

User Satisfaction in AI-Driven Islamic Fintech: An Extended Technology Acceptance Model with Task–Technology Fit and Sharia Compliance

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Abstract—The rapid development of digital financial services has transformed financial intermediation through improved access, transparency, and efficiency. In the Indonesian context, Islamic financial technology (fintech) offers an alternative aligned with Sharia principles, particularly through e-ijarah contracts that provide MSMEs with productive asset access without interest-bearing debt. This study aims to empirically evaluate the determinants of user satisfaction in adopting AI-based e-ijarah applications by extending the Technology Acceptance Model (TAM) with Task–Technology Fit (TTF), Sharia Compliance (SC), Trust in AI, and Perceived Risk (PR). A survey of 75 food and beverage MSMEs in East Java was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicate that Perceived Ease of Use (PEOU) strongly influences Perceived Usefulness (PU), which in turn significantly affects Behavioral Intention (BI), Actual Use (AU), and User Satisfaction (EUCS). Trust in AI and TTF also play significant roles in enhancing PU and BI. Interestingly, SC shows a significant but negative effect on PU, highlighting a contextual gap between digital automation and perceptions of religious compliance. PR negatively impacts both BI and AU, while Age does not moderate usage behavior. The study contributes conceptually by integrating TAM, TTF, and Sharia compliance in a single framework, and practically by offering insights for fintech developers and regulators to improve system usability, trust, and compliance clarity.

Keywords—Task–Technology fit; sharia compliance; technology acceptance model; user satisfaction; AI; Islamic fintech; MSMEs

I. INTRODUCTION

The development of digital financial services has brought significant transformation in the global financial ecosystem, especially through increased access, transparency, and efficiency of financial intermediation. One of the innovations that plays an important role is financial technology (fintech), whose adoption is greatly influenced by the level of suitability of technology with user needs or Task–Technology Fit (TTF). TTF serves as a conceptual framework that bridges the fit between technological features and user tasks, thereby influencing perceived usefulness and encouraging behavioral intent towards system use [1], [2], [3].

In the Indonesian context, sharia-based fintech is present as an alternative in accordance with Islamic principles, in line with the provisions of DSN-MUI regarding ijarah contracts [4], PSAK 107 [5], and Government Regulation No. 44 of 1997 related to limited access to capital for Micro, Small, and Medium Enterprises (MSMEs). MSMEs play a key role in national economic growth, but access to productive financing is still hampered by strict credit requirements, high interest rates, and complex bureaucracy [6], [7]. This condition has prompted some MSMEs to switch to informal financing such as loan sharks, which actually worsens business resilience.

As a solution, ijarah contracts provide access to productive assets without having to be bound by interest-bearing debt, so that the initial capital burden can be reduced and business profits are allocated to pay the rent of assets. Data from the East Java Provincial Cooperative Office (2024) shows that there are 9.86 million MSME units, with the APINDO survey (2024) reporting that 59% or around 5.85 million MSMEs still need better access to production and technology assets [8], [9]. However, despite the growing importance of Islamic fintech, the key problem lies in how AI-driven automation can align with users' perception of sharia compliance and technological trust. The lack of empirical understanding regarding this relationship has limited both adoption and satisfaction levels among MSMEs.

The development of digital technology—especially the integration of artificial intelligence (AI)—provides an opportunity to strengthen the implementation of ijarah in the form of *e-ijarah*. AI enables automation of financing feasibility analysis through credit scoring, risk assessment, and real-time contract management. The study by Lasmiatun & Manteghi [10] confirms that AI in Islamic finance is able to increase efficiency while expanding financial inclusion. Similarly, Syed Zahiruddin prove that AI innovation in Indonesia and Malaysia can strengthen risk management and improve operational efficiency of sharia products, including digital ijarah [11].

Accordingly, this study seeks to answer the following questions: 1) What factors significantly influence user satisfaction and behavioral intention in adopting AI-driven e-ijarah systems? 2) How do Sharia Compliance and Trust in AI affect perceived usefulness and behavioral intention?

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In addition to technology, other factors also influence the adoption of sharia fintech. Perceived ease of use (PEOU) plays an important role in shaping the perception of technological usefulness, which then influences the behavioral intention to use the system. Similarly, trust in AI contributes to increasing users' confidence in the reliability of the system, while sharia compliance is the main determinant of acceptance among Muslim users. On the other hand, perceived risk can lower usage intent due to concerns about data and transaction security. Building on these considerations, this study investigates an AI-based e-Ijarah application that supports contract approval decisions by evaluating financial conditions, business types, locations, and target markets to ensure eligibility according to fund providers' standards.

This research framework also places behavioral intention as a mediator that bridges the perception of technology with actual use. Furthermore, actual usage will affect the level of user satisfaction, which is measured based on the end-user computing satisfaction (EUCS) dimension. The age factor is also considered as a moderator, considering that technology usage preferences can vary between age groups.

