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Understanding Consumers' Intention to Book Hotel Rooms: The Roles of Virtual Reality Innovativeness and Interactivity

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Abstract

Virtual reality (VR) offers hotels new ways to present accommodation products and support consumers' booking decisions. However, the relationships between specific VR attributes and consumers' booking intention require further clarification. This study examines VR innovativeness and interactivity through a model linking these attributes to consumers' intention to book hotel rooms. Specifically, it investigates whether the perceived novelty of virtual hotel presentations and consumers' ability to navigate, control, and explore virtual environments are associated with their booking intention. A questionnaire survey and structural equation modelling are employed to assess measurement reliability and validity and test the hypothesised relationships. By distinguishing the roles of innovativeness and interactivity, this study seeks to advance understanding of consumer behavioural intention in virtual hotel environments. The research aims to provide empirical evidence concerning the marketing relevance of these technological attributes and inform hotel managers' decisions about virtual presentation design, online accommodation displays, and the allocation of digital marketing resources.

Keywords: hotel booking intention; interactivity; virtual reality; vr innovativeness

1. INTRODUCTION

The online presentation of hotel accommodation plays an important role in how consumers acquire information, evaluate alternatives, and develop booking intentions. Potential guests frequently assess rooms and facilities without having experienced the property in person. Virtual reality (VR) provides opportunities to support this evaluation through spatial presentations that consumers can explore before their stay. Experimental evidence indicates that presentation design matters: Orús et al. (2021) found that content with greater factual realism positively influenced presence, ease of imagination, visual appeal, and booking intention, with effects varying by device type. More recently, Wu et al. (2025) demonstrated that hotel VR photography previews elicited richer mental imagery than conventional pictures, with perceived utilitarian and hedonic value linking imagery to immediate booking intention. These findings suggest

that the marketing relevance of virtual presentations depends on their characteristics and the evaluations they generate.

Research has consequently moved beyond asking whether hotels should adopt VR towards examining how virtual experiences are designed and interpreted. Lim et al. (2024) identified perceived innovativeness, usefulness, and ease of use as antecedents of tourist satisfaction with augmented reality and VR in the hotel context. Li et al. (2025) found that metaverse hotel experiences improved brand attitude and booking intention compared with conventional images and videos, with interactivity and mental simulation operating as sequential mediators. Nevertheless, favourable responses should not be assumed across all applications. Alfaro et al. (2024), in a quasi-experimental evaluation of an adaptive hotel presentation system, reported differences between conventional and 360° VR presentations, including booking-related responses favouring conventional images in their study setting. Such evidence reinforces the need to examine specific attributes and contexts rather than presume that a more immersive format is universally more effective.

This study focuses on VR innovativeness and interactivity as distinct attributes of virtual hotel presentations. VR innovativeness is defined as consumers' perception that a presentation is novel and distinctive. The relevance of technology innovativeness to service previews has been examined by Bogicevic et al. (2021), providing a foundation for considering how consumers evaluate innovative presentation formats. However, presentation-level innovativeness must be distinguished from personal innovativeness. Sinha et al. (2025), for example, examined consumers' intention to use VR tourism systems and identified personal innovativeness as a moderator of the attitude–intention relationship. Their study concerns an individual characteristic and technology use, whereas the present study examines evaluations of a hotel presentation and intention to reserve accommodation.

Interactivity concerns consumers' perceived ability to control and explore the virtual hotel environment, including selecting viewpoints, navigating between spaces, and choosing information for closer examination. Whereas innovativeness concerns perceived novelty, interactivity concerns participation in information acquisition. A presentation may appear innovative while providing limited control, or offer substantial opportunities for exploration without being perceived as particularly novel. Treating the attributes separately therefore helps clarify their respective relationships with consumer responses.

Recent studies provide further grounds for investigating interactivity. Dutta and Dixit (2025) found that perceived interactivity enhanced immersion, imagination, and curiosity in virtual tourism experiences. Pandey et al. (2026) likewise highlighted the relevance of interactive and experiential characteristics to willingness to use VR tourism systems. These findings support attention to active participation, but their outcomes should be distinguished from hotel booking intention. Willingness to use a technology,

visit a destination, and reserve hotel accommodation represent different decisions. Evidence concerning one outcome does not automatically establish an equivalent relationship with another.

The literature therefore provides a basis for examining VR innovativeness and interactivity without positioning either as an entirely unexplored concept. Existing studies address presentation formats, experiential mechanisms, perceived value, satisfaction, and technology adoption. Building on these contributions, the present study examines whether perceived innovativeness and interactivity are each associated with hotel booking intention when considered simultaneously. This focused approach distinguishes presentation attributes while keeping the outcome specific to accommodation reservation. It also allows their estimated contributions to be assessed without assuming that either attribute is sufficient to explain consumers' decisions.

Accordingly, this study addresses the following research question: How are VR innovativeness and interactivity associated with consumers' intention to book hotel rooms? A two-predictor model is tested using questionnaire data and partial least squares structural equation modelling. Measurement reliability and validity are assessed before the hypothesised relationships are examined. Booking intention is conceptualised as a stated propensity to make a future reservation rather than evidence of an actual booking.

The study aims to contribute by distinguishing innovation-related and interaction-related evaluations within a common analytical framework and examining their associations with a clearly specified consumer outcome. Practically, it seeks to inform hotel managers' decisions about balancing distinctive presentation features with meaningful opportunities for exploration. The remainder of the article reviews the relevant literature and develops the hypotheses, describes the methodology, presents and discusses the results, and concludes with implications, limitations, and future research directions.

