

## The Moderating Role of Technological Knowledge in the Relationship Between Perceived Sustainable Marketing and Intention to Agritourism

Nguyen Thi Viet Ha\*

Faculty of Business Administration, Banking Academy of Vietnam,  
12 Chua Boc Street, Dong Da District, Hanoi, Vietnam

\*Corresponding author: hantv@hvn.edu.vn

**ABSTRACT.** Agritourism is a key component of sustainable tourism, focusing on minimizing environmental impacts. This study evaluates how technological knowledge influences tourist behavior and intentions within agritourism, employing the Theory of Planned Behavior for a structured quantitative analysis. Data from 348 visitors to orchards, farms, and aquaculture sites in agritourism settings were analyzed using partial least squares structural equation modeling. Results show a significant impact of perceived environmental factors on attitudes, subjective norms, perceived behavioral control, and perceptions of sustainable marketing. Importantly, technological knowledge plays a vital moderating role in linking sustainable marketing perceptions to the intention to engage in agritourism. This research sheds light on the dynamic relationship between sustainable marketing, technological knowledge, and tourist behavior in agritourism, offering insights for businesses and policymakers to foster sustainable practices and enhance the appeal of agritourism experiences.

### 1. INTRODUCTION

Agritourism, the fusion of agriculture and tourism, has emerged as a significant sector within the tourism industry, offering unique experiences that bridge the rural-urban divide while promoting sustainable practices and preserving cultural heritage [1]. With increasing concerns

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about environmental degradation and the need for sustainable development, the role of sustainable marketing in agritourism has garnered substantial attention. Sustainable marketing practices not only aim to attract tourists but also emphasize environmental responsibility, social equity, and economic viability in the operations of agritourism businesses [2]. However, despite the growing recognition of sustainable marketing in agritourism, there remains a notable gap in understanding the nuanced interplay between perceived sustainable marketing efforts and tourists' intentions to engage in agritourism experiences.

One significant factor that might influence this relationship is technological knowledge, defined as the understanding and proficiency in utilizing technological tools and platforms within the agritourism context. In recent years, technological advancements have revolutionized various aspects of the tourism industry, including marketing strategies, customer engagement, and service delivery [3]. The integration of technology in agritourism operations has the potential to enhance visitor experiences, streamline business processes, and facilitate communication between tourists and agritourism providers [4]. However, the extent to which technological knowledge moderates the relationship between perceived sustainable marketing and tourists' intentions to engage in agritourism needs to be understood.

Understanding the moderating role of technological knowledge is crucial for several reasons. Firstly, technological advancements have transformed the way agritourism businesses market their offerings and interact with potential visitors [5]. Stakeholders leveraging digital platforms, social media channels, and data analytics tools, agritourism operators can communicate their sustainability efforts more effectively and target environmentally conscious tourists. Secondly, technological knowledge empowers tourists to make informed decisions about their agritourism experiences. It enables them to access information about sustainable practices, trace the origin of agricultural products, and engage with local communities [6]. Therefore, it is essential to investigate how tourists' technological knowledge influences the relationship between perceived sustainable marketing and their intentions to participate in agritourism activities.

Furthermore, understanding the moderating role of technological knowledge can inform agritourism businesses and policymakers about the most effective strategies for promoting sustainable practices and enhancing visitor satisfaction [7]. By identifying the conditions under which technological knowledge enhances the impact of sustainable marketing efforts on

tourists' intentions, stakeholders can tailor their marketing campaigns, invest in relevant training programs, and develop innovative technological solutions to support sustainable agritourism development [8]. Thus, this study aims to fill the existing gap in the literature by examining the moderating effect of technological knowledge on the relationship between perceived sustainable marketing and intention to engage in agritourism, contributing to both theoretical insights and practical implications for sustainable tourism management.

## 2. LITERATURE REVIEW

The research applied an analytical framework grounded in the Theory of Planned Behavior to standardize measurement concepts. This framework integrates core constructs attitude, subjective norms, and perceived behavioural control with an extension of the perceived environment, perceived sustainable marketing, and the Intention to engage in agritourism. Attitude reflects individuals' positive or negative evaluations of agritourism participation, while subjective norms capture the perceived social pressures or support from significant others regarding agritourism engagement. Perceived behavioral control refers to the individuals' perceptions of their capability to perform agritourism related behaviours.

The inclusion of perceived environment acknowledges the significance of individuals' awareness and assessment of the environmental impacts and sustainability practices within agritourism settings. perceived sustainable marketing, a pivotal construct in this study, encompasses the consumers' recognition and evaluation of marketing efforts that promote agritourism's sustainability attributes. The moderating role of technological knowledge is crucial, positing that individuals' familiarity and proficiency with technology can influence the strength and direction of the relationship between perceived sustainable marketing and their intention to participate in agritourism. This analytical framework aims to provide a comprehensive understanding of how technological knowledge and perceived sustainable marketing collectively shape tourists' intentions towards agritourism, offering insights into targeted marketing strategies to foster sustainable tourism practices. These relationships are developed as hypotheses in a structural model synthesized from related research.

### 2.1 The impact of perceived environment on attitudes and perceived sustainable marketing

The relationship between the perceived environment, attitudes towards agritourism, perceived sustainable marketing, and the intention to engage in agritourism has been a focal point in

recent literature, emphasizing the growing importance of sustainability in tourism practices [9]. The perceived environment, which encompasses individuals' observations and interpretations of the natural and built environment associated with agritourism sites, plays a critical role in shaping tourists' attitudes. Positive perceptions of the environment, including its preservation and the sustainable practices employed, contribute significantly to forming favourable attitudes towards agritourism [9], [10]. These attitudes are further influenced by perceived sustainable marketing, a concept that refers to the marketing efforts perceived by potential tourists that highlight the sustainability efforts of agritourism operations, including environmental stewardship, economic benefits to local communities, and social responsibility [11].

Research suggests that when tourists perceive marketing efforts as sustainably focused, it can significantly boost their awareness and appreciation of sustainability initiatives. This heightened awareness, in turn, positively influences their attitudes towards agritourism destinations [12]. This alignment of sustainable marketing with tourists' values and expectations is crucial in fostering a positive attitude towards agritourism, which is a significant predictor of the intention to visit such destinations [13]. The intention to engage in agritourism is ultimately a manifestation of the consumer's positive attitude towards the activity, influenced by their environmental values and the perceived sustainability efforts communicated through marketing [14].

Moreover, the related research suggests that the perceived environment acts as a foundational element that underlies the relationship between perceived sustainable marketing and tourists' intentions. A well-preserved environment, coupled with effective sustainable marketing, not only enhances tourists' attitudes but also directly influences their intentions to participate in agritourism, highlighting the need for agritourism providers to integrate environmental sustainability into their marketing strategies [9]. The synthesis of these studies underscores the pivotal role of the perceived environment in mediating the relationship between sustainable marketing and agritourism intentions, providing valuable insights for this research aiming to promote sustainable tourism practices.

H1. Perceived environment has an influence on the attitude of visitors

H2. Attitude of visitors has correlate with perceived sustainable marketing

## **2.2. The impact of perceived environment on subjective norms, and perceived sustainable marketing**

The factors of perceived environment, subjective norms, perceived sustainable marketing, and the intention to engage in agritourism perception behaviour link the chain of influences that has been extensively explored in the report on sustainable tourism [15], [16]. Subjective norms, representing the perceived social pressure to perform or abstain from a behaviour, are significantly impacted by individuals' perceptions of the environment in the context of agritourism [9]. The perceived environment, which encompasses the natural beauty, conservation efforts, and sustainability practices of agritourism sites, can foster a sense of social responsibility and influence the social pressures or encouragements individuals feel towards participating in agritourism [17].