This research is focused on the creative economy subsector, especially food and beverage MSMEs, because it is proven to be resistant to economic shocks [12], [13]. The model offered is in the form of AI-based fintech integration in *e-ijarah*, which involves investors (capital owners), MSMEs (tenants), and coaches (business mentors) as business sustainability supervisors.

Although the Technology Acceptance Model (TAM) and Task–Technology Fit (TTF) have been widely applied in fintech adoption studies, prior research has not yet integrated Sharia Compliance (SC) and Trust in AI (TR) simultaneously within the MSME context in Indonesia. Existing studies tend to examine TAM and TTF separately [20], or focus only on Sharia compliance in Islamic banking [23], without considering the role of artificial intelligence as a trust-enhancing factor. This creates a research gap, particularly in understanding how religious compliance and technological trust interact to influence user perceptions and satisfaction in Islamic fintech applications.

The present study addresses this gap by developing an extended TAM model that incorporates TTF, SC, TR, and Perceived Risk. The findings reveal a novel result: Sharia Compliance significantly but negatively affects Perceived Usefulness. This contradicts much of the existing literature, which generally assumes that higher religious compliance should increase perceived usefulness and satisfaction [23]. The negative direction suggests a contextual perception gap, where MSME users may view automation and AI-driven processes as less transparent or less aligned with their expectations of Sharia principles. This theoretical contribution highlights the need for further refinement in designing AI-based Islamic fintech systems to ensure both usability and compliance clarity. Conceptually, this integration provides a more comprehensive framework for Islamic fintech adoption; practically, it offers guidance for regulators and developers in aligning system design with both technological and religious expectations.

Unlike previous fintech studies that merely extend TAM or TTF with general trust or risk constructs, this study introduces

Sharia Compliance and Trust in AI as interdependent dimensions. Theoretically, this integration redefines behavioral pathways by linking ethical–religious assurance with algorithmic trust, offering a dual validation mechanism for user intention and satisfaction in Islamic fintech adoption.

Therefore, this study aims to empirically test an extended TAM model that incorporates TTF, SC, Trust in AI, and PR to explain user satisfaction with e-ijarah among MSMEs in East Java. Specifically, the study aims to test an extended Technology Acceptance Model (TAM) integrating TTF, SC, Trust in AI, and Perceived Risk to explain user intention, actual use, and satisfaction among MSMEs in East Java. This research is significant both theoretically—by introducing ethical and algorithmic dimensions into TAM—and practically—by guiding Islamic fintech developers to improve transparency and compliance clarity in e-ijarah systems.

The remainder of this paper is organized as follows: Section II reviews the literature study; Section III describes the research method; Section IV presents results and discussion; and Section V concludes with implications and future directions.

II. LITERATURE STUDY

This study builds upon two foundational frameworks, Technology Acceptance Model (TAM) and Task-Technology Fit (TTF) to investigate the determinants of user intention and satisfaction in the context of e-Ijarah systems. TAM provides the theoretical basis for how Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) shape behavioral intention and actual usage [14], while TTF emphasizes the alignment between user tasks and system capabilities [15]. In addition, this research incorporates context-specific constructs such as Trust in AI, Sharia Compliance, and Perceived Risk, which are particularly salient in Islamic fintech adoption. The outcome variable user satisfaction is assessed holistically, inspired by satisfaction models in information systems literature.

A. Technology Acceptance Model (TAM)

TAM posits that technology acceptance is primarily driven by two beliefs: PEOU and PU, which influence behavioral intention and actual use. Recent studies continue to validate TAM in fintech contexts. For example, [16] found that PEOU and PU significantly affect online purchase intention, with perceived risk having a negative effect. Furthermore, it has been demonstrated in an AI-enhanced e-shopping environment that PU had a stronger influence than PEOU, and trust emerged as a key predictor of user intention [17], [18]. These findings justify the inclusion of PEOU, PU, trust, and risk in the present model.

B. Task-Technology Fit (TTF)

TTF theory asserts that users are more likely to adopt technology when its functionality aligns well with their task requirements [19]. Recent empirical work among fintech and digital service professionals affirms that task-technology fit significantly predicts perceived usefulness and intention to use, it was found that combining TAM with TTF enhanced explanatory power [20], [21]. Accordingly, our model integrates TTF to capture the degree to which the e-Ijarah application supports users' specific tasks.

C. Context-Specific Variables: Trust, Sharia Compliance and Perceived Risk

Trust in AI is increasingly recognized as pivotal in acceptance of automated Islamic finance tools [17], [18]. Perceived Risk often predicts behavioral hesitance in online shopping adoption [22], [23]. Meanwhile, Sharia Compliance, although generally assumed positive, has yielded mixed results, with findings showing that it significantly influenced satisfaction but did not consistently strengthen the PU–trust relationship [24].