1.1 VR Presentation Attributes and Hotel Booking Intention

Virtual reality (VR) allows hotels to present accommodation environments that consumers can explore before making a reservation. McLean and Barhorst (2022) demonstrated the relevance of virtual hotel previews to consumers' learning, visit intentions, and expectations across the purchase journey. However, the availability of a virtual presentation alone does not explain how consumers evaluate it or develop booking intentions. Jiang et al. (2023), through a qualitative and quantitative review, highlighted the importance of examining specific technological features when understanding VR and augmented reality experiences in tourism. In hotel advertising, Lyu et al. (2021) also identified interactivity and vividness as relevant to consumer responses, including booking intention. Building on these perspectives, the present study distinguishes consumers' perceptions of a presentation's novelty from their

perceived opportunities for active exploration. It therefore examines VR innovativeness and interactivity as separate attributes and assesses their respective associations with consumers' intention to book hotel rooms.

1.1.1 VR Innovativeness

VR innovativeness refers to consumers' perceptions of the novelty and distinctiveness of a virtual hotel presentation. It concerns the presentation itself rather than an individual's tendency to adopt new technologies. In the hotel context, innovativeness may be reflected in unfamiliar ways of viewing accommodation spaces, discovering facilities, or accessing information about the property. The construct consequently captures whether consumers regard the presentation as a distinctive approach to evaluating hotel accommodation.

Lim et al. (2024) found that perceived innovativeness, together with ease of use and usefulness, positively influenced tourist satisfaction with augmented reality and VR in the hotel context. Their findings demonstrate the relevance of innovation-related perceptions to consumers' evaluations of these technologies. However, satisfaction with a technological experience and intention to book the accommodation presented are conceptually different outcomes. A favourable evaluation of an innovative presentation should therefore not automatically be interpreted as a willingness to make a reservation.

From a hotel marketing perspective, an innovative presentation may attract attention and encourage consumers to examine an accommodation offering more closely. Its relevance to booking intention is likely to depend on whether consumers regard this novelty as meaningful to their accommodation evaluation. Examining VR innovativeness as a separate construct therefore enables the study to investigate whether perceived novelty extends beyond appreciation of the presentation and is associated with intention to book hotel rooms.

1.1.2 Interactivity

Interactivity refers to the extent to which consumers can actively control and explore a virtual hotel environment. It includes selecting viewing perspectives, navigating between rooms and facilities, and choosing information for further examination. Whereas innovativeness concerns how distinctive a presentation appears, interactivity concerns what consumers can do within it. A presentation may therefore be perceived as innovative while offering limited opportunities for active exploration, or provide substantial interactive functionality without appearing particularly novel.

Recent research highlights the relevance of interactivity to virtual experiences. Dutta and Dixit (2025) found that perceived interactivity enhanced immersion, imagination, and curiosity in virtual tourism. In a hotel-related setting, Li et al. (2025) demonstrated

that interactivity and mental simulation sequentially explained the favourable effects of metaverse hotel experiences on brand attitude and booking intention. These findings support examining interactivity as a meaningful experiential attribute, while recognising differences between virtual destination tours, metaverse hotels, and the VR hotel presentations investigated in this study.

For consumers evaluating hotel accommodation, interactive functions may support a more selective examination of information. For example, users can focus on room layouts or facilities that are relevant to their needs rather than follow a fixed viewing sequence. This provides a rationale for investigating whether greater perceived interactivity is associated with stronger hotel booking intention. Nevertheless, the availability of interactive features alone does not establish their effectiveness; their relationship with booking intention requires empirical examination.

1.1.3 Consumers' Intention to Book Hotel Rooms

Consumers' intention to book hotel rooms refers to their stated willingness or likelihood of reserving accommodation at a hotel. It represents a prospective behavioural response rather than an actual reservation. In this study, the construct concerns booking the hotel presented through VR, rather than merely expressing interest in the technology or willingness to use it again.

This distinction is important when interpreting the growing literature on virtual tourism. Pandey et al. (2026) examined willingness to use VR tourism systems and highlighted the relevance of technological and experiential characteristics. Although such research helps explain technology adoption, willingness to use a VR system does not necessarily indicate willingness to purchase the accommodation featured within it. The present study therefore treats hotel booking intention as a distinct outcome and examines its associations with VR innovativeness and interactivity within the same analytical framework.

2. LITERATURE REVIEW

Research on virtual technologies in hospitality increasingly distinguishes technological attributes, experiential evaluations, and behavioural outcomes. Chen et al. (2023), in a systematic review of 274 journal articles, documented the range of VR, augmented reality, and mixed reality applications in hospitality and tourism. Their review provides a foundation for treating these applications as a diverse research field rather than a uniform technological intervention. Similarly, Fan et al. (2022) synthesised 56 empirical studies in a meta-analysis of immersive technologies, organising evidence around antecedents, mediators, and moderators of tourism experiences. Together, these reviews support examining specific attributes and clearly defined outcomes when assessing the relevance of virtual technologies to hotel marketing.

