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Analysis of Factors that Influence User Acceptance of PERSIS SoloApplication with Unified Theory of Acceptance and Use of Technology 2(UTAUT 2) Model

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Abstract

Background of study: In the digital era, football clubs increasingly adopt mobile applications to enhance fan engagement and service delivery. The *PERSIS Solo* application is a new digital innovation that provides official club information, ticket sales, and merchandise services. However, there has been no prior evaluation of user acceptance, which is crucial for ensuring the successful adoption and continued use of such technology.
Aims and scope of paper: This study examines the determinants of user adoption of the PERSIS Solo mobile application through the application of the Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2) framework. There are several influences of key factors examined in this study, they are performance expectancy, effort expectancy, social influence, facilitating conditions, *hedonic* motivation, price value, and habitual behavior on user acceptance, while taking into account the moderating role of demographic variables such as age, gender, and user experience.
Methods: A quantitative approach was employed with 150 active users of the *PERSIS Solo* application as respondents. Data were examined using Structural Equation Modeling with Partial Least Squares (SEM-PLS) in SmartPLS to assess the validity and reliability of constructs as well as the relationships between variables.
Results: Out of 25 tested hypotheses, six were supported. *Social influence*, *hedonic motivation*, and *habit* significantly influenced *Behavioral Intention*, while *facilitating conditions*, *habit*, and *Behavioral Intention* significantly affected *Use Behavior*.
Conclusion: The study concludes that *hedonic motivation* and *habit* are dominant predictors of user acceptance and actual usage. The findings provide empirical insights for improving mobile applications in sports organizations and contribute to understanding digital fan-engagement systems in Indonesia.

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INTRODUCTION

Background of the study:
In today's digital era, people can easily access the latest information without relying on television or radio. News and updates are quickly available through social media platforms on personal gadgets (Damayanti et al., 2023). Many football clubs in Indonesia have transitioned to professional management. However, several others still rely on outdated methods, such as neglecting proper media relations or remaining dependent on government connections, which limits their operational effectiveness (A. A. Wijaya, 2023). The growing public demand for information should be recognized by media practitioners. As a result, alternative media managed by communities have emerged as a form of media diversity and resistance to mainstream domination. According to Pawito (2007) as cited in Rahayuningsih & Setiawan (2020), community media are created within and managed by specific communities, serving the needs and interests of those communities. In Indonesia, numerous

football supporter groups have started to establish various types of community-based media (Syarifudin, 2020). Supporters play a vital role in football, as they provide encouragement and moral support to their teams during matches (Musthofa Siregar & Djuyandi, 2021).

Mobile applications have become an integral part of modern life, offering convenience and services accessible directly through handheld devices such as smartphones and tablets (Hasugian, 2018). As stated by Tolle et al. (2024) as cited in Alfeno & Tiana (2018), mobile applications can generally be categorized into three main types: native applications developed for a specific platform using its supported programming language; web applications that are browser-based and platform-independent; and hybrid applications that combine features of both native and web technologies. When developed and managed effectively, mobile applications can bring significant benefits to businesses. However, mobile application development also faces various challenges, including compatibility across devices, data-processing limitations, and memory constraints (M. Wijaya & Kurniawan, 2018). Overcoming these challenges requires strategic and innovative approaches to ensure that mobile applications deliver maximum value to both users and developers.

The use of new media in the daily management of football clubs has now become an inseparable part of modern sports operations. Nevertheless, like any emerging technology, new media go through a process of acceptance before becoming an integral component of a club's daily activities (Anshari & Akbar, 2019). PT PERSIS Solo Saestu, a company operating in the sports industry, particularly football, manages the PERSIS Solo team and utilizes digital technology to help its supporters access information about the club. The *PERSIS Solo* application is the official mobile platform of the football club based in Solo, Central Java. It functions as a digital medium for communicating club-related information, selling match tickets, and offering official merchandise online. The application also provides users with real-time match scores, statistics, and competition updates.

To determine the level of user acceptance and engagement with the application, an evaluation process is necessary to gather feedback from users so that the developers of the *PERSIS Solo* application can continuously improve their services. System evaluation can be performed by assessing users' levels of acceptance and satisfaction. Satisfaction refers to an individual's evaluation of the extent to which a product or service meets expectations after its use or purchase (Pasianus & Agus Kana, 2021). Theories of technology acceptance and use have become essential frameworks for understanding how individuals perceive and adopt information technology products based on Behavioral Intention models (Shen et al., 2019). One approach suitable for evaluating the success of the *PERSIS Solo* application is the Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2).

The selection of the UTAUT 2 model in this research is based on several considerations. First, UTAUT 2 integrates key constructs from previous technology-acceptance models, thereby addressing many of their limitations. It combines dominant constructs from models such as TAM, TAM2, TAM3, and UTAUT, which are relevant for assessing user behavior toward the adoption and use of technology (Nugroho & Winarno, 2020). Second, UTAUT 2 includes three additional constructs that are habit, price value, and hedonic motivation, that capture aspects of digital-technology use not fully represented in earlier models (Pertiwi & Ariyanto, 2017). These constructs are considered important factors influencing user acceptance of the *PERSIS Solo* application. This study is expected to provide both information and empirical evidence regarding information-technology acceptance in the context of football communities, particularly in the areas of online ticket and merchandise sales.

Literature review:

The Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh et al. (2003) and later extended into UTAUT 2 (Venkatesh et al., 2012), is one of the most widely applied models for understanding technology adoption behavior. The UTAUT 2 framework integrates several determinants that are performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit to predict Behavioral Intention and Use Behavior. This model has been broadly utilized to explain user acceptance across digital platforms, such as e-commerce, financial technology, e-government, and health applications, due to its

comprehensive representation of both functional and psychological factors influencing user behavior. Several empirical studies have demonstrated the versatility of UTAUT and UTAUT 2 in measuring technology acceptance.

Andry et al., (2023) applied the UTAUT model to analyze customer satisfaction on the Shopee e-commerce platform. Their findings revealed that performance expectancy, effort expectancy, social influence, and facilitating conditions had significant positive effects on user satisfaction, indicating that users' perception of usefulness, ease of use, and environmental support directly shape satisfaction toward digital commerce systems. Similarly, Ega Fahira Anggriani et al. (2023) evaluated the PeduliLindungi health-surveillance application using UTAUT 2 and EUCS models. Based on responses from 100 users and SmartPLS analysis, they found that facilitating conditions were the most critical variable influencing user satisfaction. They recommended prioritizing system and infrastructure improvements for enhanced user experience.

In the financial services domain, Sihombing & Oktaviani (2022) examined the Pospay application of PT Pos Indonesia and found that performance expectancy and habit strongly influenced satisfaction and positive user behavior. Furthermore, Bayhaqi & Nuryana (2022) investigated user satisfaction with Bima+, a telecommunications service application, revealing that social influence and facilitating conditions contributed positively to satisfaction, while performance expectancy and effort expectancy required further enhancement. Lastly, Hidayat et al., (2020) analyzed user acceptance of e-wallet services in South Tangerang using UTAUT 2. Their study reported that nine of twelve hypotheses were supported, confirming that performance expectancy, hedonic motivation, and price value significantly influence Behavioral Intention toward cashless payment systems.

