

THE INFLUENCE OF AGE AND GENDER: UNVEILING KEY MODERATORS IN INSURTECH ADOPTION AND USE BEHAVIOR

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Article history: received 13 August 2024; revised 01 September 2024; accepted 21 September 2024

DOI: <https://doi.org/10.33751/jhss.v8i3.10801>

Abstract: This study aims to analyze the factors influencing the adoption and use of insurtech applications in Indonesia using the Unified Theory of Acceptance and Use of Technology (UTAUT) framework. The key factors examined include Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions, along with additional variables such as Trust, Convenience, and Regulatory Expectancy. A quantitative method was employed, with data collected through a survey and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicate that Performance Expectancy, Effort Expectancy, Social Influence, and Trust significantly influence users' behavioral intention to adopt insurtech applications, while Convenience significantly impacts use behavior but not intention. In contrast, Regulatory Expectancy shows no significant influence on either intention or use behavior. Additionally, age moderates the relationships between certain variables, such as Social Influence, Convenience, and Facilitating Conditions, with both intention and use behavior, whereas gender only moderates the relationship between Social Influence and behavioral intention. In conclusion, application performance, ease of use, and trust are critical factors driving insurtech adoption, while convenience is key to sustaining usage.

Keywords: Insurtech; financial technology; technology adoption; UTAUT, SEM-PLS

I. INTRODUCTION

In the fast-paced world of financial technology, the insurance industry is on the verge of a significant digital transformation. This study focuses on Indonesia's expanding digital economy, particularly the growing field of Insurance Technology or Insurtech. Insurtech applications, which merge technology with insurance services represent a form of internet technology and information system development. These applications provide mutual benefits for both the public and insurance companies, enabling consumers to select insurance plans that meet their specific needs and facilitating more efficient communication between insurers and their customers [1]. Indonesia has experienced a remarkable rise in insurtech development in recent years, driven by several factors, including the increasing adoption of digital technology. The adoption of insurtech in Indonesia has grown significantly in recent years, fueled by advances in technology and changing consumer preferences. A key example is Fuse, one of the country's leading insurtech platforms, which issued over 150 million policies and recorded more than IDR 3 trillion in gross premium revenue in 2022 [2]. This growth reflects increasing consumer trust in digital insurance solutions, offering greater accessibility and convenience. As more players enter the market, insurtech is set to play an essential role in transforming Indonesia's insurance industry.

Another contributing factor is the growing public awareness of financial matters, particularly the importance of

insurance. A survey conducted by Populix found that two out of three respondents already had insurance, most commonly BPJS insurance with a smaller portion holding private insurance. However, financial limitations were cited as a barrier for some individuals in obtaining insurance coverage [3]. Government policies, such as OJK Regulation Number 13/POJK.02/2018 concerning Digital Financial Innovation in the Financial Services Sector, have also supported the growth of insurtech in Indonesia [4]. Despite the wide range of features offered by insurtech applications, several challenges persist such as the overwhelming number of menus, frequent errors, difficulties with data uploads, and other usability issues [5]. In 2020 new insurtech companies accounted for just 3.4% of total insurance premiums collected in the sector, according to OJK. Many Indonesians remain unaware of digital insurance and its benefits, contributing to the low penetration of online insurance in the country [6]. The primary aim of this research is to explore and analyze the factors influencing Indonesian consumers' adoption of insurtech applications. As Indonesian consumers become more digitally literate and open to innovative financial solutions, this study seeks to close the knowledge gap regarding consumer behavior in the digital financial services space, providing guidance for the development of a more efficient, customer-focused insurance ecosystem in the digital era.

II. RESEARCH METHODS

Based on the literature review, we propose a research model incorporating twenty-eight hypotheses, which includes the addition of moderating variables. This model systematically explores the relationships between key variables such as Performance Expectancy, Effort Expectancy, Social Influence, Trust, Convenience, Regulatory Expectancy, Facilitating Conditions, Behavioral Intention to Use Insurtech

App, and Use Behavior. Additionally, Gender and Age are introduced as moderating variables to examine how these factors influence the strength of the relationships between the independent variables and Behavioral Intention to Use Insurtech App. The model aims to provide a comprehensive understanding of the dynamics influencing both the intention to use and the actual use of insurtech applications in Indonesia.