Within hotel-related research, Lim et al. (2024) examined perceived innovativeness alongside usefulness and ease of use, identifying their relevance to tourist satisfaction. Li et al. (2025) investigated metaverse hotel experiences and identified interactivity and mental simulation as sequential mechanisms contributing to favourable consumer responses. These studies address different parts of the relationship between technology and consumer behaviour: evaluations of technological characteristics, responses to virtual experiences, and subsequent intentions. Their findings therefore support a differentiated approach rather than the assumption that adopting VR alone will necessarily strengthen booking intention.

The present study distinguishes VR innovativeness from interactivity. VR innovativeness captures consumers' evaluations of a presentation's novelty and distinctiveness, whereas interactivity concerns their perceived ability to participate in and control its exploration. The broader marketing framework developed by Alcañiz et al. (2019) situates VR within research on consumer experience and responses, providing a basis for considering how technological environments should be evaluated. For the present study, this perspective supports separating consumers' perceptions of the presentation from the behavioural intention being examined.

Interactivity also has a distinct conceptual role in VR marketing. Cowan and Ketron (2019) proposed a dual model of product involvement in which imagination, co-creation, telepresence, and interactivity contribute through different routes to consumer responses. Their work is conceptual rather than a direct empirical test of hotel booking intention, but it demonstrates why interactive participation should not be equated with the general novelty of VR. A presentation can appear innovative while offering limited opportunities for exploration, or provide substantial user control without being perceived as particularly novel. Examining both attributes simultaneously therefore allows their respective associations with booking intention to be assessed.

The proposed framework further distinguishes hotel booking intention from related outcomes. Dutta and Dixit (2025) examined virtual tourism experiences and visitation intentions, while Pandey et al. (2026) investigated willingness to use VR tourism systems. Yoon et al. (2021) likewise examined intention to use hotel VR applications and willingness to pay more for hotels offering such applications, identifying perceived value as relevant to these outcomes. Although these studies inform understanding of consumer responses, technology use, willingness to pay, destination visitation, and accommodation booking represent different decisions. Evidence concerning one should not automatically be interpreted as evidence concerning another.

Accordingly, this study does not claim that innovativeness or interactivity has been overlooked in previous research. Instead, it examines their respective associations with consumers' intention to book hotel rooms within a focused two-predictor model. This specification enables the relationship of each attribute with booking intention to be estimated while accounting for the other. The model does not incorporate additional

experiential constructs, so its direct paths should be interpreted as associations within the specified framework. They do not demonstrate that psychological mechanisms are absent or establish causal relationships.

2.1 Hypothesis Development

2.1.1 VR Innovativeness and Hotel Booking Intention

An innovative virtual hotel presentation may encourage consumers to pay closer attention to an accommodation offering and consider it more carefully. Lim et al. (2024) provide evidence that perceived innovativeness is relevant to favourable evaluations of augmented reality and VR in the hotel context. Although their findings concern satisfaction rather than the direct relationship proposed here, they provide a basis for expecting innovation-related perceptions to be relevant to consumer responses.

The present study extends this reasoning to hotel booking intention. When consumers perceive a virtual presentation as a distinctive and relevant way to explore accommodation, they may express greater willingness to consider booking the hotel. This expectation requires empirical testing because an attractive technological presentation does not necessarily translate into purchase intention. The following hypothesis is therefore proposed:

H1: VR innovativeness is positively associated with consumers' intention to book hotel rooms.

2.1.2 Interactivity and Hotel Booking Intention

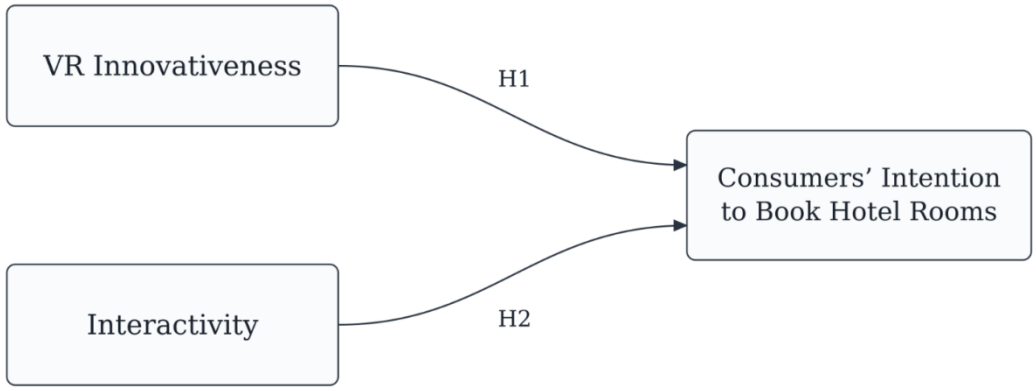
Interactive virtual presentations allow consumers to direct their exploration towards accommodation information that matters to them. The opportunity to select viewpoints, examine particular facilities, and navigate at an individual pace may make the presentation more relevant to their evaluation process.

Li et al. (2025) identified interactivity as part of the mechanism connecting metaverse hotel experiences with favourable consumer responses. Dutta and Dixit (2025) further demonstrated its relevance to virtual tourism experiences. These findings support investigating interactivity in relation to hotel booking intention, although they do not establish the direct relationship examined in the present model. Based on the potential value of active exploration for accommodation evaluation, the following hypothesis is proposed:

H2: Interactivity is positively associated with consumers' intention to book hotel rooms.