In this realm, perceived sustainable marketing plays an intermediate role by highlighting the environmental and socio-economic benefits of agritourism, thus potentially altering subjective norms. Marketing strategies that effectively communicate the sustainability efforts of agritourism sites can enhance individuals' perception of social endorsement and approval for agritourism, thereby strengthening subjective norms favouring agritourism participation [15]. These strategies include showcasing sustainable practices, conservation achievements, and the positive impacts of agritourism on local communities and the environment, thereby aligning with the values of potential tourists and their social circles [18].

The reports further suggest that the alignment between perceived sustainable marketing and subjective norms can significantly influence individuals' intentions towards agritourism [19]. When potential tourists perceive that engaging in agritourism is viewed positively by travellers and is supported by clear, sustainable marketing messages, their intention to participate in agritourism activities is likely to increase [20], [21]. This relationship underscores the importance of integrating perceptions of the environment and subjective norms into marketing strategies to effectively influence tourist intentions.

Moreover, the moderating role of technological knowledge in this relationship adds a layer of complexity. Technological knowledge can enhance the effectiveness of sustainable marketing by enabling more sophisticated and personalized marketing approaches, potentially amplifying the impact of perceived environmental values and subjective norms on agritourism intentions [22], [23]. Through social media and other digital platforms, individuals with higher levels of

technological knowledge can access, share, and discuss information about sustainable agritourism practices, further influencing subjective norms and intentions [24].

The researchers highlight a nuanced relationship where the perceived environment influences subjective norms through the mediation of, collectively shaping the intention to engage in agritourism. This interplay emphasizes the need for agritourism providers to craft targeted sustainable marketing strategies that resonate with the environmental values and social expectations of their audience, taking into consideration the enhancing role of technological knowledge.

H3. The perceived environment influence on subjective norms

H4. The subjective norms have a correlation with perceived sustainable marketing

### **2.3. The impact of perceived environment on perceived behavioural control and perceived sustainable marketing**

Perceived behavioral control, a key component of the Theory of Planned Behavior, plays a critical role in predicting tourist behavior. Research highlights its importance in understanding the complex relationships between the perceived environment, perceived behavioral control, perceived sustainable marketing, and the intention to participate in agritourism. The reports have emphasised how technological knowledge moderates these relationships within the tourism sector. In agritourism, perceived environmental factors like natural beauty, biodiversity, and eco-friendly practices significantly affect tourists' perceived ease of participation, illustrating the vital influence of environmental attributes on agritourism intentions [19]. For instance, a well-preserved and easily accessible agritourism environment can enhance visitors' perceived behavioral control by fostering a belief that engaging in agritourism is both feasible and rewarding [25].

Perceived sustainable marketing, on the other hand, refers to the marketing efforts that highlight the sustainability efforts and environmental stewardship of agritourism ventures. This form of marketing plays a critical role in shaping tourists' perceptions, not only of the environmental attributes of the destination but also of their own ability to contribute positively through their tourism choices [26]. Effective sustainable marketing strategies can thus bolster perceived behavioral control by reassuring potential tourists that their participation in agritourism is within their capacity and aligns with their personal values and environmental concerns [27].

The intention to engage in agritourism, consequently, is influenced by the interplay between perceived environmental attributes, perceived behavioral control, and the effectiveness of perceived sustainable marketing [28]. When tourists perceive that an agritourism activity is environmentally sustainable, accessible, and supported by genuine marketing efforts, their intention to visit such destinations is likely to increase. This is because perceived behavioral control mediates the relationship between environmental perceptions and tourist intentions, with sustainable marketing reinforcing this pathway by enhancing the visibility and appeal of agritourism's environmental and ethical credentials [29].

Furthermore, technological knowledge emerges as a significant moderator in this relationship, potentially amplifying the impact of perceived environmental factors and sustainable marketing on perceived behavioral control and, ultimately, on tourists' intentions [23]. Individuals with greater technological knowledge may be better equipped to seek out, evaluate, and act upon information related to the sustainability practices of agritourism sites, thereby enhancing their perceived behavioral control and inclination towards agritourism.

H5. The perceived environmental influence on perceived behavioral control

H6. The perceived behavioral control has a correlation with perceived sustainable marketing

H7. The perceived behavioral control also correlated with intention to agritourism

#### **2.4. The moderating role of technology knowledge in the relationship between perceived sustainable marketing with intention to agritourism**

In recent years, the development of science and technology has been widely applied in all fields. The intersection of perceived sustainable marketing, technological knowledge, and agritourism intentions forms a compelling area of inquiry within sustainable tourism [30]. Related research on the moderating role of technological knowledge in the relationship between perceived sustainable marketing and the intention to engage in agritourism, highlighting important findings that elucidate this dynamic.

Perceived sustainable marketing, which involves the communication of environmental and social responsibility efforts by agritourism providers, plays a crucial role in shaping potential tourists' attitudes and intentions. It operates by informing, persuading, and reminding consumers of the sustainable attributes and practices of agritourism destinations [31]. When effectively executed, such marketing strategies can significantly elevate tourists' intentions to

visit agritourism sites by aligning with their environmental values and desire for authentic, sustainable travel experiences.

The role of technological knowledge becomes particularly salient in this context of agritourism. Technological knowledge refers to an individual's understanding and proficiency in using digital tools and platforms to access, process, and evaluate information [32]. In the domain of agritourism, technological knowledge can significantly enhance the effectiveness of perceived sustainable marketing by facilitating more nuanced and informed interpretations of marketing messages [22], [23]. Tourists with higher levels of technological knowledge are likely to be more adept at seeking out detailed information on the sustainability practices of agritourism sites, critically evaluating the authenticity of marketing claims, and leveraging digital platforms to share and exchange experiences and insights with others [33].

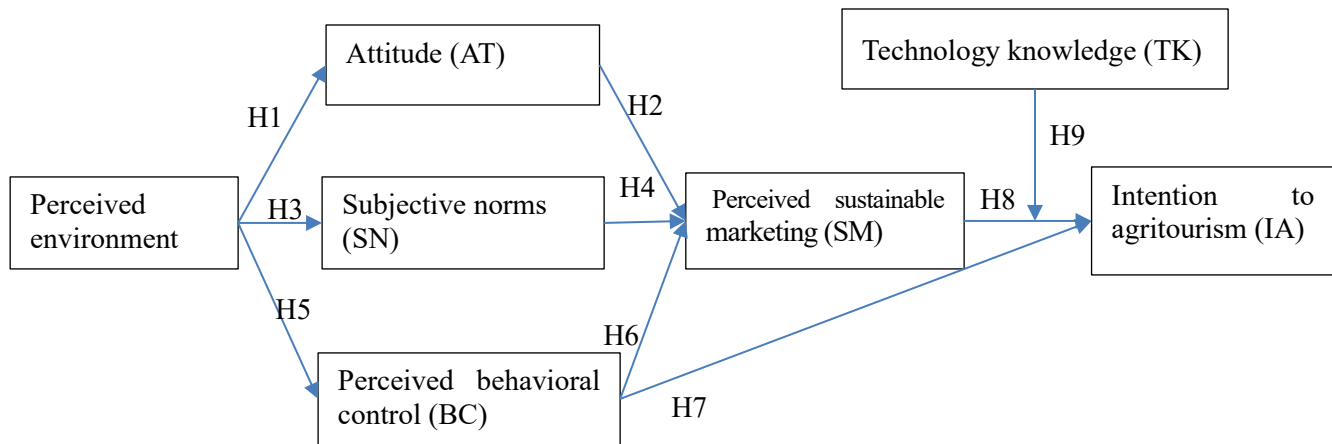
Consequently, technological knowledge acts as a powerful moderator in the relationship between perceived sustainable marketing and agritourism intentions. It not only enhances the receptiveness to and engagement with sustainable marketing messages but also empowers potential tourists with the skills and capabilities to make informed decisions aligned with their environmental and ethical values. This dynamic suggests that the impact of perceived sustainable marketing on agritourism intentions is more pronounced among individuals with higher levels of technological knowledge, underscoring the importance of integrating digital literacy and technology use into sustainable tourism marketing strategies [30], [34].