Drawing from previous studies, UTAUT 2 is widely used as a framework for analyzing user acceptance across various technological settings. Recurrent findings highlight the importance of social influence, facilitating conditions, hedonic motivation, and habit, demonstrating that technology adoption is driven by a combination of external factors and internal user motivations. Nevertheless, existing studies predominantly focus on commercial, financial, and governmental systems, where user engagement tends to be largely transactional in nature. Despite the increasing prevalence of mobile applications in various industries, few studies have explored UTAUT 2 in the context of digital sports ecosystems. Football club applications, such as PERSIS Solo, represent a unique environment where technology use is not solely driven by utility or convenience but also by emotional engagement, social identity, and community belonging. This context introduces new behavioral dimensions that have not been empirically validated through the UTAUT 2 model. Therefore, this study aims to address this research gap by applying the UTAUT 2 framework to investigate the determinants of user acceptance of the PERSIS Solo mobile application. By extending UTAUT 2 into the sports fan domain, this research provides theoretical enrichment and practical insights into improving digital engagement strategies for sports organizations in Indonesia.

Gap analysis:
While previous studies have successfully applied UTAUT 2 to various technological domains, there is a lack of empirical evidence exploring how this model operates within sports-related mobile applications, particularly in Indonesia. Football club applications, such as PERSIS Solo, serve not only as service platforms but also as digital extensions of fan identity and loyalty. Unlike typical transactional systems, their success depends on users' emotional engagement and habitual use. Existing studies have not examined how constructs such as hedonic motivation, habit, and social influence interact in shaping Behavioral Intention within fan-based ecosystems. This represents a significant gap in the literature, where user acceptance is influenced by affective as well as utilitarian factors.

Rationale of the study:
This study seeks to bridge the existing research gap by expanding the application of the UTAUT 2 model within the context of digital sports ecosystems. The analysis of user acceptance of the PERSIS Solo mobile application offers both theoretical and practical contributions. From a theoretical

perspective, the study enriches the existing body of knowledge by validating the UTAUT 2 constructs in a new domain characterized by emotional engagement and fan interaction. From a practical standpoint, the findings provide valuable insights for application developers and sports management organizations in enhancing design quality, usability, and user engagement. Such insights are expected to help align digital service features with user expectations and motivations, supporting evidence-based decision-making aimed at improving fan experiences and sustaining long-term adoption of sports-related mobile applications.

Purpose or Hypotheses of the study:
The primary purpose of this study is to analyze the factors influencing user acceptance of the PERSIS Solo mobile application using the UTAUT 2 model. Specifically, it aims to identify which determinants significantly affect users' Behavioral Intention and Use Behavior.
Based on the UTAUT 2 framework, the following hypotheses are proposed:

1. **H1:** Social influence has a significant positive effect on Behavioral Intention to use the PERSIS Solo application
2. **H2:** Hedonic motivation has a significant positive effect on Behavioral Intention.
3. **H3:** Habit has a significant positive effect on Behavioral Intention.
4. **H4**: Facilitating conditions have a significant positive effect on Use Behavior.
5. **H5:** Habit has a significant positive effect on Use Behavior.
6. **H6:** Behavioral Intention has a significant positive effect on Use Behavior.

These hypotheses aim to investigate how internal motivation, external pressures, and routine behaviors affect the adoption and continuous usage of football club mobile applications among Indonesian users.

METHOD

Research Design:
This study employed a quantitative descriptive research design that relied on a survey approach. The purpose of this design was to empirically test the relationships among the variables in the Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2) model in the context of user acceptance of the PERSIS Solo mobile application. The quantitative design was selected as it enabled the researcher to assess user perceptions, intentions to act, and actual usage patterns using numerical data suitable for statistical analysis. The model used in this study integrated the seven key constructs of UTAUT 2, namely performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit, with Behavioral Intention and Use Behavior as the dependent constructs. Each variable was operationalized into a number of indicators measured through a Likert-scale questionnaire distributed online to users of the application.

Participant:
The participants in this study were active users of the PERSIS Solo mobile application. A total of 150 respondents completed the online questionnaire. Most respondents were male and aged between 18 and 35 years, representing the most dominant demographic group among Indonesian football supporters. The respondents came from various educational and occupational backgrounds, including university students and private employees. All participants were individuals who had used the PERSIS Solo application for information access, ticket purchases, and digital interaction with the club.

Population and the methods of sampling Instrumentation:
The population consisted of all users of the PERSIS Solo mobile application who had installed and actively used it for at least one month before the data collection period. Because the total number of users was not publicly available, the study used a non-probability purposive sampling technique. This approach was deemed suitable as it enabled the researcher to intentionally choose participants who fulfilled predetermined criteria, namely those who had installed the application, had used it at

least once during the last month, and were willing to voluntarily participate in the research. The sampling ensured that each participant had sufficient familiarity with the application's functions and user interface, making their responses more accurate and reliable.

Instrument:
A structured survey instrument served as the primary tool in this study, enabling the collection of participants' demographic and behavioral information. The survey was structured into three sections. The initial section included questions on demographic information such as gender, age, educational background, and how often participants used the application. The second part contained measurement items derived from the UTAUT 2 constructs, comprising 35 statements distributed across seven independent variables: performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit. The third part measured the two dependent constructs, Behavioral Intention and Use Behavior, through six statements. Each item was measured using a five-point Likert scale ranging from 1, which represented "strongly disagree," to 5, which represented "strongly agree." Examples of questionnaire items included statements such as "Using the PERSIS Solo application improves my access to club information efficiently" for performance expectancy, "Learning to use the PERSIS Solo application is easy for me" for effort expectancy, "People who are important to me think that I should use the PERSIS Solo application" for social influence, and "Using the PERSIS Solo application is fun and enjoyable" for hedonic motivation.

The instrument underwent two levels of testing to ensure its quality. Content validity was established through expert judgment by two lecturers specializing in information systems and digital business. Construct validity and reliability were assessed using SmartPLS version 4.0. Every indicator demonstrated a loading value above 0.70, indicating that each item provided a sufficiently strong contribution to its respective construct. The Average Variance Extracted (AVE) values were higher than 0.50, confirming convergent validity. Reliability was evaluated using Cronbach's Alpha and Composite Reliability (CR), with values ranging from 0.816 to 0.936, which indicated strong internal consistency. Discriminant validity was also verified using the Fornell-Larcker criterion and the Heterotrait-Monotrait ratio (HTMT), confirming that each construct was empirically distinct from the others.

Procedures and if relevant, the time frame:
The research was conducted in three main stages over a period of approximately four months. The first stage, carried out in February 2023, involved the preparation of the questionnaire, adaptation of the UTAUT 2 indicators, and expert validation. The second stage, which took place from March to April 2023, involved data collection. The questionnaire was distributed through Google Forms shared via PERSIS Solo fan community groups on social media platforms such as WhatsApp, Instagram, and Twitter. Participation was voluntary, and informed consent was obtained from all respondents. The third stage, which occurred in May 2023, involved data screening, cleaning, and analysis using SmartPLS 4.0. Ethical considerations were maintained by ensuring the anonymity of participants and keeping the collected data confidential.

Analysis plan:
Data were analyzed using the Structural Equation Modeling–Partial Least Squares (SEM–PLS) technique through SmartPLS version 4.0. The analysis consisted of two major phases, the measurement model evaluation and the structural model evaluation. The measurement model evaluation, also known as the outer model, focused on testing indicator reliability, internal consistency reliability, and both convergent and discriminant validity. The assessment of the structural (inner) model was conducted to examine the proposed interrelationships among the constructs. Path estimates, along with their corresponding t-statistics and p-values, were generated through a bootstrapping procedure employing 5,000 resampled datasets. The explanatory power of the model was assessed using the coefficient of determination (R^2), while the predictive relevance (Q^2) and the Goodness of Fit (GoF) indices were used to assess model accuracy. Hypotheses were considered significant if the t-statistic value was greater than 1.96 and the p-value was less than 0.05. Of the twenty-five hypotheses tested, six were supported, showing that social influence, hedonic

motivation, and habit had significant effects on Behavioral Intention, while facilitating conditions, habit, and Behavioral Intention significantly influenced Use Behavior.