2.2 Conceptual Framework

Figure 1 presents the proposed conceptual framework, which examines the relationships between VR innovativeness, interactivity, and consumers' intention to book hotel rooms. VR innovativeness and interactivity are specified as independent variables, while hotel booking intention is the dependent variable. The framework proposes that perceived novelty in virtual hotel presentations (H1) and opportunities for active exploration and control (H2) are positively associated with booking intention. Both relationships are examined within the same model to assess the respective contributions of these two VR attributes.



3. RESEARCH METHODOLOGY

3.1 Research Design

This study adopts a quantitative, cross-sectional research design to investigate the relationships between VR innovativeness, interactivity, and consumers' intention to book hotel rooms. A structured questionnaire captures consumers' evaluations of virtual hotel presentations and their stated booking intentions. The conceptual model specifies VR innovativeness and interactivity as independent variables and hotel booking intention as the dependent variable.

Partial least squares structural equation modelling (PLS-SEM) is selected to evaluate the measurement model and estimate the two hypothesised relationships simultaneously. This approach supports the study's objective of examining the contribution of each VR attribute to explaining booking intention. The methodological framework follows the distinction between measurement model assessment and structural model assessment outlined by Hair et al. (2021). The analysis concerns associations between constructs; the cross-sectional design does not establish causal effects.

3.2 Questionnaire Design and Measurement of Variables

The questionnaire is organised into three sections. The first establishes respondents' eligibility and identifies their experience with VR hotel presentations. The second collects demographic and relevant background information, including age, gender, online hotel booking experience, and familiarity with virtual hotel presentations. The third measures the three constructs in the proposed model.

Respondents are instructed to refer to the same hotel and virtual presentation throughout the measurement section. This reference ensures that evaluations of innovativeness and interactivity correspond to the hotel considered in the booking intention items.

VR innovativeness captures the perceived novelty and distinctiveness of the virtual hotel presentation. Its measurement focuses on the presentation's innovative characteristics rather than respondents' personal willingness to adopt new technologies. Interactivity captures consumers' perceived ability to direct their exploration of the virtual hotel environment, including selecting viewpoints, navigating between spaces, and choosing information to examine. Hotel booking intention measures respondents' stated willingness and likelihood of reserving accommodation at the hotel presented. Recommendation intention and willingness to reuse VR are excluded from this construct because they represent different behavioural outcomes.

All measurement items use a five-point Likert scale ranging from 1, "strongly disagree," to 5, "strongly agree." Questionnaire review and pretesting assess the clarity, relevance, and consistency of the wording. Particular attention is given to distinguishing innovativeness from interactivity and ensuring that the booking intention items refer specifically to the hotel being evaluated.

3.3 Sample Collection and Data Processing

The survey targets adult consumers with experience exploring hotel accommodation through a VR presentation. Relevant experience is established through screening questions rather than general awareness of VR technology alone. Respondents must be able to evaluate both the presentation's perceived innovativeness and its interactive features.

An online questionnaire provides the data collection instrument. Before answering, participants receive information about the research purpose, voluntary participation, and confidential treatment of responses. Informed consent precedes the substantive questionnaire, and respondents are not required to provide directly identifying personal information.

Data screening examines eligibility, completeness, possible duplication, and response quality. Potentially problematic responses are assessed using consistent criteria, including substantial missing information and evidence of insufficient engagement.

Repeated answers are considered alongside other quality indicators rather than treated as automatic evidence of invalidity.

The retained responses are coded for analysis in SPSS and SmartPLS. Descriptive statistics summarise the sample and the distribution of measurement items. Missing data, where present, are examined before an appropriate treatment is selected and documented. The final sample size and exclusions are reported transparently, and sample adequacy is considered in relation to statistical power and the relationships being tested.

Clear instructions, confidential participation, and unambiguous wording are used to reduce potential common method bias. Statistical diagnostics supplement these procedural measures, but no single diagnostic is interpreted as conclusive evidence that method bias is absent.

3.4 Data Analysis Methods

Data analysis proceeds in two stages. First, the measurement model is assessed to determine whether the indicators adequately represent their intended constructs. Indicator reliability is examined through outer loadings, while internal consistency is evaluated using Cronbach's alpha and composite reliability. Values of at least 0.70 provide a general reference for acceptable internal consistency, although excessively high values are also examined for possible item redundancy.

Convergent validity is assessed using average variance extracted, with a value of at least 0.50 indicating that a construct explains at least half of its indicators' variance. Discriminant validity is examined using the heterotrait–monotrait ratio, applying a conservative threshold of 0.85 to assess whether the three constructs are empirically distinguishable.

Second, the structural model is evaluated after satisfactory measurement quality has been established. Predictor collinearity is examined before interpreting the estimated paths. The coefficients from VR innovativeness and interactivity to hotel booking intention are estimated simultaneously to test H1 and H2.

Bootstrapping is used to obtain standard errors and confidence intervals for the path estimates. Hypothesis assessment considers the direction and magnitude of each coefficient together with its confidence interval and statistical significance. The coefficient of determination (R^2) describes the variance in hotel booking intention explained by the model, while effect sizes (f^2) indicate each predictor's contribution. The number of bootstrap resamples, confidence interval method, and significance level are reported with the analysis results. Interpretation distinguishes statistical significance from practical relevance and recognises that stated booking intention does not constitute observed reservation behaviour.

