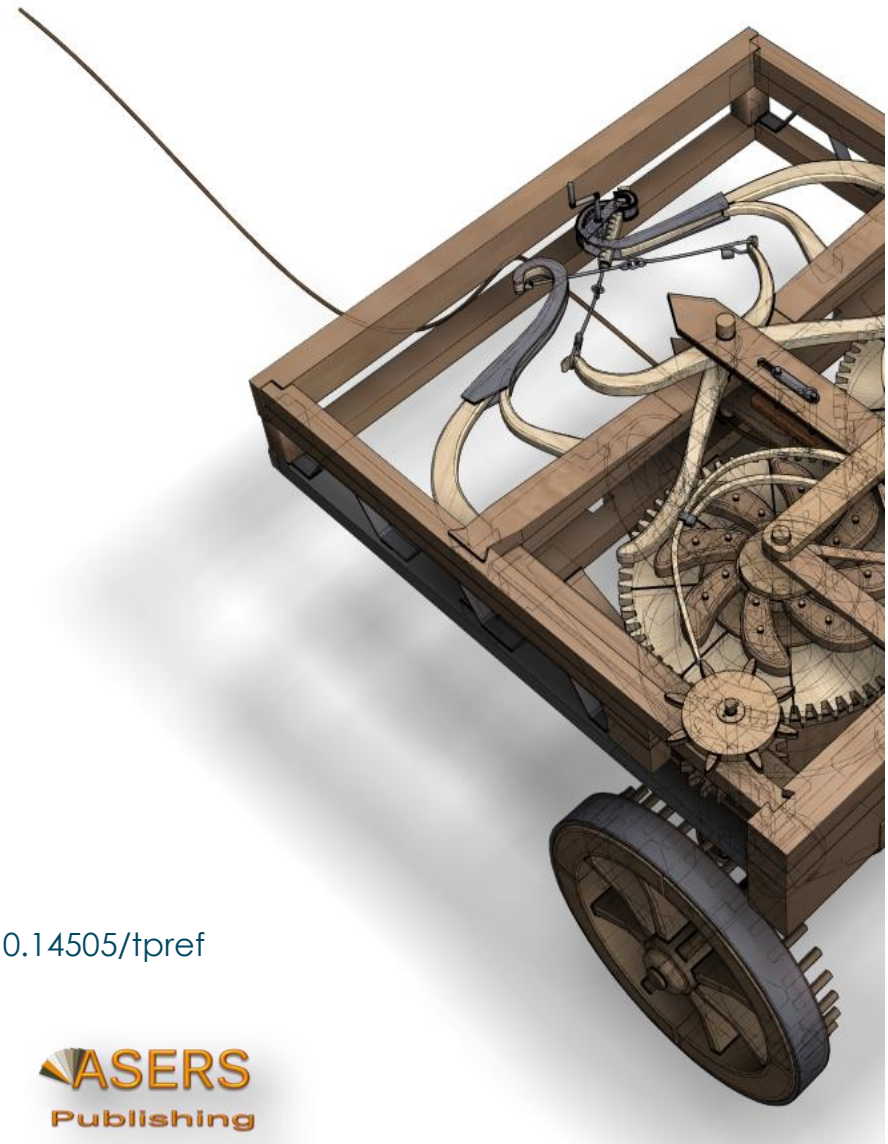
Theoretical and Practical Research in Economic Fields



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The Economic Impact of Real-Time Connectivity and User Readiness on Digital Health Adoption: An Extended TAM Perspective

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Abstract: This study examines the key determinants of digital health application adoption, extending the Technology Acceptance Model (TAM) to incorporate the economic and practical implications of real-time connectivity and user technology readiness. Given the escalating investment in mobile health technologies, understanding the factors driving user adoption is crucial for maximizing return on digital health investments and achieving widespread public health benefits. Utilizing a quantitative research design, we applied structural equation modeling to analyze survey data from 421 potential users. Our findings confirm the significant positive influence of perceived usefulness, perceived ease of use, and user technology readiness on adoption intention, thereby expanding the TAM framework. Crucially, real-time connectivity significantly impacts TAM factors, highlighting the economic necessity of robust technological infrastructure and user preparedness for successful digital transformation in healthcare. This research offers practical implications for developers, healthcare providers, and policymakers, emphasizing the need to prioritize user-centric designs, reliable connectivity, and initiatives that enhance technology readiness to foster the widespread adoption of interactive digital health solutions and optimize their economic and social impact.