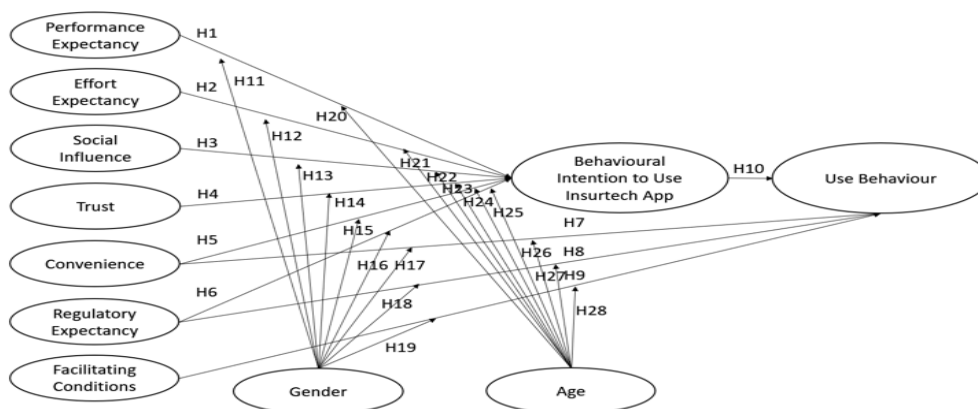


Figure 1. Research Model

The Unified Theory of Acceptance and Use of Technology (UTAUT) is commonly used to explain user intentions and technology adoption behavior. It integrates eight earlier models, including the Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), and Innovation Diffusion Theory (IDT) [7]. UTAUT includes four moderators gender, age, experience, and voluntariness of use along with six key variables: performance expectancy, effort expectancy, social influence, facilitating conditions, behavioral intention, and use behavior [7]. In insurtech research, the UTAUT model has been adapted to include additional factors such as trust, convenience, and regulatory expectancy to explore behavioral intention to use insurtech apps [8]. Performance expectancy refers to the belief that using insurtech applications will enhance users' efficiency in managing insurance. Venkatesh et al. (2003) noted that perceived performance benefits significantly impact users' intention to adopt technology. In the insurtech context, these benefits include faster claim processes, easier access to information, and more efficient services compared to traditional methods. Prior studies suggest that users who believe insurtech improves their performance are more likely to adopt it [8]. Developers should focus on features that enhance performance, such as automated claims, accurate data analysis, and easy integration with other insurance services to drive user adoption.

H1: Performance Expectancy significantly influence Behavioural Intention to Use Insurtech App.

Effort expectancy refers to the extent to which users believe that insurtech applications are easy to use. According to the Technology Acceptance Model (TAM), ease of use significantly affects the intention to adopt technology [9].

Users who find insurtech intuitive and simple are more likely to adopt it. Venkatesh et al. (2003) support this, stating that perceived ease of use increases technology adoption intentions, a finding echoed in studies on insurtech [8]. In the insurtech context, effort expectancy includes intuitive interfaces, clear user guides, and sufficient support features. To enhance user adoption, developers should focus on creating simple, user-friendly designs and provide effective support like tutorials and responsive customer service.

H2: Effort Expectancy significantly influence Behavioural Intention to Use Insurtech App.

Social influence refers to the impact of important people around users, such as family, friends, and colleagues, on their intention to use insurtech apps. According to the UTAUT model, social influence includes recommendations or encouragement from these groups [7]. This influence can be particularly strong when users value the opinions of these groups. Research has shown that social support can enhance the intention to adopt new technology. Venkatesh & Davis (2000) found social influence to be a significant predictor of technology adoption in organizations. While some studies on insurtech suggest social influence has no significant effect [8], other research indicates it can strongly influence technology adoption [11]. In insurtech, recommendations from insurance agents, friends who use the app, or positive social media reviews can increase adoption intentions. Effective marketing strategies can leverage social influence by involving opinion leaders, providing user testimonials, and encouraging positive social media sharing.

H3: Social Influence significantly influence Behavioural Intention to Use Insurtech App.

Trust in technology refers to users' belief that insurtech apps are reliable and secure [12]. This trust involves aspects such as personal data security, service integrity, and process transparency. In the insurtech context, users need confidence that their information will be protected and that the app will function as promised. Previous research highlights that trust is crucial in technology adoption, particularly for services involving personal and financial data. Gefen, Karahanna, & W. Straub (2003) found that trust plays a key role in users' intentions to use e-commerce. Other studies confirm that trust significantly influences the intention to use insurtech apps [8]. In insurtech, trust is influenced by the app's reputation, user reviews, and security certifications.