4 DATA ANALYSIS AND RESULTS

4.1 Descriptive Statistical Analysis

Descriptive statistics were calculated for VR innovativeness, interactivity, and consumers' intention to book hotel rooms. The dataset contained 454 responses with complete values for the 14 measurement items included in this study. All selected responses fell within the specified five-point scale. Construct scores were calculated by averaging each respondent's answers to the items measuring the respective construct.

Table 4.1Descriptive Statistics of the Research Constructs

Construct	Number of items	N	Mean	SD
VR innovativeness	5	454	3.377	0.963
Interactivity	5	454	3.311	0.965
Consumers' intention to book hotel rooms	4	454	3.246	1.034

Note. VR innovativeness comprises Q12–Q16; interactivity comprises Q17–Q21; hotel booking intention comprises Q30–Q33. Items were rated from 1 ("strongly disagree") to 5 ("strongly agree"). SD = sample standard deviation.

As shown in Table 4.1, VR innovativeness recorded the highest mean score (M = 3.377, SD = 0.963), followed by interactivity (M = 3.311, SD = 0.965) and hotel booking intention (M = 3.246, SD = 1.034). All three means were above the scale midpoint of 3, indicating a modest tendency towards agreement with the corresponding statements.

Hotel booking intention exhibited slightly greater variation than the two VR attributes, suggesting more diverse responses concerning willingness to reserve accommodation. These descriptive differences do not establish statistically significant differences between constructs or relationships among them. Reliability, validity, and structural model assessments are presented in the subsequent sections.

4.2 Measurement Model Assessment

The measurement model was assessed using 454 responses to evaluate indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. All results were obtained from the SmartPLS output. Table 4.2.1 presents the reliability and convergent validity results.

Table 4.2.1 Measurement Model Reliability and Convergent Validity

Construct	Item	Outer loading	Cronbach's alpha	CR	AVE
VR innovativeness	Q12	0.797	0.889	0.919	0.693
	Q13	0.835			
	Q14	0.855			
	Q15	0.835			
	Q16	0.840			
Interactivity	Q17	0.830	0.888	0.918	0.690
	Q18	0.845			
	Q19	0.853			
	Q20	0.822			
	Q21	0.803			
Consumers' intention to book hotel rooms	Q30	0.864	0.876	0.915	0.729
	Q31	0.851			
	Q32	0.842			
	Q33	0.858			

Note. N = 454. CR = composite reliability; AVE = average variance extracted. Source: SmartPLS analysis results.

Outer loadings ranged from 0.797 to 0.864, exceeding the reference value of 0.70 and indicating that the items adequately reflected their respective constructs. Cronbach's alpha values ranged from 0.876 to 0.889, while CR values ranged from 0.915 to 0.919. These results met the recommended criteria and supported internal consistency reliability (Hair et al., 2021).

Convergent validity was assessed using AVE. The values for VR innovativeness, interactivity, and hotel booking intention were 0.693, 0.690, and 0.729, respectively. All exceeded 0.50, indicating that each construct explained more than half of the variance in its indicators on average. Convergent validity was therefore supported.

Discriminant validity was assessed using the heterotrait–monotrait ratio (HTMT) to determine whether the three constructs were empirically distinguishable. Table 4.2.2 presents the results.

Table 4.2.2 Discriminant Validity Assessment: HTMT Matrix

Construct	VR innovativeness	Interactivity	Hotel booking intention
VR innovativeness	—		
Interactivity	0.477	—	
Hotel booking intention	0.427	0.438	—

Note. N = 454. Source: SmartPLS analysis results.

HTMT values ranged from 0.427 to 0.477, remaining below the conservative threshold of 0.85 and supporting discriminant validity. Specifically, the HTMT value between VR

innovativeness and interactivity was 0.477, indicating that these attributes were empirically distinguishable despite both relating to virtual hotel presentations.

Overall, the results supported indicator reliability, internal consistency reliability, convergent validity, and discriminant validity, providing a basis for subsequent structural model assessment and hypothesis testing.

4.3 Structural Model and Hypothesis Testing

Following the establishment of measurement reliability and validity, the structural model was evaluated in terms of collinearity, path significance, effect sizes, and explanatory power. VR innovativeness and interactivity were included simultaneously to examine their respective associations with hotel booking intention while controlling for the other predictor. Hypothesis testing employed bootstrapping with 10,000 resamples, a two-tailed test, and a significance level of 0.05. The 95% percentile bootstrap confidence intervals were also calculated.

First, inner variance inflation factors (VIFs) were examined to assess predictor collinearity. The VIF was 1.220 for both VR innovativeness and interactivity, below the conservative reference value of 3. These results indicated no substantial predictor collinearity concerns, supporting further interpretation of the estimated paths.

Hypothesis	Structural relationship	β	SE	t-value	p-value	95% CI	VIF	f^2	Decision
H1	VR innovativeness → Hotel booking intention	0.261	0.045	5.804	<0.001	[0.174, 0.353]	1.220	0.071	Supported
H2	Interactivity → Hotel booking intention	0.279	0.044	6.299	<0.001	[0.191, 0.366]	1.220	0.081	Supported

Table 4.3 Structural Model Assessment and Hypothesis Testing Results

Note. β = standardised path coefficient; SE = bootstrap standard error; CI = percentile bootstrap confidence interval; VIF = variance inflation factor; f^2 = effect size. Hotel booking intention: $R^2 = 0.208$; adjusted $R^2 = 0.205$. Source: SmartPLS algorithm and bootstrapping results.

