Available online at
https://jthca.org/online-issues

JTHCA
e-ISSN: 2590-3837

Journal of Tourism, Hospitality and Culinary Arts 18(1) 2026, 18–28

Journal of Tourism, Hospitality and Culinary Arts

A conceptual framework for guest adoption of hotel in-room tablets: Extending the technology readiness and acceptance model with social influence in the Malaysian hospitality sector

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ARTICLE INFO

Article history:
Received 05 August 2025
Revised 25 January 2026
Accepted 04 April 2026
Online first
Published 30 April 2026

Keywords:
Technology Readiness and Acceptance Model
Hotel In-Room Technology
Social Influence
Technology Adoption
Hospitality Industry

ABSTRACT

The hospitality industry is undergoing a digital transformation, with smart technologies like Hotel In-Room Tablets (HIRT) increasingly integrated to enhance guest experience and operational efficiency. Despite their potential, adoption of HIRT remains uneven, especially in emerging economies such as Malaysia. This conceptual paper proposes an extended Technology Readiness and Acceptance Model (TRAM) that incorporates Social Influence (SI) as a moderating variable to better understand guest behavioural intention (BI) to use HIRT. The framework examines how four dimensions of Technology Readiness (optimism, innovativeness, discomfort, and insecurity) affect Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), which in turn influence behavioural intentions (BI). It further explores how SI moderates the relationships between PU/PEOU and BI, acknowledging the critical role of cultural norms and interpersonal dynamics in technology adoption, particularly within collectivist societies like Malaysia. By extending TRAM within a hospitality-specific and culturally grounded context, this study offers a theoretically enriched and empirically testable framework that contributes to technology adoption literature and provides strategic insights for digital transformation in the hospitality sector.

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1. INTRODUCTION

The hospitality industry is rapidly embracing digital transformation to meet rising customer expectations for seamless, personalized, and contactless experiences. From mobile check-ins to AI-powered concierge services, technology is reshaping how hotels connect with and serve their guests (Kitsios et al., 2023). This shift is not merely about convenience; it represents a strategic response to evolving consumer demands, particularly in the post-pandemic landscape (Busulwa et al., 2022). By leveraging data-driven tools and digital platforms, hotels can gain deeper insights into guest preferences, enabling more tailored services and fostering greater satisfaction and loyalty.

Among the digital innovations reshaping the hospitality landscape, Hotel In-Room Tablets (HIRT) have emerged as a central smart-room interface that enhances both guest engagement and operational efficiency. Recent hospitality studies show that in-room tablets are increasingly valued for their ability to support contactless and self-service interactions, a demand that has intensified following the COVID-19 pandemic (Kim & Han, 2022; Nguyen et al., 2025). Acting as a centralized control hub, HIRT enables guests to access hotel information, request services, and manage room environments independently, thereby reducing reliance on frontline staff and improving service responsiveness. Through a single device, guests can conveniently control lighting, window blinds, temperature settings, and in-room entertainment, creating a more personalized and seamless stay experience. As hotels face rising labour constraints and heightened expectations for digital convenience, HIRT has become a strategically important technology for delivering smart, guest-centric service experiences (Agarwal et al., 2022).

Despite these benefits, adoption of HIRT remains inconsistent, particularly in emerging economies such as Malaysia, where differences in guests' technological capabilities and social influences are more pronounced. Understanding the psychological and social factors underlying guest adoption is therefore essential to addressing this gap. Prior research indicates that technology readiness varies significantly among hotel guests, with some individuals demonstrating enthusiasm toward digital innovation, while others exhibit hesitation stemming from discomfort, insecurity, or limited familiarity with digital systems (Choi & Yoo, 2021; Zhong et al., 2022). Moreover, the interface design and functional complexity of smart in-room technologies can be perceived as overwhelming, especially among older guests or those with lower digital literacy, leading to frustration and a preference for traditional, human-mediated service interactions (Das, 2024). These variations highlight the need to consider both individual predispositions and contextual influences when examining guest adoption of HIRT. Post-pandemic research further suggests that, despite increased exposure to automation, guests continue to value personalized service and emotional authenticity, often preferring human interaction for complex or emotionally meaningful service encounters that technology cannot fully replicate (Gursoy et al., 2020; He et al., 2024). Moreover, limited digital literacy among certain population segments may contribute to feelings of exclusion or marginalization in increasingly digital service environments, further constraining technology adoption (Leung, 2024). In the Malaysian hospitality context, these challenges are compounded by infrastructural constraints and the scarcity of localized adoption studies, potentially leading hotels to miss strategic opportunities to enhance guest satisfaction and operational efficiency.