In general, the critical moderating role of technological knowledge in strengthening the influence of perceived sustainable marketing on the intention to engage in agritourism. It highlights the need for agritourism providers to not only focus on developing and communicating robust sustainable marketing messages but also to consider the technological proficiency of their target audience to maximize the effectiveness of these efforts.

H8. The perceived sustainable marketing Influence on agritourism intentions

H9. The moderating role of technological knowledge in strengthening the influence of perceived sustainable marketing on the intention to agritourism.





**Figure 1. The conceptual model for measurement structure**

### 3. METHODOLOGY

#### 3.1. Measurements

The Likert scale with values ranging from 1 (strongly disagree) to 5 (strongly agree), serves as the coding mechanism for capturing respondent feedback [35]. It is crafted to evaluate tourists' environmental perceptions within agritourism, aiming to understand their observations on both natural and constructed settings and their views on environmental conservation and sustainable practices. It extends to measure attitudes by exploring how agritourism sites' sustainable marketing aligns with tourists' values, influences preferences, fosters trust through perceived authenticity, and impacts their attitudes through sustainability communication.

Further, the scale assesses the concept of subjective norms by examining the effect of environmental efforts and sustainable marketing on social pressures or encouragements for agritourism participation, encapsulating social obligations and perceived social approval. It also evaluates perceived behavioral control, measuring tourists' perceived ease of engaging in agritourism based on environmental attributes and marketing, alongside their confidence in making environmentally responsible choices.

Additionally, the scale investigates tourists' perceptions of sustainable marketing's effectiveness in agritourism, focusing on how these perceptions influence their intentions towards engaging in agritourism activities by aligning with their environmental values.

The role of technological knowledge as a moderating factor is also measured, emphasizing its impact on the effectiveness of perceived sustainable marketing and the intention to engage in agritourism. This aspect assesses tourists' capability to access, evaluate, and act on information

through digital means, contributing to a deeper understanding of how technological knowledge shapes agritourism intentions in the context of perceived sustainable marketing efforts.

### **3.2. Estimate sample size**

In the study, maintaining a sufficient sample size is essential for the credibility of statistical analyses such as PLS-SEM, to ensure strong and generalizable findings. Small sample sizes can result in inaccurate conclusions. Adhering to the guidance provided by [36], the study applies the 10 times rule to establish a minimum sample size of 250 respondents. This rule mandates that the sample size must be at least ten times the number of the most complex scale's observed variables and ten times the maximum number of paths leading into any construct within the model [37]. The PLS-SEM technique uses this guideline to account for the model's most complex observed variable or the construct most influenced by paths [38]. Hair and his colleagues (2017) also recommend applying Cohen's (1992) criteria for determining sample sizes in various contexts [39].

The study was designed to collect 400 respondents, successfully collecting responses from 348 participants, which translates to a 87% response rate. A non-probability sampling strategy was utilized, alongside a specifically designed questionnaire for data collection. The questionnaire was divided into two parts: the first gathered general demographic details, while the second part contained questions directly related to the study's theoretical framework.

### **3.3. Data Collection and analysis**

This research is based on firsthand data collected from participants via questionnaires. To meet the study's goals, a dual-phase survey approach was adopted [40]. Initially, in phase 1, a group of 60 people were tested to ensure they understood the concepts being measured. For the data collection in phase 2, a structured sampling approach was used. Visitors at agritourism sites, including orchards, farms, and aquaculture areas. At each destination, the author requested tourists to introduce the research. Those who agreed to assist in the interview were explained to discuss the research aims and clarify the concepts measured. Participants who were willing to take part were then given a content link to access the survey.

**Table 1. The results of scale test CFA**

Items	Concepts	Cronbach's Alpha	Outer loadings	CR	AVE
PE	Perceive environment	0.857	0.712 - 0.863	0.894	0.630
AT	Attitude	0.875	0.790 - 0.886	0.912	0.722
SN	Subjective norms	0.802	0.772 - 0.873	0.848	0.584
BC	Perceived behavioral control	0.792	0.73 - 0.843	0.864	0.615
SM	Perceived sustainable marketing	0.857	0.773 - 0.899	0.904	0.701
TK	Technology knowledge	0.881	0.761 - 0.909	0.905	0.705
IA	Intention to agritourism	0.830	0.739 - 0.892	0.886	0.661

Source: Author's analysis from data test, 2023

Note: Confirmatory factor analysis (CFA), Composite reliability (CR), Average variance extracted (AVE)

The outcomes of reliability assessments and confirmatory factor analysis affirm that the majority of the study's components have met an acceptable standard of reliability [41]. The results are promising and align with established guidelines for conceptual measurement [42]. Evaluated metrics include Cronbach's alpha (ranging from 0.792 to 0.881), outer loadings (spanning from 0.51 to 0.94), composite reliability (from 0.848 to 0.912), and average variance extracted (ranging between 0.610 and 0.722). Following these assessments, the concepts for content measurement were solidified, guiding the collection of data for this research.

The survey was conducted with 348 tourists who were nearing the end of their travels, ensuring they had ample experiences at the destination to assess their satisfaction levels accurately. Respondents were informed and consented to participate on the spot, with guidance provided on the survey's objective and assistance offered as needed.

The partial least squares structural equation modeling (PLS-SEM) technique is employed to analyze the relationships among the hypothesized latent variables within a path model. This method adopts a component-based approach akin to that used in principal components analysis, focusing primarily on calculating the structural path coefficients indicated within the inner model.

The outer model delineates the measurement model, defining how latent variables relate to their observed indicators [43]. One of the advantages of PLS-SEM is its lack of dependence on

distributional assumptions, which means traditional statistical tests for assessing model fit and parameters are not directly applicable. Instead, a global fit index and bootstrapping results, including t-values, are utilized to evaluate model robustness [44].

## 4. RESULTS

### 4.1. Describe statistics of demographics

**Table 2. Information on the traveller's characteristics of the respondents.**

Demographics	Contents	Frequency	Percent
Gender	Female	207	59.50
	Male	141	40.50
Age	18 - 29	82	23.60
	30 - 39	177	50.90
	40 - 49	79	22.70
	Up 50	10	2.90
Positive	Employees	270	77.60
	Management	22	6.30
	Unemployees	56	16.10

Source: Author's analysis from dataset, 2024

Table 2 outlines the demographics of the sample, which included 348 participants. The gender distribution shows a majority of female respondents at 59.5%, with males accounting for 40.5%. The group aged 30 to 39 was the most represented, encompassing 50.90% of the respondents. Employment figures reveal that a significant 77.60% of respondents were employed, contributing notably to the study's demographic makeup. Conversely, managers and unemployed individuals were less prevalent in the sample, highlighting their minor representation.