As shown in Table 4.3, VR innovativeness was positively and significantly associated with hotel booking intention ($\beta = 0.261$, SE = 0.045, $t = 5.804$, $p < 0.001$). Its 95% confidence interval [0.174, 0.353] excluded zero, supporting H1. This indicates that consumers who perceived virtual hotel presentations as more novel and distinctive tended to express stronger intention to book hotel rooms, after accounting for interactivity.

Interactivity was also positively and significantly associated with hotel booking intention ($\beta = 0.279$, SE $= 0.044$, $t = 6.299$, $p < 0.001$). Its 95% confidence interval [0.191, 0.366] excluded zero, supporting H2. This suggests that consumers who perceived greater opportunities to navigate, control, and explore the virtual hotel environment tended to report stronger booking intention, after accounting for VR innovativeness. Both relationships were supported by the significance tests and confidence intervals.

Effect sizes were examined to assess each predictor's incremental contribution to the model's explanatory power. Using the conventional reference values of 0.02, 0.15, and 0.35 for small, medium, and large effects, respectively, VR innovativeness ($f^2 = 0.071$) and interactivity ($f^2 = 0.081$) both exhibited small effects. Thus, although both attributes were significantly associated with booking intention, their individual incremental contributions were limited. Interactivity had a slightly larger path coefficient and effect size, but no formal coefficient difference test was conducted. Consequently, these numerical differences do not establish that its association was statistically stronger than that of VR innovativeness.

Regarding explanatory power, the R^2 for hotel booking intention was 0.208, with an adjusted R^2 of 0.205. The two predictors therefore jointly explained 20.8% of the variance in booking intention. The proximity of these values indicates little change in explanatory performance after adjustment for the number of predictors. Nevertheless, a substantial proportion of the variance remained unexplained, indicating that innovativeness and interactivity do not capture all factors relevant to consumers' booking decisions. These statistics describe explanatory performance within the analysed sample. They do not indicate a 20.8% increase in actual bookings or independently establish out-of-sample predictive accuracy.

Overall, the structural model showed no substantial predictor collinearity concerns, and both H1 and H2 were supported. VR innovativeness and interactivity were each positively and significantly associated with hotel booking intention, although their small effect sizes warrant cautious interpretation of practical relevance. Given the cross-sectional questionnaire design and the measurement of self-reported intention, the findings should be interpreted as associations rather than definitive causal effects or evidence of actual booking behaviour.

4.4 Discussion of Findings

The findings support positive associations between VR innovativeness, interactivity, and consumers' intention to book hotel rooms. Both hypotheses were supported after the two attributes were considered simultaneously. However, the small effect sizes indicate that statistical significance should be distinguished from practical importance. The results suggest that these attributes are relevant to booking intention, while providing only a partial explanation of consumers' responses to virtual hotel presentations.

VR innovativeness was positively associated with booking intention ($\beta = 0.261$, $p < 0.001$). This finding complements Lim et al. (2024), who identified perceived innovativeness as a factor influencing tourist satisfaction with augmented reality and VR in the hotel context. The present study focuses on a different outcome and indicates that perceptions of novelty and distinctiveness are also associated with willingness to book the hotel presented. Nevertheless, its small effect size ($f^2 = 0.071$) suggests that novelty should be regarded as one consideration within accommodation evaluation rather than a sufficient basis for generating booking intention.

Interactivity also demonstrated a positive association with booking intention ($\beta = 0.279$, $p < 0.001$). This result is consistent with the broader relevance of active participation identified by Li et al. (2025), whose experimental research explained favourable responses to metaverse hotels through interactivity and mental simulation. Dutta and Dixit (2025) similarly highlighted the importance of perceived interactivity in virtual tourism experiences. The present findings extend this discussion to the association between interactivity and hotel booking intention within a focused two-predictor model. Allowing consumers to select viewpoints and explore accommodation spaces may support more personally relevant information acquisition, although this explanatory process was not directly tested.

The distinction between the two attributes is meaningful for interpreting the findings. Innovativeness concerns how novel a presentation appears, whereas interactivity concerns consumers' perceived ability to control their exploration. Although interactivity had a numerically larger path coefficient and effect size, the study does not establish that its association with booking intention was statistically stronger. The findings therefore support considering both attributes without ranking their importance solely by the reported coefficients.

From a managerial perspective, hotels may consider combining distinctive presentation features with purposeful opportunities for exploration. Novel features should help communicate the accommodation offering, while interactive functions should enable consumers to examine relevant rooms, facilities, and spatial arrangements. Given the small individual effect sizes, these recommendations should guide design priorities rather than imply that investment in either attribute will necessarily produce substantial booking gains. Decisions about implementation would benefit from additional evidence on usability, costs, and observed customer behaviour.

The model explained 20.8% of the variance in hotel booking intention, indicating that considerable variation remained outside its scope. This does not invalidate the significant relationships, but it limits claims about the model's comprehensiveness. Future research could examine additional factors, such as trust, perceived value, price, and accommodation suitability. It could also distinguish willingness to use VR from willingness to reserve accommodation, a distinction relevant to technology adoption research such as Pandey et al. (2026).

Overall, this study identifies perceived innovativeness and interactivity as distinct attributes associated with hotel booking intention. Its contribution lies in examining their respective relationships within the same model while recognising their limited incremental effects. As the findings are based on cross-sectional, self-reported data, they do not establish causality or actual booking outcomes. Experimental or longitudinal studies incorporating reservation behaviour would help determine whether changes in presentation design translate into subsequent consumer action.