This paper addresses the theoretical limitations of the original Technology Readiness and Acceptance Model (TRAM) by incorporating Social Influence (SI) to better reflect the interpersonal dynamics in guest decision-making. The model posits direct relationships between technology readiness and behavioural

intention (BI), suggesting that traits like optimism and innovativeness positively influence BI, whereas discomfort and insecurity exert a negative effect. In line with the principles of the Technology Acceptance Model (TAM), PU and PEOU are positioned as mediators that transmit the effects of technology readiness traits onto BI. Most notably, the framework introduces SI as a moderating variable, examining its influence on the relationships between PU/PEOU and BI. This acknowledges that individuals are often influenced by the opinions and behaviours of others such as peers, influencers, and hotel staff, which can either reinforce or diminish their intention to adopt hotel in-room tablets.

Accordingly, the purpose of this study is to develop a conceptual framework that explains hotel guests' adoption of Hotel In-Room Tablets (HIRT) by extending the Technology Readiness and Acceptance Model (TRAM) with Social Influence (SI) as a moderating variable. By integrating individual technology predispositions, system perceptions, and social forces, the proposed framework seeks to capture the cultural and interpersonal dynamics shaping technology adoption in the Malaysian hospitality context. In doing so, the study addresses limitations of existing technology adoption models that underemphasize social influence, particularly within socially oriented communities, and offers a theoretically grounded model suitable for future empirical validation.

2. LITERATURE REVIEW AND THEORETICAL FOUNDATION

Building upon the Technology Readiness and Acceptance Model (TRAM), this study proposes an extended framework that incorporates Social Influence (SI) as a moderating variable. The model is designed to explain how individual psychological predispositions captured through Technology Readiness (TR) and system-related perceptions represented by Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) influence Behavioural Intention (BI) to use Hotel In-Room Tablets (HIRT). While TRAM has been widely applied across various sectors, its application has been particularly prominent in sectors such as information systems, e-commerce, healthcare, banking, and self-service technologies, as evidenced by recent TRAM-based adoption studies (Tahar et al., 2020; Nigatu et al., 2024; Khashan et al., 2025). Its application within the hospitality context remains relatively limited, particularly in socially oriented societies such as Malaysia, where interpersonal norms, peer behaviour, and service interactions play a significant role in shaping technology-related decisions. Moreover, recent post-pandemic research suggests that guest adoption of hospitality technologies is increasingly influenced by a combination of individual predispositions, system characteristics, and social cues, highlighting the need for a more contextually grounded adoption framework (Kim & Han, 2022; Nguyen et al., 2025).

2.1 Technology Readiness (TR)

Technology Readiness (TR) reflects an individual's propensity to embrace and use new technologies. Parasuraman (2000) conceptualized TR as a multidimensional construct comprising four dimensions:

a) Optimism: This dimension reflects a positive outlook on technology. Individuals high in optimism believe that technology offers increased control, flexibility, and efficiency in their lives. They tend to view technological advancements as beneficial tools that can enhance productivity and improve quality of life.

b) Innovativeness: Innovativeness describes the degree to which an individual is a technology pioneer or early adopter. People with high innovativeness are eager to experiment with new technologies and are often among the first to try out emerging tools or systems.

c) Discomfort: Discomfort represents a perceived lack of control over technology and a sense of being overwhelmed by it. Individuals who score high in discomfort may feel that technology is too complex or difficult to use, leading to anxiety or avoidance behaviour.

d) Insecurity: Insecurity involves scepticism or distrust regarding the reliability, security, or performance of technology. Users with high insecurity may fear data breaches, system failures, or misuse of personal information.