H4: Trust significantly influence Behavioural Intention to Use Insurtech App.

Convenience refers to the ease of accessing and using insurtech applications in daily life, including 24/7 service availability and accessibility across various devices. Users who find insurtech apps convenient are more likely to have higher intentions to use and demonstrate greater use behavior. Previous research shows that convenience is a crucial factor in technology adoption. Berry, Seiders, & Grewal (2002) identified convenience as a key factor in consumers' decisions to use online services, while Jiang, Yang, & Jun (2013) found that online shopping convenience, including ease of finding products and completing transactions, significantly affects purchase intentions. Additionally, convenience has been shown to significantly influence use behavior [16]. In the insurtech context, convenience includes the ability to file insurance claims online, access policy information anytime, and receive customer service without visiting physical offices.

H5: Convenience significantly influence Behavioural Intention to Use Insurtech App.

H7: Convenience significantly influence Use Behaviour.

Regulatory expectancy refers to users' perception of an insurtech app's compliance with applicable regulations, such as data protection laws, insurance regulations, and security standards. Adopting new technologies often requires active government participation to reduce uncertainty and risk [17]. Users who believe that an insurtech app adheres to regulations are more likely to intend to use and continue using it. Regulatory compliance is also key in building user trust, as it shows that the app operates within a legal framework that protects their interests. Previous research shows that regulatory compliance can boost technology adoption. Khoon (2022) found that regulatory expectancy significantly influences behavioral intention to use insurtech, which also predicts user behavior in adopting the app. In the insurtech context, users need assurance that the app complies with all relevant regulations and protects their personal data.

H6: Regulatory Expectancy significantly influence Behavioural Intention to Use Insurtech App.

H8: Regulatory Expectancy significantly influence Use Behaviour.

Facilitating conditions in the UTAUT model refer to users' belief that the necessary organizational and technical infrastructure is available to support the use of insurtech apps. This includes access to resources, technical support, and the

information needed to use the app effectively. Users who feel supported by sufficient infrastructure are more likely to adopt and continue using the technology. Research has shown that facilitating conditions play a crucial role in technology adoption. Venkatesh et al. (2003) found that adequate infrastructure and technical support increase the likelihood of users adopting new technology. Additionally, facilitating conditions significantly influence use behavior [18]. In the insurtech context, this may include access to 24/7 customer support, app tutorials, and step-by-step guides for filing insurance claims.

H9: Facilitating Conditions significantly influence Use Behaviour.

Behavioral intention refers to the degree to which a person has a deliberate plan to use an insurtech app in the future. According to the UTAUT model, behavioral intention plays a crucial role in predicting actual technology usage. Venkatesh et al. (2003) noted that strong behavioral intentions often lead to actual use. Other studies also show that the intention to use an app significantly affects actual use behavior [19], [20], [21], [22]. In the insurtech context, intention to use can be influenced by factors such as performance perception, ease of use, social influence, and trust. Users with strong intentions to use the app are more likely to engage with it regularly. For example, if a user intends to manage their insurance policies via the app, they are more likely to actively use it.

H10: Behavioural Intention to Use Insurtech App significantly influence Use Behaviour.

Age and Gender can moderate the relationships between Performance expectancy, Effort expectancy, Social influence, and Trust on the intention to use insurtech apps. Users from different age groups and genders may have varying perceptions and preferences toward technology, which could influence their intention to adopt insurtech. For instance, older users might prioritize ease of use and trust, while younger users may be more influenced by social factors and performance benefits. Previous studies have shown that demographic factors like age and gender can affect technology adoption. Yang & Koenigstorfer (2021) found that age moderates the relationships between performance expectancy, effort expectancy, social influence, and facilitating conditions on behavioral intention to use apps. Taluka & Masele (2016) showed that age moderates the relationship between trust and behavioral intention for users under and over 30 years old. Regarding gender, Khoon (2022) demonstrated that gender moderates the relationship between trust and intention to use insurtech. Liébana-Cabanillas, Singh, Kalinic, & Carvajal-Trujillo (2021) also found that gender moderates the relationships between performance expectancy, effort expectancy, and intention to use insurtech, while Nunes, Limpo, & Castro (2019) noted that gender moderates the relationship between social influence and intention to use the app.

