

Determinant factors of mobile investment app users among generation Z Indonesia

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ABSTRACT

Generation Z, alternatively referred to as the digital native generation, is distinguished by its profound immersion in technological progress. This study elucidates the determinants of generation Z's technological improvement in mobile investing application usage (MIA). As the instrument for factors analysis, the modified unified theory of acceptance and use of technology-2 (UTAUT-2) technique was implemented. The presented hypotheses were validated through the application of structural equation modeling (SEM) to the data acquired from 280 respondents via online questionnaires. The research revealed that trust, habit, performance expectation, and perceived risk had a substantial impact on the behavioral intention of Generation Z to utilize MIA. Furthermore, actual usage behavior is notably influenced by habit and behavioral intention, whereas gender acts as a substantial moderator in relation to performance expectancy and price value variables.

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1. INTRODUCTION

Generation Z, often referred to as the digital native generation, was born and raised during the digital age, a period characterized by swift technical advancements [1]. Generation Z comprises individuals born between 1995 and 2005 [2]. Generation Z able to follow the digital process transformation [3]. Presently popular technological advancements, particularly among Generation Z, are financial technologies (fintech). To enhance financial services, financial technology is a technological advancement in the financial industry involving the internet, information technology, cellphones, and cloud computing [4]. Investment management services are one of the outcomes that may be attributed to fintech innovation [5]. The mobile investment application is one type of investment management service (MIA). Utilizing robo-advisor technology, MIA is an application installed on a mobile device, such as a smartphone or tablet, that facilitates financial transactions and provides investment advice [6]. A MIA offers a variety of investment options, including mutual funds, equities, bonds, and other investment vehicles. Depending on their preferences, consumers can readily select more than one type from a variety of investing alternatives. The rising ease of choosing has led to a rise in the utilization of MIA. The trend in investing via MIA is growing, particularly among Generation Z. As per the findings of the Financial Services Authority (OJK), the proportion of total investors comprised of Generation Z would increase to 58.5% in 2021. This increase is affected by numerous reasons, including Generation Z's ambition to acquire wealth quickly and the accessibility of financial

education facilitated by social media [7]. To supply MIA services to Generation Z in the most effective manner possible, the current study posed the research problem of which determinants influence Generation Z's MIA usage behavior.

The current investigation employs the unified theory of acceptance and use of technology (UTAUT-2) modification model as the tool to address the solution from the research problem. In addition to the variables perceived risk and trust, the updated UTAUT-2 comprises the following: performance expectancy, effort expectancy, social influence, facilitating conditions, habit, hedonic motivation, and price value. Prior research utilizing the UTAUT-2 model modified with the trust variable and examining the adoption of online mutual fund investment platform technology indicates that consumer intentions are significantly influenced by trust. As such, the inclusion of the trust variable is predicated on this research [8]. The trust variable has a substantial impact on the behavioral intention to accept technology, such as mobile banking or comparable technologies, according to additional studies [9]–[12]. Previous research about the adoption of digital wallets in Indonesia utilized UTAUT-2, which was modified to include the perceived risk variable. This research served as the foundation for the incorporation of the perceived risk variable [13]. The present research will be very beneficial to researchers who work in similar fields, policy makers, and MIA industries.

2. METHOD

2.1. Conceptual model

The philosophy of user acceptability of technology is expanding. The unified theory of acceptance and use of technology is one such theory (UTAUT). UTAUT is a model that may be employed to assess the efficacy of new technology implementation and offers a resource for managers seeking guidance in comprehending the determinants of acceptance in order to proactively develop solutions [14]. UTAUT is a unified model that integrates prior research models to various technological case studies [15]–[22]. It is composed of four fundamental components or variables that influence intention and usage: performance expectation, effort expectation, social influence, and facilitating conditions. Age, gender, and experience are examples of moderator variables that will subsequently moderate these variables. UTAUT-2 is an advancement over UTAUT with regard to user acceptance of technology; nevertheless, it differs from UTAUT in that UTAUT-2 is frequently implemented from the standpoint of the customer. Furthermore, three additional aspects or variables are incorporated into UTAUT-2: hedonic motivation, price value, and habit [14]. The UTAUT-2 model was enhanced in this investigation with the inclusion of perceived risk and trust factors. The inclusion of the trust variable is predicated upon prior investigations [8]. Based on prior research, the perceived risk variable has been added [13], [23].

Preferably, perceived risk is defined as the unease one feels around the potential adverse outcomes that may result from utilizing a particular product or service. In this investigation, the risk is the possible loss that may result from employing MIA [24]. This loss encompasses all adverse repercussions experienced by consumers, including monetary deficits, infringements upon privacy, and security complications [13]. Risk is a crucial factor in encouraging consumers to adopt a technology, since it has been utilized to explain individual acceptance behavior [25]. Trust or confidence, which is fundamental to financial transactions, is an individual's conviction that another party will accomplish its objectives. Users of electronic financial transactions are susceptible to the potential for mistrust. Trust is a key concern within the ever more competitive financial services sector, as it serves to fortify enduring customer connections [13]. Based on the modified UTAUT-2, the proposed hypotheses are presented in Table 1 and the illustration is shown in Figure 1.