5. CONCLUSION AND IMPLICATIONS

5.1 Research Conclusions

This study examined the relationships between VR innovativeness, interactivity, and consumers' intention to book hotel rooms. Based on 454 questionnaire responses, the proposed model was assessed using partial least squares structural equation modelling and bootstrapping with 10,000 resamples. The findings support the following conclusions.

First, VR innovativeness was positively and significantly associated with hotel booking intention ($\beta = 0.261$, $p < 0.001$), supporting H1. Consumers who perceived virtual hotel presentations as more novel and distinctive tended to express stronger booking intention, after accounting for interactivity. This finding identifies perceived innovativeness as a relevant attribute of virtual hotel presentations.

Second, interactivity was also positively and significantly associated with hotel booking intention ($\beta = 0.279$, $p < 0.001$), supporting H2. Consumers who perceived greater opportunities to control and explore the virtual hotel environment tended to report stronger booking intention, after accounting for VR innovativeness. Although interactivity had a numerically larger coefficient, the study does not establish that its association was statistically stronger.

Third, VR innovativeness and interactivity jointly explained 20.8% of the variance in hotel booking intention ($R^2 = 0.208$; adjusted $R^2 = 0.205$). Their individual effect sizes were small ($f^2 = 0.071$ and 0.081, respectively). These results indicate that both attributes contribute to explaining booking intention, while substantial variation remains beyond the scope of the model.

Overall, the study identifies perceived novelty and opportunities for active exploration as distinct attributes associated with consumers' intention to book hotel rooms. The findings provide a focused empirical basis for considering both attributes in virtual hotel presentation design. However, they concern self-reported intentions rather than actual reservations, and the cross-sectional design does not establish causality.

5.2 Theoretical and Practical Implications

Theoretically, this study refines understanding of the relationships between virtual hotel presentation attributes and consumer booking intention by distinguishing VR innovativeness from interactivity. Innovativeness captures consumers' perceptions of a presentation's novelty and distinctiveness, whereas interactivity concerns their perceived opportunities for autonomous control and exploration. Both attributes were positively and significantly associated with booking intention within the same model. This suggests that consumers evaluate virtual presentations along distinct dimensions and that their marketing relevance should not be inferred solely from whether the technology is adopted.

The study also distinguishes evaluations of technological attributes from accommodation booking intention. Perceiving a presentation as innovative or interactive does not mean that a consumer has completed a reservation. By specifying hotel booking intention as the outcome, the study provides empirical evidence concerning the relationships between technological attributes and a particular consumption decision. Nevertheless, both predictors had small effect sizes, and the model explained 20.8% of the variance in booking intention. These findings indicate that the attributes provide only a partial explanation and suggest that future theoretical development should situate virtual presentations within the broader accommodation decision-making process.

Practically, hotels may integrate innovative design with the communication of accommodation information. For example, distinctive approaches to spatial exploration could be used to present room layouts, facilities, and differences between room types. Investment decisions should consider whether innovative features help consumers understand the accommodation offering, rather than relying solely on visual appeal or technological novelty.

For interactive functionality, hotels and platforms may provide clearly identifiable options for switching scenes, selecting viewpoints, and examining key facilities. These functions should allow consumers to explore the property according to their needs. Each function should serve a clear purpose, while unnecessary operational steps should be avoided. As both interactivity and innovativeness showed positive associations with booking intention, design decisions should consider both attributes rather than prioritising one solely on the basis of the small difference between their path coefficients.

Finally, hotels should evaluate the commercial value of VR investment cautiously. A statistically significant association with booking intention does not necessarily imply increased reservations or improved financial returns. Small-scale operational tests

could assess browsing behaviour, booking conversion, cancellations, and development and maintenance costs before wider implementation. Virtual presentations should also accurately reflect the property and connect with pricing, availability, and reservation functions so that the technology supports consumers' accommodation decisions.

5.3 Limitations and Future Research

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design captures consumers' perceptions and booking intentions at a single point in time. Consequently, the significant relationships do not establish causality or demonstrate how responses change with repeated exposure to VR hotel presentations. Future research could employ experiments that independently manipulate innovativeness and interactivity or longitudinal designs that track changes in consumer responses over time.

Second, the constructs were measured using self-reported questionnaire responses. Collecting predictor and outcome measures from the same respondents may introduce common method bias and other response tendencies. Furthermore, stated booking intention does not necessarily translate into an actual reservation. Future studies could combine survey responses with behavioural measures, such as navigation records, booking completion, and subsequent stays. Separating the measurement of predictors and outcomes across time or data sources could also strengthen the research design.

Third, the findings are specific to the analysed sample and should not be assumed to apply equally across consumer groups, hotel categories, or markets. Differences in VR familiarity, travel purposes, and accommodation preferences may affect how consumers evaluate virtual presentations. Replication across different settings, supported by clearly defined sampling procedures, would help assess the generalisability of the relationships. Comparisons between groups should also establish measurement equivalence before interpreting differences.

Fourth, the model includes only VR innovativeness and interactivity and explains 20.8% of the variance in hotel booking intention. Their small effect sizes indicate that additional considerations remain relevant. Future research could examine theoretically justified factors such as trust, perceived value, price, and accommodation suitability. Potential explanatory mechanisms could also be investigated, provided that they are explicitly measured and tested rather than inferred from the direct relationships.