This suggests that the effects of variables like Performance expectancy, Effort expectancy, Social influence, and Trust on intention to use insurtech may vary based on age and gender. Therefore, developers should consider detailed market

segmentation to tailor features and marketing campaigns to meet the preferences of different demographic groups.

H11: Age moderates the relationship between Performance expectancy and Behavioral Intention to use insurtech app.

H12: Age moderates the relationship between Effort expectancy and Behavioral Intention to use insurtech app.

H13: Age moderates the relationship between Social influence and Behavioral Intention to use insurtech app.

H14: Age moderates the relationship between Trust and Behavioral Intention to use insurtech app.

H20: Gender moderates the relationship between Performance expectancy and Behavioral Intention to use insurtech app.

H21: Gender moderates the relationship between Effort expectancy and Behavioral Intention to use insurtech app.

H22: Gender moderates the relationship between Social influence and Behavioral Intention to use insurtech app.

H23: Gender moderates the relationship between Trust and Behavioral Intention to use insurtech app.

Age and Gender can moderate the relationships between Convenience, Regulatory Expectancy, and both the intention and behavior of using insurtech apps. Users from different age groups and genders may have distinct preferences regarding convenience and regulatory compliance. For example, younger users might prioritize accessibility and ease of use, while older users may be more concerned with regulatory compliance and data security. Previous research shows that demographic factors such as age and gender can influence how users perceive convenience and regulatory compliance. Rather & Hollebeek (2021) demonstrated that convenience, as part of customer experience, significantly impacts behavioral intention. Meanwhile Merhi, Hone, Tarhini, & Ameen (2020) found that age does not moderate the relationship between regulatory expectancy and behavioral intention in the context of perceived security and privacy, though further research could yield different results based on location. Lee, Ruane, Lim, Zhang, & Shin (2021) showed that age can moderate the relationship between convenience and behavioral intention in certain age groups, which could also affect actual behavior. Regarding gender, Khoon (2022) found that gender moderates the relationships between convenience, regulatory expectancy, and behavioral intention, which may also predict use behavior. Understanding how these factors influence intention and use behavior across different demographic groups is crucial in the insurtech context. Developers should tailor features and marketing strategies to meet the specific needs and preferences of these groups.

H15: Age moderates the relationship between Convenience and Behavioral Intention to use insurtech apps.

H16: Age moderates the relationship between Regulatory Expectancy and Behavioral Intention to use insurtech apps.

H17: Age moderates the relationship between Convenience and Use Behavior.

H18: Age moderates the relationship between Regulatory Expectancy and Use Behavior.

H24: Gender moderates the relationship between Convenience and Behavioral Intention to use insurtech apps.

H25: Gender moderates the relationship between Regulatory Expectancy and Behavioral Intention to use insurtech apps.

H26: Gender moderates the relationship between Convenience and Use Behavior.

H27: Gender moderates the relationship between Regulatory Expectancy and Use Behavior.

Age and Gender can moderate the relationship between Facilitating Conditions and the use behavior of insurtech apps. Users from different age groups and genders may have varying needs for technical support. For example, older users may require more assistance and tutorials, while younger users might be more independent and prefer online resources. Research indicates that age and gender can influence how users utilize technical support and available resources. Venkatesh et al. (2003) found that age moderates the relationship between facilitating conditions and use behavior, while Guo (2015) showed that gender can moderate this relationship as well. In the insurtech context, it is essential to understand these demographic preferences to provide appropriate support.

This hypothesis suggests that the availability of infrastructure and technical support will have different effects on insurtech app use behavior depending on the user's age and gender. Developers should ensure that the support and resources provided meet the diverse needs of these user groups, offering various forms of technical assistance tailored to different demographic preferences.

H19: Age moderates the relationship between Facilitating Conditions and Use Behavior.

H28: Gender moderates the relationship between Facilitating Conditions and Use Behavior.

Use Behavior refers to how individuals actively utilize technology. In this study, it assesses user patterns and actions when interacting with insurtech applications. People are more likely to use technology when they believe it will boost their productivity [22]. In the context of insurtech, Use Behavior is influenced by how effectively the technology meets user needs, service reliability, customer support, and overall user experience. For example, an insurtech app that offers simple navigation, fast claim processing, and strong customer support is likely to experience higher levels of use. Previous studies suggest that a stronger behavioral intention leads to increased use behavior [19], [20], [21], [22]. The study aims to identify the factors influencing the adoption of insurtech applications in Indonesia. This explanatory research adopts a deductive approach, applying a modified Unified Theory of Acceptance and Use of Technology (UTAUT) model. The main variables analyzed include Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Trust (TR), Convenience (CO), Regulatory Expectancy (RE), Facilitating Conditions (FC), Behavioral Intention to Use Insurtech App (BIUI), and Use Behavior (UB). Additionally, the study incorporates Age and Gender as moderating variables to examine how these factors influence the relationships between the key variables and the behavioral intention to use and actual use of insurtech apps.