2.2. Research instrument

The study instrument utilized is a questionnaire as the ease ability to overcome any circumstances [26]. The questionnaire is customized to address characteristics, which were subsequently converted into measurable indicators. The actual items of the questionnaire, which were presented as statements or questions, were derived from these indicators. The online questionnaire was disseminated through many platforms in early 2022, including social media and Google Forms. In total, 280 participants contributed their perspectives and answers, which are detailed in Table 2.

The analysis is predicated on structural equation modeling (SEM). SEM is a statistical technique utilized to construct and validate causality or cause-effect models when a single variable influences multiple others. Multivariate models typically employ SEM [27]. As an analytical instrument, SEM can resolve correlational and regressive issues and identify the dimensions of a dimensional notion. SEM has the potential to challenge the prevailing supremacy of path analysis and multiple regression due to its capability of completely analyzing the data and scrutinizing each component of a produced equation model. It commences the SEM analysis phase with an outer model evaluation of outer loadings, convergent validity,

and reliability. Once the outer model has been validated, the inside model is executed. Inner models comprise path coefficients, R2 analyses, model fit testing, and validations of hypotheses.

Table 1. Research Hypothesis

Code	Hypothesis
H1	Performance Expectancy (PE) has a significant influence on Behavioral Intention (BI)
H1a	Performance Expectancy (PE) given the moderator variable Age has a significant influence on Behavioral Intention (BI)
H1b	Performance Expectancy (PE) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)
H2	Effort Expectancy (EE) has a significant influence on Behavioral Intention (BI)
H2a	Effort Expectancy (EE) given the moderator variable Age has a significant influence on Behavioral Intention (BI)
H2b	Effort Expectancy (EE) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)
H2c	Effort Expectancy (EE) given the moderator variable Experience has a significant influence on Behavioral Intention (BI)
H3	Social Influence (SI) has a significant influence on Behavioral Intention (BI)
H3a	Social Influence (SI) given the moderator variable Age has a significant influence on Behavioral Intention (BI)
H3b	Social Influence (SI) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)
H3c	Social Influence (SI) given the moderator variable Experience has a significant influence on Behavioral Intention (BI)
H4	Facilitating Conditions (FC) has a significant influence on Behavioral Intention (BI)
H4a	Facilitating Conditions (FC) given the moderator variable Age has a significant influence on Behavioral Intention (BI)
H4b	Facilitating Conditions (FC) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)
H4c	Facilitating Conditions (FC) given the moderator variable Experience has a significant influence on Behavioral Intention (BI)
H5	Facilitating Conditions (FC) has a significant influence on User Behavior (UB)
H5a	Facilitating Conditions (FC) given the moderator variable Age has a significant influence on User Behavior (UB)
H5b	Facilitating Conditions (FC) given the moderator variable Gender has a significant influence on User Behavior (UB)
H5c	Facilitating Conditions (FC) given the moderator variable Experience has a significant influence on User Behavior (UB)
H6	Hedonic Motivation (HM) has a significant influence on Behavioral Intention (BI)
H6a	Hedonic Motivation (HM) given the moderator variable Age has a significant influence on Behavioral Intention (BI)
H6b	Hedonic Motivation (HM) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)
H6c	Hedonic Motivation (HM) given the moderator variable Experience has a significant influence on Behavioral Intention (BI)
H7	Price Value (PV) has a significant influence on Behavioral Intention (BI)
H7a	Price Value (PV) given the moderator variable Age has a significant influence on Behavioral Intention (BI)
H7b	Price Value (PV) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)
H8	Habit (HT) has a significant influence on Behavioral Intention (BI)
H8a	Habit (HT) given the moderator variable Age has a significant influence on Behavioral Intention (BI)
H8b	Habit (HT) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)
H8c	Habit (HT) given the moderator variable Experience has a significant influence on Behavioral Intention (BI)
H9	Habit (HT) has a significant influence on User Behavior (UB)
H9a	Habit (HT) given the moderator variable Age has a significant influence on User Behavior (UB)
H9b	Habit (HT) given the moderator variable Gender has a significant influence on User Behavior (UB)
H9c	Habit (HT) given the moderator variable Experience has a significant influence on User Behavior (UB)
H10	Perceived Risk (PR) has a significant influence on Behavioral Intention (BI)
H11	Trust (TR) has a significant influence on Behavioral Intention (BI)
H12	Behavioral Intention (BI) has a significant influence on User Behavior (UB)
H12a	Behavioral Intention (BI) given the moderator variable Experience has a significant influence on User Behavior (UB)