In hospitality technology adoption, optimism and innovativeness are generally associated with favourable evaluations of system performance and usability, whereas discomfort and insecurity tend to inhibit adoption by heightening perceived complexity and risk (Choi & Yoo, 2021; Zhong et al., 2022). Recent smart hotel studies further demonstrate that guests with higher levels of technology readiness are more likely to perceive hospitality technologies as useful and easy to use, reinforcing the relevance of TR as an antecedent to acceptance beliefs in digitally mediated hotel environments (Kim & Han, 2022).

2.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989), is one of the most established frameworks for explaining user acceptance of information systems. TAM posits that technology adoption is primarily determined by two cognitive beliefs: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). PU refers to the extent to which an individual believes that using a technology will enhance task performance or service outcomes, while PEOU reflects the degree to which the technology is perceived as effortless to use.

In hospitality contexts, both PU and PEOU have consistently been shown to influence guests' willingness to adopt self-service, smart room, and contactless technologies (Kim & Han, 2022; Ghazi et al., 2023). Furthermore, research grounded in TAM and its extensions highlights that PEOU not only exerts a direct influence on behavioral intention but also indirectly enhances PU, as technologies perceived as easier to use are more likely to be viewed as beneficial (Venkatesh et al., 2003). In post-COVID hotel environments, where guests increasingly value efficiency, autonomy, and reduced physical contact, these acceptance mechanisms remain particularly salient (Kitsios et al., 2023).

2.3 Social Influence (SI)

Social Influence (SI) refer to the extent to which individuals perceive that important other such as family members, friends, peers, or service employees believe they should use a particular technology. Rooted in the Theory of Reasoned Action (TRA) developed by Ajzen and Fishbein (1985), SI is closely associated with subjective norms, which capture perceived social pressure to engage in or avoid a specific behaviour. Individuals are more likely to adopt a technology when they perceive that significant others endorse its use or when adoption aligns with prevailing social norms.

Within hospitality settings, social influence manifests through multiple channels, including direct recommendations from peers, observation of other guests' usage, staff encouragement, and online reviews shared via social media platforms (Nguyen et al., 2025). In socially oriented societies such as Malaysia, where group harmony and interpersonal validation are highly valued, these social cues can exert a particularly strong impact on guests' technology-related decisions. Importantly, recent post-pandemic studies suggest that social influence may not only exert a direct effect on adoption intentions but may also

shape how guests evaluate the usefulness and ease of use of hospitality technologies, especially in unfamiliar or technology-rich service environments (Agarwal et al., 2022).

2.4 Behavioural Intention (BI)

Behavioural Intention (BI) represents an individual's subjective likelihood of performing a specific behaviour and is widely recognized as a strong predictor of actual technology usage (Ajzen & Fishbein, 1980). In service and hospitality research, BI has been operationalized through indicators such as intention to use, likelihood of continued usage, recommendation behaviour, and positive word-of-mouth (Parasuraman et al., 2005; Zeithaml et al., 1996).

Prior hospitality studies confirm that guests' intentions to adopt in-room and contactless technologies are shaped by a combination of perceived value, usability, and contextual influences, with BI serving as a critical outcome variable for assessing technology acceptance and service effectiveness (Lien et al., 2011; Kim & Han, 2022). Accordingly, examining BI provides valuable insight into guests' readiness to engage with HIRT and other smart hotel technologies during their stay.

Collectively, prior studies confirm the importance of technology readiness and acceptance beliefs in shaping users' adoption of digital technologies. However, existing hospitality research has largely examined Technology Readiness, Perceived Usefulness, Perceived Ease of Use, and Social Influence as independent or direct predictors of adoption intention. Less attention has been given to how social influence conditions the effects of perceived usefulness and ease of use, particularly in hospitality settings characterized by socially oriented decision-making. This gap is especially evident in emerging economies such as Malaysia, where interpersonal norms and peer validation play an important role in shaping technology-related behaviour. In response, the present study extends the Technology Readiness and Acceptance Model by incorporating Social Influence as a moderating mechanism, offering a more integrated and contextually grounded explanation of guest adoption of Hotel In-Room Tablets.