The measurement items for each construct in this study were adapted from various prior research to ensure validity and reliability. Performance Expectancy (PE) items were sourced from Hoque & Sorwar (2017), Khoon (2022) and Liu et al. (2019), while Effort Expectancy (EE) items were adapted from Bankole & Bankole (2017), Khoon (2022) and Liu et al. (2019). Social Influence (SI) was measured using items from Khoon (2022), Liu et al. (2019) and Park et al. (2020). Trust (TR) was adapted from Bankole & Bankole (2017) and Khoon (2022), and Convenience (CO) items were sourced from Chen & Tsai (2019), Hsieh et al. (2017) and Khoon (2022). Regulatory Expectancy (RE) followed the items from Khoon (2022), and Facilitating Conditions (FC) were measured using items from Hoque & Sorwar (2017), Khoon (2022) and Park et al. (2020). Behavioral Intention to Use Insurtech App (BIUI) items were adapted from Hoque & Sorwar (2017), Hsieh et al. (2017) and Khoon (2022), while Use Behavior (UB) was measured using items from Hoque & Sorwar (2017) and Hsieh et al. (2017). All constructs were measured using a 4-point Likert scale, ranging from "strongly disagree" to "strongly agree."

The study utilized Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze the data, focusing on both the measurement and structural models. Indicators with loading factors exceeding 0.5 were deemed acceptable. To ensure the constructs' reliability and validity, Composite Reliability and Average Variance Extracted (AVE) were applied. The analysis was conducted using SMARTPLS 4.1.0.0, providing a robust platform for evaluating the proposed relationships and testing the research model.

The research hypotheses were empirically tested using data collected from 270 respondents. After a data-cleaning process, 194 valid responses from individuals who had experience using insurtech applications were retained, while 77 responses from non-users were excluded. A purposive sampling technique was employed to target participants familiar with insurtech, ensuring the sample consisted of respondents who could provide meaningful insights into the factors affecting insurtech adoption.

Table 1. Demographic Profile

	Frequency	Percentage
Gender		
Male	130	48
Female	140	52
Age		
18 – 25	70	26
26 – 35	99	37
36 – 45	67	25
46 – 55	34	12

Data collection was conducted using an online survey distributed through Google Forms between 28 December 2023 to 26 January 2024. The survey link was shared across multiple social media platforms, including Instagram,

WhatsApp, and Line, to reach a broad audience. The target population consisted of Indonesian individuals actively engaged with insurance services, encompassing both traditional insurance users and insurtech adopters. Responses to the questionnaire indicated that most participants rated the variables between three and four on the Likert scale, suggesting a general agreement or strong agreement with the indicators. This overall positive feedback reflects a favorable perception of the survey's variable indicators among respondents.

III. RESEARCH RESULT

As indicated in the table, 270 responses were gathered through the questionnaire. Of these, 194 were classified as eligible, as they came from individuals who had experience using insurtech applications. The remaining 77 responses were categorized as ineligible, as the participants had never used an insurtech application. To assess the measurement model, we first examine the indicator loadings, considering values above 0.5 as acceptable to ensure sufficient indicator reliability. Next, composite reliability is used to confirm the internal consistency of the constructs, with values exceeding 0.7 indicating strong internal consistency. Convergent validity, which evaluates how well a construct explains the variance of its indicators, is measured using the Average Variance Extracted (AVE). An AVE score of at least 0.5 is required to establish adequate convergent validity. Table 2 displays the outer loadings of the measurement items, while Table 3 shows the composite reliability and AVE values. Both tables confirm that all values meet the required thresholds, affirming the reliability and validity of the measurement model.

The adjusted R-Square results indicate that the variable Behavioral Intention to Use Insurtech App (BIUI) has an adjusted R-Square of 0.572, meaning that Performance Expectancy, Effort Expectancy, Social Influence, Trust, Convenience, and Regulatory Expectancy together explain 57.2% of the variance in BIUI, with the remaining 42.8% attributed to other factors not covered in this study. Similarly, the variable Use Behavior (UB) shows an adjusted R-Square of 0.608, indicating that Convenience, Regulatory Expectancy, Facilitating Conditions, and BIUI account for 60.8% of the variance in UB, while 39.2% is influenced by variables not examined in this research.