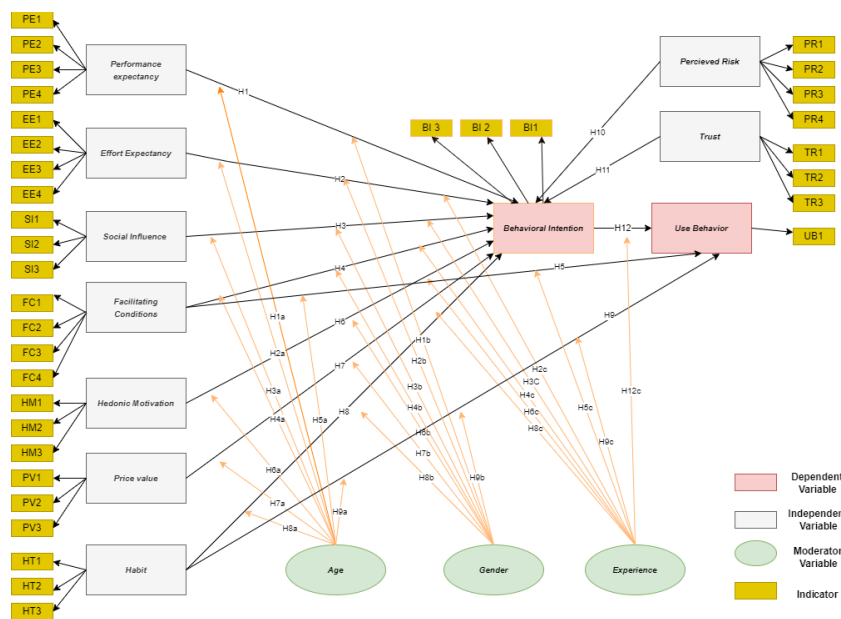


Figure 1. Research conceptual model

Table 2. List of question items

Variable	Question item	Question code
Performance Expectancy (PE)	The Mobile Investment App is very useful for my daily investing life	PE1
	Mobile Investment App improves my performance in investing	PE2
	Mobile Investment App helps complete my investments faster	PE3
	Mobile Investment App increases my productivity in investing	PE4
Effort Expectancy (EE)	Mobile Investment App is easy to use	EE1
	It was easy for me to quickly become skilled in using the Mobile Investment App	EE2
	The system on the Mobile Investment App is easy to learn and understand	EE3
	Learning how to operate the Mobile Investment App was easy for me	EE4
Social Influence (SI)	People who are important to me suggested to me to use the Mobile Investment App	SI1
	People who are influential to me advised me to use the Mobile Investment App	SI2
	People around me who use the Mobile Investment App look more contemporary or trendy (following trends)	SI3
Facilitating Condition (FC)	I have the necessary knowledge to use the Mobile Investment App	FC1
	I have the necessary resources to use the Mobile Investment App (such as a Smartphone, Device, or Internet Network)	FC2
	When I encounter problems when using the Mobile Investment App, I get help from other people (for example: customer service)	FC3
	Currently, I have the technology that compatible with the Mobile Investment App	FC4
Hedonic Motivation (HM)	I feel happy when using the Mobile Investment App	HM1
	I feel comfortable when using the Mobile Investment App	HM2
	I enjoy using the Mobile Investment App	HM3
Price Value (PV)	I feel the price to get the Mobile Investment App is a reasonable price	PV1
	I feel that the service prices on the Mobile Investment App are in accordance with the services offered and received	PV2
	I am willing to pay the specified price to use the Mobile Investment App	PV3
Habit (HT)	I am used to using the Mobile Investment App	HT1
	I feel like I should continue using the Mobile Investment App	HT2
	If I want to invest, then I will use the Mobile Investment App	HT3
Perceived Risk (PR)	I am concerned that the Mobile Investment App may pose a financial risk to my bank account	PR1
	I feel that using the Mobile Investment App can affect my self-image	PR2
	I am concerned about sharing personal information in the Mobile Investment App system	PR3
	I am worried that my Mobile Investment App account is being used by someone else	PR4
Trust (TR)	I believe the Mobile Investment App could meet the needs and expectations of its users	TR1
	I believe all the information and services provided by the Mobile Investment App application are honest	TR2
Behavioral Intention (BI)	I believe the Mobile Investment App can do the job right without having to be monitored	TR3
	I intend to continue using the Mobile Investment app in the future	BI1
	I predict I will use the Mobile Investment App in the future	BI2
	I plan to use the Mobile Investment App in the future	BI3
Use Behavior (UB)	I will often use the Mobile Investment App in the future	UB1

3. RESULTS AND DISCUSSION

3.1. Pre-testing questionnaire

Prior to its extensive dissemination across several channels, the questionnaire tool underwent initial testing. The assessments conducted comprised validity and reliability evaluations. A validity test was conducted to ascertain the questionnaire's suitability for further utilization in this research. It is possible to deem questionnaire items genuine when the Pearson correlation coefficient exceeds the critical value from the *r* table. The findings from the questionnaire validity test, which involved 50 respondents and yielded an *r*-table value of 0.279 at a 5% level of significance, indicate that every item in the questionnaire had sound validity. In conducting the reliability test, the Cronbach's alpha value was evaluated. It is possible to deem the variables in the questionnaire instrument credible when the Cronbach's alpha value exceeds 0.7 [28]. As all variables are deemed reliable by the results of the validity test, the questionnaire may be continued with the subsequent test.

3.2. Descriptive analysis

Descriptive statistical analysis is a kind of data analysis in which information collected from respondents is described or shown, without drawing conclusions that are generally applicable. Descriptive analysis may be conducted by means of data presentation via tables and graphs, as well as by performing mean and percentage calculations. The respondents' descriptive analyses are presented in Table 3. Subsequently, the value weight of each question item posed was inferred by a descriptive analysis of each variable. In order to ascertain these values, one may employ a class interval scale that has undergone testing utilizing interval level values (NJI). Table 4 employs the interval scale and the average distribution of answers for each variable can be seen in Table 5.

