



# Acceptance of Facial Recognition Payment Systems Among Luxury Resort Guests: An Extended Technology Acceptance Model Approach

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## Abstract

Facial Recognition Payment Systems (FRPS) have emerged as an innovative contactless payment technology that enhances transaction efficiency, convenience, and customer experience. This study examined the factors influencing the acceptance of FRPS among luxury resort guests using the Extended Technology Acceptance Model (TAM). Specifically, the study investigated the effects of Perceived Ease of Use, Perceived Usefulness, Perceived Enjoyment, Facilitating Conditions, Attitude Toward Use, and Intention to Use in explaining guests' acceptance of FRPS. A quantitative descriptive-survey research design was employed involving 351 guests of Bluewater Maribago Beach Resort in Lapu-Lapu City, Cebu. Respondents were selected through stratified random sampling, and data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) through WarpPLS 8.0. The structural model demonstrated substantial explanatory power, accounting for 61.6% of the variance in Perceived Ease of Use, 59.7% in Perceived Usefulness, 76.8% in Attitude Toward Use, and 78.3% in Intention to Use. The findings revealed that Perceived Usefulness was the strongest predictor of Attitude Toward Use, followed by Perceived Enjoyment and Perceived Ease of Use. Attitude Toward Use significantly influenced Intention to Use. Furthermore, Perceived Enjoyment significantly affected Perceived Ease of Use, Attitude Toward Use, and Intention to Use, while Facilitating Conditions significantly influenced Perceived Ease of Use, Perceived Usefulness, and Intention to Use. The study concludes that usefulness, ease of use, enjoyment, and supportive conditions are key determinants of FRPS acceptance among luxury resort guests.

## Keywords

Facial Recognition Payment Systems; Technology Acceptance Model; Perceived Usefulness; Perceived Ease of Use; Luxury Resort Guests

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## Ethics Statement

This study was conducted in accordance with ethical standards.

## INTRODUCTION

The rapid advancement of digital technology has significantly transformed the way consumers conduct financial transactions, leading to the emergence of innovative payment solutions that emphasize convenience, efficiency, and security.

Among these innovations, Facial Recognition Payment Systems (FRPS) have gained increasing attention as a contactless payment technology that enables users to complete transactions through biometric authentication. By eliminating the need for cash, cards, or mobile devices, FRPS offers a seamless payment experience that aligns with the growing demand for digital and frictionless transactions. As organizations continue to invest in smart payment technologies, facial recognition payment systems are becoming an important component of the digital transformation agenda across various industries (Zhong et al., 2021; Yeung et al., 2019; Zhou et al., 2022; Wang, 2021). The growing acceptance of innovative technologies has been observed across various sectors, including automated systems, e-wallet services, blockchain applications, renewable energy technologies, electric vehicles, and digital consumer platforms, highlighting the increasing willingness of consumers to engage with technology-driven solutions (Barr et al., 2022; Gupta, 2022; Qiao et al., 2023; Yang et al., 2021; Tu & Yang, 2019).

Within the hospitality industry, technological innovations have become essential in enhancing service quality and improving customer experiences. Luxury resorts, in particular, continuously adopt emerging technologies to provide personalized, efficient, and convenient services that meet the expectations of modern travelers. Facial Recognition Payment Systems present opportunities to streamline transactions, reduce waiting times, and improve operational efficiency while contributing to a more seamless guest experience. The increasing preference for contactless services has further accelerated the relevance of biometric payment technologies in hospitality settings, making it necessary for resort operators to understand the factors that influence guests' willingness to adopt such innovations (Shin & Kang, 2020). Previous studies have similarly emphasized that consumers' perceptions, attitudes, and purchase intentions significantly influence the acceptance of innovative products and services across different industries (Cheah et al., 2015; Jaeger et al., 2015).