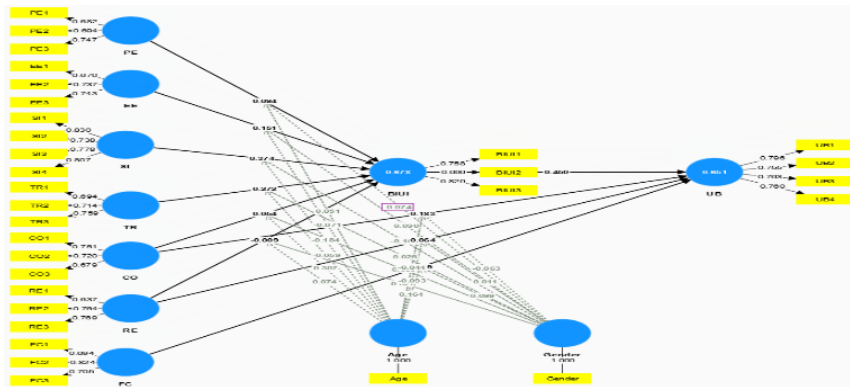


Figure 2. Path Analysis

Table 2. Outer Loadings

	BIUI	CO	EE	FC	PE	RE	SI	TR	UB
BIUI1	0.757								
BIUI2	0.697								
BIUI3	0.829								
CO1		0.751							
CO2		0.72							
CO3		0.679							
EE1			0.670						
EE2			0.737						
EE3			0.743						
FC1				0.694					
FC2				0.824					
FC3				0.705					
PE1					0.682				
PE2					0.694				
PE3					0.747				
RE1						0.637			
RE2						0.764			
RE3						0.768			
SI1							0.830		
SI2							0.738		
SI3							0.778		
SI4							0.806		
TR1								0.694	
TR2								0.714	
TR3								0.759	
UB1									0.792
UB2									0.760
UB3									0.761
UB4									0.763

Table 3. Composite Reliability and AVE Scores

	Composite Reliability	Average Variance Extracted (AVE)
PE	0.751	0.502
EE	0.761	0.515
SI	0.868	0.622
TR	0.766	0.522
CO	0.761	0.515
RE	0.768	0.527
FC	0.786	0.552
BIUI	0.806	0.582
UB	0.853	0.591