Respondent Profile:
The demographic analysis of respondents showed that the majority were young adults, with half of the participants (50%) aged between 17 and 24 years, followed by 45.3% in the 25–32-year-old category. Only a small proportion of respondents were aged 33–40 years (4%), and just one respondent (0.7%) was over 40 years old. This indicates that most *PERSIS Solo* application users belong to a younger demographic, which aligns with the age group most actively engaged with digital technology and mobile applications. In terms of gender distribution, the respondents were predominantly male, accounting for 87.3% of the total sample, while female users represented only 12.7%. This finding reflects the gender composition typical of football fan communities, where male supporters usually dominate participation both online and offline. Regarding usage experience, the majority of respondents (59.3%) had used the *PERSIS Solo* application for more than one year, suggesting sustained engagement and familiarity with the platform. Users with 4 months to 1 year of experience made up 27.3%, while 13.3% had used the application for three months or less. These figures demonstrate that most respondents were long-term or regular users, providing a reliable basis for evaluating user acceptance and behavioral patterns related to the application.

Scope and/or limitations of the methodology:
This study was limited to users of the PERSIS Solo mobile application and therefore does not represent all users of sports-related digital applications in Indonesia. Because purposive sampling was used, the results cannot be generalized to the entire population of football application users. Moreover, the use of a self-reported questionnaire may introduce response bias or social desirability bias. The cross-sectional design of the study also limits the ability to observe changes in user perception over time. Despite these limitations, the methodology used in this research was appropriate for exploring behavioral patterns of technology acceptance within the context of sports digital ecosystems. The study provides reliable empirical evidence that extends the UTAUT 2 model to emotion-driven and community-based digital environments, contributing both theoretical and practical insights for future research and development. To ensure the clarity and measurability of each construct examined in this study, the research variables were operationalized based on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2) developed by Venkatesh et al. (2012). Each construct was represented by several observable indicators that reflect users' perceptions, attitudes, and behaviors toward the PERSIS Solo mobile application. All indicators were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The relationships between independent and dependent variables were hypothesized according to the theoretical framework of UTAUT 2, which posits that factors including performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit influence users' Behavioral Intention and Use Behavior. A detailed summary of the research variables, their corresponding indicators, measurement scales, and hypothesized relationships is presented in Table 1 below.

Table 1. Research Design Summary

Variable Type	Construct / Variable	Indicators (Sample Items)	Scale Type	Hypothesis Direction
Independent Variables	**Performance Expectancy (PE)**	PE1: Using the PERSIS Solo application improves my productivity. PE2: The application helps me accomplish tasks more efficiently. PE3: The application enhances my experience in following PERSIS Solo updates.	Likert 1–5	(+) Positive effect on Behavioral Intention
	Effort Expectancy (EE)	EE1: Learning to operate the PERSIS Solo application is easy. EE2: My interaction with the application is clear and understandable. EE3: It is easy for me to become skillful at using this application.	Likert 1–5	(+) Positive effect on Behavioral Intention
	Social Influence (SI)	SI1: People important to me think that I should use the PERSIS Solo application.	Likert 1–5	(+) Positive effect on Behavioral Intention

Variable Type	Construct / Variable	Indicators (Sample Items)	Scale Type	Hypothesis Direction
		SI2: People who influence my behavior recommend using this application. SI3: People whose opinions I value prefer that I use this application.		
	Facilitating Conditions (FC)	FC1: I have the resources necessary to use the PERSIS Solo application. FC2: I have the knowledge necessary to use this application. FC3: The application is compatible with the devices I use.	Likert 1–5	(+) Positive effect on Use Behavior
	Hedonic Motivation (HM)	HM1: Using the application is enjoyable. HM2: I have fun using the PERSIS Solo application. HM3: Using this application gives me pleasure.	Likert 1–5	(+) Positive effect on Behavioral Intention
	Price Value (PV)	PV1: The benefits of using the application outweigh the costs. PV2: Using this application is worthwhile. PV3: The PERSIS Solo application provides good value for the cost.	Likert 1–5	(+) Positive effect on Behavioral Intention
	Habit (HB)	HB1: Using the PERSIS Solo application has become a habit for me. HB2: I am addicted to using this application. HB3: Using the application has become automatic for me.	Likert 1–5	(+) Positive effect on Behavioral Intention and Use Behavior
Dependent Variables	**Behavioral Intention (BI)**	BI1: I intend to continue using the PERSIS Solo application regularly. BI2: I will recommend this application to others. BI3: I plan to use the application more frequently in the future.	Likert 1–5	(+) Positive effect on Use Behavior
	Use Behavior (UB)	UB1: I use the application frequently. UB2: I depend on the PERSIS Solo application for accessing club information and ticketing. UB3: I use this application whenever I need to follow club updates.	Likert 1–5	—

Following the identification and operationalization of each construct as summarized in Table 1, data from all indicators were examined using the Structural Equation Modeling with Partial Least Squares (SEM–PLS) approach through the SmartPLS 4.0 software. This analytical technique was chosen because it allows simultaneous assessment of both measurement and structural models, making it suitable for complex models involving multiple interrelated variables such as those in UTAUT 2. The analysis was conducted in a two-step process. The initial phase involved assessing the measurement model (outer model) to confirm the reliability and validity of each indicator, whereas the subsequent phase focused on analyzing the structural model (inner model) to evaluate the hypothesized relationships among the constructs. The results of these analyses provided statistical evidence on which factors significantly influence Behavioral Intention and Use Behavior toward the PERSIS Solo mobile application.

RESULTS AND DISCUSSION

Results:

The results of this study were obtained through the Structural Equation Modeling–Partial Least Squares (SEM–PLS) approach using SmartPLS version 4.0. The analysis was carried out in two main stages: the evaluation of the measurement model (outer model) and the structural model (inner model).

1. Measurement Model Evaluation

The evaluation of the measurement model was conducted to ensure that the indicators used in this study were both valid and reliable.

a. Convergent Validity

The assessment of convergent validity indicated that every indicator loading was greater than 0.70, and all Average Variance Extracted (AVE) values were above 0.50, confirming that each construct explained more than half of the variance of its indicators. These results indicated that the indicators were strongly correlated with their respective latent variables. Figures 1 and 2 showed the results of outer loadings and AVE.

