

Analyzing the Determinants of Intention to Use Property Technology Applications in Indonesia

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ABSTRACT

Property technology (PropTech) applications are growing rapidly in Indonesia, especially in the Greater Jakarta area, reflecting the increasing demand for efficient digital property transactions. This study seeks to assess the factors that influence users' intention to engage with PropTech applications using a model that combines variables such as Perceived Usability, Perceived Ease of Use, Trustworthiness, Accuracy of Perceived Information, and Quality of Perceived Information. The data were analyzed using a research model developed from previous literature, adopting a modified Technology Acceptance Model (TAM) that incorporates several relevant factors influencing the adoption of Property Technology (PropTech) applications. Perceived Compatibility, Perceived Risk, and Social Influence. The data were collected through a survey involving 400 Indonesian respondents living in Greater Jakarta. The findings show that factors such as perceived usability, trust, and social Influence significantly influence users' intent to use PropTech applications. This research offers valuable insights for improving marketing strategies and improving service quality among PropTech application providers. These results underscore that utility, information quality, and social Influence are the main drivers for adopting PropTech solutions, while trust and risk serve as mediators that increase perceived usability.

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1. INTRODUCTION

In recent years, digitalization has transformed the property industry through the presence of Property Technology (PropTech). This technology makes it easier for users to search, rent, and buy properties faster and more efficiently. However, its use still faces challenges, including a lack of trust, inaccurate information, and risk perception. PropTech itself is the use of digital technology to increase efficiency and transparency in property

transactions. Its development has been ongoing for quite some time, from the use of simple computers to the internet, mobile applications, and artificial intelligence.

In Indonesia, the use of PropTech continues to increase in line with the public's need for practical and accessible property services. Platforms such as Rumah123, Lamudi, and Travelio facilitate digital property transactions.

Based on this, this study aims to identify the factors that affect users' intention to use PropTech applications in the Greater Jakarta area. The development of digital technology in Indonesia has shown significant growth. By 2024, the number of internet users in Indonesia is projected to reach 224.2 million, or around 79% of the total population [2]. Mobile device penetration is also very high, with over 353 million active mobile connections, equivalent to 126% of the population [4]. This fact shows significant opportunities for the adoption of property technology applications (Property Technology/PropTech). However, despite its vast market potential, the adoption rate of PropTech applications in Indonesia remains relatively low. [17] shows that property portals such as Rumah123.com only receive about 6.1 million monthly visits, while Rumah.com records 9.4 million, 99.co 7.2 million, Lamudi around 3.2 million, and Travelio around 2.5 million. Compared to total internet users, these figures represent only about 1-4% of the overall digital market.

In addition to the low realization compared to the target, various problems are expressed directly by users through application reviews:

Table 2. Major Negative Platform Reviews

Platform	Major Negative Reviews	Problem
Rumah123.com	Small photos after uploading, ads disappear when switching screens, and slow support.	<i>Ease of Use, Perceived Trust</i>
Lamudi	App bugs, inaccurate filters, clickbait ads, and annoying pop-ups	<i>Perceived Accuracy, Ease of Use, Compatibility, Reliability</i>
Travelio	Slow refunds, problematic deposits, poor CS, unclear reservations, transaction risk	<i>Perceived Risks, Beliefs, Social Influences, Traditional Barriers</i>

Based on market data and user reviews, a significant gap is clearly visible between the market potential and the actual adoption rate of PropTech applications in Indonesia. The challenges faced go beyond technical issues to include user behavior, such as trust, perceived risk, compatibility, accuracy, ease of use, and social influence. This underscores the urgency of research that addresses the psychological and social factors that influence user adoption intent for PropTech applications.

This phenomenon of inequality becomes even more relevant in the Greater Jakarta metropolitan area, which has a population of more than 32 million [3]. As a center of urbanization and economic activity, Greater Jakarta is a major market for proptech applications, especially those that facilitate housing searches, buying and selling, and property rentals. However, the low adoption rate of proptech applications relative to the large internet user base raises questions about the factors that affect users' intention to use them in Greater Jakarta. This question is the basis of this research.

Given the dynamic nature of PropTech, understanding user behavior is essential for effective adoption. The Technology Acceptance Model (TAM), developed by [5][6],

provides a basic framework for investigating the factors influencing technology acceptance. TAM argues that perceived usability and perceived ease of use are the main determinants of user behavioral intent to adopt a particular technology. In the context of PropTech, this dimension is crucial to shaping users' willingness to engage with digital tools and platforms for property-related activities.

Previous empirical studies in Indonesia have examined the adoption of technology in various sectors. For example, research on intent to use SPayLater revealed that perceived ease of use, perceived usability, and perceived compatibility significantly influenced user attitudes [14]. Similarly, research on electronic payment systems identified trust, social Influence, perceived security, and behavioral attitudes as important determinants of technology acceptance [15]. Considering the evolving PropTech ecosystem, this study aims to explore how these factors specifically influence behavioral intentions to use PropTech applications in Indonesia. By expanding the TAM framework and incorporating variables such as trust, social Influence, information quality, perceived risk, and compatibility, the study seeks to provide valuable insights for developers, stakeholders, and policymakers. Ultimately, these findings will contribute to a deeper understanding of user acceptance and facilitate the successful integration of technology in the Indonesian real estate industry.