Table 3. Descriptive analysis of the respondents

Category	Type	Count	Percentage
Gender	Male	107	38.2%
	Female	173	61.8%
Age	17-20 years old	68	24.3%
	21-24 years old	178	63.5%
	25-27 years old	34	12.2%
Domicile (Province)	DKI Jakarta	77	27.5%
	Jawa Barat	85	30.4%
	Jawa Timur	118	42.1%
Mobile Investment App	X	236	84.3%
	Y	44	15.7%
Usage Duration	< 1 year	130	46.4%
	1-2 year	117	41.8%
	> 2 years	33	11.8%

Table 4. Interval scale

Interval	Category
$1.00 \leq x \leq 1.80$	Strongly disagree
$1.81 \leq x \leq 2.60$	Disagree
$2.61 \leq x \leq 3.40$	Neutral
$3.41 \leq x \leq 4.20$	Agree
$4.21 \leq x \leq 5.00$	Strongly disagree

Table 5. Variable categorization

Variable	Average	Category
Performance Expectancy	4.34	Strongly agree
Effort Expectancy	4.34	Strongly agree
Social Influence	4.11	Agree
Facilitating Condition	4.18	Agree
Hedonic Motivation	4.30	Strongly agree
Price Value	4.23	Strongly agree
Habit	4.24	Agree
Perceived Risk	3.54	Agree
Trust	4.14	Agree
Behavioral Intention	4.28	Strongly agree
Use Behavior	4.28	Strongly agree

3.3. Outer model analysis

The outer model is executed in order to assess the model's validity and dependability. Several assessments are conducted while evaluating the outer model using reflexive indicators: convergent validity, discriminant validity, and composite reliability. Convergent validity denotes the condition in which the indicators of a given concept must exhibit correlation with one another; alternatively, it assesses the degree of correlation among many indicators of the same construct [29]. An indication of convergent validity is provided by the average variance extracted (AVE) value and the loading factor. The loading factor number must be greater than 0.7, and the AVE value must be greater than 0.5. All items in the study have satisfactory loading factors with values greater than 0.7 and an AVE greater than 0.5, as determined by testing. Discriminant validity pertains to the fundamental notion that there should be minimal correlation between the measures (or manifest variables) of distinct constructs. In order to assess the discriminant validity of reflective indicators, one may examine the cross-loading factor value, which must be more than 0.7. Additionally, the AVE root can be employed to assess discriminant validity, provided that the AVE root for each construct is larger than the correlation between that construct and the remaining constructs in the model. All variables exhibit satisfactory discriminant validity, as evidenced by cross-loading factor values over 0.7. The objective of reliability testing is to establish the suitability, accuracy, and consistency of the instrument items utilized in the assessment of constructs or variables. Cronbach's alpha and composite reliability are two approaches that can be employed to assess the reliability of a construct. In both cases, the construct's value must exceed 0.7. Table 6 displays the outcomes of the reliability examination. All instrument components utilized to measure variables are exact, accurate, and consistent, as shown in the table.

3.4. Inner model analysis

An assessment of the structural model, sometimes referred to as the "inner model," is conducted in order to determine the relationship between latent variables that have been constructed during the research. R² for the dependant variable, path coefficient values or t-values for significance tests between variables in research, and predictive relevance testing can be employed to assess structural models in PLS (Q2). The R-

squared value is a metric utilized to quantify the extent to which a specific independent latent variable impacts the dependent latent variable. The R2 values of 0.67, 0.33, and 0.19, which correspond to a strong, moderate, and weak model, respectively, are the rule of thumb. Table 7 contains the R2 value that was computed with SmartPLS 3. The dependent variable is affected by the independent variable by 60% or 0.647, which is influenced by the moderator variables age, gender, and experience. This result indicates that the moderator variable exerts a considerable amount of effect on the dependent variable BI via the independent variable. In contrast, the impact of the independent variable, which is in turn impacted by the moderator variable, on the dependent variable UB is classified as moderate, as indicated by an R2 value of 0.406, which is approximately equivalent to 40%. The Stone Geisser's Q2 value is computed in order to ascertain predictive ability, also known as predictive relevance or Q2. A Q2 score greater than zero indicates that the model is deemed to be fitted or have significant predictive capability. The experimental outcomes revealed that the Q2 values for behavior intention and use behavior were 0.447 and 0.357, respectively. When this value is greater than zero, it can be concluded that the predictive importance of the Q2 value in this study is substantial, as it is greater than 0.035.

Table 6. Reliability test results

Variable	Cronbach's alpha	Composite reliability
AGE	1.000	1.000
BI	0.852	0.910
BI X EXP	1.000	1.000
EE	0.811	0.876
EE X AGE	1.000	1.000
EE X EXP	1.000	1.000
EE X GDR	1.000	1.000
EXP	1.000	1.000
FC	0.741	0.852
FC X AGE	1.000	1.000
FC X AGE X UB	1.000	1.000
FC X EXP	1.000	1.000
FC X EXP X UB	1.000	1.000
FC X GDR	1.000	1.000
GDR	1.000	1.000
HM	0.829	0.898
HM X AGE	1.000	1.000
HM X EXP	1.000	1.000
HM X GDR	1.000	1.000
HT	0.708	0.837
HT X AGE	1.000	1.000
HT X AGE X UB	1.000	1.000
HT X EXP	1.000	1.000
HT X EXP X UB	1.000	1.000
HT X GDR	1.000	1.000
HT X GDR X UB	1.000	1.000
PE	0.764	0.850
PE X AGE	1.000	1.000
PE X GDR	1.000	1.000
PR	1.000	1.000
PV	0.817	0.891
PV X AGE	1.000	1.000
PV X GDR	1.000	1.000
SI	0.850	0.930
SI X AGE	1.000	1.000
SI X EXP	1.000	1.000
SI X GDR	1.000	1.000
TR	0.702	0.833
UB	1.000	1.000