D. User Satisfaction (Holistic Perspective)

Instead of a full EUCS model, this study adopts a holistic satisfaction construct shaped by system performance, ease of use, and task alignment mirroring satisfaction frameworks frequently used in fintech and e-service research. The literature consistently underscores satisfaction as an important outcome following actual system use and perceived utility [25], [26].

E. Empirical Evidence from Recent Acceptance Studies

The empirical evidence summarized in Table I presents various recent studies that have applied acceptance models such as TAM, TTF, and external constructs in different contexts. The comparison highlights both consistency and divergence across findings. For example, variables such as Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) have consistently shown significant effects on Behavioral Intention (BI) and Actual Use (AU) across most studies, confirming their strong

theoretical foundation in TAM. On the other hand, several studies reported non-significant relationships for constructs such as Trust or Perceived Risk, which suggests that their influence may depend on contextual factors such as industry sector, cultural background, or technology maturity.

Although prior studies examined trust, risk, and sharia compliance in fintech adoption, limited research focuses on AI-driven decision-making in Islamic contracts. This study addresses that gap by analyzing acceptance of an AI-based e-Ijarah system for contract approval.

In the current study, these inconsistencies are particularly important. Some variables that were previously found to be non-significant, such as Task-Technology Fit (TTF) or Sharia Compliance (SC), show strong and significant effects in this research, indicating that different user groups (e.g., MSMEs in East Java) may evaluate technology differently compared to users in other contexts. Conversely, if certain variables that were significant in prior studies appear non-significant in this study, it emphasizes the importance of considering contextual variations in technology adoption. Therefore, the literature review not only strengthens the theoretical basis of this research but also highlights the novelty and contribution of the current findings by comparing them with prior evidence.

Building on the inconsistencies shown in prior studies (Table I), this study extends the TAM framework by adding TTF, SC, TR, and PR to capture the unique adoption dynamics of Islamic fintech.

TABLE I. COMPARATIVE ANALYSIS OF ACCEPTANCE MODELS OVER RECENT FIVE YEARS

Author(s) & Model Type	Included Constructs	R Square	Insignificant Variable
Imam Suroso et al. TAM + Perceived Risk [22]	PEOU, PU, Risk, Trust → Intention to Use Fintech (Indonesia)	$R^2 \approx 0.60$	Trust → Intention not significant
Nagy & Hajdu. TAM + Trust [18]	PEOU, PU, Trust → Behavioral Intention (AI shopping, Hungary)	Not explicitly reported	Risk was excluded; Trust dominant predictor
Usman et al. TAM + Sharia Compliance [24]	PEOU, PU, Sharia Compliance, Trust → Satisfaction & Intention	R^2 Satisfaction ≈ 0.45	PU → Satisfaction not always significant
Seyum et al. TTF + TAM [20]	TTF dimensions, PU, PEOU → Behavioral Intention (FinTech, Ethiopia)	R^2 not stated	Overfit TTF → PU not significant; Underfit TTF → PU negative
Alrawad et al. UTAUT2 + Trust Model [27]	Performance Exp., Effort Exp., Trust, Risk → Intention to Use FinTech	High R^2 (not specified)	Hedonic motivation not significant
Patnaik et al. Extended TAM (FinTech India) [28]	PEOU, PU, Trust, Satisfaction → Behavioral Intention	R^2 BI (not specified)	—
Taufiq-Hail et al. FinTech Satisfaction Model [29]	PEOU, Trust, Quality → Satisfaction → Loyalty (FinTech, Oman)	R^2 Loyalty (not specified)	Some trust dimensions not significant
Uddin & Nasrin FinTech Literacy Model [30]	FinTech Literacy, Satisfaction → Sustainable Intention	R^2 Sustainable Intention (not specified)	—
Taneja et al. Sustainability & FinTech [31]	FinTech Implementation, Satisfaction, Trust → Sustainability	R^2 Sustainability (not specified)	—
Pervitasari TAM (MSMEs FinTech Indonesia) [32]	PEOU, PU → Behavioral Intention to Use FinTech	R^2 BI (not specified)	—

III. RESEARCH METHODOLOGY

This research model shown in Fig. 1 proposes a conceptual model that integrates constructs from the Technology Acceptance Model (TAM), Task-Technology Fit (TTF), Sharia Compliance theory, Perceived Risk theory, and User

Satisfaction to examine the acceptance and satisfaction of e-Ijarah technology. The model also introduces age as a moderating variable.