Finally, the present study does not isolate the effects of particular devices, presentation formats, or interactive functions. Future experiments could compare desktop virtual tours, smartphone-based presentations, and headset-based VR while controlling the accommodation content. Such comparisons would help identify whether perceived novelty and interactivity operate similarly across formats and whether improvements in presentation design produce meaningful changes in actual booking behaviour.

References

Alcañiz, M., Bigné, E., & Guixeres, J. (2019). Virtual reality in marketing: A framework, review, and research agenda. *Frontiers in Psychology, 10*, Article 1530. https://doi.org/10.3389/fpsyg.2019.01530

Alfaro, L., Rivera, C., Luna-Urquizo, J., Ayala, F., Delgado, L., & Castañeda, E. (2024). Experiential-sensorial adaptive system model for hospitality based on 360° VR videos and case-based reasoning. *PLOS ONE, 19*(3), Article e0299387. https://doi.org/10.1371/journal.pone.0299387

Bogicevic, V., Liu, S. Q., Seo, S., Kandampully, J., & Rudd, N. A. (2021). Virtual reality is so cool! How technology innovativeness shapes consumer responses to service preview modes. *International Journal of Hospitality Management, 93*, Article 102806. https://doi.org/10.1016/j.ijhm.2020.102806

Chen, J., Wu, X., & Lai, I. K. W. (2023). A systematic literature review of virtual technology in hospitality and tourism (2013–2022). *SAGE Open, 13*(3). https://doi.org/10.1177/21582440231193297

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates. https://doi.org/10.4324/9780203771587

Cowan, K., & Ketron, S. (2019). A dual model of product involvement for effective virtual reality: The roles of imagination, co-creation, telepresence, and interactivity. *Journal of Business Research, 100*, 483–492. https://doi.org/10.1016/j.jbusres.2018.10.063

Dutta, S., & Dixit, S. (2025). Examining the impact of media type and perceived interactivity on virtual tour intentions: Empirical evidence using S-O-R framework. *Asia Pacific Journal of Tourism Research, 30*(9), 1157–1176. https://doi.org/10.1080/10941665.2025.2486025

Fan, X., Jiang, X., & Deng, N. (2022). Immersive technology: A meta-analysis of augmented/virtual reality applications and their impact on tourism experience. *Tourism Management, 91*, Article 104534. https://doi.org/10.1016/j.tourman.2022.104534

Hair, J. F., Jr., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*. Springer. https://doi.org/10.1007/978-3-030-80519-7

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Jiang, X., Deng, N., & Zheng, S. (2023). Understanding the core technological features of virtual and augmented reality in tourism: A qualitative and quantitative review. *Current Issues in Tourism, 26*(21), 3444–3464. https://doi.org/10.1080/13683500.2023.2214847

Li, O., Shi, Y., & Qian, D. (2025). Immersive stays in virtual hotels: The effect of experiences in metaverse hotels on customer responses. *International Journal of Hospitality Management, 130*, Article 104247. https://doi.org/10.1016/j.ijhm.2025.104247

Lim, W. M., Jasim, K. M., & Das, M. (2024). Augmented and virtual reality in hotels: Impact on tourist satisfaction and intention to stay and return. *International Journal of Hospitality Management, 116*, Article 103631. https://doi.org/10.1016/j.ijhm.2023.103631

Lyu, J., Leung, X., Bai, B., & Stafford, M. (2021). Hotel virtual reality advertising: A presence-mediated model and gender effects. *Journal of Hospitality and Tourism Technology, 12*(3), 409–422. https://doi.org/10.1108/JHTT-04-2020-0080

McLean, G., & Barhorst, J. B. (2022). Living the experience before you go . . . but did it meet expectations? The role of virtual reality during hotel bookings. *Journal of Travel Research, 61*(6), 1233–1251. https://doi.org/10.1177/00472875211028313

Orús, C., Ibáñez-Sánchez, S., & Flavián, C. (2021). Enhancing the customer experience with virtual and augmented reality: The impact of content and device type. *International Journal of Hospitality Management, 98*, Article 103019. https://doi.org/10.1016/j.ijhm.2021.103019

Pandey, P. K., Bajpai, N., Agnihotri, D., Chaturvedi, P., & Tripathi, V. (2026). Enhancing tourism with virtual reality: A study on adoption drivers and user willingness. *Journal of Hospitality and Tourism Technology*. Advance online publication. https://doi.org/10.1108/JHTT-02-2025-0135

Sinha, N., Dhingra, S., Sehrawat, R., Jain, V., & Himanshu. (2025). Customers' intention to use virtual reality in tourism: A comprehensive analysis of influencing factors. *Tourism Review, 80*(3), 742–766. https://doi.org/10.1108/TR-07-2023-0488

Wu, X., Lai, I. K. W., & Chen, J. (2025). How hotel VR photography previews enhance customers' immediate booking intention through mental imagery and perceived value. *Journal of Hospitality and Tourism Technology, 16*(3), 409–428. https://doi.org/10.1108/JHTT-10-2023-0328

Yoon, S., Erdem, M., Schuckert, M., & Lee, P. C. (2021). Revisiting the impact of VR applications on hotel bookings. *Journal of Hospitality and Tourism Technology, 12*(3), 489–511. https://doi.org/10.1108/JHTT-04-2019-0057