Keywords: technology acceptance model; digital health economics; real-time connectivity; user readiness; mhealth adoption; innovation diffusion; healthcare policy; investment optimization.

JEL Classification: L86; O33; M15.

Introduction

The rapid advancement of mobile technology and the proliferation of smartphones have revolutionized various sectors, including healthcare. Mobile health (mHealth) applications, offering a wide range of functionalities from remote patient monitoring to personalized health tracking, have emerged as a powerful tool for improving healthcare accessibility, efficiency, and patient outcomes (Aljedaani *et al.* 2023). These applications empower individuals to actively participate in their own health management, fostering a more proactive and patient-centered approach to healthcare delivery. The potential of mHealth to transform healthcare systems is vast, particularly in addressing the growing demand for chronic disease management, preventive care, and personalized medicine (Tran and Nguyen 2021). Real-time connectivity, a key feature of many mHealth applications, further enhances their capabilities by enabling continuous data collection, immediate feedback, and timely interventions (Isakovic *et al.* 2016). This real-time data exchange between patients and healthcare providers facilitates proactive monitoring, personalized treatment adjustments, and early detection of potential health issues (Sachdev and Lall 2025). Furthermore, the integration of wearable sensors and other connected devices with mHealth applications expands the scope of data collection, providing a more comprehensive and holistic view of an individual's health status.

Despite the significant potential of mHealth applications, their adopti/on rates remain suboptimal, hindering the full realization of their benefits. Understanding the factors that influence individuals' acceptance and continued use of these applications is crucial for promoting wider adoption and maximizing their impact on healthcare. The Technology Acceptance Model (TAM) (Davis 1989; Uyen *et al.* 2025) has been widely employed as a theoretical framework for understanding technology adoption in various contexts, including healthcare. TAM posits that perceived usefulness and perceived ease of use are key determinants of an individual's intention to use a technology (Khoa and Huynh 2024; Cuong, Khoa, and Thanh 2025). However, the traditional TAM may not fully capture the unique characteristics of mHealth applications, particularly the role of real-time connectivity and the individual's readiness to embrace mobile app technology.

While the benefits of real-time connectivity in mHealth are acknowledged, its specific influence on individuals' perceptions of usefulness and ease of use remains under-explored (Priya 2024).Existing studies primarily focus on the general features and functionalities of mHealth applications, without explicitly examining the role of real-time data exchange in shaping user perceptions and adoption behavior. This gap limits our understanding of how real-time connectivity can be leveraged to enhance the appeal and effectiveness of mHealth applications. For instance, Kakria, Tripathi, and Kitipawang (2015) highlighted the importance of real-time health monitoring systems, but does not delve into the user's perception of this feature within the context of technology acceptance. Similarly, while Yang *et al.* (2022) discusses the evolution of wearable devices with real-time disease monitoring, the link to technology acceptance models remains unexplored.

Individuals' readiness to adopt and effectively utilize mobile app technology varies significantly, influenced by factors such as prior experience with mobile apps, digital literacy, and comfort with technology. This individual-level technology readiness plays a crucial role in shaping their perceptions and adoption decisions regarding mHealth applications. However, existing research on mHealth adoption often overlooks this critical factor, assuming a uniform level of technology readiness among users. This gap hinders our ability to tailor mHealth interventions and support strategies to the specific needs and capabilities of different user segments. While studies like Mishra, Singh, and Agarwal (2022) discussed the transformation in healthcare with emerging technologies, the specific aspect of individual technology readiness related to mHealth applications remains unaddressed. This research aims to address the identified gaps by:

1.Investigating the influence of real-time connectivity on individuals' perceived usefulness and perceived ease of use of mHealth applications.

2.Examining the role of mobile app technology readiness on the relationship between perceived usefulness/ease of use and Health-care tracking apps adoption.

The remainder of this paper is structured as follows: Section 2 provides a comprehensive literature review on healthcare tracking applications, theoretical model establishment, and hypotheses development. Section 3 describes the research methodology. Section 4 presents the research findings. Finally, Section 5 and 6 concludes the paper with discussion, implications and future research directions.