#### 4.2. Test the reliability of the scale

**Table 3. Describe statistics and indicators to measure scale reliability**

Items	Measurement structure	Cronbach's Alpha	Outer loadings	Outer VIF
<b>PE</b>	<b>Perceive environment</b>	0.896		
PE1	I believe the natural beauty and preservation of the environment at agritourism sites are well-maintained		0.846	2.342
PE2	The sustainable practices employed by agritourism sites are visible and evident during my visit		0.844	2.202
PE3	I perceive that agritourism sites contribute economically to the local communities		0.798	2.080
PE4	I believe that the agritourism sites operate in a way that positively impacts the local ecosystem.		0.858	2.510
PE5	The agritourism sites effectively communicate their environmental stewardship and sustainability efforts		0.852	2.502
<b>AT</b>	<b>Attitude</b>			
AT1	Agritourism's sustainable marketing aligns with my environmental values, positively shaping my attitude towards these destinations.	0.909	0.885	2.734
AT2	My preference for agritourism destinations is heavily influenced by their effective sustainability marketing.		0.889	2.924
AT3	I favor agritourism sites that genuinely market their sustainability, enhancing trust and my perception of the destination.		0.896	3.055
AT4	Sustainability marketing by agritourism sites greatly influences my preference for visiting them over others.		0.882	2.694
<b>SN</b>	<b>Subjective norms</b>	0.899		
SN1	I feel socially obliged to choose agritourism because my social circle values its sustainability efforts.		0.878	2.576
SN2	Perceived of agritourism's sustainability increases my social pressure to support them.		0.859	2.305
SN3	I perceive a strong social approval for choosing sustainable agritourism activities.		0.880	2.576
SN4	Sustainable marketing of agritourism sites makes me feel my choice is socially validated.		0.886	2.596
<b>BC</b>	<b>Perceived behavioral control</b>	0.816		
BC1	I find engaging in agritourism easy due to accessible sustainability information.		0.847	1.880

BC2	I'm confident my agritourism choices positively impact environmental conservation.		0.823	1.756
BC3	Sustainable marketing boosts my confidence in choosing agritourism aligned with my environmental values.		0.780	1.630
BC4	Agritourism's natural beauty and eco-practices enhance my control in choosing eco-responsible tourism.		0.754	1.580
<b>SM</b>	<b>Perceived sustainable marketing</b>	0.911		
SM1	I am perceived of environmental and social agritourism marketing efforts.		0.893	2.879
SM2	Sustainable marketing from agritourism sites matches my environmental values, boosting my visit interest.		0.902	3.024
SM3	I trust agritourism sites' sustainable marketing reflects real environmental practices.		0.878	2.560
SM4	Sustainable marketing by agritourism providers strongly motivates my visit for an authentic, eco-friendly experience.		0.872	2.493
<b>TK</b>	<b>Technology knowledge</b>	0.915		
TK1	I'm confident in finding agritourism information using digital tools.		0.889	2.772
TK2	I can critically assess agritourism's online sustainability claims.		0.898	2.813
TK3	My technology skills greatly guide my agritourism choices.		0.889	2.875
TK4	I share and discussion sustainable agritourism practices online.		0.894	3.024
<b>IA</b>	<b>Intention to agritourism</b>	0.907		
IA1	I prefer visiting agritourism sites that are marketed as sustainable and environmentally friendly.		0.902	2.994
IA2	Sustainability-focused marketing boosts my interest in agritourism visits.		0.867	2.351
IA3	I favourable agritourism sites with authentic, sustainable experiences marketed clearly.		0.879	2.935
IA4	I am willing to support agritourism sites that sustainable practices and environmental contributions.		0.888	2.896

Source: Author's analysis from dataset, 2024

Apply data analysis techniques to evaluate the reliability of measurement constructs, with results summarized in Table 3. To verify the measurement scale's reliability and the model's validity, established testing methods were applied. These included Cronbach's Alpha, aiming for a minimum value of 0.7, and confirmatory factor analysis (CFA). The evaluation of the model's fit involved various metrics such as SRMR (0.043), Chi-square (782.77), and NFI (0.887), all of which met the acceptable criteria by [45].

The study further examined indicators, construct reliability, convergent validity, and discriminant validity following recognized guidelines [46]. Indicator reliability was confirmed with outer loadings of each construct item exceeding the recommended 0.7 benchmark [37].

Moreover, to address multicollinearity, the variance inflation factor (VIF) within the inner model was carefully analyzed [47]. This examination ensured that multicollinearity was not a concern, with all VIF values staying under the 5.0 cap, as suggested by [41].

#### 4.3. Composite reliability and average variance extracted of the scale

**Table 4. Reliability and discriminant validity correlation matrix**

	CR	AVE	AT	BC	IA	PE	SM	SN	TK
AT	0.937	0.789	0.888						
BC	0.878	0.643	0.316	0.802					
IA	0.935	0.782	0.209	0.352	0.884				
PE	0.923	0.705	0.345	0.342	0.120	0.840			
SM	0.936	0.786	0.373	0.454	0.488	0.486	0.886		
SN	0.929	0.767	0.201	0.200	0.299	0.373	0.498	0.876	
TK	0.940	0.797	0.152	0.135	0.469	-0.007	0.214	0.164	0.893

Source: Author's analysis from dataset, 2024

Note: Composite reliability (CR), Average variance extracted (AVE), Attitude (AT), Subjective norms (SN), Perceived behavioral control (BC), Perceived sustainable marketing (SM), Technology knowledge (TK), Intention to agritourism (IA), Perceive environment (PE).

In Table 4, the evaluation of convergent validity, employing the method proposed by Fornell and Larcker, showcases robust outcomes. Notably, this analysis prefers the use of composite reliability over Cronbach's alpha within the Partial Least Squares Structural Equation Modeling (PLS-SEM) framework, as advocated [48]. The composite reliability value exceeds the widely accepted benchmark of 0.70, as initially recommended [49], indicating a high level of internal

consistency among the constructs. Furthermore, the analysis reveals that all standardized loadings of the indicators are consistent with recommended thresholds the critical values suggested by Fornell and Larcker in their seminal 1981 study, ensuring that each indicator significantly contributes to its respective construct [50].

When it comes to construct validity, the assessment encompasses both its convergent and discriminant. The convergent validity of the constructs is affirmed by the average variance extracted (AVE) values surpassing the 0.50 threshold, as detailed in Table 4, aligning with the criteria set forth by Fornell and Larcker. This outcome underscores the adequacy of the constructs in capturing a significant portion of the variance of their indicators.

Furthermore, the analysis of discriminant validity, essential for confirming that the constructs are distinct and not overly correlated with each other, further solidifies the measurement model's robustness. This validation process, encompassing both convergence and divergence in construct assessment, ensures the measurement model's integrity and suitability for subsequent analyses in the research study.

#### 4.4. Results for the proposed hypothesis

**Table 5. Path coefficients of the concept framework**

Hypothesis	Path coefficients	Estimates	Standard deviation	P. values
H1	PE -> AT	0.345	0.057	0.000
H3	PE -> SN	0.373	0.064	0.000
H5	PE -> BC	0.342	0.051	0.000
H2	AT -> SM	0.194	0.049	0.000
H4	SN -> SM	0.397	0.049	0.000
H6	BC -> SM	0.313	0.048	0.000
H7	BC -> IA	0.159	0.047	0.001
H8	SM -> IA	0.233	0.058	0.000
H9	TK x SM -> IA	-0.262	0.041	0.000

Source: Author's analysis from dataset, 2024

Note: Composite reliability (CR), Average variance extracted (AVE), Attitude (AT), Subjective norms (SN), Perceived behavioral control (BC), Perceived sustainable marketing (SM), Technology knowledge (TK), Intention to agritourism (IA), Perceive environment (PE).