The acceptance of emerging technologies has been widely explained through the Technology Acceptance Model, which posits that users are more likely to adopt a technology when they perceive it as useful and easy to use (Davis, 1989). Subsequent studies have demonstrated that additional factors, such as perceived enjoyment and facilitating conditions, also contribute to technology acceptance by shaping users' attitudes and behavioral intentions (Abdullah & Ward, 2016; Flavián et al., 2020; Nysveen et al., 2005; Lim et al., 2020). Previous research has consistently demonstrated that perceived usefulness, perceived ease of use, perceived enjoyment, and facilitating conditions significantly influence users' attitudes and intentions toward adopting new technologies (Aboelmaged & Gebba, 2013; Amoako-Gyampah, 2007; Yang & Yoo, 2004). Similar relationships have been observed in studies involving mobile coupons, mobile wallets, sensory-enabled technologies, information systems security compliance, e-learning environments, social networking platforms, and mobile payment services, suggesting that technology acceptance principles remain robust across diverse technological contexts (Jayasingh & Eze, 2010, 2012; Kim & Forsythe, 2008; Ifinedo, 2014; Islam et al., 2011; Koranteng et al., 2019; Chawla & Joshi, 2023; Yang et al., 2012).

Although technology acceptance has been extensively examined in banking, retail, mobile payment, and other digital service environments, empirical evidence regarding Facial Recognition Payment Systems within luxury hospitality settings remains limited. Existing studies have primarily focused on the adoption of facial recognition payment technologies in commercial and retail contexts (Nan et al., 2022; Zhong et al., 2021), while comparatively little attention has been given to luxury resort guests. Furthermore, the combined influence of perceived usefulness, perceived ease of use, perceived enjoyment, and facilitating conditions on guests' attitudes and intentions toward FRPS remains insufficiently understood. This gap limits the ability of hospitality organizations to develop evidence-based strategies for implementing biometric payment technologies in premium service environments. Therefore, this study examines the acceptance of Facial Recognition Payment Systems among luxury resort guests using an Extended Technology Acceptance Model. Specifically, it investigates the influence of Perceived Usefulness, Perceived Ease of Use, Perceived Enjoyment, and Facilitating Conditions on Attitude Toward Use and Intention to Use, providing insights that may guide the successful implementation of biometric payment technologies within the hospitality industry.

## **METHODOLOGY**

### **Design**

This study employed a quantitative descriptive-survey research design to examine the acceptance of Facial Recognition Payment Systems (FRPS) among luxury resort guests. Guided by the Extended Technology Acceptance Model (TAM), the study investigated the influence of Perceived Usefulness, Perceived Ease of Use, Perceived Enjoyment, and Facilitating Conditions on Attitude Toward Use and Intention to Use. A descriptive-survey design was deemed appropriate because it enables the systematic collection and analysis of quantitative data from a defined population and facilitates the examination of relationships among variables associated with technology acceptance.

### **Participants and Sampling Procedure**

The study was conducted among guests of Bluewater Maribago Beach Resort, a Triple-A luxury resort located in Maribago, Lapu-Lapu City, Cebu, Philippines. The respondents consisted of Filipino guests aged 21 to 59 years who had purchased products and utilized resort facilities during June and July 2023. The target population comprised 5,347 qualified guests. The required sample size was determined using the Daniel Soper sample size calculator, which indicated a minimum requirement of 186 respondents to ensure model adequacy. A total of 360 questionnaires were distributed, and after data screening procedures, 351 valid responses were retained for analysis. Stratified random sampling was employed to ensure proportional representation of respondents and to enhance the generalizability of the findings within the study population.

### **Instrument**

Data were gathered using a researcher-adapted survey questionnaire designed to measure the constructs of the Extended Technology Acceptance Model in the context of Facial Recognition Payment Systems. The instrument consisted of two sections. The first section collected demographic information, including age, gender, and educational attainment. The second

section measured six latent constructs: Perceived Usefulness, Perceived Ease of Use, Perceived Enjoyment, Facilitating Conditions, Attitude Toward Use, and Intention to Use. Questionnaire items were adapted from established technology acceptance studies and modified to suit the hospitality context. Responses were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), which is widely used in technology adoption research to assess perceptions and behavioral intentions (Abdullah & Ward, 2016; Zhong et al., 2021).