1. Literature Review

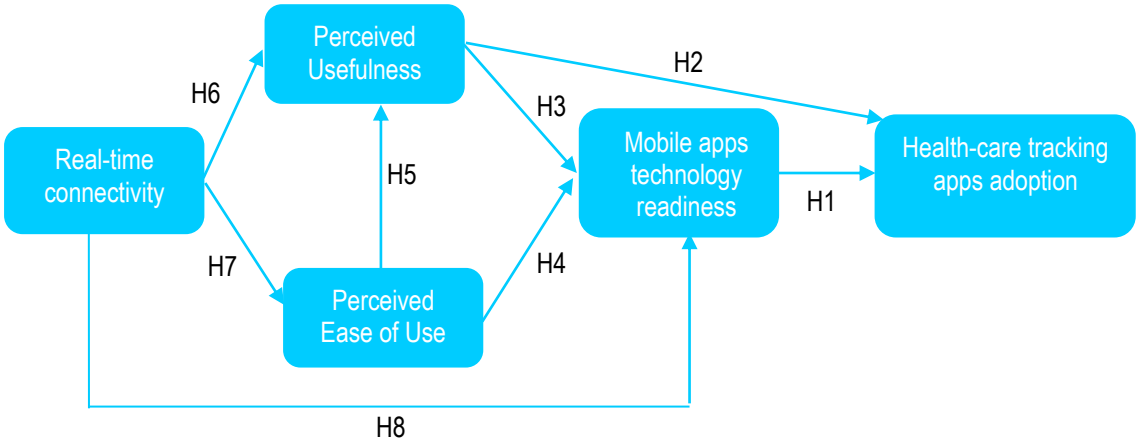
Healthcare tracking applications, a cornerstone of mHealth, empower individuals to monitor various health parameters, manage chronic conditions, and engage in preventive care. These applications leverage mobile devices and sensor technologies to collect and analyze health data, providing personalized insights and facilitating communication with healthcare providers (James and Harville 2018). From tracking physical activity and sleep patterns to managing medication adherence and monitoring vital signs, these applications offer a diverse range of functionalities that cater to various health needs. The integration of real-time connectivity further enhances their capabilities, enabling continuous data monitoring, timely interventions, and improved patient-provider communication (Kakria, Tripathi, and Kitipawang 2015). The proliferation of wearable sensors and connected devices has further expanded the scope of data collection, providing a more comprehensive and holistic view of an individual's health status (Zhang and Mao 2023).

TAM provides a robust framework for understanding technology adoption. TAM posits that perceived usefulness and perceived ease of use are key determinants of an individual's intention to use a technology (Davis 1989; Tran and Khoa 2025b). Perceived usefulness refers to the belief that using a particular system will enhance one's performance, while perceived ease of use refers to the belief that using the system will be free of effort (Venkatesh *et al.* 2003; Tran and Khoa 2025a). These two constructions have been widely used to explain technology adoption across various domains, including healthcare.

This research extends the TAM by incorporating real-time connectivity as an external variable influencing perceived usefulness and perceived ease of use. Real-time connectivity, a defining feature of many mHealth

applications, enables continuous data exchange between patients and healthcare providers, facilitating timely interventions and personalized feedback (Jayakumar, Kumar, and Kharbas 2024). This capability is particularly crucial for managing chronic conditions and promoting proactive healthcare. Studies suggest that real-time feedback enhances user engagement and motivation (Kang and Mo 2024; Khoa 2025), potentially increasing the perceived usefulness of healthcare tracking applications. Furthermore, seamless data transfer and synchronization enabled by real-time connectivity can simplify the user experience, contributing to perceived ease of use. This research also proposes replacing the "attitude" construct in the original TAM with "mobile app technology readiness." While attitude reflects a general predisposition towards a technology, mobile app technology readiness specifically captures an individual's comfort, confidence, and ability to engage with mobile applications (Anh *et al.* 2024). This construct acknowledges the varying levels of digital literacy and prior experience with mobile technology among individuals, which can significantly influence their perception and adoption of mHealth applications (Ben-Zeev *et al.* 2024). Individuals with higher mobile app technology readiness are likely to perceive healthcare tracking applications as more useful and easier to use, leading to increased adoption intention. Hence, the model was proposed as Figure 1.