In Table 5, the analysis of the direct relationships between the measurement constructs influencing tourist motivation towards agritourism is grounded in the extended Theory of Planned Behavior. This analysis underscores the significance of constructs such as the perceived environment, attitudes, subjective norms, perceived behavioral control, and perceived sustainable marketing, each contributing positively to the intention to participate in agritourism. These findings affirm the hypothesized direct relationships, offering robust statistical validation.

Furthermore, the investigation reveals that the interplay between environmental activities and sustainable marketing significantly enhances visitors' intentions towards agritourism, with the pivotal moderating role of technology knowledge. Notably, technology knowledge adjusts the impact of these activities, reflecting a nuanced understanding of how agritourism's integration with technology can influence perceptions of environmental sustainability and cultural authenticity within the sector [51]. The detected inverse relationship, indicated by a beta value of - 0.262, suggests potential tensions between traditional agritourism practices and the adoption of modern technologies, highlighting an area for careful management and strategic development within the industry.

For the analysis of the chain of influence from the perceived environment leading to perceived sustainable marketing and the intention to engage in agritourism, approaching the analysis of the mediating effect is very important [9]. The results show that the mediating role of perceived sustainable marketing activities in the context of agritourism has been tested for the direct impact on tourist motivation, and at the same time, the most prominent role of technology knowledge moderates the relationship at the destination for the intention to engage in agritourism [29]. Moreover, the moderating influence of technology knowledge on these relationships underscores the complexity of fostering agritourism intentions, suggesting that technological integration must be balanced with the preservation of agritourism's core values and environmental sustainability.

More in-depth analysis results of the mediating effects through each measured concept are presented in Table 6.

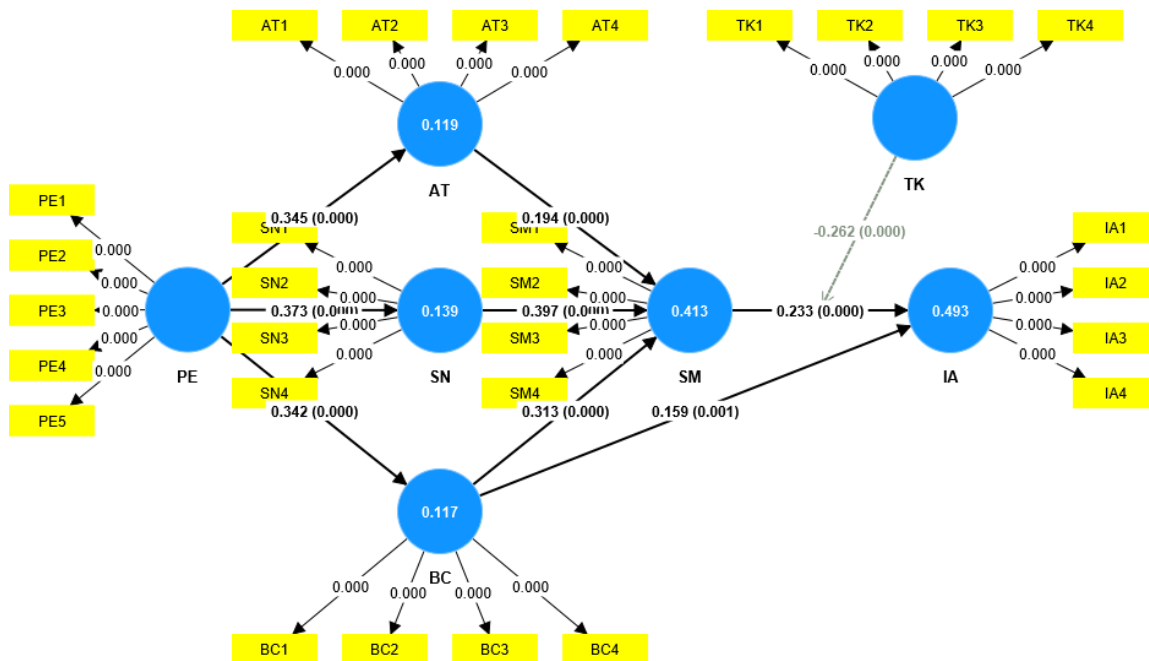
**Table 6. Total specific indirect effects**

Path coefficients	Estimates	Standard deviation	T statistics	P values
PE -> SN -> SM -> IA	0.034	0.012	2.932	0.003
PE -> SN -> SM	0.148	0.030	4.847	0.000
AT -> SM -> IA	0.045	0.016	2.878	0.004
PE -> BC -> SM -> IA	0.025	0.009	2.799	0.005
PE -> AT -> SM	0.067	0.022	3.032	0.002
BC -> SM -> IA	0.073	0.020	3.664	0.000
PE -> BC -> IA	0.054	0.019	2.859	0.004
SN -> SM -> IA	0.092	0.028	3.304	0.001
PE -> AT -> SM -> IA	0.016	0.006	2.426	0.015
PE -> BC -> SM	0.107	0.029	3.646	0.000

Source: Author's analysis from dataset, 2024

Note: Composite reliability (CR), Average variance extracted (AVE), Attitude (AT), Subjective norms (SN), Perceived behavioral control (BC), Perceived sustainable marketing (SM), Technology knowledge (TK), Intention to agritourism (IA), Perceive environment (PE).

The study's insights into tourists' intentions for agritourism are depicted in Figure 2, which illustrates a behavioral analysis model for agritourism application.



**Figure 2. The path analysis travelers' intention towards agritourism includes technological knowledge as a moderator.**

Source: Author's analysis from dataset, 2024

Note: Attitude (AT), Subjective norms (SN), Perceived behavioral control (BC), Perceived sustainable marketing (SM), Technology knowledge (TK), Intention to agritourism (IA), Perceive environment (PE).

## 5. DISCUSSIONS

Agritourism is a form of tourism that involves visiting and experiencing farms, orchards, or aquaculture areas. It is a blend of traditional tourism with the educational and recreational aspects of agriculture. Over time, tourism activities have become dependent on technological development, and the application of technology in tourism and agriculture has changed the core values of sustainable tourism inherent in agriculture. This study analyzes the dynamics of tourists' motivation from perceived environment to intention to agritourism and the influence of technology in regulating tourists' intentions in the context of agritourism in Vietnam. The research findings need to be interpreted and discussed with studies in different contexts within the experiential tourism group. A case study on the impact of environmental perception on agritourism intention in the China has provided evidence. The results, encompassing attitudes, subjective norms, and perceived behavioral control, reveal a positive and significant influence on the intention to engage in agritourism [16], [52].

A recent study related the significant influence of perceived sustainable marketing on the intention to engage in agritourism. The direct relationship between perceived sustainable marketing and the intention to engage in agritourism shows a positive correlation [53], [9]. This relationship is affected by the potentially variable moderating role of technology knowledge [54]. The study's results indicate an inverse correlation in the moderating role of technological knowledge. This may explain the impact of technology on environmental sustainability, foreign cultural impacts, and the economic development of agritourism [55]. These findings suggest that overreliance on technology in agritourism can lead to conflicts between traditional culture and modern technology, highlighting the crucial role of technology regulation in achieving a balanced and sustainable tourism experience [56].

## 6. CONCLUSIONS

The study presents an analysis of agritourism intentions among a diverse sample of participants in the context of Vietnam, highlighting a demographic predominance of female respondents

and a significant representation of individuals aged 30 to 39. Employment status further characterized the sample, with a large majority being employed. This demographic foundation supports the exploration of tourist motivations and intentions within the agritourism sector.