**Collection**

Prior to data collection, permission was secured from the management of Bluewater Maribago Beach Resort. Eligible participants were identified based on the established inclusion criteria and were invited to participate voluntarily in the study. Data were collected through both face-to-face and online survey administration to maximize respondent participation and coverage. Participants were informed of the purpose of the study and assured that all responses would be treated with strict confidentiality. Completed questionnaires were screened, validated, and encoded for statistical analysis.

**Analysis**

The study utilized Partial Least Squares Structural Equation Modeling (PLS-SEM) through WarpPLS 8.0 to analyze the proposed research model and examine the relationships among the study variables. PLS-SEM was selected because of its suitability for exploratory and predictive research, particularly when analyzing complex models involving multiple latent constructs and behavioral intentions. The analysis was conducted in two stages. First, the measurement model was evaluated through indicator reliability, internal consistency reliability, convergent validity, and discriminant validity assessments. Second, the structural model was examined using path coefficients, coefficients of determination ( $R^2$ ), effect sizes ( $f^2$ ), and predictive relevance ( $Q^2$ ) to determine the strength and significance of the hypothesized relationships among the constructs influencing the acceptance of Facial Recognition Payment Systems.

**Ethical Considerations**

The study adhered to established ethical principles in social science research. Participation was voluntary, and respondents were fully informed about the objectives and nature of the study before data collection commenced. Confidentiality and anonymity were maintained throughout the research process, and all information obtained from participants was used solely for academic purposes. No personally identifiable information was disclosed, and all collected data were handled with strict confidentiality to protect respondents' privacy and uphold research integrity.

**RESULTS AND DISCUSSION**

Before examining the individual hypothesized relationships, it is necessary to evaluate the overall predictive capability of the structural model. In Partial Least Squares Structural Equation Modeling (PLS-SEM), the coefficient of determination ( $R^2$ ), full collinearity variance inflation factor (VIF), and Stone-Geisser's predictive relevance ( $Q^2$ ) are commonly used to assess the explanatory and predictive power of the proposed framework. The coefficient of determination indicates the proportion of variance explained by the predictor variables, while  $Q^2$  values determine the model's predictive relevance. Conversely, VIF values assess the presence of multicollinearity among predictor constructs.

The structural model demonstrated substantial explanatory and predictive capability in explaining the acceptance of Facial Recognition Payment Systems (FRPS) among luxury resort guests. The model explained 61.6% of the variance in Perceived Ease of Use, 59.7% of the variance in Perceived Usefulness, 76.8% of the variance in Attitude Toward Use, and 78.3% of the variance in Intention to Use. These values indicate that the predictor variables included in the model effectively explain users' perceptions and behavioral intentions toward the technology. Furthermore, the positive  $Q^2$  values confirm the model's predictive relevance, suggesting that the proposed framework is capable of generating meaningful predictions regarding technology acceptance behavior (Dwivedi et al., 2017).

Table 1  
Coefficient of Determination ( $R^2$ ), Full Collinearity VIF, and Predictive Relevance ( $Q^2$ )

| Endogenous Construct         | $R^2$ | Full Collinearity VIF | $Q^2$ |
|------------------------------|-------|-----------------------|-------|
| Perceived Ease of Use (PEOU) | .616  | 3.368                 | .614  |
| Perceived Usefulness (PU)    | .597  | 5.029                 | .599  |
| Attitude Toward Use (ATT)    | .768  | 4.659                 | .772  |
| Intention to Use (INT)       | .783  | 5.476                 | .792  |

Note.  $R^2$  = coefficient of determination; VIF = variance inflation factor;  $Q^2$  = Stone-Geisser predictive relevance value. Adapted from the structural model analysis.

The high explanatory power observed for Attitude Toward Use and Intention to Use suggests that the model successfully captures the major determinants influencing the acceptance of Facial Recognition Payment Systems. Approximately 77% of guests' attitudes and 78% of their behavioral intentions can be explained by the combined effects of perceived usefulness, perceived ease of use, perceived enjoyment, and facilitating conditions. These findings support the applicability of the Extended Technology Acceptance Model in explaining the acceptance of facial recognition payment systems among luxury resort guests. These findings support the applicability of the Extended Technology Acceptance Model in predicting technology adoption within the luxury hospitality industry. Furthermore, the strong predictive relevance values indicate that the model is capable of generating meaningful predictions regarding guests' future acceptance behavior, thereby providing a reliable framework for understanding emerging biometric payment technologies in resort settings.