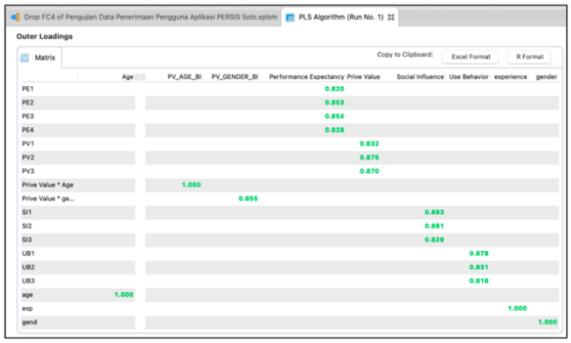

Figure 1. Outer Loadings result

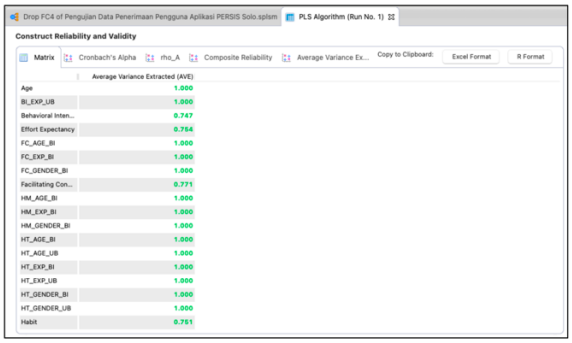

Figure 2. AVE result

b. Reliability Validity

Table 2 shows the outcomes of the reliability assessment for each construct within the model. The Composite Reliability values ranged from 0.880 to 1.000, and the Cronbach's Alpha values were all above 0.70, which exceeds the minimum reliability threshold suggested by (Hair Jr. et al., 2010). The findings demonstrate that each construct possesses high internal consistency, suggesting that the indicators function stably and reliably in capturing their corresponding latent variables. Consequently, the measurement model meets the criteria for reliability and is suitable for further structural analysis.

Table 2. Reliability Test Results

Variable	Composite Reliability	Cronbach's Alpha	Threshold Value	Description
Age	1.000	1.000	≥ 0.70	Reliable
BI_EXP_UB	1.000	1.000	≥ 0.70	Reliable
Behavioral Intention	0.898	0.831	≥ 0.70	Reliable
Effort Expectancy	0.924	0.891	≥ 0.70	Reliable
FC_AGE_BI	1.000	1.000	≥ 0.70	Reliable
FC_EXP_BI	1.000	1.000	≥ 0.70	Reliable
FC_GENDER_BI	1.000	1.000	≥ 0.70	Reliable
Facilitating Conditions	0.910	0.852	≥ 0.70	Reliable
HM_AGE_BI	1.000	1.000	≥ 0.70	Reliable
HM_EXP_BI	1.000	1.000	≥ 0.70	Reliable
HM_GENDER_BI	1.000	1.000	≥ 0.70	Reliable
HT_AGE_BI	1.000	1.000	≥ 0.70	Reliable
HT_AGE_UB	1.000	1.000	≥ 0.70	Reliable
HT_EXP_BI	1.000	1.000	≥ 0.70	Reliable
HT_EXP_UB	1.000	1.000	≥ 0.70	Reliable
HT_GENDER_BI	1.000	1.000	≥ 0.70	Reliable
HT_GENDER_UB	1.000	1.000	≥ 0.70	Reliable
Habit	0.923	0.889	≥ 0.70	Reliable
Hedonic Motivation	0.946	0.915	≥ 0.70	Reliable
PV_AGE_BI	1.000	1.000	≥ 0.70	Reliable
PV_GENDER_BI	1.000	1.000	≥ 0.70	Reliable
Performance Expectancy	0.905	0.860	≥ 0.70	Reliable
Price Value	0.894	0.822	≥ 0.70	Reliable
Social Influence	0.904	0.844	≥ 0.70	Reliable
Use Behavior	0.880	0.794	≥ 0.70	Reliable
Experience	1.000	1.000	≥ 0.70	Reliable

Variable	Composite Reliability	Cronbach's Alpha	Threshold Value	Description
Gender	1.000	1.000	≥ 0.70	Reliable

c. Discriminant Validity

Discriminant validity was assessed through two complementary approaches, namely the Fornell–Larcker criterion and the examination of cross-loadings. Based on the Fornell–Larcker results, the square roots of the AVE values (diagonal elements) were greater than the correlations between constructs (off-diagonal elements), confirming discriminant validity across all constructs.

Table 3. Fornell-Larcker Criterion Result

	Age	BI_EXP_UB	Behavioral Intention	Effort Expectancy	FC_AGE_BI	FC_EXP_BI	FC_GENDER_BI	Facilitating Conditions	HM_AGE_BI	HM_EXP_BI	HM_GENDER_BI	HT_AGE_BI	HT_AGE_UB	HT_EXP_BI	HT_EXP_UB	HT_GENDER_BI	HT_GENDER_UB	Habit	Hedonic Motivation	PV_AGE_BI	PV_GENDER_BI	Performance Expectancy	Price Value	Social Influence	Use Behavior	experience	gende
Age	1,000																										
BI_EXP_UB	0,161	1,000																									
Behavioral Intention	0,103	0,088	0,864																								
Effort Expectancy	0,039	0,007	0,629	0,868																							
FC_AGE_BI	-0,031	-0,094	-0,143	-0,186	1,000																						
FC_EXP_BI	0,170	0,672	0,004	-0,044	-0,151	1,000																					
FC_GENDER_BI	-0,070	-0,022	-0,210	-0,233	0,010	-0,223	1,000																				
Facilitating Conditions	0,078	0,005	0,666	0,681	-0,272	-0,002	-0,224	0,878																			
HM_AGE_BI	0,059	-0,047	-0,116	-0,214	0,713	-0,099	0,015	-0,219	1,000																		
HM_EXP_BI	0,201	0,834	0,063	0,057	-0,099	0,653	-0,033	0,033	-0,066	1,000																	
HM_GENDER_BI	-0,192	-0,152	-0,148	-0,160	0,001	-0,038	0,538	-0,208	-0,066	-0,239	1,000																
HT_AGE_BI	0,030	-0,040	-0,001	-0,056	0,718	-0,098	-0,017	-0,171	0,788	-0,042	-0,070	1,000															
HT_AGE_UB	0,030	-0,040	-0,001	-0,056	0,718	-0,098	-0,017	-0,171	0,788	-0,042	-0,070	1,000	1,000														
HT_EXP_BI	0,186	0,750	0,035	-0,013	-0,109	0,543	-0,076	0,040	-0,054	0,767	-0,165	-0,114	-0,114	1,000													
HT_EXP_UB	0,186	0,750	0,035	-0,013	-0,109	0,543	-0,076	0,040	-0,054	0,767	-0,165	-0,114	-0,114	1,000	1,000												
HT_GENDER_BI	-0,116	-0,162	-0,139	-0,128	-0,023	-0,074	0,563	-0,167	-0,061	-0,157	0,761	-0,100	-0,100	-0,186	-0,186	1,000											
HT_GENDER_UB	-0,116	-0,162	-0,139	-0,128	-0,023	-0,074	0,563	-0,167	-0,061	-0,157	0,761	-0,100	-0,100	-0,186	-0,186	1,000	1,000										
Habit	0,144	0,036	0,776	0,585	-0,184	0,038	-0,172	0,653	-0,082	0,012	-0,147	-0,027	-0,027	-0,004	-0,004	-0,195	-0,195	0,866									
Hedonic Motivation	0,136	0,062	0,820	0,743	-0,215	0,030	-0,216	0,717	-0,221	0,076	-0,179	-0,075	-0,075	0,011	0,011	-0,148	-0,148	0,769	0,924								
PV_AGE_BI	-0,017	-0,002	-0,058	-0,085	0,718	-0,051	0,033	-0,124	0,640	-0,058	-0,026	0,621	0,621	-0,048	-0,048	-0,069	-0,069	-0,080	-0,195	1,000							
PV_GENDER_BI	-0,112	-0,126	-0,133	-0,111	0,024	-0,112	0,508	-0,162	-0,033	-0,123	0,646	-0,075	-0,075	-0,105	-0,105	0,575	0,575	-0,076	-0,130	-0,072	1,000						
Performance Expectancy	0,053	0,016	0,620	0,746	-0,122	0,002	-0,209	0,636	-0,136	0,083	-0,157	0,056	0,056	0,010	0,010	-0,151	-0,151	0,622	0,679	-0,067	-0,157	0,839					
Price Value	0,051	0,099	0,644	0,598	-0,130	0,112	-0,178	0,649	-0,210	0,126	-0,137	-0,078	-0,078	0,020	0,020	-0,081	-0,081	0,545	0,709	-0,085	-0,136	0,637	0,859				
Social Influence	0,016	0,123	0,619	0,510	-0,132	0,013	-0,206	0,470	-0,109	0,084	-0,137	-0,023	-0,023	0,117	0,117	-0,115	-0,115	0,534	0,552	-0,003	-0,049	0,403	0,525	0,872			
Use Behavior	0,151	0,077	0,809	0,616	-0,187	-0,025	-0,112	0,710	-0,109	0,070	-0,151	-0,006	-0,006	0,015	0,015	-0,190	-0,190	0,839	0,785	-0,085	-0,100	0,646	0,614	0,552	0,842		
experience	0,013	-0,029	0,068	0,068	0,169	-0,105	-0,001	0,056	0,185	-0,038	-0,045	0,163	0,163	-0,107	-0,107	-0,060	-0,060	0,089	0,022	0,103	-0,029	0,100	0,048	0,010	0,154	1,000	
gender	-0,116	-0,009	0,122	0,160	-0,055	-0,001	-0,016	-0,005	-0,160	-0,040	0,361	-0,087	-0,087	-0,051	-0,051	0,132	0,132	0,047	0,130	-0,091	0,230	0,071	0,088	0,150	0,038	-0,216	1,000