The model consists of five exogenous variables, two mediators, two endogenous variables, and one moderator, with the following structure:

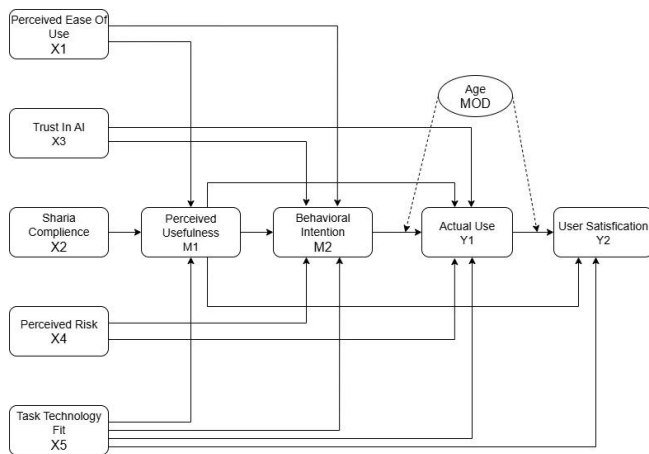


Fig. 1. Research model.

Exogenous Variables

X1: Perceived Ease of Use (PEOU)

X2: Sharia Compliance (SC)

X3: Trust in AI (TR)

X4: Perceived Risk (PR)

X5: Task-Technology Fit (TTF)

Mediating Variables

M1: Perceived Usefulness (PU) acts as a bridge between technological, risk, trust, and religious aspects toward user intention.

M2: Behavioral Intention (BI) mediates the relationship between perceptions and actual use behavior.

Endogenous Variables

Y1: Actual Use (AU), which reflects how often or consistently users interact with the e-Ijarah platform.

Y2: User Satisfaction (EUCS), which evaluates user experience across dimensions such as ease of use, accuracy, timeliness, format, and content.

Moderator Variable

Age moderates the influence of Behavioral Intention (BI) and Actual Use (AU) toward User Satisfaction. It is expected that user age may influence how intention translates into action, and how use translates into satisfaction.

H1: Perceived Ease of Use (PEOU) has a positive effect on Perceived Usefulness (PU).

H2: Sharia Compliance (SC) has a positive effect on Perceived Usefulness (PU).

H3: Trust in AI (TR) has a positive effect on Perceived Usefulness (PU).

H4: Perceived Risk (PR) has a negative effect on Perceived Usefulness (PU).

H5: Task-Technology Fit (TTF) has a positive effect on Perceived Usefulness (PU).

H6: Perceived Usefulness (PU) has a positive effect on Behavioral Intention (BI).

H7: Perceived Ease of Use (PEOU) has a positive effect on Behavioral Intention (BI).

H8: Sharia Compliance (SC) has a positive effect on Behavioral Intention (BI).

H9: Trust in AI (TR) has a positive effect on Behavioral Intention (BI).

H10: Perceived Risk (PR) has a negative effect on Behavioral Intention (BI).

H11: Task-Technology Fit (TTF) has a positive effect on Behavioral Intention (BI).

H12: Behavioral Intention (BI) has a positive effect on Actual Use (AU).

H13: Actual Use (AU) has a positive effect on User Satisfaction (EUCS).

H14: Perceived Usefulness (PU) has a positive effect on User Satisfaction (EUCS).

H15: Age moderates the relationship between Behavioral Intention (BI) and Actual Use (AU).

H16: Age moderates the relationship between Actual Use (AU) and User Satisfaction (EUCS).

The research population consisted of 93 food and beverage entrepreneurs classified as MSMEs in a district of East Java. Considering the total population size and the required confidence level of 95% with a 5% margin of error, the sample size was determined using the Slovin formula.

$$v = N / (1 + N) \quad (1)$$

$$v = 93 / (1 + 93(0.05)^2)$$

$$v = 93 / 1.2325$$

$$v = 75$$

This calculation yielded a minimum sample of 75 respondents, which was deemed adequate and representative for statistical analysis using Partial Least Squares-Structural Equation Modeling (PLS-SEM), particularly since PLS-SEM is robust to relatively small sample sizes.

The inclusion criteria required that respondents: 1) were active owners or decision-makers of MSMEs, 2) operated within the food and beverage subsector of the creative economy, and 3) had experience using or considering digital financial applications, particularly AI-based e-Ijarah platforms. This ensured that the sample represented actual users or potential adopters of Islamic fintech systems, rather than general MSMEs without relevant exposure.

All 75 selected respondents completed the questionnaire fully, with no data excluded due to incompleteness. Data were analyzed using SmartPLS 4.0, which is widely employed in IS and fintech research due to its capability in handling complex models and relatively small sample sizes.

TABLE II. VARIABLES AND INDICATORS

Variable	Indicator	Code
Perceived Ease of Use (PEOU)	Easy to use	PEOU1
	Smooth interaction	PEOU2
	Easy to learn	PEOU3
	Quick to master	PEOU4
Perceived Usefulness (PU)	Helps tasks	PU1
	Increases productivity	PU2
	Improves performance	PU3
Trust in AI (TR)	Trust in AI system	TR1
	Privacy and security	TR2
	Comfortable using AI	TR3
Sharia Compliance (SC)	Follows Islamic principles	SC1
	Sharia-based process	SC2
	Complies with Sharia	SC3
Perceived Risk (PR)	Data misuse risk	PR1
	Security concern	PR2
	Online transaction worry	PR3
	Personal data risk	PR4
Task-Technology Fit (TTF)	Fits task requirements	TTF1
	Improves effectiveness	TTF2
	Aids task completion	TTF3
	Functional support	TTF4
Behavioral Intention (BI)	Intend to use regularly	BI1
	Recommend to others	BI2
	Continue using	BI3
Actual Use (AU)	Frequent use	AU1
	Used for various transactions	AU2
	Proper functionality usage	AU3
	Active utilization	AU4
User Satisfaction (EUCS)	Overall satisfaction	EUCS1
	Meets expectations	EUCS2
	Comfortable to use	EUCS3
	Satisfactory performance	EUCS4
	Enjoyable to use	EUCS5
Age (Moderator)	Respondent's age	Age