Table 7. R² value

Variable	R ²	Percentage
BI	0.647	60%
UB	0.406	40%

The model fit test assessed the research model's sufficiency by employing important indicators such as the standardized root mean square residual (SRMR) and the normed fit index (NFI). SRMR and NFI evaluate the model's implied correlation and the Chi-square value, respectively, in reference to the recommended threshold of 0.08 and a benchmark, respectively were employed [30]. The NFI value is close

to 1 and the SRMR value must be below 0.08. The outcomes of the test for model fit are presented in Table 8. Based on the SRMR value of 0.054, which is less than 0.08; therefore, the model employed in this study provides a good fit. In the interim, the NFI score is 0.741 (or 74%), which signifies that the model under investigation is 74% suitable.

Hypothesis testing is an investigation conducted to ascertain the acceptability or rejectability of research ideas. In order to do hypothesis testing, the T-Value can be assessed by the utilization of Bootstrapping in Smartpls 3. Acceptance of the hypothesis can be indicated by a t-value of 1.96 at a significance level of 5%. The results of hypothesis tests are presented in Table 9.

Table 8. Model fit test results

Indicators	Value
SRMR	0.054
NFI	0.741

Table 9. Hypothesis test results

Code	Hypothesis	Result
H1	Performance Expectancy (PE) has a significant influence on Behavioral Intention (BI)	Accepted
H1a	Performance Expectancy (PE) given the moderator variable Age has a significant influence on Behavioral Intention (BI)	Rejected
H1b	Performance Expectancy (PE) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)	Accepted
H2	Effort Expectancy (EE) has a significant influence on Behavioral Intention (BI)	Rejected
H2a	Effort Expectancy (EE) given the moderator variable Age has a significant influence on Behavioral Intention (BI)	Rejected
H2b	Effort Expectancy (EE) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)	Rejected
H2c	Effort Expectancy (EE) given the moderator variable Experience has a significant influence on Behavioral Intention (BI)	Rejected
H3	Social Influence (SI) has a significant influence on Behavioral Intention (BI)	Rejected
H3a	Social Influence (SI) given the moderator variable Age has a significant influence on Behavioral Intention (BI)	Rejected
H3b	Social Influence (SI) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)	Rejected
H3c	Social Influence (SI) given the moderator variable Experience has a significant influence on Behavioral Intention (BI)	Rejected
H4	Facilitating Conditions (FC) has a significant influence on Behavioral Intention (BI)	Rejected
H4a	Facilitating Conditions (FC) given the moderator variable Age has a significant influence on Behavioral Intention (BI)	Rejected
H4b	Facilitating Conditions (FC) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)	Rejected
H4c	Facilitating Conditions (FC) given the moderator variable Experience has a significant influence on Behavioral Intention (BI)	Rejected
H5	Facilitating Conditions (FC) has a significant influence on User Behavior (UB)	Rejected
H5a	Facilitating Conditions (FC) given the moderator variable Age has a significant influence on User Behavior (UB)	Rejected
H5c	Facilitating Conditions (FC) given the moderator variable Gender has a significant influence on User Behavior (UB)	Rejected
H6	Facilitating Conditions (FC) given the moderator variable Experience has a significant influence on User Behavior (UB)	Rejected
H6a	Hedonic Motivation (HM) has a significant influence on Behavioral Intention (BI)	Rejected
H6b	Hedonic Motivation (HM) given the moderator variable Age has a significant influence on Behavioral Intention (BI)	Rejected
H6c	Hedonic Motivation (HM) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)	Rejected
H7	Hedonic Motivation (HM) given the moderator variable Experience has a significant influence on Behavioral Intention (BI)	Rejected
H7a	Price Value (PV) has a significant influence on Behavioral Intention (BI)	Rejected
H7b	Price Value (PV) given the moderator variable Age has a significant influence on Behavioral Intention (BI)	Accepted
H8	Price Value (PV) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)	Accepted
H8a	Habit (HT) has a significant influence on Behavioral Intention (BI)	Rejected
H8b	Habit (HT) given the moderator variable Age has a significant influence on Behavioral Intention (BI)	Rejected
H8c	Habit (HT) given the moderator variable Gender has a significant influence on Behavioral Intention (BI)	Rejected
H9	Habit (HT) given the moderator variable Experience has a significant influence on Behavioral Intention (BI)	Accepted
H9a	Habit (HT) has a significant influence on User Behavior (UB)	Rejected
H9b	Habit (HT) given the moderator variable Age has a significant influence on User Behavior (UB)	Rejected
H9c	Habit (HT) given the moderator variable Gender has a significant influence on User Behavior (UB)	Rejected
H10	Habit (HT) given the moderator variable Experience has a significant influence on User Behavior (UB)	Accepted
H11	Perceived Risk (PR) has a significant influence on Behavioral Intention (BI)	Accepted
H12	Trust (TR) has a significant influence on Behavioral Intention (BI)	Accepted
H12a	Behavioral Intention (BI) has a significant influence on User Behavior (UB)	Rejected