3. CONCEPTUAL FRAMEWORK AND HYPOTHESIS

The proposed conceptual framework that indicates all the interconnections between the constructs incorporated in this research is developed. Below exhibits the figure of TRAM framework expanded by integrating Social Influence (SI)

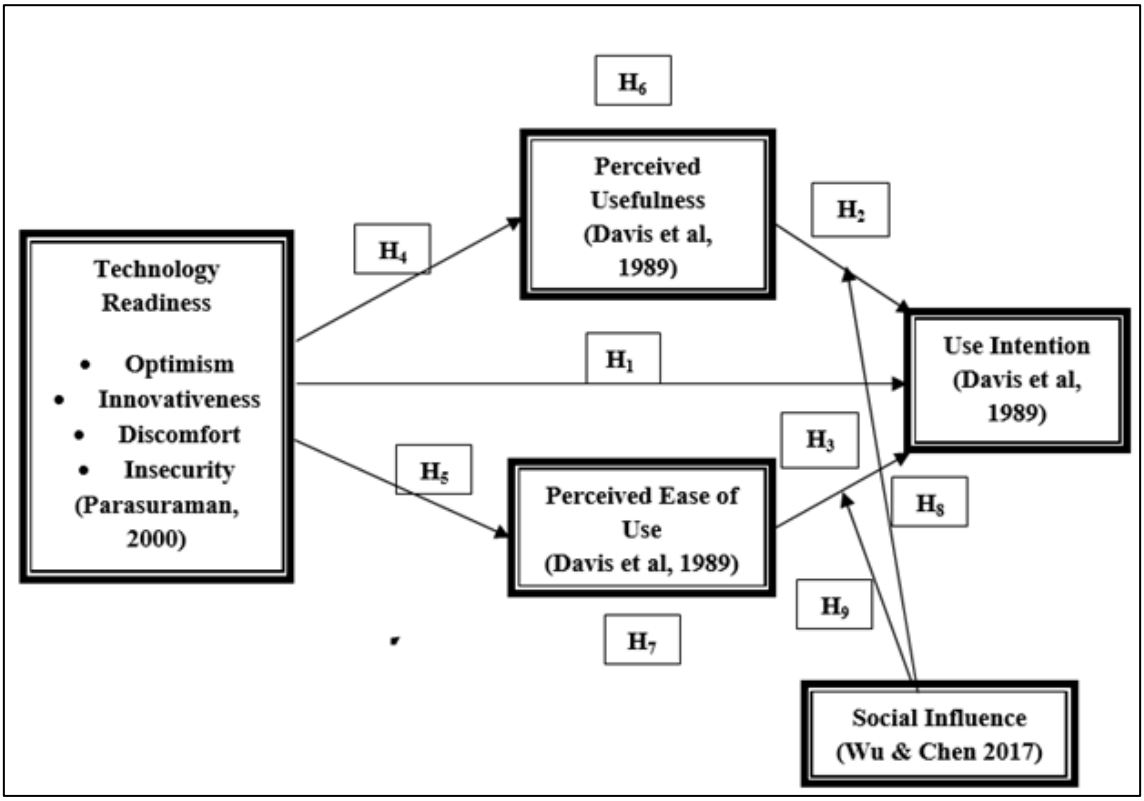

Fig. 1. Research framework from Lin, Shih, & Sher (2007) expanded by integrating Social Influence (SI)

3.1 Direct Relationship Hypothesis:

Based on the conceptual framework, several hypotheses and sub-hypotheses are proposed:

H1: Guests' technology readiness dimensions significantly influence their intention to use HIRT.

H2: Guests' perceptions of the usefulness of HIRT are positively related to their intention to use it.

H3: Guests' perceptions of the ease of use of HIRT are positively related to their intention to use it.

H4: Guests' technology readiness propensities are positively related to their perceptions of the usefulness of HIRT.