Figure 1. Theoretical model



Source: Authors' recomendation

Mobile app technology readiness plays a pivotal role in shaping users' intention to adopt healthcare tracking applications. According to Mishra, Singh, and Agarwal (2022), individuals with higher technology readiness are more likely to perceive these applications as accessible and beneficial, leading to increased adoption. The integration of user-friendly interfaces, real-time connectivity, and wearable sensors further enhances the perceived value of healthcare tracking applications, particularly among tech-savvy users. Perceived usefulness is a core determinant of technology adoption, as posited by TAM (Davis 1989; Duy, Nguyen, and Khoa 2025). In the context of healthcare tracking applications, users are more likely to adopt applications that they perceive as valuable for managing their health. For instance, applications that provide real-time health insights and integrate seamlessly with wearable devices are often perceived as highly useful, thereby driving adoption (Kakria, Tripathi, and Kitipawang 2015). The perceived utility of healthcare tracking applications can enhance users' confidence and comfort with mobile technology. Positive experiences with the applications, such as timely health insights and personalized recommendations, reinforce users' trust and familiarity with mobile apps, thereby increasing technology readiness (Guk *et al.* 2019). Applications that are easy to navigate and interact with foster positive user experiences, reducing anxiety and hesitation associated with using mobile technology. This, in turn, enhances users' readiness to adopt and engage with other mobile applications, including healthcare tracking apps (Abdullah *et al.* 2015). When applications are intuitive and user-friendly, users are more likely to explore their features and functionalities, gaining a better understanding of their potential benefits. This relationship between Perceived Usefulness and Perceived Ease of Use is well-documented in the TAM literature (Khanh, Khoa, and Cuong 2025). Hence, the hypotheses were proposed:

H1: Mobile apps technology readiness has positive impact on Health-care tracking apps adoption.
H2: Perceived Usefulness has positive impact on Health-care tracking apps adoption.
H3: Perceived Usefulness has positive impact on Mobile apps technology readiness.
H4: Perceived Ease of Use has positive impact on Mobile apps technology readiness.
H5: Perceived Ease of Use has positive impact on Perceived Usefulness of Health-care tracking apps.

Real-time connectivity significantly enhances the perceived utility of healthcare tracking applications. Research by Kakria, Tripathi, and Kitipawang (2015) demonstrated that immediate data transmission capabilities improved the effectiveness of remote patient monitoring. Additionally, Mujuni *et al.* (2024) showed that real-time data connectivity enhanced the diagnostic accuracy and clinical utility of health monitoring systems. Studies show that effective real-time connectivity simplifies the use of healthcare tracking applications. Abdullah *et al.* (2015) found that wireless health monitoring systems with reliable connectivity reduced the complexity of health data management. Guk *et al.* (2019) further demonstrated that seamless real-time data transmission improved the user experience of wearable health devices. Research indicates that reliable real-time connectivity enhances users' readiness to adopt mobile health technologies. Singh *et al.* (2022) showed that robust connectivity infrastructure increased users' confidence in mobile health solutions. This is supported by Mishra, Singh, and Agarwal (2022), who found that efficient real-time data exchange capabilities positively influenced users' willingness to engage with mobile health applications. Consequently, the assumptions were formulated:

H6: Real-time connectivity has positive impact on Perceived Usefulness of Health-care tracking apps.

H7: Real-time connectivity has positive impact on Perceived Ease of Use of Health-care tracking apps.

H8: Real-time connectivity has positive impact on Mobile apps technology readiness

2. Method

This study adopts a quantitative research design using a structured online survey to collect data from healthcare app users in Vietnam. The target population comprises adult users who have prior experience using healthcare tracking applications, ensuring relevance to the study objectives. A purposive sampling technique is employed to recruit respondents, focusing on individuals aged 18 and above with diverse demographic backgrounds, such as gender, occupation, and level of digital literacy. Data collection was conducted over four weeks through an online survey platform. The survey link was distributed via social media platforms, healthcare forums, and email invitations to maximize reach. Respondents were briefed about the study's purpose, assured of confidentiality, and provided informed consent before participation. To ensure data quality, responses were screened for completeness, and individuals who did not meet the inclusion criteria (*e.g.*, no prior experience with healthcare tracking apps) were excluded. A total of 421 valid responses were retained for analysis after data cleaning. This sample size exceeds the recommended minimum for Partial Least Squares structural equation modeling (PLS-SEM), providing robust statistical power for hypothesis testing. The high response rate was attributed to the relevance of the topic and the increasing popularity of healthcare tracking applications in Vietnam.

Table 1. Respondent Demographics

Demographics	Frequency	Percentage (%)
Gender		
Male	215	51.07%
Female	206	48.93%
Age Group		
18–25	150	35.63%
26–35	170	40.38%
36–45	75	17.81%
46 and above	26	6.18%
Education Level		
High School	58	13.78%
Bachelor's Degree	245	58.19%
Master's Degree and above	118	28.03%
Experience with Mobile Apps		
1 year	90	21.38%
2-3 years	230	54.63%
More than 3 years	101	23.99%

Source: Authors' calculation

The survey was designed to minimize respondent fatigue by grouping related items and using clear, concise language. Pilot testing was conducted with 30 respondents to refine the questionnaire, ensuring clarity and reliability. Feedback from the pilot phase was incorporated into the final survey instrument.