To complement the Fornell–Larcker criterion, a cross-loading analysis was conducted to further evaluate discriminant validity. The results indicate that the loading values of all indicators on their respective constructs are higher than their correlations with other constructs, confirming that each indicator measures its intended latent variable accurately. Specifically, all item loadings exceeded the threshold value of 0.70, while the cross-loadings on other constructs were substantially lower. This demonstrates that no indicator exhibits significant overlap or cross-association with indicators of other constructs. These findings are consistent with the Fornell–Larcker results presented earlier, jointly affirming the discriminant validity of the measurement model.

The detailed results of the cross-loading analysis were presented in Table 4 (Cross-Loading Matrix), which lists the loading values for each indicator relative to all constructs in the model. The table shows that each item achieved the highest loading on its assigned construct, thus fulfilling the criteria for satisfactory discriminant validity as recommended by (Hair, JF, et al., 2010). To further strengthen this evidence, the consistency of these cross loading patterns indicates that the measurement items function as intended and do not introduce ambiguity in construct interpretation. This reinforces the robustness of the overall measurement model and supports its suitability for continued structural analysis. Moreover, the clear separation of indicator loadings across constructs suggests that the conceptual boundaries within the model are well defined and empirically supported. This separation reduces the likelihood of multicollinearity and ensures that each construct retains its unique explanatory power. In addition, the stable loading structure across all indicators provides further

assurance that the model captures the theoretical dimensions intended by the UTAUT 2 framework. Taken together, these results confirm that the measurement specifications are sound and provide a solid foundation for interpreting the subsequent structural relationships.