Table II presents the list of research variables and their associated indicators used in this study. Each variable was measured using multiple indicators adopted and adapted from relevant prior literature, aligned with the research model. These indicators were designed to reflect key constructs such as perceived ease of use, perceived usefulness, trust in AI, sharia compliance, perceived risk, task-technology fit, behavioral intention, actual system usage, and user satisfaction. The indicators were labeled using concise codes for easier referencing during the data analysis process. All items were measured using a 5-point Likert scale ranging from 1 (strongly

disagree) to 5 (strongly agree). All indicators were adapted from prior validated scales with minor contextual adjustments.

Perceived Risk (PR) is a negatively oriented construct, meaning higher scores reflect greater concern or fear regarding the system. Therefore, during data preprocessing, the scores for this variable were reverse-coded to maintain consistency in the interpretation of positive path relationships across the model. The moderator variable, age, was recorded as a continuous demographic input.

IV. RESULTS AND DISCUSSION

A. Result

1) *Data demographic*: This research involved 75 respondents who are owners or decision-makers of MSMEs in the food and beverage sector located in a district in East Java. The demographic profile of respondents is summarized based on several categories including gender, age, level of education, business duration, and role in business operations. Details are shown in Table III.

TABLE III. DEMOGRAPHIC RESPONDENTS

Category	Subcategory	Freq	(%)
Gender	Male	41	54.7%
	Female	34	45.3%
Age Group	< 25 years	8	10.7%
	26–35 years	21	28.0%
	36–45 years	27	36.0%
	> 45 years	19	25.3%
Education Level	Junior High or below	5	6.7%
	Senior High School	28	37.3%
	Diploma/ Bachelor's Degree	37	49.3%
	Postgraduate Degree	5	6.7%
Business Duration	< 1 year	6	8.0%
	1–3 years	22	29.3%
	4–6 years	28	37.3%
	> 6 years	19	25.3%
Role in Business	Owner	53	70.7%
	Manager/Operator	17	22.7%
	Others	5	6.6%

2) *Measurement model analysis (outer model)*: Fig. 2 illustrates the measurement model and structural relationships among latent constructs. All outer loadings exceed the recommended threshold of 0.70, indicating that the indicators are strongly related to their latent constructs [33].

The path coefficients shown between latent variables represent the strength and direction of relationships. Most paths are positive and significant, although some show weak or negative relationships, such as the effect of Perceived Risk (PR) on Actual Use (AU), which shows a negative coefficient (-0.288), indicating that as users perceive higher risk, their

likelihood of using the system decreases highlighting a critical barrier that needs to be addressed in system adoption strategies.

Each latent construct also displays an R^2 value in the center, showing how much variance is explained by its predictors [33]. For instance, the construct User Satisfaction has an R^2 of 0.881, indicating that 88.1% of the variance in user satisfaction can be explained by the model.

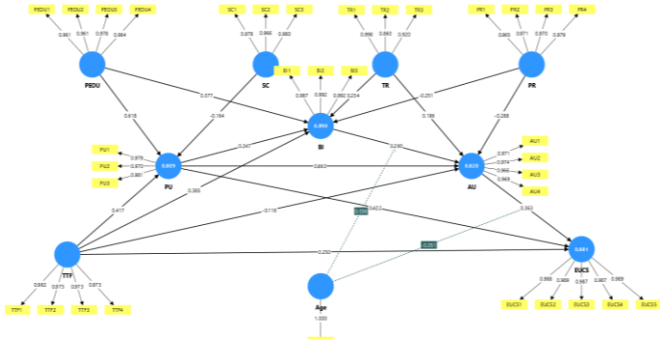


Fig. 2. Output line diagram.

Table IV shows convergent validity assesses whether the indicators truly reflect their intended constructs. This is evaluated through the Average Variance Extracted (AVE). An AVE value of 0.50 or higher is considered acceptable, indicating that the construct explains more than 50% of the variance in its indicators [34].

Our model explains acceptance of an AI-based e-Ijarah application that recommends contract approval by assessing financial condition, business type, location, and target market against funders' standards. In this context, TTF represents alignment between users' evaluation tasks and the AI decision logic; TAM constructs (PEOU, PU) capture usability and utility perceived from AI assistance. We further include Trust, Perceived Risk, and Sharia Compliance as context-specific determinants of intention and satisfaction, with the expectation that trust and sharia compliance enhance adoption, while perceived risk diminishes it.