The demographic profile of the respondents is summarized in Table 1.

The sample includes a balanced representation of genders, with slightly more male participants. Most respondents are aged between 18 and 45, reflecting the demographic most likely to use mobile healthcare applications. Table 1 also highlighted the diversity in education levels and prior experience with mobile apps, ensuring generalizability of findings.

To examine the adoption of healthcare tracking applications through the extended Technology Acceptance Model, the study employs six constructs: Perceived Usefulness (USE), Perceived Ease of Use (EOU), Mobile App Technology Readiness (MRE), Real-time Connectivity (RTC), and Health-care Tracking Apps Adoption (HTA). Each construct is measured using a three-item scale adapted from previous studies, ensuring reliability and validity. All items are scored using a 7-point Likert scale, ranging from 1 ("Strongly Disagree") to 7 ("Strongly Agree"). The items were pre-tested for clarity and relevance prior to the main survey.

Perceived Usefulness refers to the extent to which users believe that healthcare tracking applications enhance their health management.The three items of USE are used to measure USE, adapted from Davis (1989). Perceived Ease of Use assesses how effortless users find the interaction with healthcare tracking applications. Simplified interfaces and user-friendly functionalities are essential for fostering adoption. Three items for EOU are adapted from Davis (1989). Mobile Apps Technology Readiness reflects an individual's comfort, confidence, and preparedness to use mobile healthcare applications. This construct replaces Attitude in the extended TAM model to address varying levels of digital literacy. Three items for MRE are adapted from Anh *et al.* (2024). Real-time connectivity refers to the capability of healthcare tracking applications to provide immediate data exchange and feedback. Three items for RTC are adapted from Guk *et al.* (2019); Mishra, Singh, and Agarwal (2022). Adoption measures the behavioral intention and actual usage of healthcare tracking applications which measured by three items, adapted from Davis (1989); Abdullah *et al.* (2015).

4. Research Results

The measurement model was evaluated using SmartPLS 4.0 to assess reliability and validity. Following Hair Jr *et al.* (2016), this study examined indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Table 2 presents the results of reliability and convergent validity analyses. All constructs demonstrated satisfactory indicator reliability with outer loadings (OL) ranging from 0.782 to 0.931, exceeding the recommended threshold of 0.70. Composite reliability (CR) values ranged from 0.891 to 0.943, surpassing the 0.70 threshold, indicating strong internal consistency. Average Variance Extracted (AVE) values ranged from 0.731 to 0.847, exceeding the 0.50 threshold and confirming convergent validity. Discriminant validity was assessed using the Fornell-Larcker criterion. Table 2 shows that the square root of AVE for each construct (diagonal values) exceeds its correlations with other constructs, satisfying the Fornell-Larcker criterion.

Table 2. Reliability, Convergent and Discriminant Validity Results

Construct	OL	CR	AVE	α	Fornell-Larcker				
					USE	EOU	MRE	RTC	HTA
USE	0.845-0.912	0.923	0.799	0.875	**0.894**				
EOU	0.832-0.901	0.911	0.774	0.854	0.612	**0.88**			
MRE	0.856-0.931	0.943	0.847	0.909	0.687	0.654	**0.92**		
RTC	0.782-0.898	0.891	0.731	0.817	0.598	0.571	0.643	**0.855**	
HTA	0.824-0.907	0.918	0.788	0.866	0.701	0.668	0.734	0.623	**0.888**

Source: Authors' calculation

The model's predictive power was assessed through R^2 values, while predictive relevance was evaluated using Stone-Geisser's Q^2 values through blindfolding procedure. Table 3 demonstrated strong explanatory and predictive power, as evidenced by R^2 values ranging from 0.456 to 0.687 and Q^2 values all above 0. Specifically, the model explained nearly 69% of the variance in Healthcare Tracking Apps Adoption, with a robust predictive validity (Q^2 = 0.498). Similarly, Mobile Apps Technology Readiness exhibited strong explanatory and predictive capabilities (R^2 = 0.598, Q^2 = 0.467). While Perceived Usefulness and Perceived Ease of Use also showed predictive relevance (Q^2 = 0.412 and 0.334, respectively), their slightly lower values suggest potential for enhancing predictive accuracy by considering additional influencing factors. The minimal difference between R^2

and adjusted R^2 across all constructs indicates a good balance between model complexity and explanatory power.

