibility, making them particularly attractive to young investors who are technologically savvy and comfortable with digital platforms. India has witnessed remarkable growth in internet penetration, smartphone usage, and digital payment systems, creating favorable conditions for the adoption of FinTech services. Young investors, especially those belonging to Generation Z and Millennials, increasingly prefer digital solutions for financial management. However, despite the advantages

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offered by robo-advisory services, their adoption remains relatively limited. Factors such as trust concerns, perceived risk, technological complexity, social influence, and infrastructural support continue to affect users' willingness to adopt these platforms.

To understand the determinants of technology adoption, researchers have widely employed the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). TAM emphasizes the importance of Perceived Usefulness and Perceived Ease of Use in influencing user acceptance, whereas UTAUT incorporates factors such as Social Influence and Facilitating Conditions. Integrating these frameworks with additional constructs such as Trust and Perceived Risk provides a comprehensive understanding of robo-advisory adoption behavior. This study seeks to examine the factors influencing the adoption of robo-advisory services among young investors by integrating TAM and UTAUT models. The findings are expected to contribute to the growing literature on FinTech adoption and provide practical insights for financial service providers seeking to increase user engagement and trust [1].

2. Literature Review

2.1. Robo-Advisory Services

Robo-advisory services are algorithm-based digital platforms that provide investment advice and portfolio management services. Since their introduction in the late 2000s, robo-advisors have transformed wealth management by offering low-cost investment solutions. These platforms employ machine learning algorithms and data analytics to create diversified portfolios tailored to investors' objectives and risk profiles. Research indicates that robo-advisors enhance financial inclusion by making professional investment advice accessible to a broader population. However, concerns regarding data privacy, algorithm transparency, and trust continue to influence user acceptance [2].

2.2.Technology Acceptance Model (Tam)

The Technology Acceptance Model, proposed by Davis (1989), is one of the most widely used frameworks for explaining technology adoption. The model suggests that two primary factors influence technology acceptance:

- Perceived Usefulness (Pu): The Degree To Which A Person Believes That Using A Technology Will Enhance Performance.
- Perceived Ease Of Use (Peou): The Degree To Which A Person Believes That Using A Technology Will Be Effortless.

Several studies have demonstrated that these factors significantly influence users' behavioral intentions toward FinTech applications.

2.3.Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh et al. (2003) proposed UTAUT as a comprehensive model that integrates multiple technology acceptance theories. The model identifies four key determinants:

- Performance Expectancy
- Effort Expectancy
- Social Influence
- Facilitating Conditions

UTAUT has been extensively applied in studies examining digital banking, mobile payments, and FinTech adoption.

2.4.Trust and Perceived Risk

Trust is considered a critical factor in online financial transactions. Investors are more likely to adopt robo-advisory services when they perceive the platform as reliable, secure, and competent. Perceived risk refers to the uncertainty associated with financial losses, privacy breaches, or technological failures. High perceived risk often reduces users' willingness to adopt digital financial services [3].

2.5.Research Gap

Although several studies have examined FinTech adoption, limited research has focused specifically on robo-advisory services among young investors in the Indian context. Furthermore, few studies have integrated TAM and UTAUT with trust and perceived risk variables to explain robo-advisory adoption behavior.

2.6.Research Objectives

The study aims to:

- Examine the factors influencing the adoption of robo-advisory services among young investors.
- Investigate the effect of Perceived Usefulness on behavioral intention.

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- Analyze the impact of Perceived Ease of Use on adoption intention.
- Evaluate the influence of Social Influence on user adoption.
- Assess the role of Facilitating Conditions in technology usage.
- Determine the effect of Trust on adoption behavior.
- Examine the impact of Perceived Risk on adoption intention[4].

2.7.Research Hypotheses

- H1: Perceived Usefulness positively influences Behavioral Intention to adopt robo-advisory services.
- H2: Perceived Ease of Use positively influences Behavioral Intention to adopt robo-advisory services.
- H3: Social Influence positively affects Behavioral Intention.
- H4: Facilitating Conditions positively influence Actual Adoption.
- H5: Trust positively influences Behavioral Intention.
- H6: Perceived Risk negatively influences Behavioral Intention.
- H7: Behavioral Intention positively influences Actual Adoption Shown in Figure 1.

2.8.Conceptual Framework

The conceptual framework integrates TAM and UTAUT constructs with Trust and Perceived Risk.

3. Research Methodology

3.1.Research Design

The study adopts a quantitative research design to examine the factors influencing robo-advisory adoption among young investors[6].