Table V presents the reliability results of each construct using Cronbach's Alpha and Composite Reliability. These two indicators are used to assess internal consistency of the measurement model.

All constructs exhibit Cronbach's Alpha values above 0.70, indicating that the items within each construct are consistently measuring the same underlying concept. Similarly, the Composite Reliability values also exceed the recommended threshold of 0.70, confirming that each construct demonstrates strong internal consistency and measurement accuracy.

The highest reliability is observed in User Satisfaction (EUCS) with a Cronbach's Alpha of 0.994 and rho_c of 0.995, while the lowest, yet still acceptable, reliability is seen in Trust in AI (TR) with a Cronbach's Alpha of 0.963 and rho_c of 0.949.

TABLE IV. CONVERGENT VALIDITY OF CONSTRUCTS

Indicator	Loading Factor	Valid / No	AVE
PEOU1	0.961	Valid	0.934

PEOU2	0.961	Valid	0.954
PEOU3	0.978	Valid	
PEOU4	0.964	Valid	
PU1	0.979	Valid	0.950
PU2	0.970	Valid	
PU3	0.981	Valid	
SC1	0.978	Valid	0.860
SC2	0.966	Valid	
SC3	0.980	Valid	
TR1	0.998	Valid	0.944
TR2	0.860	Valid	
TR3	0.920	Valid	
PR1	0.965	Valid	0.980
PR2	0.971	Valid	
PR3	0.970	Valid	
PR4	0.979	Valid	0.941
BI1	0.987	Valid	
BI2	0.992	Valid	
BI3	0.992	Valid	0.951
AU1	0.971	Valid	
AU2	0.974	Valid	
AU3	0.966	Valid	0.976
AU4	0.969	Valid	
TTF1	0.982	Valid	
TTF2	0.973	Valid	0.976
TTF3	0.973	Valid	
TTF4	0.973	Valid	
EUCS1	0.988	Valid	0.976
EUCS2	0.989	Valid	
EUCS3	0.987	Valid	
EUCS4	0.987	Valid	0.976
EUCS5	0.989	Valid	

*All constructs exceed the AVE threshold, confirming that convergent validity is achieved across all latent variables.

TABLE V. RELIABILITY ANALYSIS OF CONSTRUCTS

Variable	Cronbach's Alpha	Composite Reliability (pc)
PEOU	0.976	0.984
PU	0.976	0.984
SC	0.974	0.984
TR	0.963	0.949
PR	0.980	0.985
BI	0.990	0.994
AU	0.979	0.986
TTF	0.983	0.990
EUCS	0.994	0.995

3) *Structural model analysis (inner model)*: The inner model or structural model analysis aims to evaluate the relationships between latent variables based on the proposed hypotheses. The evaluation includes the analysis of path coefficients, R-square values, F-square effect sizes, and discriminant validity using the Fornell-Larcker criterion.

R-square (R^2) indicates how much of the variance in the dependent variable is explained by the independent variables. All endogenous variables have $R^2 > 0.75$, indicating the model has substantial explanatory power for Actual Use, Behavioral Intention, Perceived Usefulness, and User Satisfaction.

Table VI shows the R^2 values are all above the 0.75 threshold, which is considered substantial according to Hair et al. (2017). Specifically, Behavioral Intention (0.890), Actual Use (0.820), Perceived Usefulness (0.809), and User Satisfaction (0.881) are strongly predicted by their respective independent variables. These results confirm that the proposed model has high explanatory power and is effective in capturing the key factors influencing e-Ijarah application usage and satisfaction.

TABLE VI. R-SQUARE VALUE

Variable	R-Square	Result
AU	0.820	Strong
BI	0.890	Strong
PU	0.809	Strong
User Satisfaction	0.881	Strong

The detailed path coefficients and their statistical significance are summarized in Table VII, which presents the key relationships and hypothesis testing results. The F-square (F^2) values measure the effect size or contribution of each exogenous variable to the R^2 value of an endogenous variable when included in the model [35]. Values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively [36].