Table 3. R^2, R^2 adjusted, and Q^2 value

Construct	R^2	R^2 Adjusted	Q^2
HTA	0.687	0.682	0.498
USE	0.543	0.539	0.412
EOU	0.456	0.452	0.334
MRE	0.598	0.593	0.467

Source: Authors' calculation

The analysis of the Variance Inflation Factor (VIF) reveals no multicollinearity issues within the model. All VIF values in Table 4 were well below the threshold of 5, ranging from 1.543 to 2.341. This indicates that the predictor variables are not highly correlated, ensuring the reliability and stability of the regression coefficients. The effect sizes (f^2) provide insights into the practical significance of the relationships between constructs. The strongest effect is observed in the relationship between MRE and HTA ($f^2 = 0.287$), indicating a medium to large effect. Several relationships demonstrate small to medium effects, including the influence of USE on MRE ($f^2 = 0.234$), EOU on USE ($f^2 = 0.245$), RTC on USE ($f^2 = 0.212$), and RTC on EOU ($f^2 = 0.189$). While the remaining relationships exhibit smaller effect sizes, they still contribute to the overall explanatory power of the model.

The path analysis in Table 4, based on the standardized beta coefficients, reveals the strength and direction of the relationships between the constructs. MRE ($\beta = 0.412$) and USE ($\beta = 0.378$) emerge as the strongest predictors of HTA. The positive path coefficients indicate that higher levels of MRE and USE are associated with greater HTA adoption. Furthermore, RTC plays a significant role in influencing USE ($\beta = 0.367$) and EOU ($\beta = 0.312$), indirectly contributing to HTA. The model confirms the hypothesized relationships, with all paths demonstrating statistical significance (t-values > 1.96). These findings highlight the importance of technology readiness, perceived usefulness, and real-time connectivity in driving the adoption of healthcare tracking applications.

Table 4. f^2, VIF, and path analysis result

Path	β	t-value	VIF	f^2	Result
H1: MRE → HTA	0.412	8.876	2.341	0.287	Supported
H2: USE → HTA	0.378	7.654	2.156	0.198	Supported
H3: USE → MRE	0.356	6.987	1.987	0.234	Supported
H4: EOU → MRE	0.298	5.876	1.876	0.176	Supported
H5: EOU → USE	0.345	6.543	1.654	0.245	Supported
H6: RTC → USE	0.367	7.123	1.789	0.212	Supported
H7: RTC → EOU	0.312	6.234	1.543	0.189	Supported
H8: RTC → MRE	0.289	5.765	1.912	0.167	Supported

Source: Authors' calculation

5. Discussions

The adoption of healthcare tracking applications (HTAs) has gained significant attention in recent years, driven by advancements in mobile technology and the increasing importance of personalized healthcare. This study extends the Technology Acceptance Model by incorporating Real-Time Connectivity (RTC) and Mobile Apps Technology Readiness (MRE) to examine their combined influence on the adoption of HTAs. The results of this research affirm the relationships between the constructs and provide critical insights into user behavior, aligning with and expanding upon findings from prior studies.

The findings indicate that Perceived Usefulness (USE) strongly influences both Mobile Apps Technology Readiness (MRE) and Health-care Tracking Apps Adoption (HTA), corroborating previous research by Davis (1989), which established USE as a critical determinant in the TAM framework. Consistent with Kakria, Tripathi, and Kitipawang (2015), USE was found to be an essential factor in motivating individuals to adopt healthcare technologies, as users recognize the benefits of improved health management and decision-making capabilities. Similarly, Perceived Ease of Use (EOU) was shown to positively impact both USE and MRE, indicating that user-friendly designs significantly reduce the perceived complexity of HTAs. This finding aligns with Abdullah *et al.*

(2015); Guk *et al.* (2019), who emphasized the importance of intuitive interfaces and simplified functionalities in driving user engagement with mobile health solutions. Furthermore, the strong relationship between EOU and USE supports assertion of Kang and Mo (2024) that ease of use enhances the perceived value of healthcare tracking apps.

A notable contribution of this research is the integration of RTC into the TAM framework. The findings demonstrate that RTC significantly enhances both USE and EOU, highlighting its role in improving the effectiveness and user experience of HTAs. This is consistent with Jayakumar, Kumar, and Kharbas (2024), who found that real-time data exchange capabilities enhance the diagnostic accuracy and clinical utility of healthcare applications. Additionally, the study aligns with Jabbar, Akhtar, and Dani (2020), who emphasized the importance of robust connectivity infrastructure in fostering user confidence and adoption of mobile health solutions.The results further reveal that RTC positively impacts MRE, suggesting that seamless real-time connectivity increases users' readiness to engage with mobile health technologies. This finding supports Mishra, Singh, and Agarwal (2022), who noted that efficient real-time data exchange capabilities positively influence users' willingness to adopt mobile health applications.