2. METHODS

This study develops a model based on the previous literature by adopting a modified Technology Acceptance Model (TAM). The research model includes independent variables in the form of perceived information quality, perceived accuracy, perceived compatibility, perceived risk, perceived trust, and social Influence. Furthermore, perceived usefulness and perceived ease of use were posited as mediating variables, with behavioral intention to use as the dependent variable. The model generates 15 hypotheses that test the direct and indirect influence between variables.

This study uses a quantitative, survey-based approach. The research population comprises individuals domiciled in the Greater Jakarta metropolitan area with experience or knowledge of PropTech applications, such as prospective buyers, tenants, and property investors. The sampling technique used is non-probability purposive sampling, in which respondents are selected based on criteria such as having used or known PropTech applications. The study included 400 respondents who met the minimum criteria for Structural Equation Modeling (SEM) analysis.

Data collection was conducted via an online questionnaire distributed via a digital platform. The research instrument was adapted from previous research relevant to the TAM model and its derivative variables. Each construct is measured using multiple-item statements on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree).

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS. The analysis stages include evaluating the outer (measurement) and inner (structural) models. An external model evaluation was conducted to test the validity and reliability of the constructs, including convergent validity (loading factors > 0.7 and Average Variance Extracted [AVE] > 0.5), discriminant validity (Fornell-

Larcker or HTMT criteria), and reliability (Cronbach's Alpha and Composite Reliability > 0.7).

Furthermore, the internal model evaluation assessed the relationship between variables by examining the determination coefficient (R^2), effect size (f^2), and predictive relevance (Q^2). Hypothesis testing was conducted using bootstrapping to obtain path coefficients, t-statistics, and p-values. The mediation test is carried out by analyzing the direct and indirect Influence between variables to determine whether mediation is partial or full.

3. RESULTS AND DISCUSSION

Sample size determination also follows the 10-times rule in PLS-SEM, which requires at least 10 times the number of the largest indicators or the number of structural paths leading to a construct. Thus, the number of 400 respondents is considered adequate to ensure the stability of the model estimate. Data were collected through a survey involving 400 respondents living in Greater Jakarta. Structural model analysis was conducted to examine the relationships among the variables in this study. The importance of this relationship is assessed using the path coefficient (O), t-statistic, and p-value. Some of the model's connections were found to be statistically significant, as indicated by p-values less than 0.05. Based on the results of hypothesis testing in this study, several important findings were identified regarding factors that affect user intentions to use Property Technology (PropTech) applications in the Greater Jakarta area.

H1 (PEOU → BIU, Insignificant)

Perceived Ease of Use does not directly affect the Behavioral Intent to Use. While users may find the app easy to use, this alone is not enough to drive adoption. Other factors, such as perceived usefulness, trust, and social Influence, play a stronger role.

H2 (PU → BIU, Significant Positive)

The perceived usefulness greatly and significantly affects the Behavioral Intention. The more users experience the real benefits of PropTech, the higher their intention to use it.

H3 (PEOU → PU, Significant Negative)

Unexpectedly, ease of use negatively impacts perceived usability. This suggests that users may see apps that are too simple as lacking in advanced functionality or lacking advanced functionality.

H4 (PT → BIU, Insignificant)

Beliefs do not directly affect behavioral intentions. While users may trust the app, trust alone isn't enough to generate intent without the support of usability or social Influence.

H5 (PT → PU, Significant Positive)

Trust significantly strengthens the perception of usefulness. Higher trust in the app increases the perception of its usefulness.

H6 (PIA → BIU, Insignificant)

The accuracy of perceived information does not directly affect the intent of the behavior. Users may find accurate information necessary but not sufficient in shaping adoption.

H7 (PIA → PU, Significant Positive)

Accurate information significantly contributes to perceived usability. Reliable and accurate data increases the value of the app.

H8 (PIQ → BIU, Significant Positive)

The quality of information positively affects behavioral intentions. High-quality content motivates users to adopt PropTech platforms.

H9 (PIQ → PU, Significant Positive)

Information Quality also enhances perceived usability, showing that informative and well-structured content increases the value of the app.

H10 (PC → BIU, Insignificant)

Perceived compatibility does not significantly affect behavioral intention. Users may not prioritize whether the technology fits their lifestyle when deciding to adopt it.

H11 (PC → PEOU, Significant Positive)

Compatibility greatly affects ease of use. Technology that is in tune with the needs and habits of users is considered easier to operate.