Results revealed that Perceived Ease of Use significantly influenced Attitude Toward Use ( $\beta = .151, p = .002$ ). This finding suggests that guests who perceive FRPS as easy to understand and operate are more likely to develop favorable attitudes toward the technology. Technologies that require less effort are generally evaluated more positively because they reduce

complexity and encourage user confidence (Davis, 1989). Similar findings have shown that ease of use contributes significantly to the formation of positive attitudes toward technology adoption, particularly when users perceive minimal barriers during system interaction (Abdullah & Ward, 2016). In luxury hospitality settings, guests often expect seamless and convenient services, making usability an important factor in shaping positive evaluations of innovative payment technologies.

Table 2  
Influence of Perceived Ease of Use on Attitude Toward Use

| Path                   | $\beta$ | p    | $f^2$ | Decision  |
|------------------------|---------|------|-------|-----------|
| PEOU $\rightarrow$ ATT | .151    | .002 | .115  | Supported |

Note.  $\beta$  = standardized path coefficient;  $f^2$  = effect size. A p-value less than .05 indicates a statistically significant relationship.

The finding implies that luxury resort operators seeking to implement Facial Recognition Payment Systems should prioritize user-centered design principles that enhance simplicity and usability. By minimizing complexity and ensuring that guests can easily understand and navigate the system, hospitality organizations may foster more favorable attitudes toward biometric payment technologies. This, in turn, can contribute to stronger acceptance and increased willingness to adopt contactless payment innovations within resort environments.

Perceived Usefulness emerged as the strongest predictor of Attitude Toward Use ( $\beta = .518, p < .001$ ). This finding indicates that guests are more likely to develop favorable attitudes toward FRPS when they perceive the technology as beneficial, efficient, and capable of improving their transaction experience. The result reinforces the proposition that users tend to adopt technologies that enhance performance and provide practical value (Davis, 1989). Previous studies similarly demonstrated that usefulness significantly influences positive evaluations of technological innovations because users prioritize systems that improve productivity, convenience, and effectiveness (Aboelmaged & Gebba, 2013; Amoako-Gyampah, 2007). In the context of luxury resorts, guests appear to value technologies that facilitate faster and more seamless transactions.

The substantial effect size indicates that usefulness is a critical factor in shaping guests' evaluations of facial recognition payment technology. Unlike traditional payment methods that require physical cards, cash, or manual verification processes, FRPS offers a streamlined and contactless transaction experience. As a result, guests who recognize these benefits tend to perceive the technology more favorably. This finding strongly supports the Technology Acceptance Model, which identifies perceived usefulness as a primary determinant of technology acceptance and adoption behavior.

Table 3  
Influence of Perceived Usefulness on Attitude Toward Use

| Path                 | $\beta$ | p      | $f^2$ | Decision  |
|----------------------|---------|--------|-------|-----------|
| PU $\rightarrow$ ATT | .518    | < .001 | .439  | Supported |

Note.  $\beta$  = standardized path coefficient;  $f^2$  = effect size. Values indicate a statistically significant and substantial positive relationship.

The result demonstrates that guests place considerable value on technologies that enhance performance and convenience. Therefore, organizations intending to introduce FRPS should emphasize its practical benefits, such as reduced waiting time, improved transaction speed, and seamless service delivery. Communicating these advantages may strengthen positive attitudes toward the technology and increase its acceptance among potential users.

Attitude Toward Use significantly influenced Intention to Use ( $\beta = .418, p < .001$ ). This finding suggests that favorable perceptions toward FRPS increase guests' willingness to adopt the technology in future transactions. Behavioral intention is often shaped by individuals' overall evaluations of a particular behavior or technology, making attitude a critical determinant of adoption decision. Similar studies have reported that positive attitudes significantly contribute to stronger intentions to adopt emerging technologies because users are more likely to engage with systems they perceive positively (Chawla & Joshi, 2019; Kasilingam, 2020). Thus, cultivating positive attitudes toward FRPS is essential for encouraging future adoption among luxury resort guests.