Key findings from the study underscore the significance of the direct relationships between various measurement constructs, firmly rooted in the Theory of Planned Behavior. Constructs such as perceived environment, attitude, subjective norms, perceived behavioural control, and perceived sustainable marketing were all found to positively influence the intention to engage in agritourism. This positive impact is a testament to the intricate dynamics of tourist motivation, emphasizing the role of both internal and external factors in shaping intentions towards agritourism.

The study also delves into the nuanced relationship between environmental activities, sustainable marketing, and agritourism intentions, revealing a positive correlation that is intricately moderated by technological knowledge. This moderation suggests a complex interplay between technological advancements and agritourism activities, highlighting potential conflicts between traditional agricultural practices and modern technological interventions. Such findings reflect the critical balance needed between embracing technology and preserving traditional cultural values in the promotion of agritourism.

Furthermore, the research emphasizes the importance of analyzing the mediating effects of perceived sustainable marketing on tourist motivation. The mediating role of sustainable marketing activities and the moderating influence of technology knowledge on agritourism intentions signify a multifaceted relationship. This relationship not only underscores the direct impact of marketing activities on tourist motivation but also the pivotal role of technology in shaping the agritourism experience.

In conclusion, this study contributes valuable insights into the factors influencing agritourism intentions, highlighting the complex interdependencies between environmental perceptions, sustainable marketing, and technology. The findings suggest a need for strategic integration of sustainable practices and technology in agritourism marketing and development, aiming to balance traditional values with modern advancements. This balance is crucial for fostering sustainable growth in the agritourism sector, ensuring that it remains a viable and attractive option for tourists seeking authentic and environmentally conscious experiences.

## 7. IMPLICATIONS (PRACTICE, SOCIAL, RESEARCH)

The research on agritourism intentions in Vietnam, emphasizing the moderating role of technological knowledge in the relationship between perceived sustainable marketing and the intention to engage in agritourism, offers profound implications for practical application, social impact, and future research. Practically, understanding the demographic skew towards employed females aged 30 to 39 can help agritourism providers tailor their marketing strategies to better appeal to this segment, leveraging technology to enhance the visitor experience and engagement. Socially, this insight encourages agritourism destinations to incorporate educational components about sustainable practices and technology's role in agriculture, potentially fostering a greater appreciation for sustainable living and environmental stewardship among visitors. For future research, the findings suggest a rich vein of inquiry into how different demographic groups perceive and interact with technology in agritourism settings [57]. This could lead to a more nuanced understanding of technology's role in enhancing sustainable tourism practices, guiding both policy and practice towards more inclusive and environmentally sustainable agritourism models.

The findings of the study highlight the intricate interplay of factors influencing agritourism intentions, guided by the Theory of Planned Behavior. The positive impacts of perceived environment, attitude, subjective norms, perceived behavioural control, and perceived sustainable marketing underscore the complexity of tourist motivation and the significance of both internal and external influences. From a practical perspective, this indicates that agritourism operators need to formulate detailed strategies. Specifically, they should focus on enhancing visitor experiences by integrating sustainable practices with innovative marketing efforts that highlight the unique environmental and cultural aspects of their destinations. The main activities of this model are growing vegetables, watering, harvesting fish in the fields, catching eels, transplanting rice, harvesting rice and pounding rice [58]. This involves leveraging the insights gained from the study on perceived environment, attitudes, and subjective norms to create targeted initiatives that resonate with potential tourists' values and expectations. Moreover, incorporating technological solutions to facilitate easier access to information, streamline booking processes, and offer immersive experiences can significantly elevate the appeal of agritourism offerings. Socially, the results point towards the potential of agritourism to contribute to sustainable development goals by fostering positive attitudes

towards environmental conservation and sustainable practices among tourists. The activities of this model are planting rice, releasing fish after harvesting fish in the fields, and participating in creating positive media.

Future research should delve deeper into the moderating role of technological knowledge in this context, exploring how digital and technological advancements can further influence the relationship between sustainable marketing practices and agritourism intentions [59], [60]. This could provide valuable insights into tailoring agritourism experiences that are not only environmentally sustainable but also resonate well with tech-savvy consumers, thereby expanding the appeal and impact of agritourism.

## **8. LIMITATIONS AND FUTURE RESEARCH**

This study offers significant theoretical insights and broadens our comprehension of the factors driving agritourism intentions, focusing especially on how technology influences the connection between sustainable marketing practices and the interest in agritourism. However, there are several limitations to be addressed. Firstly, the study's sample is primarily derived from the researcher's convenient access to a specific population within Vietnam, potentially limiting the broader applicability of the findings. To improve the generalizability of future research, it is recommended to broaden the scope by including participants from diverse geographical locations and expanding the sample size.

Moreover, the current research focuses on agricultural tourism activities in Vietnam, such as orchards, farms, and aquaculture areas. However, agritourism globally encompasses a wider range of activities, including farm classes, stays, corn mazes, harvest festivals, and more. Future studies should therefore aim to categorize and analyze customer clusters based on different agritourism activities to better understand and compare intentions and behaviors across various agritourism types.

Additionally, while this study provides insights within a national context, there is a significant opportunity for future research to explore agritourism intentions through a more detailed analysis of behaviour, cluster segmentation, and the relationship between demographic factors and agritourism interest. Such research could offer a more nuanced understanding of agritourism intentions and behaviours on a global scale.

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## References

- [1] S. Ammirato, An Empirical Study of Agritourism Evolution and E-Commerce Adoption Challenges, *Inf. Technol. Tour.* 12 (2010), 89–104. <https://doi.org/10.3727/109830510x12747489979664>.
- [2] I. Susila, D. Dean, K. Harismah, K.D. Priyono, A.A. Setyawan, H. Maulana, Does Interconnectivity Matter? An Integration Model of Agro-Tourism Development, *Asia Pac. Manage. Rev.* 29 (2024), 104–114. <https://doi.org/10.1016/j.apmrv.2023.08.003>.
- [3] S.A. Ananya, Technology Application in Agri-tourism, in: A. Hassan (Ed.), *Technology Application in the Tourism and Hospitality Industry of Bangladesh*, Springer Singapore, Singapore, 2021: pp. 113–126. [https://doi.org/10.1007/978-981-16-2434-6\\_7](https://doi.org/10.1007/978-981-16-2434-6_7).
- [4] Z. Chen, B. Diao, Regional Planning of Modern Agricultural Tourism Base Based on Rural Culture, *Acta Agric. Scand. Sect. B Soil Plant Sci.* 72 (2022), 415–428. <https://doi.org/10.1080/09064710.2021.2008481>.
- [5] W. Yu, D.M. Spencer, Motivations, Challenges, and Self-Transformations of Farmers Engaged in Farm Tourism on a Tropical Island, *J. Herit. Tour.* 16 (2020), 164–180. <https://doi.org/10.1080/1743873x.2020.1776296>.
- [6] A.I. Ramaano, Geographical Information Systems in Sustainable Rural Tourism and Local Community Empowerment: A Natural Resources Management Appraisal for Musina Municipality' Society, *Local Develop. Soc.* 4 (2022), 74–105. <https://doi.org/10.1080/26883597.2021.2011610>.
- [7] Z. ul Abedin Janjua, G. Krishnapillai, M. Rehman, Importance of the Sustainability Tourism Marketing Practices: An Insight from Rural Community-Based Homestays in Malaysia, *J. Hosp. Tour. Insights.* 6 (2022), 575–594. <https://doi.org/10.1108/jhti-10-2021-0274>.
- [8] X. Font, S. McCabe, Sustainability and Marketing in Tourism: Its Contexts, Paradoxes, Approaches, Challenges and Potential, *J. Sustain. Tour.* 25 (2017), 869–883. <https://doi.org/10.1080/09669582.2017.1301721>.
- [9] Z. Zhao, Y. Xue, L. Geng, Y. Xu, N.N. Meline, The Influence of Environmental Values on Consumer Intentions to Participate in Agritourism – A Model to Extend TPB, *J. Agric. Environ. Ethics.* 35 (2022), 15. <https://doi.org/10.1007/s10806-022-09881-8>.