3.5. Discussion

On the basis of prior research findings, a number of areas were identified that have the potential for future improvement. The aforementioned elements pertain to the correlation between the independent and dependent variables. The aforementioned elements are fortified by the feedback, criticism, and recommendations provided by participants in the open-ended sections of the survey. The outcomes of the proposed recommendations are as follows. On the basis of the results of the H1 hypothesis test, which indicate that the PE variable significantly influences BI, and survey data supported by statements from multiple respondents in response to open-ended questions, it is possible to suggest the development of a live-chat function in order to enhance the performance of users when utilizing MIA for investing. Users can utilize this function to obtain assistance or answers to questions rapidly. In the event that individuals face difficulties while investing using MIA, they can promptly resume their operations by utilizing live chat. The mean response to the statement “Mobile Investment App boosts my investing productivity” was “Strongly agreeing.” This indicates that the utilization of MIA can indeed enhance one's investing productivity. Therefore, it is anticipated that this live chat will boost Generation Z's efficiency when investing via MIA.

As of now, MIA is a new application, and the application utilized in this investment remains unfamiliar to a great number of individuals. Consequently, the utilization of MIA in video courses is crucial to ensure its applicability to a wide range of audiences, particularly novices. This video instruction is intended to assist viewers in use MIA more efficiently. H2 is rejected on the basis of the findings of the hypothesis test, which indicate that the EE variable has no significant effect on BI. Although this is backed by responses from a number of respondents in response to open-ended survey questions, video training on the use of MIA are still required, according to survey data. Regarding item EE1, “The Mobile Investment App is user-friendly,” the mean response from the respondents was “Strongly agree.” In the future, however, it will continue to be essential to give video lessons for new users on how to use MIA. H4 is rejected on the grounds that the FC variable has no significant effect on BI, as indicated by the results of the H4 hypothesis test. Even though FC has little influence on Generation Z's usage of MIA, the quality of assistance services for users must be enhanced, according to survey data corroborated by statements from several respondents in response to open-ended questions. Customer service is the service support that consumers utilize most frequently; therefore, customer service must be enhanced. “When I face difficulties when using the Mobile Investment App, I seek assistance from others” (e.g., customer support) is stated in item FC3. The mean responder indicated that when Generation Z had difficulties when utilizing MIA, they sought assistance from customer support. In contrast, FC3 has the lowest mean value in comparison to the remaining elements. Thus, it is anticipated that future MIA development will result in enhanced customer service.

The findings of the H3 hypothesis test indicate that there is no statistically significant relationship between the SI variable and BI. However, SI has little impact on the inclination of Generation Z to utilize MIA. As a result, it is essential to incentivize users to assist others in adopting MIA. In addition to raising user count, the provision of prizes can bolster user confidence, as individuals are more willing to rely on recommendations from acquaintances. With an average response of “yes,” item SI2 (“Personnel who are influential to me recommended the Mobile Investment App to me”) possesses the highest mean value among the respondents. Therefore, rewarding users for referring others to MIA may encourage the desire of additional users to utilize the application. The findings of the H6 hypothesis test indicate that there is no statistically significant relationship between the HM factor and the inclination of Generation Z to utilize MIA. Consequently, the use of gamification is anticipated to enhance user comfort and deliver enjoyment during the operation of MIA. This is also demonstrated by the fact that the mean response to question item HM1, “Do I feel at ease using the Mobile Investment App?” was “Strongly agree.” The results of the H7 hypothesis test indicate that neither BI nor the desire of Generation Z to utilize MIA are significantly impacted by the PV variable. Despite the fact that PV does not exert a substantial influence, data and statements from several respondents in response to open-ended questions indicate that respondents desire MIA service providers to offer a variety of specials and discounts. It is anticipated that these promotions and additional offerings will improve consumers' propensity to utilize MIA.

The results of the H10 hypothesis test indicate that the PR variable significantly affects the propensity of Generation Z to utilize MIA. As a result, it is anticipated that MIA developers will eventually be capable of enhancing the security of users' financial information in order to reduce associated risks. For instance, financial hazards may arise due to the presence of transactions involving user financial data in MIA. The mean response to item PR1, “I am concerned that the Mobile Investment App may expose my bank account to financial danger,” was affirmative. The fact that Generation Z is concerned about the financial dangers associated with investing via MIA indicates that MIA providers should strengthen the protection of users' financial information. As a result of testing the null hypothesis H10, which states that perceived risk has a large impact, and considering the feedback provided by participants, MIA service developers may enhance the security of personal data or user personal information in subsequent iterations. The average

response to item PR3, "I am apprehensive about disclosing personal information on the Mobile Investment App system," was affirmative. This demonstrates that Generation Z is apprehensive about disclosing personal information via MIA. Therefore, it is anticipated that MIA providers will be capable of enhancing the security of users' personal data or information to prevent unauthorized parties from exploiting it.

Presently, there is a notable proliferation of investment-oriented applications, and it is not unusual for such applications to remain unregistered with the OJK and be regarded as illicit. This situation has raised apprehensions among users, particularly members of Generation Z, with regards to investing. H11 demonstrates, on the basis of the findings of hypothesis testing, that the TR variable significantly affects BI. Hence, moving forward, MIA service providers may enhance the confidence of Generation Z by endorsing the suitability of the MIA utilized by users and confirming its registration with the OJK. Based on prior research, it is evident that the mean respondent agreed with Item TR2, "I believe that all the information and services offered by the Mobile Investment App application are honest," indicating that Generation Z users of MIA hold the belief that the information provided by MIA is both truthful and suitable in accordance with OJK standards. Because Generation Z considers trust when utilizing MIA, creators of MIA must continue to enhance user confidence.