The result confirms one of the central assumptions of the Technology Acceptance Model, which posits that attitude serves as a direct antecedent of behavioral intention. In the present study, respondents who viewed FRPS as beneficial, convenient, and user-friendly demonstrated stronger intentions to use the technology. This implies that guests' overall evaluations of the payment system play a critical role in determining whether they are willing to adopt the innovation. Positive attitudes may develop when guests perceive the technology as enhancing their service experience while reducing the effort required during transactions. The effect size ( $f^2 = .348$ ) indicates a moderate-to-large influence, suggesting that attitude is one of the most important determinants of behavioral intention within the model. This finding highlights that acceptance of facial recognition payment technology extends beyond awareness or knowledge of the system. Rather, actual intention to use the technology is largely driven by how positively individuals evaluate the innovation. Therefore, fostering favorable attitudes toward FRPS becomes essential in encouraging its adoption among potential users.

Table 4  
Influence of Attitude Toward Use on Intention to Use

| Path                  | $\beta$ | p      | $f^2$ | Decision  |
|-----------------------|---------|--------|-------|-----------|
| ATT $\rightarrow$ INT | .418    | < .001 | .348  | Supported |

Note.  $\beta$  = standardized path coefficient;  $f^2$  = effect size. A p-value less than .05 indicates a statistically significant relationship.

The finding suggests that luxury resort managers and technology providers should focus on strategies that cultivate positive user attitudes toward facial recognition payment systems. Efforts such as demonstrating the technology's benefits, ensuring a smooth user experience, and emphasizing convenience may strengthen favorable perceptions and subsequently increase guests' intentions to adopt the system. Ultimately, positive attitudes serve as a critical pathway through which technological features are translated into actual adoption intentions.

Perceived Enjoyment significantly influenced Perceived Ease of Use ( $\beta = .349, p < .001$ ). This finding indicates that guests who enjoy interacting with FRPS are more likely to perceive the technology as easy to use. Enjoyable experiences can reduce perceived complexity by encouraging greater engagement and exploration during technology use (Sun & Zhang, 2008). Previous studies have likewise demonstrated that positive emotional experiences enhance perceptions of usability because users become more comfortable and confident when interacting with enjoyable technological systems (Camilleri & Camilleri, 2019). The innovative and interactive nature of facial recognition payment technology may therefore contribute to stronger perceptions of ease and convenience.

In hospitality settings, where customer experience is a key determinant of satisfaction, enjoyable technological interactions can enhance guests' overall evaluations of innovative services. This result implies that enjoyment contributes to reducing the cognitive effort associated with learning and using new technologies. When users experience pleasure, excitement, or curiosity while interacting with a system, they tend to perceive the technology as less complex and more manageable. In the context of facial recognition payment systems, the novelty and innovative nature of biometric transactions may create a positive user experience that enhances perceptions of ease and convenience. As guests enjoy interacting with the technology, they become more comfortable navigating its features, thereby increasing their perceptions of usability.

The moderate effect size ( $f^2 = .260$ ) indicates that enjoyment plays a meaningful role in shaping perceptions of ease of use. This finding highlights the importance of hedonic motivations in technology adoption. While traditional acceptance models emphasize functional benefits, the present result demonstrates that emotional and experiential factors also influence how users evaluate emerging technologies. Facial recognition payment systems that provide engaging and satisfying user experiences are more likely to be perceived as accessible and user-friendly.

Table 5  
Influence of Perceived Enjoyment on Perceived Ease of Use

| Path      | $\beta$ | p      | $f^2$ | Decision  |
|-----------|---------|--------|-------|-----------|
| PE → PEOU | .349    | < .001 | .260  | Supported |

Note.  $\beta$  = standardized path coefficient;  $f^2$  = effect size. A p-value less than .05 indicates a statistically significant relationship.