H5: Guests' technology readiness propensities are positively related to their perceptions of the ease of use of HIRT.

3.2 Mediation Hypotheses

H6: Perceived usefulness mediates the relationship between guests' technology readiness propensities and their intention to use HIRT.

H7: Perceived ease of use mediates the relationship between guests' technology readiness propensities and their intention to use HIRT.

3.3 Moderation Hypotheses

H8: Social Influence moderates the relationship between Perceived Usefulness and intention to use HIRT, such that the relationship is stronger when Social Influence is high.

H9: Social Influence moderates the relationship between Perceived Ease of Use and intention to use HIRT, such that the relationship is stronger when Social Influence is high.

4. METHODOLOGY

As a conceptual paper, this study does not involve empirical data collection or statistical analysis. Instead, it develops a theoretically grounded and empirically testable framework that extends the Technology Readiness and Acceptance Model (TRAM) by incorporating Social Influence (SI) to explain hotel guests' adoption of Hotel In-Room Tablets (HIRT) in the Malaysian hospitality context.

The proposed framework is intended to guide future empirical research. To validate the relationships hypothesized in this study, future researchers may adopt a quantitative research design using a structured survey approach targeting hotel guests who have experienced or are exposed to in-room tablet technologies. Measurement scales for the core constructs Technology Readiness (optimism, innovativeness, discomfort, and insecurity), Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Social Influence (SI), and Behavioural Intention (BI) can be adapted from well-established instruments in prior technology adoption literature.

Given the presence of multiple direct, mediating, and moderating relationships within the framework, Structural Equation Modelling (SEM) either covariance-based SEM or Partial Least Squares SEM (PLS-SEM) is considered an appropriate analytical technique for future empirical testing. SEM enables simultaneous estimation of complex relationships among latent constructs and is particularly suitable for theory testing and model extension studies involving mediation and moderation effects.

By outlining this proposed methodological approach, the present study enhances the conceptual rigor and practical applicability of the framework while maintaining its primary contribution as a theoretical model. This approach ensures that the framework can be empirically operationalized and tested across different hospitality settings, cultural contexts, or technology-enabled service environments in future research.

5. ACKNOWLEDGEMENTS/FUNDING

The authors would like to gratefully acknowledge the financial and institutional support provided by Universiti Teknologi MARA (UiTM) and the Institute of Postgraduate Studies (IPSIS), Universiti Teknologi MARA (UiTM), which made this research possible. Special appreciation is extended to the main supervisor, Dr. Muhammad Izzat Zulkifly, and co-supervisor, Dr. Azdel Abdul Aziz, for their invaluable guidance, constructive feedback, and continuous encouragement throughout the course of this research. The authors also wish to express sincere gratitude to family members for their unwavering support and understanding during the completion of this study.

6. CONFLICT OF INTEREST STATEMENT

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare the absence of conflicting interests with the funders.

7. AUTHORS' CONTRIBUTIONS

Akmal Hafiz bin Abu Bakar: Contributed to the conceptualisation, methodology, investigation, data analysis, and drafting of the manuscript.

Dr. Muhammad Izzat Zulkifly and Dr. Azdel Abdul Aziz: Provided supervision, guidance, validation, and critical revision of the manuscript. All authors reviewed and approved the final version of the manuscript.

8. DECLARATION OF GENERATIVE AI IN THE WRITING PROCESS

During the preparation of this manuscript, the author(s) used **Microsoft Copilot** to assist with language editing and grammatical review. After using this tool, the author(s) thoroughly reviewed, edited, and verified the content and take full responsibility for the accuracy, originality, and integrity of the work.

Note: If no AI assistance was used, this section is not required.

9. DATA AVAILABILITY/SUPPLEMENTARY MATERIALS

i. **Available upon request:**

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

ii. **Data included in the article:**

All data generated or analysed during this study are included in this published article.

10. ETHICS STATEMENT

The authors declare that this research did not involve human or animal subjects. All experimental procedures were performed following the institutional Safety, Health, and Environmental (HSE) protocols of Universiti Teknologi MARA (UiTM).

11. ABOUT THE AUTHORS

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