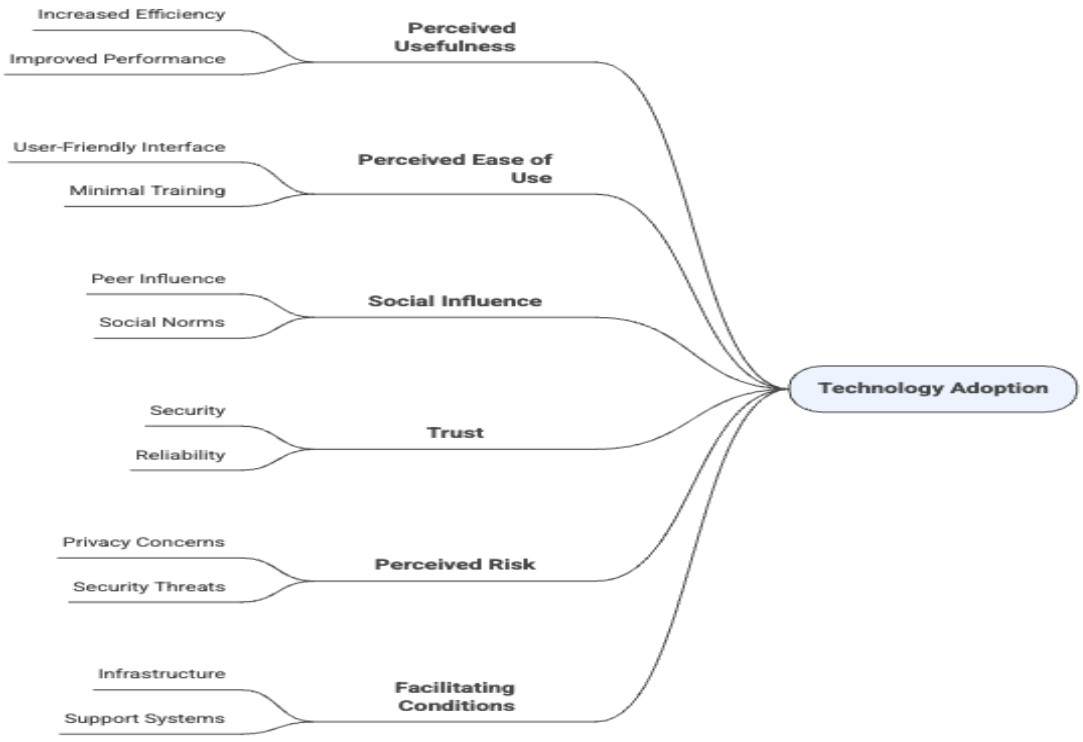

Figure 1 Factors Influencing Technology Adoption

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Page No: 2396 - 2400

4. Research Methodology

3.2.Research Design

The study adopts a quantitative research design to examine the factors influencing robo-advisory adoption among young investors.

3.3.Population

The target population consists of young investors aged 18–35 years, including university students, recent graduates, and working professionals.

3.4.Sampling Technique

Convenience and purposive sampling techniques are employed to collect responses from individuals familiar with digital financial services.

3.5.Sample Size

A sample size of approximately 250–300 respondents is considered adequate for statistical analysis.

3.6.Data Collection

Primary data are collected using a structured questionnaire containing two sections:

- Demographic Information
- Construct Measurement Items

A five-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5) is used.

Table 1 Variables and Types

Variable	Type
Perceived Usefulness	Independent
Perceived Ease of Use	Independent
Social Influence	Independent
Facilitating Conditions	Independent
Trust	Independent
Perceived Risk	Independent
Behavioral Intention	Mediating
Actual Adoption	Dependent

3.7.Data Analysis Techniques

The following statistical techniques may be employed:

3.8.Reliability Analysis

Cronbach's Alpha will be used to assess the internal consistency of measurement scales.

3.9.Exploratory Factor Analysis (Efa)

EFA will validate the underlying factor structure of the constructs.

3.10. Correlation Analysis

Correlation analysis will identify the strength and direction of relationships among variables.

3.11. Multiple Regression Analysis

Regression analysis will determine the impact of independent variables on behavioral intention and actual adoption[5].

3.12. Structural Equation Modeling (Optional)

SEM may be employed to test the proposed conceptual model and hypotheses simultaneously.

4. Expected Results and Discussion

The study is expected to reveal that Perceived Usefulness and Perceived Ease of Use significantly influence the behavioral intention of young investors toward robo-advisory services. These findings would support the core propositions of the Technology Acceptance Model. Trust is also expected to emerge as a significant predictor of adoption. Investors who perceive robo-advisory platforms as secure, reliable, and transparent are more likely to use such services. Conversely, Perceived Risk is expected to negatively influence adoption behavior. Concerns related to financial loss, data privacy, and algorithmic errors may discourage potential users. Social Influence may positively affect adoption by encouraging investors to rely on recommendations from peers, family members, and financial communities. Facilitating Conditions, including technological infrastructure and internet accessibility, are expected to support actual usage.

Conclusion

The emergence of robo-advisory services represents a significant innovation in the wealth management industry. As young investors increasingly embrace digital financial solutions, understanding the factors that influence their adoption behavior becomes essential. This study integrates the Technology Acceptance Model and the Unified Theory of Acceptance and Use of Technology with Trust and Perceived Risk to examine the determinants of robo-advisory adoption. The findings are expected to demonstrate that perceived usefulness, ease of use, trust, social influence, and facilitating conditions positively contribute to adoption, while perceived risk acts as a barrier. The study offers valuable

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Page No: 2396 - 2400

insights for FinTech companies, policymakers, and financial institutions seeking to enhance user engagement and encourage the adoption of robo-advisory services among young investors.

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