Perceived Enjoyment significantly influenced Attitude Toward Use ( $\beta = .190, p < .001$ ). This finding suggests that enjoyment contributes to the development of favorable attitudes toward FRPS. Beyond functional benefits, users often evaluate technologies based on the quality of their interaction experiences. Positive emotions generated during technology use can strengthen favorable evaluations and increase acceptance (El Shamy & Hassanein, 2017). Similar findings indicate that enjoyment serves as an important determinant of attitude because pleasurable interactions increase users' appreciation of technological innovations (Flavián et al., 2020; Nysveen et al., 2005). Within luxury hospitality environments, enjoyable technological experiences may enhance guests' perceptions of service quality and innovation.

The result underscores the importance of experiential factors in technology acceptance. While users often evaluate technologies based on their practical benefits, enjoyment contributes an additional emotional dimension that shapes overall perceptions. In the hospitality industry, where customer experience is a central component of service delivery, technologies that create engaging and satisfying interactions can positively influence guests' evaluations. Facial recognition payment systems may be perceived as innovative, modern, and exciting, thereby generating positive feelings that contribute to favorable attitudes toward adoption (Flavián et al., 2020; Kim & Forsythe, 2008).

The effect size ( $f^2 = .146$ ) approaches a medium effect, indicating that enjoyment exerts a meaningful influence on attitude formation. This finding suggests that guests do not assess FRPS solely based on utility but also on the quality of their interaction with the technology. Therefore, creating enjoyable user experiences may play an important role in encouraging acceptance of biometric payment systems within luxury resort environments (Nysveen et al., 2005; Flavián et al., 2020).

Table 6  
Influence of Perceived Enjoyment on Attitude Toward Use

| Path     | $\beta$ | p      | $f^2$ | Decision  |
|----------|---------|--------|-------|-----------|
| PE → ATT | .190    | < .001 | .146  | Supported |

Note.  $\beta$  = standardized path coefficient;  $f^2$  = effect size. A p-value less than .05 indicates a statistically significant relationship.

The finding implies that resort operators should consider the experiential value of technological innovations when implementing facial recognition payment systems. By ensuring that the payment process is engaging, seamless, and enjoyable, organizations may foster more positive attitudes among guests and increase the likelihood of technology acceptance.

Perceived Enjoyment also significantly influenced Intention to Use ( $\beta = .234, p < .001$ ). This finding indicates that guests who perceive FRPS as enjoyable are more willing to adopt the technology. Behavioral intentions are influenced not only by functional considerations but also by hedonic motivations that create positive user experiences (Alalwan et al., 2015). Previous studies have shown that enjoyment can directly encourage technology adoption because users are more likely to

continue using systems that they find interesting, engaging, and satisfying (Flavián et al., 2020). The novelty of facial recognition payment technology may therefore strengthen guests' willingness to experiment with and adopt the system.

The result demonstrates that enjoyment influences not only attitudes but also behavioral intentions. Guests who perceive the technology as entertaining, interesting, or pleasurable may become more willing to experiment with and adopt the innovation. This finding is particularly relevant within luxury hospitality settings, where guests often seek unique and memorable experiences. The novelty of facial recognition payment technology may contribute to positive emotions that encourage continued use and future adoption intentions.

The moderate effect size ( $f^2 = .191$ ) indicates that enjoyment plays a substantial role in motivating behavioral intentions. This suggests that emotional responses toward technology can be just as influential as functional considerations when predicting adoption behavior. Consequently, facial recognition payment systems that deliver enjoyable user experiences may achieve higher acceptance rates among potential users.

Table 7  
Influence of Perceived Enjoyment on Intention to Use

| Path     | $\beta$ | p      | $f^2$ | Decision  |
|----------|---------|--------|-------|-----------|
| PE → INT | .234    | < .001 | .191  | Supported |

Note.  $\beta$  = standardized path coefficient;  $f^2$  = effect size. A p-value less than .05 indicates a statistically significant relationship.

The finding highlights the importance of designing payment technologies that are not only efficient but also engaging and enjoyable. By integrating user-friendly and appealing features into FRPS, hospitality organizations may strengthen guests' willingness to adopt biometric payment solutions and enhance the overall customer experience.