4. CONCLUSION

By incorporating the perceived risk and trust variables into the UTAUT-2 model, it becomes possible to discern the determinants that impact Generation Z's inclination to utilize MIA for investing in Indonesia. The most influential element is the habit variable, which indicates that Generation Z learns technology usage with relative ease. This is also evident in the HT3 statement item, where Generation Z's average response is one of strong agreement. Additionally, performance expectation, perceived risk, trust, and behavioral intention are major determinants that Generation Z should take into account when utilizing MIA. The significance of this factor is indicated by the fact that the T-statistic values of all significant factors exceed the critical value from the T-table in the hypothesis test findings. This study employed two tests to see whether the characteristics that influenced Generation Z's use of MIA varied between models in which moderator variables had no effect and models in which moderator variables had an effect. It was determined that there were no significant differences between the two models following testing. This is evident from the inner model test, in which the R² values of both models indicate that the independent variable has an identical 60% effect on the dependent. Thus, it may be deduced that the two models do not exhibit any statistically significant distinction. The investigation determined that the moderator variable did not exert a statistically significant impact. This is evident from the research findings, which indicated that just two of the twenty-five hypotheses that were affected by the moderator variable were accepted. Additional research demonstrates that the UTAUT model did not identify any significant association between the moderating effects of age and gender. The model employed in this study demonstrates a good fit, as indicated by the SRMR value of 0.054, which is less than 0.08; thus, the model can be deemed to be well-fitting. The NFI value generated by the model fit test was 0.741 in the interim (74%).

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REFERENCES

- [1] A. Dingli and D. Seychell, *The new digital natives: Cutting the chord*. Springer Berlin Heidelberg, 2015.
- [2] A. Turner, "Generation Z: Technology and social interest," *The Journal of Individual Psychology*, vol. 71, no. 2, pp. 103–113, Jun. 2015, doi: 10.1353/jip.2015.0021.
- [3] N. A. Razak, R. M. Rasli, S. Subhan, N. A. Ahmad, and S. Malik, "Systematic review on digital transformation among teachers in public schools," *International Journal of Evaluation and Research in Education*, vol. 12, no. 2, pp. 1059–1078, Jun. 2023, doi: 10.11591/ijere.v12i2.24498.
- [4] O. Unsal and B. Rayfield, "Trends in financial innovation: Evidence from fintech firms," in *International Finance Review*, vol. 20, Emerald Publishing Limited, 2019, pp. 15–25.
- [5] A. V Thakor, "Fintech and banking: What do we know?," *Journal of Financial Intermediation*, vol. 41, p. 100833, Jan. 2020, doi: 10.1016/j.jfi.2019.100833.
- [6] L. Fan, "Mobile investment technology adoption among investors," *International Journal of Bank Marketing*, vol. 40, no. 1, pp. 50–67, Sep. 2022, doi: 10.1108/IJBM-11-2020-0551.
- [7] "Gen Z's financial freedom." Accessed: Mar. 18, 2024. [Online]. Available: <https://www.vml.com/insight/gen-zs-financial-freedom>.
- [8] E. K. Dewi and R. A. Rahadi, "A conceptual study of technology adoption of online mutual fund investment platform," *European Journal of Business and Management Research*, vol. 5, no. 3, May 2020, doi: 10.24018/ejbmr.2020.5.3.334.