H12 (PR → BIU, Significant Positive, Contrary to Assumptions)

Contrary to initial assumptions, Perceived Risk has a positive effect on behavioral intent. This suggests that even when risks are recognized, users still intend to adopt the app, perhaps because the benefits outweigh the risks.

H13 (PR → PT, Significant Positive, Contrary to Assumptions)

Similarly, unexpectedly perceived risks reinforce trust. This may reflect the user's belief that the provider is capable of mitigating risk, leading to increased trust.

H14 (SI → BIU, Significant Positive)

Social Influence significantly affects behavioral intentions. Support or encouragement from friends, family, or influencers positively motivates adoption.

H15 (SI → PU, Significant Positive)

Social Influence also reinforces perceived usefulness. When others find the app useful, individuals are more likely to share this perception.

DISCUSSION

This study aims to analyze the factors influencing users' behavioral intention to adopt Property Technology (PropTech) applications using a modified TAM model. The analysis

shows that not all model relationships are significant, yielding interesting findings both theoretically and practically.

First, the study's results show that perceived usefulness (PU) has a positive, significant influence on behavioral intention to use (BIU). These findings are consistent with the classic TAM model, which states that perceptions of technology benefits are a key determinant of adoption. In the context of PropTech, users are more likely to use applications when they perceive real benefits, such as greater efficiency in property searches, easier transactions, and wider access to information.

In contrast, perceived ease of use (PEOU) did not significantly affect behavioral intention. This shows that ease of use is not a major factor in driving PropTech adoption. Users may consider ease of use a basic feature that digital applications should have, so that it is no longer a distinguishing factor in determining the intention of use. Nevertheless, PEOU still influences PU, although a significant negative association was found in this study. This finding is quite unusual and indicates that overly simple apps can actually lower perceptions of usability, likely because they are seen as lacking complete or advanced features.

The perceived trust (PT) variable did not have a significant direct effect on BIU but did have a positive effect on PU. This shows that trust plays a more indirect role in increasing use intention by increasing perceptions of benefits. In other words, users will appreciate the app's benefits more when they have a high level of trust in the platform.

Furthermore, perceived information accuracy (PIA) does not have a direct effect on BIU but does have a significant effect on PU. This suggests that information accuracy is considered a supporting factor that enhances an app's usability value but does not directly drive usage decisions. On the other hand, perceived information quality (PIQ) has been shown to influence both PU and BIU significantly. This confirms that the quality of information, such as completeness, relevance, and clarity of content, is an important factor that directly or indirectly influences the adoption of PropTech.

The perceived compatibility (PC) variable did not have a significant effect on BIU but did have a positive effect on PEOU. This shows that the suitability of technology to users' needs and lifestyles contributes more to increased ease of use than directly encouraging adoption intentions.

An interesting finding is the positive and significant Influence of perceived risk (PR) on BIU and PT, which is contrary to common assumptions in the literature. Theoretically, risk is often seen as an obstacle to technology adoption. However, in the context of this study, the results indicate that users who are aware of the risks still intend to use the application because the benefits outweigh the perceived risks. In addition, users may have confidence that the service provider can manage and mitigate these risks, thereby increasing trust.

Finally, social influence (SI) has been shown to positively and significantly affect BIU and PU. This suggests that social factors, such as recommendations from friends, family, or influencers, play an important role in shaping user perceptions and decisions. In the context of PropTech, trust in others' experiences is one of the main drivers of reducing uncertainty and increasing intention to use.

Overall, the results of this study show that the adoption of PropTech applications is influenced not only by technical factors such as ease of use but also by perceptions of benefits, information quality, and social Influence. These findings also confirm the importance of considering psychological and contextual factors in developing technology adoption models, particularly in the digital property sector.

4. CONCLUSION

This study aims to analyze the factors influencing users' behavioral intention to adopt Property Technology (PropTech) applications using a modified TAM model. The results of the study show that perceived usefulness is the most powerful factor in encouraging intention to use. This confirms that users' real benefits are the main consideration in technology adoption decisions.

In addition, the quality of information and social Influence have been shown to play an important role, both directly and indirectly, in increasing the intention to use. Relevant and high-quality information can enhance perceptions of the app's value, while social support can strengthen users' confidence in their decision-making. However, not all findings align with common theoretical assumptions. Some variables, such as ease of use and trustworthiness, do not show a significant direct influence on intent to use. In addition, a positive relationship between perceived risk, intention to use, and trust was an unusual finding. Therefore, these results need to be interpreted carefully and cannot be generalized without considering the study's context.

This research has several limitations. First, the study's scope is limited to the Greater Jakarta area, so the results may not be representative of conditions in other regions. Second, the data are self-reported, which may introduce respondent bias. Third, the non-probability sampling technique allows for bias in the selection of respondents. Fourth, cross-sectional research designs limit the ability to identify causal relationships strongly. Considering these limitations, further research is recommended to expand the study area, use more representative sampling methods, and consider a longitudinal approach to gain a deeper understanding of technology adoption behavior.

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