Table 4. Cross Loading Matrix

	Age	BI_EXP_UB	Behavioral Intention	Effort Expectancy	FC_AGE_BI	FC_EXP_BI	FC_GENDER_BI	Facilitating Conditions	HM_AGE_BI	HM_EXP_BI	HM_GENDER_BI	HT_AGE_BI	HT_AGE_UB	HT_EXP_BI	HT_EXP_UB	HT_GENDER_BI	HT_GENDER_UB	Habit	Hedonic Motivation	PV_AGE_BI	PV_GENDER_BI	Performance Expectancy	Price Value	Social Influence	Use Behavior	Experience	gender
BI1	0,118	-0,029	0,881	0,639	-0,138	0,001	-0,229	0,692	-0,130	-0,006	-0,135	-0,014	-0,014	-0,086	-0,086	-0,076	-0,076	0,688	0,808	-0,049	-0,161	0,600	0,636	0,476	0,735	0,068	0,100
BI2	0,087	0,095	0,864	0,572	-0,095	-0,098	-0,196	0,564	-0,093	0,034	-0,133	0,030	0,030	0,076	0,076	-0,129	-0,129	0,592	0,680	-0,047	-0,089	0,556	0,529	0,613	0,673	0,082	0,140
BI3	0,058	0,172	0,847	0,412	-0,136	0,109	-0,116	0,462	-0,074	0,140	-0,114	-0,016	-0,016	0,112	0,112	-0,161	-0,161	0,730	0,629	-0,054	-0,091	0,447	0,499	0,522	0,688	0,025	0,077
Behavioral Intention * experience	0,161	1,000	0,088	0,007	-0,094	0,672	-0,022	0,005	-0,047	0,834	-0,152	-0,040	-0,040	0,750	0,750	-0,162	-0,162	0,036	0,062	-0,002	-0,126	0,016	0,099	0,123	0,077	-0,029	-0,009
EE1	-0,031	-0,044	0,544	0,865	-0,093	-0,102	-0,237	0,596	-0,125	-0,027	-0,112	-0,048	-0,048	0,021	0,021	-0,091	-0,091	0,506	0,607	0,011	-0,071	0,621	0,453	0,475	0,492	0,153	0,154
EE2	0,044	0,000	0,578	0,898	-0,166	-0,057	-0,213	0,652	-0,223	0,029	-0,135	-0,106	-0,106	-0,033	-0,033	-0,116	-0,116	0,508	0,672	-0,065	-0,070	0,585	0,544	0,472	0,577	0,062	0,159
EE3	0,030	0,062	0,532	0,853	-0,155	0,039	-0,198	0,553	-0,175	0,118	-0,127	-0,001	-0,001	-0,012	-0,012	-0,113	-0,113	0,510	0,655	-0,093	-0,111	0,698	0,559	0,437	0,504	0,036	0,128
EE4	0,094	0,008	0,530	0,856	-0,234	-0,031	-0,158	0,559	-0,221	0,081	-0,184	-0,033	-0,033	-0,021	-0,021	-0,124	-0,124	0,508	0,647	-0,152	-0,138	0,693	0,521	0,384	0,565	-0,018	0,114
FC1	-0,017	-0,035	0,539	0,563	-0,256	0,034	-0,256	0,863	-0,222	-0,010	-0,077	-0,162	-0,162	0,084	0,084	-0,092	-0,092	0,539	0,550	-0,129	-0,079	0,549	0,517	0,488	0,532	0,028	0,010
FC2	0,086	0,017	0,554	0,533	-0,217	0,048	-0,180	0,884	-0,163	0,031	-0,191	-0,142	-0,142	0,018	0,018	-0,184	-0,184	0,584	0,609	-0,085	-0,146	0,545	0,592	0,316	0,641	0,026	-0,021
FC3	0,121	0,024	0,651	0,685	-0,246	-0,074	-0,165	0,888	-0,195	0,059	-0,260	-0,148	-0,148	0,011	0,011	-0,156	-0,156	0,594	0,714	-0,113	-0,189	0,580	0,593	0,440	0,683	0,088	-0,002
Facilitating Condition * Age	-0,031	-0,094	-0,143	-0,186	1,000	-0,151	0,010	-0,272	0,713	-0,099	0,001	0,718	0,718	-0,109	-0,109	-0,023	-0,023	-0,184	-0,215	0,718	0,024	-0,122	-0,130	-0,132	-0,187	0,169	-0,055
Facilitating Condition * experience	0,170	0,672	0,004	-0,044	-0,151	1,000	-0,223	-0,002	-0,099	0,653	-0,038	-0,098	-0,098	0,543	0,543	-0,074	-0,074	0,038	0,030	-0,051	-0,112	0,002	0,112	0,013	-0,025	-0,105	-0,001
Facilitating Condition * gender	-0,070	-0,022	-0,210	-0,233	0,010	-0,223	1,000	-0,224	0,015	-0,033	0,538	-0,017	-0,017	-0,076	-0,076	0,563	0,563	-0,172	-0,216	0,033	0,508	-0,209	-0,178	-0,206	-0,112	-0,001	-0,016
HM1	0,076	0,049	0,779	0,647	-0,214	-0,023	-0,162	0,665	-0,168	0,026	-0,135	-0,063	-0,063	0,036	0,036	-0,109	-0,109	0,711	0,916	-0,200	-0,065	0,591	0,614	0,577	0,705	0,074	0,089
HM2	0,156	0,041	0,739	0,703	-0,173	0,011	-0,184	0,664	-0,241	0,103	-0,193	-0,074	-0,074	-0,018	-0,018	-0,144	-0,144	0,688	0,920	-0,178	-0,141	0,660	0,706	0,482	0,753	-0,005	0,155
HM3	0,146	0,083	0,754	0,711	-0,209	0,097	-0,254	0,660	-0,205	0,084	-0,170	-0,073	-0,073	0,012	0,012	-0,160	-0,160	0,734	0,936	-0,162	-0,157	0,632	0,647	0,468	0,720	-0,011	0,118
HT1	0,174	0,031	0,639	0,433	-0,133	0,025	-0,140	0,491	-0,047	-0,008	-0,079	0,018	0,018	0,027	0,027	-0,159	-0,159	0,891	0,604	-0,044	-0,045	0,521	0,399	0,478	0,733	0,001	0,051
HT2	0,055	0,001	0,648	0,458	-0,154	-0,004	-0,117	0,508	-0,091	-0,021	-0,045	0,009	0,009	-0,005	-0,005	-0,156	-0,156	0,903	0,634	-0,077	-0,034	0,524	0,405	0,424	0,699	0,064	0,070
HT3	0,159	0,045	0,599	0,577	-0,220	0,119	-0,228	0,673	-0,119	0,088	-0,178	-0,146	-0,146	0,019	0,019	-0,175	-0,175	0,828	0,668	-0,107	-0,098	0,580	0,507	0,417	0,702	0,109	0,001
HT4	0,112	0,045	0,781	0,554	-0,134	-0,001	-0,117	0,592	-0,035	-0,013	-0,199	0,015	0,015	-0,049	-0,049	-0,184	-0,184	0,841	0,747	-0,052	-0,083	0,533	0,562	0,520	0,763	0,130	0,039
Habit * Age	0,030	-0,040	-0,001	-0,056	0,718	-0,098	-0,017	-0,171	0,788	-0,042	-0,070	1,000	1,000	-0,114	-0,114	-0,100	-0,100	-0,027	-0,075	0,621	-0,075	0,056	-0,078	-0,023	-0,006	0,163	-0,087
Habit * Age	0,030	-0,040	-0,001	-0,056	0,718	-0,098	-0,017	-0,171	0,788	-0,042	-0,070	1,000	1,000	-0,114	-0,114	-0,100	-0,100	-0,027	-0,075	0,621	-0,075	0,056	-0,078	-0,023	-0,006	0,163	-0,087
Habit * experience	0,186	0,750	0,035	-0,013	-0,109	0,543	-0,076	0,040	-0,054	0,767	-0,165	-0,114	-0,114	1,000	1,000	-0,186	-0,186	-0,004	0,011	-0,048	-0,105	0,010	0,020	0,117	0,015	-0,107	-0,051
Habit * experience	0,186	0,750	0,035	-0,013	-0,109	0,543	-0,076	0,040	-0,054	0,767	-0,165	-0,114	-0,114	1,000	1,000	-0,186	-0,186	-0,004	0,011	-0,048	-0,105	0,010	0,020	0,117	0,015	-0,107	-0,051
Habit * gender	-0,116	-0,162	-0,139	-0,128	-0,023	-0,074	0,563	-0,167	-0,061	-0,157	0,761	-0,100	-0,100	-0,186	-0,186	1,000	1,000	-0,195	-0,148	-0,069	0,575	-0,151	-0,081	-0,115	-0,190	-0,060	0,132
Habit * gender	-0,116	-0,162	-0,139	-0,128	-0,023	-0,074	0,563	-0,167	-0,061	-0,157	0,761	-0,100	-0,100	-0,186	-0,186	1,000	1,000	-0,195	-0,148	-0,069	0,575	-0,151	-0,081	-0,115	-0,190	-0,060	0,132
Hedonic Motivation * Age	0,059	-0,047	-0,116	-0,214	0,713	-0,099	0,015	-0,219	1,000	-0,066	-0,066	0,788	0,788	-0,054	-0,054	-0,061	-0,061	-0,082	-0,221	0,640	-0,033	-0,136	-0,210	-0,109	-0,109	0,185	-0,160
Hedonic Motivation * experience	0,201	0,834	0,063	0,057	-0,099	0,653	-0,033	0,033	-0,066	1,000	-0,239	-0,042	-0,042	0,767	0,767	-0,157	-0,157	0,012	0,076	-0,058	-0,123	0,083	0,126	0,084	0,070	-0,038	-0,040
Hedonic Motivation * gender	-0,192	-0,152	-0,148	-0,160	0,001	-0,038	0,538	-0,208	-0,066	-0,239	1,000	-0,070	-0,070	-0,165	-0,165	0,761	0,761	-0,147	-0,179	-0,026	0,646	-0,157	-0,137	-0,137	-0,151	-0,045	0,361
PE1	0,064	-0,008	0,532	0,602	-0,140	-0,024	-0,192	0,556	-0,141	0,036	-0,134	0,071	0,071	-0,029	-0,029	-0,099	-0,099	0,510	0,576	-0,082	-0,174	0,820	0,595	0,311	0,573	0,066	0,003
PE2	0,033	0,036	0,518	0,564	-0,017	0,068	-0,167	0,503	-0,012	0,104	-0,129	0,114	0,114	0,031	0,031	-0,140	-0,140	0,522	0,542	0,016	-0,101	0,853	0,537	0,329	0,554	0,081	0,052
PE3	0,032	0,017	0,536	0,656	-0,176	-0,047	-0,178	0,544	-0,218	0,069	-0,176	-0,052	-0,052	0,061	0,061	-0,133	-0,133	0,498	0,619	-0,161	-0,144	0,854	0,546	0,387	0,509	0,062	0,127
PE4	0,050	0,007	0,493	0,684	-0,072	0,012	-0,162	0,530	-0,078	0,072	-0,083	0,060	0,060	-0,033	-0,033	-0,135	-0,135	0,562	0,536	0,011	-0,105	0,828	0,453	0,325	0,531	0,129	0,056
PV1	0,077	-0,005	0,577	0,537	-0,103	0,044	-0,185	0,556	-0,213	0,066	-0,121	-0,046	-0,046	-0,051	-0,051	-0,113	-0,113	0,517	0,641	-0,113	-0,103	0,631	0,832	0,433	0,552	0,007	0,159
PV2	0,077	0,172	0,544	0,530	-0,183	0,131	-0,115	0,530	-0,239	0,185	-0,093	-0,161	-0,161	0,094	0,094	-0,006	-0,006	0,427	0,614	-0,156	-0,134	0,479	0,875	0,494	0,522	0,067	0,065
PV3	-0,026	0,093	0,536	0,470	-0,050	0,118	-0,156	0,585	-0,084	0,077	-0,140	0,005	0,005	0,012	0,012	-0,086	-0,086	0,455	0,568	0,055	-0,115	0,526	0,870	0,424	0,506	0,052	-0,006
Price Value * Age	-0,017	-0,002	-0,058	-0,085	0,718	-0,051	0,033	-0,124	0,640	-0,058	-0,026	0,621	0,621	-0,048	-0,048	-0,069	-0,069	-0,080	-0,195	1,000	-0,072	-0,067	-0,085	-0,003	-0,085	0,103	-0,091