Facilitating Conditions significantly influenced Perceived Ease of Use ( $\beta = .235, p < .001$ ). This finding suggests that adequate infrastructure, technical support, and organizational readiness enhance users' perceptions regarding the usability of FRPS. Supportive conditions reduce barriers to technology use and increase users' confidence in interacting with new systems (Dwivedi et al., 2017). Similar findings indicate that the availability of resources and assistance positively influences perceptions of ease of use because users feel better equipped to navigate technological innovations. Consequently, supportive implementation environments contribute to more favorable evaluations of system usability.

The result implies that users are more likely to perceive a technology as easy to use when they believe that sufficient support mechanisms are available. In the context of luxury resorts, guests may feel more confident using FRPS when they know that resort personnel, technological infrastructure, and assistance services are readily accessible. Such support reduces uncertainty and enhances users' confidence in navigating new technological systems. As a result, facilitating conditions contribute significantly to perceptions of usability and convenience.

The effect size ( $f^2 = .168$ ) indicates a moderate influence, suggesting that facilitating conditions represent an important environmental factor in technology acceptance. While individual perceptions remain essential, the presence of supportive conditions can significantly enhance users' willingness to engage with innovative technologies. Therefore, organizations implementing FRPS should ensure that guests receive adequate guidance, technical support, and system accessibility to maximize perceived ease of use.

Table 8  
Influence of Facilitating Conditions on Perceived Ease of Use

| Path      | $\beta$ | p      | $f^2$ | Decision  |
|-----------|---------|--------|-------|-----------|
| FC → PEOU | .235    | < .001 | .168  | Supported |

Note.  $\beta$  = standardized path coefficient;  $f^2$  = effect size. A p-value less than .05 indicates a statistically significant relationship.

The finding emphasizes the importance of establishing a supportive technological environment before implementing facial recognition payment systems. Adequate infrastructure, staff readiness, and user assistance programs can strengthen perceptions of ease of use and facilitate successful technology adoption.

Facilitating Conditions significantly influenced Perceived Usefulness ( $\beta = .269, p < .001$ ). This finding indicates that users are more likely to recognize the benefits of FRPS when sufficient support mechanisms are available. The presence of reliable infrastructure and technical assistance enhances users' confidence in the effectiveness of technological systems and strengthens perceptions regarding their value (Camilleri & Camilleri, 2023). Previous studies similarly found that supportive environments improve users' evaluations of technology usefulness by enabling more efficient and productive system use (Dwivedi et al., 2017). Therefore, organizational readiness plays an important role in enhancing the perceived benefits of FRPS.

The effect size ( $f^2 = .190$ ) indicates a moderate influence, highlighting the importance of organizational readiness in shaping perceptions of usefulness. This finding suggests that successful implementation of facial recognition payment systems requires more than technological functionality alone. Adequate support structures must also be established to ensure that users recognize and appreciate the practical benefits of the technology.

Table 9  
Influence of Facilitating Conditions on Perceived Usefulness

| Path    | $\beta$ | p      | $f^2$ | Decision  |
|---------|---------|--------|-------|-----------|
| FC → PU | .269    | < .001 | .190  | Supported |

Note.  $\beta$  = standardized path coefficient;  $f^2$  = effect size. A p-value less than .05 indicates a statistically significant relationship.

The finding suggests that hospitality organizations intending to adopt FRPS should invest in technological infrastructure and support services. By creating an environment that facilitates technology use, organizations may strengthen guests' perceptions regarding the usefulness and value of facial recognition payment systems.

Facilitating Conditions did not significantly influence Attitude Toward Use ( $\beta = .021, p = .349$ ). This finding suggests that although support mechanisms assist users in operating the technology, they do not directly shape positive or negative attitudes toward FRPS. Guests appear to evaluate the technology primarily based on its functionality, usefulness, and user experience rather than the availability of external support. This result contrasts with studies suggesting that facilitating conditions directly influence attitudes toward technology adoption. The difference may be attributed to contextual factors, as luxury resort guests may place greater emphasis on service quality and technological benefits than on organizational support structures when forming attitudes.