TABLE VII. F-SQUARE VALUE

Path	F^2 Value	Result
PEOU $\rightarrow$ PU	0.972	Strong
PR $\rightarrow$ BI	0.544	Strong
PU $\rightarrow$ AU	0.558	Strong
TTF $\rightarrow$ BI	0.632	Strong
PU $\rightarrow$ User Satisfaction	0.353	Strong
PEOU $\rightarrow$ BI	0.322	Medium
PU $\rightarrow$ BI	0.112	Weak
TTF $\rightarrow$ PU	0.293	Medium
AU $\rightarrow$ User Satisfaction	0.392	Strong
TTF $\rightarrow$ User Satisfaction	0.239	Medium
PR $\rightarrow$ AU	0.316	Medium
TR $\rightarrow$ BI	0.486	Strong
TR $\rightarrow$ AU	0.134	Weak
SC $\rightarrow$ PU	0.076	Weak
TTF $\rightarrow$ AU	0.022	Weak

BI $\rightarrow$ AU	0.066	Weak
PU $\rightarrow$ BI	0.112	Weak
Age interactions	< 0.03	Negligible

The path analysis presents the estimated relationships between latent variables in the structural model, indicated by path coefficients (β), along with their statistical significance. A positive and statistically significant coefficient (T-statistic ≥ 1.96 and p-value ≤ 0.05) supports the proposed hypothesis, indicating a meaningful influence of one construct on another. Conversely, non-significant paths suggest that the hypothesized relationships are not empirically supported in the model [37].

TABLE VIII. PATH COEFFICIENT RESULTS

Path	T-Stat	P-Val	Result
AU $\rightarrow$ User Satisfaction	4.609	0.000	Significant
BI $\rightarrow$ AU	2.152	0.031	Significant
PEOU $\rightarrow$ BI	4.583	0.000	Significant
PEOU $\rightarrow$ PU	9.610	0.000	Significant
PR $\rightarrow$ AU	4.495	0.000	Significant (negative)
PR $\rightarrow$ BI	3.972	0.000	Significant (negative)
PU $\rightarrow$ AU	5.811	0.000	Significant
PU $\rightarrow$ BI	2.720	0.007	Significant
PU $\rightarrow$ User Satisfaction	4.950	0.000	Significant
SC $\rightarrow$ PU	2.742	0.006	Significant (negative)
TR $\rightarrow$ AU	2.640	0.008	Significant
TR $\rightarrow$ BI	3.735	0.000	Significant
TTF $\rightarrow$ AU	1.175	0.240	Not Significant
TTF $\rightarrow$ BI	6.288	0.000	Significant
TTF $\rightarrow$ PU	4.702	0.000	Significant
TTF $\rightarrow$ User Satisfaction	4.097	0.000	Significant
Age $\rightarrow$ AU	0.698	0.486	Not Significant
Age $\rightarrow$ User Satisfaction	0.305	0.760	Not Significant
Age $\times$ AU $\rightarrow$ User Satisfaction	1.146	0.252	Not Significant
Age $\times$ BI $\rightarrow$ AU	1.145	0.252	Not Significant

Table VIII presents several key relationships, such as those between Perceived Ease of Use and Perceived Usefulness, Task-Technology Fit and Behavioral Intention, as well as Perceived Risk and Actual Use are supported, revealing strong theoretical alignment and practical relevance in the context of e-Ijarah adoption.

B. Discussion

The study reveals a strong and significant positive relationship between PEOU and PU ($T = 9.610$, $p < 0.001$, $F^2 = 0.972$), consistent with the core assumptions of the Technology Acceptance Model (TAM) by Davis (1989). When users perceive an application as easy to use, they are more likely to perceive it as useful. This aligns with previous studies [38], reinforcing that usability is a fundamental driver of utility perception in digital financial tools.

PU significantly influences both Behavioral Intention (BI) ($T = 2.720$, $f^2 = 0.112$) and Actual Use (AU) ($T = 5.811$, $f^2 = 0.558$), supporting its central role in TAM. PU also significantly impacts User Satisfaction ($T = 4.950$, $f^2 = 0.353$). These findings confirm that users' perception of utility affects not only their intention to use but also their experience and satisfaction after actual usage. This result is in line with research [39].

BI positively affects AU ($T = 2.152$, $f^2 = 0.066$), showing that users with stronger intentions tend to actually use the system. However, the effect size is small, indicating that other factors such as PU and PR play a more dominant role in predicting actual usage in the e-Ijarah context.

TTF is a strong predictor of BI ($T = 6.288$, $f^2 = 0.632$) and PU ($T = 4.702$, $f^2 = 0.293$), supporting the model proposed by Goodhue & Thompson (1995). TTF also significantly affects User Satisfaction ($T = 4.097$, $f^2 = 0.239$), showing that alignment between task requirements and system capabilities enhances the user experience. However, its influence on AU is not significant ($T = 1.175$), suggesting that even with good task-system fit, external factors may inhibit actual usage behavior.

Trust (TR) significantly influences both BI ($T = 3.735$, $f^2 = 0.486$) and AU ($T = 2.640$, $f^2 = 0.134$). This finding highlights that trust in AI-based e-Ijarah systems is essential for encouraging adoption, especially in contexts involving sensitive data and financial transactions.

In contrast, Perceived Risk (PR) has a negative and significant effect on both BI ($T = 3.972$, $f^2 = 0.544$) and AU ($T = 4.495$, $f^2 = 0.316$). This supports prior findings by [23][40], emphasizing that minimizing perceived risk is critical in digital Islamic finance.