MRE emerged as a critical factor influencing HTA adoption in this study. Users with higher levels of comfort, confidence, and preparedness to use mobile technologies were more likely to adopt HTAs. This finding aligns with Çavmak, Söyler, and Çavmak (2024), who highlighted the importance of technology readiness in shaping user behavior toward new technologies. Furthermore, the significant relationship between USE and MRE underscores the importance of perceived benefits in fostering technology readiness, as suggested by Anh *et al.* (2024). The study also highlights the interplay between RTC, EOU, and MRE, providing a more nuanced understanding of how technological infrastructure and user-friendly designs contribute to technology readiness. These findings extend the work of Abdullah *et al.* (2015), who emphasized the role of usability and connectivity in reducing technological barriers.

While the findings of this research align with many prior studies, they also contribute new insights. For instance, Kang and Mo (2024) emphasized the role of user-friendly digital twin frameworks in improving perceived value, but this study extends their work by demonstrating the impact of RTC on both USE and EOU. Similarly, while Mujuni *et al.* (2024) focused on the diagnostic and clinical benefits of real-time connectivity, this research highlights its broader implications for user readiness and adoption. The inclusion of MRE as a construct provides a novel perspective on technology adoption, addressing gaps in previous studies that primarily focused on USE and EOU. By integrating MRE into the extended TAM framework, this study offers a more comprehensive understanding of the factors influencing HTA adoption

Conclusions and Further Research

This study makes several significant theoretical contributions to the literature on technology acceptance and mobile health. By incorporating RTC and MRE into the TAM framework, this research provides a more comprehensive model for understanding the adoption of HTAs. This extension addresses gaps in previous studies, offering a more holistic perspective on the factors influencing user behavior in the context of mobile health. The inclusion of RTC as a key construct highlights its critical role in enhancing both USE and EOU, as well as its indirect influence on adoption through MRE. This finding contributes to the growing body of literature on the importance of connectivity in mobile health. By introducing MRE as a construct, this study addresses the varying levels of digital literacy and preparedness among users, providing a more nuanced understanding of technology adoption. This extends the work of Mishra, Singh, and Agarwal (2022) by emphasizing the role of user readiness in shaping adoption behavior. The findings reaffirm the importance of USE and EOU in the TAM framework, consistent with Davis (1989). The strong relationships between these constructs and HTA adoption provide further empirical support for their relevance in the context of mobile health.

The findings of this research offer valuable insights for practitioners and policymakers seeking to promote the adoption of HTAs. The significant impact of EOU on both USE and MRE underscores the importance of intuitive designs and simplified functionalities. Developers should prioritize user-centric features to enhance usability and reduce technological barriers. The critical role of RTC in driving adoption highlights the need for robust connectivity infrastructure. Policymakers and healthcare providers should invest in reliable networks to support real-time data exchange and feedback. The strong relationship between MRE and HTA adoption suggests that initiatives to enhance users' digital literacy and confidence can significantly impact adoption rates. Educational campaigns and training programs can play a crucial role in fostering technology readiness. The findings highlight the importance of addressing the diverse needs and preferences of users. Developers should consider demographic factors, such as age and digital experience, when designing HTAs to ensure broad

accessibility and relevance. The strong influence of USE on adoption suggests that highlighting the tangible benefits of HTAs, such as improved health management and decision-making, can drive user engagement. Marketing campaigns should focus on communicating these benefits to potential users.

While this study provides valuable insights, it is not without limitations. The research focuses exclusively on respondents in Vietnam, which may limit the generalizability of the findings to other cultural and geographical contexts. Future research should replicate this study in diverse settings to validate the results. The study employs a cross-sectional design, which limits the ability to examine changes in user behavior over time. Longitudinal studies could provide a more dynamic understanding of the factors influencing HTA adoption. The reliance on self-reported data may introduce response bias, as participants may overestimate their readiness or intention to adopt HTAs. Future research could incorporate objective measures, such as actual usage data, to validate the findings. While the extended TAM framework provides a comprehensive model, additional constructs, such as trust, privacy concerns, and perceived risk, could further enhance the understanding of HTA adoption. Future research should explore these factors to provide a more holistic perspective. As mobile health technologies continue to evolve, the relevance of certain constructs may change over time. Future research should examine the impact of emerging features, such as artificial intelligence and predictive analytics, on user behavior.