The negligible effect size ( $f^2 = .015$ ) further supports the conclusion that facilitating conditions contribute very little to explaining variations in attitude. This finding indicates that guests' emotional and cognitive evaluations of FRPS are shaped more strongly by personal perceptions of the technology than by external support structures. Therefore, while facilitating conditions remain important for implementation, they may not directly influence whether users view the technology positively or negatively.

Table 10  
Influence of Facilitating Conditions on Attitude Toward Use

| Path     | $\beta$ | p    | $f^2$ | Decision      |
|----------|---------|------|-------|---------------|
| FC → ATT | .021    | .349 | .015  | Not Supported |

Note.  $\beta$  = standardized path coefficient;  $f^2$  = effect size. A p-value greater than .05 indicates a non-significant relationship.

The finding implies that organizations should not rely solely on infrastructure and technical support to cultivate favorable attitudes toward FRPS. Instead, attention should also be directed toward enhancing the technology's perceived usefulness, ease of use, and overall user experience.

Facilitating Conditions significantly influenced Intention to Use ( $\beta = .108, p = .020$ ). Although the effect size was relatively small, the finding indicates that supportive conditions contribute to users' willingness to adopt FRPS. The availability of technical support, infrastructure, and guidance reduces uncertainty and encourages users to engage with technological innovations (Dwivedi et al., 2017). Similar findings have demonstrated that facilitating conditions positively influence behavioral intentions because users are more willing to adopt technologies when adequate support systems are available (Azalan et al., 2022). Consequently, ensuring sufficient organizational and technical support may enhance the successful adoption of facial recognition payment systems within luxury hospitality settings.

Although the effect size is relatively small ( $f^2 = .082$ ), the relationship remains statistically significant, indicating that facilitating conditions contribute meaningfully to behavioral intention. This suggests that users consider environmental support when deciding whether to adopt a new technology. Even when guests perceive the system as useful and enjoyable, the absence of adequate support may discourage actual adoption intentions. Therefore, facilitating conditions function as an important enabling factor in technology acceptance.

Table 11  
Influence of Facilitating Conditions on Intention to Use

| Path     | $\beta$ | p    | $f^2$ | Decision  |
|----------|---------|------|-------|-----------|
| FC → INT | .108    | .020 | .082  | Supported |

Note.  $\beta$  = standardized path coefficient;  $f^2$  = effect size. A p-value less than .05 indicates a statistically significant relationship.

The finding emphasizes the need for hospitality organizations to establish a supportive implementation environment when introducing facial recognition payment systems. Adequate infrastructure, employee training, and technical assistance can strengthen guests' intentions to adopt the technology and contribute to successful implementation outcomes.

### Conclusion and Recommendations

The study examined the acceptance of Facial Recognition Payment Systems (FRPS) among luxury resort guests using the Extended Technology Acceptance Model. Findings revealed that the proposed model demonstrated strong explanatory and predictive power, indicating its suitability for understanding guests' acceptance of biometric payment technology. Perceived Usefulness emerged as the strongest predictor of Attitude Toward Use, followed by Perceived Enjoyment and Perceived Ease of Use. Moreover, Attitude Toward Use significantly influenced Intention to Use, confirming that favorable perceptions toward FRPS increase guests' willingness to adopt the technology. Facilitating Conditions also significantly influenced Perceived Ease of Use, Perceived Usefulness, and Intention to Use, highlighting the importance of organizational support and technological infrastructure in promoting acceptance. Overall, the findings suggest that guests are more likely to embrace facial recognition payment systems when they perceive them as useful, easy to use, enjoyable, and supported by adequate resources.

Based on these findings, luxury resort operators should prioritize the development and implementation of user-friendly facial recognition payment systems that enhance convenience, efficiency, and customer experience. Management should communicate the practical benefits of FRPS, provide adequate technological support, and ensure a seamless payment process to strengthen positive guest perceptions and adoption intentions. Technology developers are likewise encouraged to design intuitive and engaging systems that maximize both functionality and user satisfaction. Future researchers may

expand the study by examining additional determinants of FRPS acceptance across different hospitality sectors and demographic groups to further enrich the growing body of knowledge on biometric payment technologies.

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