2. Structural Model Evaluation

Once the measurement model was verified for reliability and validity, the subsequent phase involved evaluating the structural model to examine the proposed interrelationships among the constructs. This stage included evaluating the model's explanatory power, effect size, predictive relevance, and hypothesis testing results.

a. Coefficient of Determination (R^2)

The coefficient of determination (R^2) reflects how effectively the independent constructs account for the variance in the dependent constructs. As shown in *Table 4*, the R^2 value for Behavioral Intention (BI) was 0.625, meaning that 62.5% of its variance was explained by Social Influence, Hedonic Motivation, and Habit. The R^2 value for Use Behavior (UB) was 0.594, indicating that Facilitating Conditions, Habit, and Behavioral Intention accounted for 59.4% of its variance.

Table 5. Coefficient of Determination (R^2)

Variabel	R-square
Behavioral Intention	0.767
Use Behavior	0.796

b. Predictive Relevance (Q^2)

Predictive relevance was assessed using the Stone–Geisser Q^2 test, obtained through the blindfolding procedure. The Q^2 values for Behavioral Intention and Use Behavior were both greater than zero, indicating that the model has adequate predictive relevance. This means that the exogenous constructs could effectively predict the endogenous variables, reinforcing the robustness of the structural model.

Table 6. Predictive Relevance (Q^2)

Variabel	Q-*square*
Behavioral Intention	0.518
Use Behavior	0.535

c. Hypothesis Testing

The hypothesis testing results are presented in Table 7. Out of the 25 proposed hypotheses, 19 were rejected, and 6 were accepted based on the criteria of *t*-statistic > 1.96 and $p < 0.05$. The accepted hypotheses are summarized as follows:

a. Social Influence → Behavioral Intention (β = 0.155; *t* = 2.233)
b. Facilitating Conditions → Use Behavior (β = 0.211; *t* = 3.342)
c. Hedonic Motivation → Behavioral Intention (β = 0.445; *t* = 3.974)
d. Habit → Behavioral Intention (β = 0.311; *t* = 3.435)
e. Habit → Use Behavior (β = 0.446; *t* = 5.344)
f. Behavioral Intention → Use Behavior (β = 0.309; *t* = 3.353)

Table 7. Hypothesis Testing Result

No	Hypothesis	Variable Relationship	Path Coefficient	T-Statistic	Description	Hypothesis Result
1	H1	PE → BI	0.019	0.17847222	Negative – Not Significant	Rejected
2	H2	EE → BI	-0.087	1.010	Negative – Not Significant	Rejected
3	H3	SI → BI	0.10763889	2.233	Positive – Significant	Accepted
4	H4	FC → BI	0.073	0.61527778	Negative – Not Significant	Rejected
5	H4a	FC_Age → BI	-0.034	0.22986111	Negative – Not Significant	Rejected
6	H4b	FC_Gender → BI	-0.085	1.004	Negative – Not Significant	Rejected
7	H4c	FC_Experience → BI	-0.105	1.290	Negative – Not Significant	Rejected
8	H5	FC → UB	0.14652778	3.342	Positive – Significant	Accepted
9	H6	HM → BI	0.30902778	3.974	Positive – Significant	Accepted
10	H6a	HM_Age → BI	-0.024	0,16527778	Negative – Not Significant	Rejected
11	H6b	HM_Gender → BI	0.059	0,36458333	Positive – Not Significant	Rejected
12	H6c	HM_Experience → BI	0.072	0,51666667	Positive – Not Significant	Rejected
13	H7	PV → BI	0.061	0.46805556	Positive – Not Significant	Rejected
14	H7a	PV_Age → BI	0.069	0,55555556	Positive – Not Significant	Rejected
15	H7b	PV_Gender → BI	-0.075	0.63263889	Negative – Not Significant	Rejected
16	H8	HT → BI	0.21597222	3.435	Positive – Significant	Accepted
17	H8a	HT_Age → BI	0.049	0.36111111	Positive – Not Significant	Rejected
18	H8b	HT_Gender → BI	0.081	0.53888889	Positive – Not Significant	Rejected
19	H8c	HT_Experience → BI	0.034	0.29930556	Positive – Not Significant	Rejected

20	H9	HT → UB	0.30972222	5.344	Positive – Significant	Accepted
21	H9a	HT_Age → UB	0.024	0.57777778	Positive – Not Significant	Rejected
22	H9b	HT_Gender → UB	-0.016	0.24027778	Negative – Not Significant	Rejected
23	H9c	HT_Experience → UB	-0.054	0.50416667	Negative – Not Significant	Rejected
24	H10	BI → UB	0.21458333	3.353	Positive – Significant	Accepted
25	H10a	BI_Experience → UB	0.073	0.66527778	Positive – Not Significant	Rejected

To complement the tabular presentation, Figure 3 illustrates the structural model along with the standardized path coefficients. The figure visually demonstrated the significant relationships among constructs within the model, highlighting the direct effects of Hedonic Motivation, Social Influence, and Habit on Behavioral Intention, and the influence of Facilitating Conditions, Habit, and Behavioral Intention on Use Behavior.

Table 8. Path Coefficients of the Structural Model

No.	Hypothesis	Variable Relationship	Path Coefficient	Threshold Value	Description
1	H1	PE → BI	0.019	< 0: Negative; > 0: Positive	Positive
2	H2	EE → BI	-0.087	< 0: Negative; > 0: Positive	Negative
3	H3	SI → BI	0.10763889	< 0: Negative; > 0: Positive	Positive
4	H4	FC → BI	0.073	< 0: Negative; > 0: Positive	Positive
5	H4a	FC_Age → BI	-0.034	< 0: Negative; > 0: Positive	Negative
6	H4b	FC_Gender → BI	-0.085	< 0: Negative; > 0: Positive	Negative
7	H4c	FC_Experience → BI	-0.105	< 0: Negative; > 0: Positive	Negative
8	H5	FC → UB	0.14652778	< 0: Negative; > 0: Positive	Positive
9	H6	HM → BI	0.30902778	< 0: Negative; > 0: Positive	Positive
10	H6a	HM_Age → BI	-0.024	< 0: Negative; > 0: Positive	Negative
11	H6b	HM_Gender → BI	0.059	< 0: Negative; > 0: Positive	Positive
12	H6c	HM_Experience → BI	0.072	< 0: Negative; > 0: Positive	Positive
13	H7	PV → BI	0.061	< 0: Negative; > 0: Positive	Positive
14	H7a	PV_Age → BI	0.069	< 0: Negative; > 0: Positive	Positive
15	H7b	PV_Gender → BI	-0.075	< 0: Negative; > 0: Positive	Negative
16	H8	HT → BI	0.21597222	< 0: Negative; > 0: Positive	Positive
17	H8a	HT_Age → BI	0.049	< 0: Negative; > 0: Positive	Positive
18	H8b	HT_Gender → BI	0.081	< 0: Negative; > 0: Positive	Positive
19	H8c	HT_Experience → BI	0.034	< 0: Negative; > 0: Positive	Positive
20	H9	HT → UB	0.30972222	< 0: Negative; > 0: Positive	Positive
21	H9a	HT_Age → UB	0.024	< 0: Negative; > 0: Positive	Positive
22	H9b	HT_Gender → UB	-0.016	< 0: Negative; > 0: Positive	Negative
23	H9c	HT_Experience → UB	-0.054	< 0: Negative; > 0: Positive	Negative
24	H10	BI → UB	0.21458333	< 0: Negative; > 0: Positive	Positive
25	H10a	BI_Experience → UB	0.073	< 0: Negative; > 0: Positive	Positive