- [9] A. A. Alalwan, Y. K. Dwivedi, and N. P. Rana, "Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust," *International Journal of Information Management*, vol. 37, no. 3, pp. 99–110, Jun. 2017, doi: 10.1016/j.ijinfomgt.2017.01.002.
- [10] M. Merhi, K. Hone, and A. Tarhini, "A cross-cultural study of the intention to use mobile banking between Lebanese and British consumers: Extending UTAUT2 with security, privacy and trust," *Technology in Society*, vol. 59, p. 101151, Nov. 2019, doi: 10.1016/j.techsoc.2019.101151.
- [11] K. Owusu Kwateng, K. A. Osei Atiemo, and C. Appiah, "Acceptance and use of mobile banking: an application of UTAUT2," *Journal of Enterprise Information Management*, vol. 32, no. 1, pp. 118–151, Feb. 2019, doi: 10.1108/JEIM-03-2018-0055.
- [12] Indrawati and D. A. Putri, "Analyzing factors influencing continuance intention of E-payment adoption using modified UTAUT 2 Model: (A case study of Go-Pay from Indonesia)," in *2018 6th International Conference on Information and Communication Technology, ICoICT 2018*, May 2018, pp. 167–173, doi: 10.1109/ICoICT.2018.8528748.
- [13] M. Widodo, M. I. Irawan, and R. A. Sukmono, "Extending UTAUT2 to explore digital wallet adoption in Indonesia," in *2019 International Conference on Information and Communications Technology, ICOIACT 2019*, Jul. 2019, pp. 878–883, doi: 10.1109/ICOIACT46704.2019.8938415.
- [14] V. Venkatesh, M. G. Morris, G. B. Davis, and F. D. Davis, "User acceptance of information technology: Toward a unified view," *MIS Quarterly: Management Information Systems*, vol. 27, no. 3, pp. 425–478, 2003, doi: 10.2307/30036540.
- [15] A. S. Izkair and M. M. Lakulu, "Model of intention and actual use mobile learning in higher education institutions in Iraq," *Indonesian Journal of Electrical Engineering and Computer Science*, vol. 30, no. 2, pp. 1250–1258, May 2023, doi: 10.11591/ijeecs.v30.i2.pp1250-1258.
- [16] I. H. Mussa, N. A. H. Sazalli, and Z. Hassan, "Mobile learning by English literature students: the role of user satisfaction," *Bulletin of Electrical Engineering and Informatics*, vol. 11, no. 1, pp. 550–557, Feb. 2022, doi: 10.11591/eei.v11i1.3277.
- [17] N. Limantara, J. Jovandy, A. K. Wardhana, Steven, and F. Jingga, "Evaluation of one of leading Indonesia's digital wallet using the unified theory of acceptance and use of technology," *Indonesian Journal of Electrical Engineering and Computer Science*, vol. 24, no. 2, pp. 1036–1046, Nov. 2021, doi: 10.11591/ijeecs.v24.i2.pp1036-1046.
- [18] D. Afrizal and M. Wallang, "Attitude on intention to use e-government in Indonesia," *Indonesian Journal of Electrical Engineering and Computer Science*, vol. 22, no. 1, pp. 435–441, Apr. 2021, doi: 10.11591/ijeecs.v22.i1.pp435-441.
- [19] M. T. Amron, R. Ibrahim, and N. A. A. Bakar, "Cloud computing acceptance among public sector employees," *Telkonnika (Telecommunication Computing Electronics and Control)*, vol. 19, no. 1, pp. 124–133, Feb. 2021, doi: 10.12928/TELKOMNIKA.V19I1.17883.
- [20] M. A. Sabri Alrawi *et al.*, "Examining factors that effect on the acceptance of mobile commerce in Malaysia based on revised UTAUT," *Indonesian Journal of Electrical Engineering and Computer Science*, vol. 20, no. 3, pp. 1173–1184, Dec. 2020, doi: 10.11591/ijeecs.v20.i3.pp1173-1184.
- [21] N. H. M. Ariffin, F. Ahmad, and U. M. Haneef, "Acceptance of mobile payments by retailers using UTAUT model," *Indonesian Journal of Electrical Engineering and Computer Science*, vol. 19, no. 1, pp. 149–155, Jul. 2020, doi: 10.11591/IJEECS.V19.I1.PP149-155.
- [22] E. M. M. Yusof, M. S. Othman, A. R. M. Yusof, and Z. Baharum, "A model of determinants for continuous usage of business intelligence in Malaysian manufacturing organizations using theoretical," *Indonesian Journal of Electrical Engineering and Computer Science*, vol. 18, no. 3, pp. 1439–1445, Jun. 2020, doi: 10.11591/ijeecs.v18.i3.pp1439-1445.
- [23] E. Slade, M. Williams, and Y. Dwivdei, "Extending UTAUT2 to explore consumer adoption of mobile payments," in *UK Academy for Information Systems Conference Proceedings 2013*, Mar. 2013, pp. 1–22.
- [24] M. S. Featherman and P. A. Pavlou, "Predicting e-services adoption: A perceived risk facets perspective," *International Journal of Human Computer Studies*, vol. 59, no. 4, pp. 451–474, Oct. 2003, doi: 10.1016/S1071-5819(03)00111-3.
- [25] L. L. Chong, H. B. Ong, and S. H. Tan, "Acceptability of mobile stock trading application: A study of young investors in Malaysia," *Technology in Society*, vol. 64, p. 101497, Feb. 2021, doi: 10.1016/j.techsoc.2020.101497.
- [26] I. H. Sulistyaningrum, P. Pribadi, and S. Sari, "Adaptation and validation of the telepharmacy service adoption behavior questionnaire during the COVID-19 pandemic crisis," *International Journal of Public Health Science*, vol. 12, no. 2, pp. 699–706, Jun. 2023, doi: 10.11591/ijphs.v12i2.22518.
- [27] J. F. Hair, B. J. Babin, W. C. Black, and R. E. Anderson, *Multivariate data analysis*, Edition 8. Cengage, 2019.
- [28] S. F. Persada, B. A. Miraja, and R. Nadlifatin, "Understanding the generation z behavior on D-learning: A Unified Theory of Acceptance and Use of Technology (UTAUT) approach," *International Journal of Emerging Technologies in Learning*, vol. 14, no. 5, pp. 20–33, Mar. 2019, doi: 10.3991/ijet.v14i05.9993.
- [29] M. R. Ab Hamid, W. Sami, and M. H. Mohamad Sidek, "Discriminant validity assessment: Use of fornell & larcker criterion versus HTMT criterion," *Journal of Physics: Conference Series*, vol. 890, no. 1, p. 12163, Sep. 2017, doi: 10.1088/1742-6596/890/1/012163.
- [30] T. Ramayah, J. A. L. Yeap, Noor Hazlina Ahmad, H. A. Halim, and S. A. Rahman, "Testing a confirmatory model of Facebook usage in smartPLS using consistent PLS," *International Journal of Business and Innovation*, vol. 3, no. 2, pp. 1–14, 2017.

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