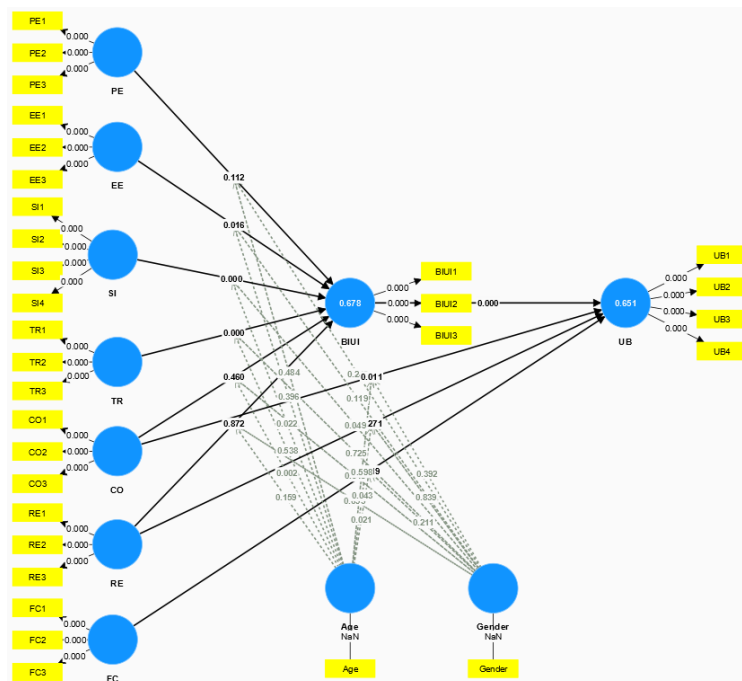


Figure 3. Bootstrapping

Table 4. Hypotheses testing

Hypothesis	Correlation	T Statistics	Conclusion
H1	PE -> BIUI	2.005	Significant
H2	EE -> BIUI	3.300	Significant
H3	SI -> BIUI	2.498	Significant
H4	TR -> BIUI	4.627	Significant
H5	CO -> BIUI	1.497	Not Significant
H6	RE -> BIUI	0.416	Not Significant
H7	CO -> UB	3.069	Significant
H8	RE -> UB	0.878	Not Significant
H9	FC -> UB	2.598	Significant
H10	BIUI -> UB	7.466	Significant
H11	Age x PE-> BIUI	0.700	Not Significant
H12	Age x EE -> BIUI	0.849	Not Significant
H13	Age x SI -> BIUI	2.291	Significant
H14	Age x TR-> BIUI	0.616	Not Significant
H15	Age x CO-> BIUI	3.177	Significant
H16	Age x RE -> BIUI	1.411	Not Significant
H17	Age x CO -> UB	0.527	Not Significant
H18	Age x RE -> UB	2.025	Significant
H19	Age x FC -> UB	2.313	Significant
H20	Gender x PE -> BIUI	1.156	Not Significant
H21	Gender x EE -> BIUI	1.559	Not Significant
H22	Gender x SI -> BIUI	1.968	Significant
H23	Gender x TR-> BIUI	0.352	Not Significant
H24	Gender x CO-> BIUI	0.602	Not Significant
H25	Gender x RE -> BIUI	0.393	Not Significant
H26	Gender x CO -> UB	0.857	Not Significant
H27	Gender x RE -> UB	0.203	Not Significant
H28	Gender x FC -> UB	1.251	Not Significant

Based on the results of the study, several key conclusions can be drawn. First, Performance Expectancy, Effort Expectancy, Social Influence, and Trust were found to have a significant impact on users' intention to adopt insurtech applications. However, both Convenience and Regulatory Expectancy did not significantly influence behavioral intention. On the other hand, Convenience, Facilitating Conditions, and Behavioral Intention to Use Insurtech App significantly affected use behavior, whereas Regulatory Expectancy did not. Age was shown to moderate the relationships between Social Influence and Convenience with behavioral intention, as well as Regulatory Expectancy and Facilitating Conditions with use behavior, though it did not significantly affect other relationships. Gender was only found to moderate the relationship between Social Influence and behavioral intention, with no significant moderating effects on other variables related to both intention and use behavior. These findings highlight the importance of specific factors in driving the adoption and continued use of insurtech, while also revealing the nuanced role that age and gender play as moderating variables in this context.

The findings reveal that both Performance Expectancy (PE) and Effort Expectancy (EE) have a significant impact on the Behavioral Intention to Use Insurtech App (BIUI). This is consistent with Khoon (2022) research, which identified similar patterns in technology adoption, where users tend to embrace technologies that they perceive as enhancing their performance and being easy to use. In the context of insurtech, this suggests that if users believe the app will effectively meet their insurance management needs and is user-friendly, they are more likely to intend to use it. These results underscore the need for developers to prioritize improving both the functionality and ease of use of insurtech applications to align with user expectations and drive adoption. The significant influence of Social Influence (SI) and Trust (TR) on Behavioral Intention to Use Insurtech Apps (BIUI) highlights the importance of the social environment and the trustworthiness of insurtech platforms in shaping user intentions. This finding aligns with Khoon (2022), who emphasized the role of social networks in driving the adoption of new technologies. Trust is particularly vital in the financial sector, as noted by both Khoon (2022) and studies like Garavand et al. (2019), which stress the importance of trust in user adoption behaviors. These results underscore the necessity for marketers to establish strong trust signals and utilize social proof to encourage higher adoption rates of insurtech applications. Interestingly, Convenience (CO) did not have a significant effect on Behavioral Intention to Use Insurtech App (BIUI) but did significantly influence Use Behavior (UB). This indicates that while convenience may not be a determining factor in the decision to adopt an insurtech application, it plays a key role in encouraging sustained use over time. This finding contrasts slightly with Bankole & Bankole (2017) research, which identified convenience as a key factor during the initial adoption phase. In the context of insurtech, it appears that once users have adopted the application, their continued engagement largely depends on the convenience the app provides in their day-to-day interactions.