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Credit Authorship Contribution Statement

Viet Anh Tran: Conceptualization, Investigation, Methodology, Writing – original draft, Validation.
Bui Thanh Khoa: Methodology, Project administration, Software, Formal analysis, Supervision, Data curation, Writing – review and editing, Visualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of Use of Generative AI and AI-assisted Technologies

The authors declare that they have not used generative AI and AI-assisted technologies in the writing process before submission, but only to improve the language and readability of their paper and with the appropriate disclosure.

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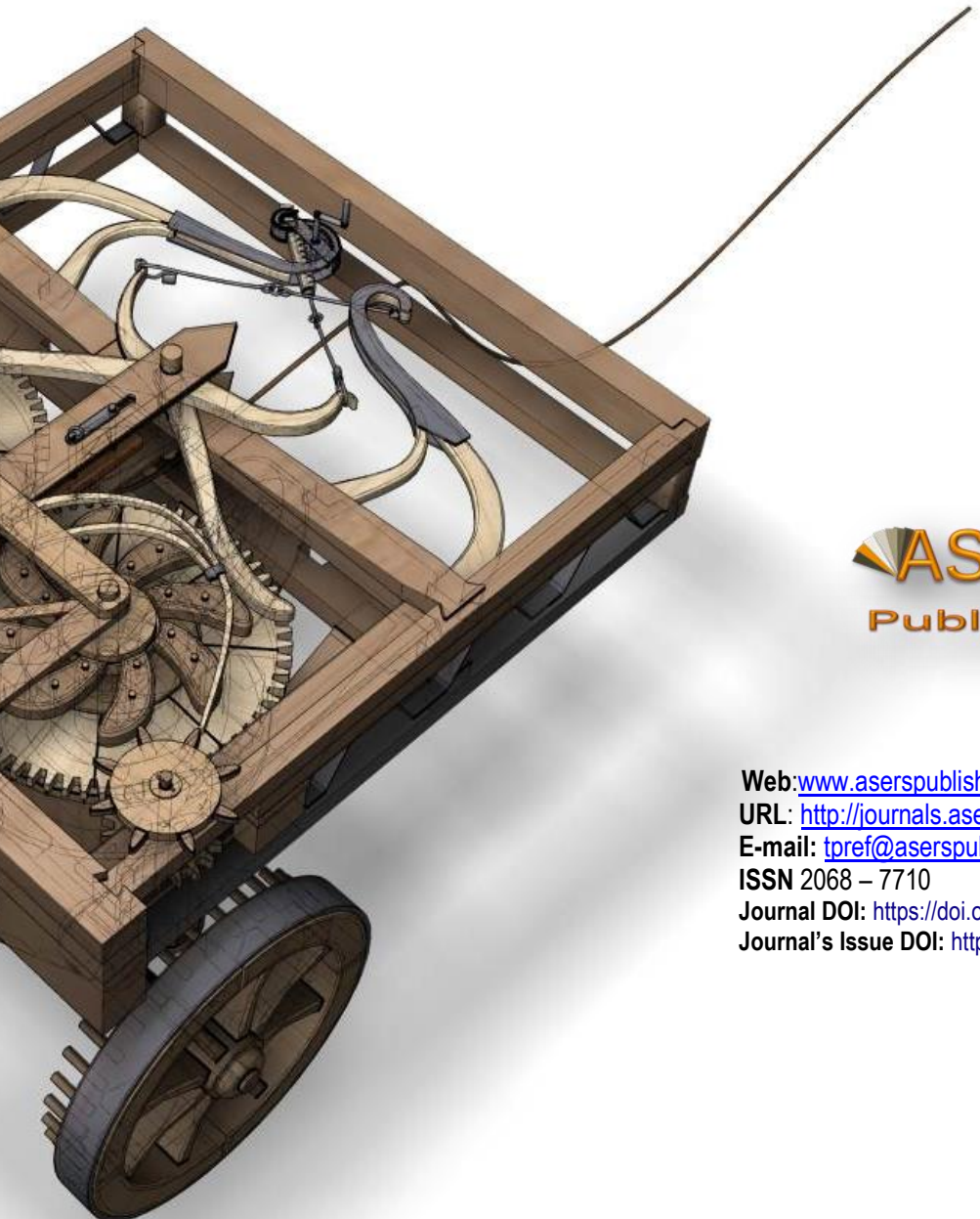

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