Overall, the findings demonstrate that both intrinsic factors such as enjoyment (hedonic motivation) and habit, as well as extrinsic factors including social influence and facilitating conditions, play a

significant role in shaping users' acceptance and continued utilization of the PERSIS Solo mobile application. Behavioral Intention functions as a crucial mediator linking user perceptions to actual system use, emphasizing that emotional engagement and habitual behavior are fundamental drivers for sustaining digital fan engagement within the football community.

Discussion:

The findings of this study align with the theoretical assumptions presented in the Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2). The significance of social influence on Behavioral Intention shows that users' willingness to adopt the PERSIS Solo application is largely shaped by the encouragement and opinions of individuals within their social circles, including friends, fellow supporters, and family members. This finding supports previous research by Andry et al. (2023) and Bayhaqi & Nuryana (2022), which highlighted the strong role of social norms in influencing user decisions in digital platforms. The finding that hedonic motivation significantly affects Behavioral Intention emphasizes the importance of emotional and entertainment value in driving technology use. For sports-related applications, enjoyment becomes a critical factor because users engage not only to obtain information but also to experience pleasure and emotional connection with their favorite club. This result corresponds with Hidayat et al. (2020), who found that enjoyment plays a major role in shaping users' intentions toward digital payment applications.

The influence of habit on both Behavioral Intention and Use Behavior demonstrates that continued exposure and repeated usage lead to automatic engagement with the application. When users develop a sense of routine, their dependence on conscious decision-making decreases, turning the use of the application into an automatic behavior. This is consistent with Venkatesh et al. (2012), who described habit as both a behavioral and cognitive driver that strengthens sustained technology use. Facilitating conditions were also found to significantly influence usage behavior. Users who have access to adequate technological resources, compatible devices, and technical knowledge tend to use the application more effectively and frequently. These findings collectively suggest that the success of the PERSIS Solo application depends not only on its functional benefits but also on its ability to provide positive emotional experiences, social belonging, and ease of integration into users' daily routines.

Implications:

This study offers several theoretical and practical implications. Theoretically, it extends the application of the UTAUT 2 model into the domain of digital sports ecosystems, which are characterized by emotional engagement and community participation. The study confirms that hedonic motivation and social influence play crucial roles in shaping Behavioral Intention, complementing traditional constructs such as performance expectancy and effort expectancy. From a practical standpoint, the findings offer valuable direction for developers and sports organizations in improving user engagement strategies. Hedonic motivation plays a crucial role, implying that enhancing entertainment elements of the application, such as interactive features, live match notifications, and fan engagement activities, may improve user satisfaction and encourage loyalty. Additionally, strengthening facilitating conditions through improved system performance, accessibility, and compatibility across devices would enhance the overall usability of the application. Encouraging user interaction through community-based features, such as discussion forums or loyalty programs, may further increase habitual use and sustain engagement over time.

Research contributions:

This research makes meaningful contributions to both academic literature and practical application. Theoretically, it contributes to the body of knowledge on technology acceptance by applying and validating the UTAUT 2 model within the context of sports fan applications, a domain that has rarely been studied. The study demonstrates that emotional engagement and habitual usage are key determinants of Behavioral Intention and Use Behavior in sports-related technology platforms. Methodologically, this study provides a validated structural model using SEM–PLS with adequate reliability, validity, and model fit, which can serve as a methodological reference for future research examining similar behavioral constructs in digital ecosystems. Practically, the research contributes

actionable insights for developers and club management teams, offering evidence-based recommendations for designing user-centered digital platforms that promote enjoyment, routine engagement, and fan community participation.

Limitations:
Despite its contributions, this study has several limitations. The study was carried out solely with individuals using the PERSIS Solo mobile application, thereby restricting the extent to which the findings can be applied to other sporting organizations or digital platforms. The use of purposive sampling may introduce selection bias, as the respondents might not fully represent the diversity of all users. Additionally, the reliance on self-reported questionnaires may lead to potential response bias or inaccuracies due to social desirability effects. The cross-sectional design also restricts the ability to observe behavioral changes over time, as data were collected only once during a specific period.

Suggestions:
Future research is encouraged to expand the scope of the study by including users of other football club applications or sports-related digital platforms to enhance generalizability. Longitudinal studies could also be conducted to examine how user perceptions and Behavioral Intentions evolve over time as digital engagement deepens. In addition, qualitative methods such as interviews or focus group discussions could be used to explore in greater depth the psychological and social motivations behind fan engagement with digital platforms. For practical development, it is recommended that the PERSIS Solo management continue improving the application's interactivity and entertainment value to maintain hedonic motivation and user satisfaction. System performance and user interface design should be optimized to ensure smooth operation and high accessibility. Furthermore, integrating community features such as gamification, reward points, and virtual fan interactions could reinforce habitual use and strengthen long-term loyalty among supporters.

CONCLUSION

The objectives described in the Introduction chapter, which aimed to identify and analyze the factors influencing user acceptance of the PERSIS Solo mobile application using the UTAUT 2 model, have been fully realized through the results and discussion presented in this study. The empirical evidence confirmed that the main variables anticipated in the theoretical framework, namely social influence, hedonic motivation, habit, and facilitating conditions, significantly influence users' Behavioral Intention and actual Use Behavior. These findings demonstrate a strong coherence between the expectations outlined in the Introduction and the outcomes presented in the Results and Discussion chapters. In addition, the research results validate the applicability of the UTAUT 2 model in the digital sports ecosystem and provide a basis for future exploration. Subsequent studies may extend this research to other sports organizations or fan-engagement platforms to strengthen the generalizability of the findings. From a practical standpoint, the outcomes of this study serve as a foundation for the continuous development of the PERSIS Solo mobile application. Enhancing its interactive and entertainment elements, improving technical support, and cultivating active fan communities will help increase user satisfaction and long-term engagement. In conclusion, the expectations stated in the early stages of this research have been achieved, and the findings contribute significantly to both the theoretical understanding of user acceptance and the practical advancement of digital innovation in the sports industry.

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AUTHOR CONTRIBUTION STATEMENT

FM conceptualized the study, conducted the literature review, developed the research instrument, collected the data, and performed the statistical analysis using SEM-PLS. DAI supervised the overall research process, provided methodological and theoretical guidance, and contributed to refining the analysis and discussion of the findings. Both authors collaboratively reviewed and edited the manuscript, approved the final version for publication, and agreed to be responsible for the integrity and accuracy of the work.

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