The non-significant effect of Regulatory Expectancy (RE) on both Behavioral Intention to Use Insurtech App (BIUI) and Use Behavior (UB) was surprising, given the typically important role that regulatory factors play in financial applications. This outcome may indicate a lack of user awareness or concern about the regulatory frameworks governing insurtech applications. Previous literature such as Khoon (2022), has suggested that regulatory factors tend to have a more subtle influence on user behavior unless brought to attention by major events or policy changes. This finding suggests that further research is needed to determine whether regulatory expectations impact user behavior indirectly or are simply less visible to users in everyday interactions with insurtech applications.

The significant relationship between Facilitating Conditions (FC) and Use Behavior (UB) supports findings from studies such as Tarhini et al. (2016), which emphasize the role of supportive infrastructure in driving actual technology use. Additionally, the strong correlation between Behavioral Intention to Use (BIUI) and Use Behavior (UB) reinforces the widely accepted notion in technology acceptance models that user intentions are strong predictors of actual usage [7]. This suggests that once users commit to using an insurtech application, they are likely to follow through and actively engage with the technology. Age was found to moderate the relationship between Social Influence and Convenience on Behavioral Intention, as well as Regulatory Expectancy and Facilitating Conditions on Use Behavior. This indicates that older users may place more weight on social validation and ease of use, and that their usage patterns may be more affected by perceived regulatory compliance and the availability of support systems. Age did not moderate other relationships, suggesting that the effects of performance and effort expectancy may be more universally experienced across different age groups. Gender only moderated the relationship between Social Influence and Behavioral Intention, implying that men and women may react differently to social pressures or recommendations when considering the adoption of insurtech apps. However, gender did not moderate other relationships, suggesting that differences in performance expectancy, effort expectancy, convenience, and trust are experienced similarly across genders.

The implications of this study offer valuable insights for both practitioners and academics. Practically, insurtech developers and marketers should focus on optimizing performance and ease of use, as these factors significantly drive user intention to adopt insurtech applications. Building trust and leveraging social influence is equally critical, especially in a sector as sensitive as finance. Ensuring the app is reliable, secure, and user-friendly will enhance user confidence and boost adoption rates. Convenience, while not critical for initial adoption, plays a pivotal role in ensuring continued use, which means that providers should focus on improving ease of access and functionality to retain users over time. From an academic perspective, this study contributes to the existing body of research by expanding the UTAUT model to include insurtech and showing how demographic factors like age and gender can moderate certain relationships. It also highlights the need for

more nuanced exploration of regulatory factors, which, despite their assumed importance, did not show significant direct influence on user behavior in this context. For future research, there is a need to investigate the role of regulatory frameworks further, particularly whether they have an indirect effect on insurtech adoption or become more critical in specific circumstances, such as legal changes or breaches in data security. Additionally, longitudinal studies could be useful to track how the importance of convenience and facilitating conditions evolves as users become more familiar with insurtech apps. Exploring other demographic factors like income, education level, or digital literacy could also provide deeper insights into the varying behaviors across user groups. Finally, cross-cultural studies would help assess whether these findings hold true in different regions and economic contexts, contributing to a broader understanding of insurtech adoption globally.

IV. CONCLUSION

In conclusion, this study highlights several key factors influencing the adoption and use of insurtech applications. Performance Expectancy, Effort Expectancy, Social Influence, and Trust were found to have a significant impact on users' intentions to adopt insurtech apps, indicating that users are more likely to use these apps when they believe the technology will enhance their performance, is easy to use, is influenced by their social environment, and can be trusted. Convenience, while not significantly influencing the intention to use, was found to significantly affect actual usage behavior, suggesting that ease of use becomes more important after the initial adoption. Regulatory Expectancy, however, did not have a significant impact on either intention or use behavior, indicating that users may not place much importance on regulatory factors when deciding to use insurtech apps. Facilitating Conditions were shown to have a significant influence on use behavior, emphasizing the importance of technical support and infrastructure in driving the continued use of insurtech applications. Additionally, Behavioral Intention to use insurtech apps significantly influenced use behavior, suggesting that strong intentions lead to actual usage. Age was found to moderate the relationships between Social Influence, Convenience, Regulatory Expectancy, and Facilitating Conditions with either intention or use behavior, indicating that these factors have a varying impact across different age groups. Gender, on the other hand, only moderated the relationship between Social Influence and Behavioral Intention, with no significant moderating effects observed in other relationships, suggesting that gender plays a more limited role in this context. These findings provide valuable insights for both developers and researchers seeking to understand the dynamics of insurtech adoption.

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