- [10] G. Grillini, G. Sacchi, T. Streifeneder, C. Fischer, Differences In Sustainability Outcomes Between Agritourism and Non-Agritourism Farms Based on Robust Empirical Evidence from the Tyrol/Trentino Mountain Region, *J. Rural Stud.* 104 (2023), 103152. <https://doi.org/10.1016/j.jrurstud.2023.103152>.
- [11] I. Šagovnović, I. Stamenković, Investigating Values of Green Marketing Tools in Predicting Tourists' Eco-Friendly Attitudes and Behavior, *J. Ecotour.* 22 (2022), 479–501. <https://doi.org/10.1080/14724049.2022.2075003>.
- [12] S. Han, H. Ramkissoon, E. You, M.J. Kim, Support of Residents for Sustainable Tourism Development in Nature-Based Destinations: Applying Theories of Social Exchange and Bottom-Up Spillover, *J. Outdoor Recreat. Tour.* 43 (2023), 100643. <https://doi.org/10.1016/j.jort.2023.100643>.
- [13] K. Ait-Yahia Ghidouche, L. Nechoud, F. Ghidouche, Achieving Sustainable Development Goals Through Agritourism in Algeria, *Worldw. Hosp. Tour. Themes.* 13 (2021), 63–80. <https://doi.org/10.1108/whatt-08-2020-0092>.
- [14] D. Louis, C. Lombart, Impact of a Corporate Social Responsibility Message on Consumers' Sustainable Behaviours and Purchase Intentions, *Corp. Soc. Respons. Environ. Manage.* 31 (2024), 579–599. <https://doi.org/10.1002/csr.2587>.
- [15] S. Brune, W. Knollenberg, K.T. Stevenson, C. Barbieri, M. Schroeder-Moreno, The Influence of Agritourism Experiences on Consumer Behavior toward Local Food, *J. Travel Res.* 60 (2020), 1318–1332. <https://doi.org/10.1177/0047287520938869>.
- [16] S. Chen, M. Sotiriadis, S. Shen, The Influencing Factors on Service Experiences in Rural Tourism: An Integrated Approach, *Tour. Manage. Perspect.* 47 (2023), 101122. <https://doi.org/10.1016/j.tmp.2023.101122>.
- [17] C. Zhao, Z. Shang, Y. Pan, Beauty and Tourists' Sustainable Behaviour in Rural Tourism: A Self-Transcendent Emotions Perspective, *J. Sustain. Tour.* (2023). <https://doi.org/10.1080/09669582.2023.2238135>.
- [18] P.M.A. Paniccia, S. Baiocco, Interpreting Sustainable Agritourism Through Co-Evolution of Social Organizations, *J. Sustain. Tour.* 29 (2020), 87–105. <https://doi.org/10.1080/09669582.2020.1817046>.
- [19] I. Ajzen, The theory of planned behavior, *Organ. Behav. Human Decision Processes.* 50 (1991), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T).
- [20] C. Tew, C. Barbieri, The Perceived Benefits of Agritourism: The Provider's Perspective, *Tour. Manage.* 33 (2012), 215–224. <https://doi.org/10.1016/j.tourman.2011.02.005>.
- [21] T.H. Le, H.C. Wu, W.S. Huang, G.B. Liou, C.C. Huang, C.-M. Hsieh, Determinants of Tourists' Intentions to Agrotourism in Vietnam From Perspectives of Value-Belief-Norm Theory, *J. Travel Tour. Market.* 38 (2021), 881–899. <https://doi.org/10.1080/10548408.2021.1985040>.
- [22] N. Adnan, S.M. Nordin, M.A. Bahruddin, A.H. Tareq, A State-of-the-Art Review on Facilitating



- Sustainable Agriculture Through Green Fertilizer Technology Adoption: Assessing Farmers Behavior, *Trends Food Sci. Techn.* 86 (2019), 439–452. <https://doi.org/10.1016/j.tifs.2019.02.040>.
- [23] J.A. Cano, A.A. Londoño-Pineda, E.A. Campo, S.A. Fernández, Sustainable Business Models of E-Marketplaces: An Analysis from the Consumer Perspective, *J. Open Innov.: Techn. Market Complex.* 9 (2023), 100121. <https://doi.org/10.1016/j.joitmc.2023.100121>.
- [24] D. Jaiswal, B. Singh, R. Kant, A. Biswas, Towards Green Product Consumption: Effect of Green Marketing Stimuli and Perceived Environmental Knowledge in Indian Consumer Market, *Soc. Bus. Rev.* 17 (2021), 45–65. <https://doi.org/10.1108/sbr-05-2021-0081>.
- [25] J. Wu, T. Yang, Service Attributes for Sustainable Rural Tourism from Online Comments: Tourist Satisfaction Perspective, *J. Dest. Market. Manage.* 30 (2023), 100822. <https://doi.org/10.1016/j.jdmm.2023.100822>.
- [26] H. Moon, H. Han, Destination Attributes Influencing Chinese Travelers' Perceptions of Experience Quality and Intentions for Island Tourism: A Case of Jeju Island, *Tour. Manage. Perspect.* 28 (2018), 71–82. <https://doi.org/10.1016/j.tmp.2018.08.002>.
- [27] T. Matiza, E. Slabbert, The Destination Marketing and Media Profile – Travel Motives Nexus Amid Tourism Crisis: The Mediating Effect of the Nation Brand, *J. Hosp. Tour. Insights.* 7 (2022), 1–27. <https://doi.org/10.1108/jhti-05-2022-0174>.
- [28] Y. Joshi, D.P. Uniyal, D. Sangroya, Investigating Consumers' Green Purchase Intention: Examining the Role of Economic Value, Emotional Value and Perceived Marketplace Influence, *J. Clean. Product.* 328 (2021), 129638. <https://doi.org/10.1016/j.jclepro.2021.129638>.
- [29] L. Ding, C. Jiang, The Impact of Rural Tourism Destination Attractiveness on Tourists' Environmentally Responsible Behavioral Intentions: The Mediating Role of Green Self-Identity, *J. Glob. Resp.* (2023). <https://doi.org/10.1108/jgr-03-2023-0046>.
- [30] Z. Chen, Theoretical Development of the Tourist Experience: A Future Perspective, *Tour. Recreat. Res.* (2023). <https://doi.org/10.1080/02508281.2023.2255939>.
- [31] K.J. Dsouza, A. Shetty, P. Damodar, A.D. Shetty, T.K. Dinesh, The Assessment of Locavorism Through the Lens of Agritourism: The Pursuit of Tourist's Ethereal Experience, *Econ. Res.-Ekon. Istraž.* 36 (2023), 2147566. <https://doi.org/10.1080/1331677X.2022.2147566>.
- [32] P. Reddy, K. Chaudhary, B. Sharma, S. Hussein, Essaying the Design, Development and Validation Processes of a New Digital Literacy Scale, *Online Inf. Rev.* 47 (2022), 371–397. <https://doi.org/10.1108/oir-10-2021-0532>.
- [33] J. Liu, C. Wang, T. (Christina) Zhang, Exploring Social Media Affordances in Tourist Destination Image Formation: A Study on China's Rural Tourism Destination, *Tour. Manage.* 101 (2024), 104843. <https://doi.org/10.1016/j.tourman.2023.104843>.
- [34] H.A. Kokash, S. Shah Alam, S. Ahmed, A.N. Khattak, B. Tariq, Using Virtual Reality in Tourism