Actual Use (AU) significantly improves User Satisfaction ($T = 4.609$, $f^2 = 0.392$), indicating that continued use and engagement with the e-Ijarah platform positively impact user evaluation. This confirms findings from the EUCS framework and prior studies such as.

Interestingly, Sharia Compliance (SC) shows a significant but negative impact on PU ($T = 2.742$, $f^2 = 0.076$). This unexpected result may indicate a perception gap between automation (AI features) and sharia principles. Users may feel that digitalization compromises transparency or compliance clarity, requiring a re-evaluation of how sharia features are communicated and implemented in the application.

Theoretically, the extended model contributes by linking Sharia Compliance and Trust in AI as dual antecedents of perceived usefulness, offering a novel ethical–technological integration. This re-specifies TAM pathways by demonstrating that compliance clarity and algorithmic transparency jointly predict adoption in Islamic fintech—an advancement over prior single-dimensional trust frameworks.

The negative effect of SC on PU may reflect skepticism toward the transparency of AI-driven processes. Users might perceive that digital automation reduces the clarity of Sharia compliance, which calls for more explicit communication of compliance features in system design.

The moderating effects of Age and its interactions (e.g., Age $\times$ BI $\rightarrow$ AU, Age $\times$ AU $\rightarrow$ User Satisfaction) are not statistically significant (all $T < 1.96$, $f^2 < 0.03$). This indicates that age does not substantially alter user behavior in this context, supporting the idea that digital behavior is becoming more uniform across age groups in modern MSMEs.

From a theoretical standpoint, this study contributes to the integration of TAM, TTF, EUCS, and Islamic compliance in a single model, enriching IS and fintech literature. Practically, the results suggest that improving usability, aligning system design with tasks, and building user trust are key to adoption. Moreover, developers of Islamic fintech applications must address users' perception of compliance clarity to ensure trust and utility perceptions are aligned.

As an internal validation, the current results were compared with recent fintech adoption models by Usman et al., [41] and Seyum et al., [20]. The comparable R^2 (>0.80) and consistent significant paths for PU–BI and BI–AU confirm structural robustness. Nonetheless, future studies could empirically validate this model using cross-sample or experimental design to strengthen external validity.

1) Practical implications: The findings highlight key implications for developers and policymakers in Islamic fintech. The negative effect of Sharia Compliance (SC) on Perceived Usefulness (PU) reflects a perception gap between automation and religious assurance. Developers should include clear Sharia indicators—such as certification icons, transparent transaction logs, and short explanations of ijarah procedures—to strengthen users' confidence. Enhancing AI transparency through explainable dashboards and improving users' digital literacy via training or awareness programs are also essential. Furthermore, unified national standards for AI-based Sharia compliance are recommended to ensure consistency, reduce interpretational gaps, and promote sustainable trust in AI-driven e-ijarah systems. Regulators should standardize compliance communication to minimize user uncertainty regarding automation in religious contracts.

V. CONCLUSION, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This study investigated the determinants of user satisfaction in adopting AI-based applications, incorporating variables such as Perceived Ease of Use, Perceived Usefulness, Behavioral Intention, Actual Use, Trust in AI, Sharia Compliance, Perceived Risk, and Task-Technology Fit, with Age serving as a moderating variable. The analysis utilized Partial Least Squares Structural Equation Modeling (PLS-SEM) and involved a sample of 75 respondents from MSMEs in East Java.

The results showed that most of the proposed hypotheses were supported. Perceived Usefulness emerged as a key factor influencing both Behavioral Intention and Actual Use, while Actual Use significantly affected User Satisfaction. Trust in AI and Task-Technology Fit were also found to be significant contributors to perceived usefulness and satisfaction. Interestingly, Sharia Compliance had a negative but significant influence on Perceived Usefulness, suggesting a potential

conflict or misunderstanding regarding religious compliance and perceived utility. Age, as a moderating variable, did not have a significant effect on either Actual Use or User Satisfaction.

The model demonstrated strong explanatory power with high R-square values (e.g., 0.881 for User Satisfaction and 0.820 for Actual Use), and most constructs showed strong reliability and convergent validity. Effect size (f^2) analysis further confirmed that several paths had medium to large effects, particularly from Perceived Usefulness and Actual Use toward satisfaction.

In conclusion, this study highlights the critical roles of perceived benefits, ease of use, trust, and technological alignment in shaping users' behavioral intentions and satisfaction toward AI-based applications in MSMEs. These insights can guide future application development and policy formulation to foster broader acceptance, especially within culturally and religiously sensitive user groups.

This study is limited by its small sample size ($n = 75$) and single-sector focus (food and beverage MSMEs in East Java), which may restrict generalizability. Future research should include cross-sector and cross-regional samples, employ mixed-method validation such as multi-group analysis or experimental AI-trust scenarios, and compare e-ijarah with other Islamic contracts (e.g., murabahah, mudharabah) to enhance external validity.

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