- Destination Decision: A Young Saudi Tourists' Perspective with Habit is a Mediator, *J. Qual. Assurance Hosp. Tour.* (2024). <https://doi.org/10.1080/1528008x.2023.2299762>.
- [35] L. Nicholas, B. Thapa, Visitor perspectives on sustainable tourism development in the Pitons Management Area World Heritage Site, St. Lucia, *Environ. Develop. Sustain.* 12 (2010), 839–857. <https://doi.org/10.1007/s10668-009-9227-y>.
- [36] J.F. Hair, M. Sarstedt, C.M. Ringle, S.P. Gudergan, *Advanced Issues in Partial Least Squares Structural Equation Modeling*, Sage, Thousand Oaks, (2018).
- [37] J.F. Hair, J.J. Risher, M. Sarstedt, C.M. Ringle, When to Use and How to Report the Results of PLS-SEM, *Eur. Bus. Rev.* 31 (2019), 2–24. <https://doi.org/10.1108/eb-11-2018-0203>.
- [38] J.M. Becker, A. Rai, E.E. Rigdon, Predictive Validity and Formative Measurement in Structural Equation Modeling: Embracing Practical Relevance, in: *Proceedings of the International Conference on Information Systems (ICIS)*, 2013.
- [39] J. Cohen, A Power Primer, *Psychol. Bull.* 112 (1992), 155–159. <https://doi.org/10.1037/0033-2909.112.1.155>.
- [40] X. (Robert) Li, C.K. Cheng, H. Kim, J.F. Petrick, A Systematic Comparison of First-Time and Repeat Visitors via a Two-Phase Online Survey, *Tour. Manage.* 29 (2008), 278–293. <https://doi.org/10.1016/j.tourman.2007.03.010>.
- [41] J.F. Hair Jr., M.C. Howard, C. Nitzl, Assessing Measurement Model Quality in PLS-SEM Using Confirmatory Composite Analysis, *J. Bus. Res.* 109 (2020), 101–110. <https://doi.org/10.1016/j.jbusres.2019.11.069>.
- [42] T. Clauss, Measuring Business Model Innovation: Conceptualization, Scale Development, and Proof of Performance, *R & D Manage.* 47 (2016), 385–403. <https://doi.org/10.1111/radm.12186>.
- [43] J. Henseler, C.M. Ringle, R.R. Sinkovics, The Use of Partial Least Squares Path Modeling in International Marketing, in: R.R. Sinkovics, P.N. Ghauri (Eds.), *Advances in International Marketing*, Emerald Group Publishing Limited, 2009: pp. 277–319. [https://doi.org/10.1108/S1474-7979\(2009\)0000020014](https://doi.org/10.1108/S1474-7979(2009)0000020014).
- [44] W.W. Chin, J. Henseler, H. Wang, *Handbook of Partial Least Squares: Concepts, Methods and Applications*, Springer, Berlin, Heidelberg, 2010.
- [45] L. Hu, P.M. Bentler, Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives, *Struct. Equ. Model.: Multidiscip. J.* 6 (1999), 1–55. <https://doi.org/10.1080/10705519909540118>.
- [46] J.C. Nunnally, *Psychometric Theory*, 2nd ed., McGraw-Hill, 1978.
- [47] M. Sarstedt, C.M. Ringle, J.F. Hair, Treating Unobserved Heterogeneity in PLS-SEM: A Multi-method Approach, in: H. Latan, R. Noonan (Eds.), *Partial Least Squares Path Modeling*, Springer International Publishing, Cham, 2017: pp. 197–217. [https://doi.org/10.1007/978-3-319-64069-3\\_9](https://doi.org/10.1007/978-3-319-64069-3_9).

- [48] M. Sarstedt, J.F. Hair, M. Pick, B.D. Liengard, L. Radomir, C.M. Ringle, Progress in Partial Least Squares Structural Equation Modeling Use in Marketing Research in the Last Decade, *Psychol. Market.* 39 (2022), 1035–1064. <https://doi.org/10.1002/mar.21640>.
- [49] R.P. Bagozzi, Y. Yi, On the Evaluation of Structural Equation Models, *J. Acad. Market. Sci.* 16 (1988), 74–94. <https://doi.org/10.1007/bf02723327>.
- [50] C. Fornell, D.F. Larcker, Evaluating Structural Equation Models with Unobservable Variables and Measurement Error, *J. Market. Res.* 18 (1981), 39–50. <https://doi.org/10.1177/002224378101800104>.
- [51] S. Baiocco, L. Leoni, P.M.A. Panicia, Entrepreneurship for Sustainable Development: Co-Evolutionary Evidence From the Tourism Sector, *J. Small Bus. Enterprise Develop.* 30 (2023), 1521–1546. <https://doi.org/10.1108/jsbed-01-2023-0003>.
- [52] H. Hu, J. Zhang, G. Chu, J. Yang, P. Yu, Factors Influencing Tourists' Litter Management Behavior in Mountainous Tourism Areas in China, *Waste Manage.* 79 (2018), 273–286. <https://doi.org/10.1016/j.wasman.2018.07.047>.
- [53] C.H. Chin, C.L. Chin, W.P.M. Wong, The Implementation of Green Marketing Tools in Rural Tourism: The Readiness of Tourists?, *J. Hosp. Market. Manage.* 27 (2017), 261–280. <https://doi.org/10.1080/19368623.2017.1359723>.
- [54] S. Mandal, Exploring the Influence of Big Data Analytics Management Capabilities on Sustainable Tourism Supply Chain Performance: The Moderating Role of Technology Orientation, *J. Travel Tour. Market.* 35 (2018), 1104–1118. <https://doi.org/10.1080/10548408.2018.1476302>.
- [55] S. Baiocco, P.M.A. Panicia, Integrating The Natural Environment into Tourism Firms' Business Model for Sustainability, *Environ. Sci. Pollution Res.* 30 (2023), 75015–75028. <https://doi.org/10.1007/s11356-023-27730-7>.
- [56] L. Yanan, M.A. Ismail, A. Aminuddin, How Has Rural Tourism Influenced the Sustainable Development of Traditional Villages? A Systematic Literature Review, *Heliyon.* 10 (2024), e25627. <https://doi.org/10.1016/j.heliyon.2024.e25627>.
- [57] N. Khazami, A. Nefzi, A. Yahyaoui, Role of Rural Women on the Agritourism Entrepreneurial Behavior in Tunisia, *Cogent Bus. Manage.* 11 (2023), 2292313. <https://doi.org/10.1080/23311975.2023.2292313>.
- [58] The Quynh, Western Tourists Try Catching Fish in Vietnam Terraced Fields, 2022. <https://e.vnexpress.net/news/travel/western-tourists-try-catching-fish-in-vietnam-terraced-fields-4525815.html>.
- [59] T. Hansen, S. Olk, T.U. Thomsen, A Meta-Analysis of Sustainable Tourist Behavioral Intention and the Moderating Effects of National Culture, *J. Sustain. Tour.* 32 (2023), 883–903. <https://doi.org/10.1080/09669582.2023.2186825>.
- [60] C.H. Liu, J.S. Horng, S.F. Chou, T.Y. Yu, Y.C. Huang, H.T. Vu, The Roles of Cognitive Benefits and

Technology Usage in Predicting Students' Sustainable Behavioural Intentions: The Moderating Roles of Data Literacy and Marketing Strategy, *J. Hosp. Leis. Sport Tour. Educ.* 34 (2024), 100480. <https://doi.org/10.1016/j.jhlste.2024.100480>.