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Revisiting the Stimulus–Organism–Response (S-O-R) Model in the Context of AI-Driven Tourism: A Multi-Path Analysis of Personalization, Perception, and Privacy

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ABSTRACT

This study revisits the Stimulus, Organism, Response (S-O-R) model to examine the psychological mechanisms underlying tourists' responses to AI-based personalization in digital tourism platforms. Drawing on a sample of 360 Indonesian respondents collected via online survey, this study investigates how AI-based personalization influences three organismic states, namely perceived value, trust, and privacy concern and how these states affect tourists' behavioral intentions. Using Partial Least Squares Structural Equation Modelling (PLS-SEM), the findings reveal that AI-based personalization significantly enhances perceived value and trust while also reducing privacy concern. Each of these organismic responses, in turn, significantly shapes behavioral intention, confirming the relevance of the extended S-O-R model in the context of AI-driven tourism. Theoretically, this study contributes to existing tourism literature by integrating both positive and negative psychological reactions into a unified explanatory model, highlighting personalization's dual role as both functional and ethical stimulus. Practically, this study's findings provide guidance for tourism platforms to create AI-powered services that are transparent, trustworthy, and efficient. However, this study's cross-sectional design and single-country focus are among its drawbacks, necessitating future studies to perform longer-term analysis, cross-cultural comparisons, and investigation of other related moderating factors, such as digital literacy and cultural norms.

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I. INTRODUCTION

As opposed to being a distant technological dream, artificial intelligence (AI) has become a fundamental force shaping contemporary tourism (Rifqi and Bastiar, 2024). These days, AI-powered digital tourism platforms are capable of creating itineraries, suggesting places to visit, and engaging with tourists through algorithm-based conversational interfaces (Dewayani and Loreño, 2025). Such enhancement have changed how tourists plan their trips, seek information, and make decisions (Nugroho et al., 2024; Sidiq et al., 2025). However, a crucial governance concern arises as AI has been increasingly ingrained in day-to-day travel practices, namely how should moral laws and the incorporation of personalization technologies be handled in tourism practices that rely on trust and personal information. This is important, since there is a significant gap between innovation and regulation within tourism industry as a result of AI's rapid development that surpasses the capacity of tourism policy frameworks to anticipate this technology's social and ethical ramifications.

The global digital tourism industry continues to grow under the auspices of sustainable tourism innovation (Anggari, 2024). However, to date, tourism has primarily focused on infrastructure, competitiveness, and marketing efficacy, offering little guidance on computerized accountability, transparency, or data governance (Ezekwe, 2025). Because of this, appropriate laws pertaining to users' autonomy, equity, and privacy have not kept up with AI adoption within tourism industry. This policy gap—defined as a disparity between technological advancement and regulatory readiness—is the primary motivator for this study.

Indonesia offers a particularly noteworthy empirical backdrop for this study, since it is one of Southeast Asia's fastest-growing digital tourism markets that has swiftly embraced AI-powered tourism platforms, such as Traveloka, Tiket.com, and Agoda. However, national frameworks for AI regulation and data protection are still in their infancy (Revolusi and Febriandy, 2025). This context offers both theoretical and practical significance: it enables the study of AI-based personalization within a rapidly expanding digital market with minimal regulatory supervision, thus illustrating how users manage trust and privacy within new tourism economies.

Apart from its policy consequences, AI has also transformed the psychological bases of travel experience. While conventional personalization has been relying on established guidelines and demographic segmentation, AI-based personalization is capable of continuously analyzing users' behavior and instantly adjusting recommendations (Khamaj and Ali, 2024). However, tourists may express discomfort if they feel the sense of being unduly watched or managed, even though the digital services' responsiveness increases their convenience and satisfaction. These differing reactions complicate the cognitive and affective assessments of digital services, considering that leisure, trust, and emotional aspects are interrelated within security-based tourism industry.

To explore these dynamics, this study reexamines the Stimulus–Organism–Response (S-O-R) model, a key framework in consumers' behavior theory that describes how external stimuli affect internal psychological states, which consequently determine behavioral responses (Erensoy et al., 2024; Prasetya and Kuswati, 2025). While the S-O-R model has been extensively utilized in studies on tourism and hospitality, it has never been specifically used to examine AI-based personalization (Bhuiyan, 2024). Moreover, while previous studies have utilized this model in the contexts of e-commerce and hospitality, none of them have combined both positive organismic states (perceived value and trust) and negative state (privacy concern) in the context of AI-driven tourism. Thus, this study aims to fill this gap by conceptualizing AI-based personalization as a complex stimulus that simultaneously triggers both positive and negative psychological reactions.

This study thereby aims to significantly advances this topic by examining three main areas (perceived value, trust, and privacy concern). To emphasize the significance of ethical and regulatory measures within the Sustainable Tourism Innovation (STI) framework, this study 1) highlights the current policy gap related to the growth of AI-based personalization in tourism; 2) offers a distinct STI perspective, arguing that responsible data governance, the growth of digital trust, and innovation are all necessary for a successful digital transformation; and 3) incorporates dual psychological mechanisms that demonstrate how AI can concurrently foster anxiety and trust, thus broadening the theoretical scope of the S-O-R model. Taken as a whole, this study contributes to provide conceptual and empirical understanding of how AI-based personalization changes the dynamics between tourists and tourism platforms and impacts the general governance of smart tourism systems.

II. ANALYTICAL FRAMEWORK

A. Stimulus-Organism-Response Model in the Context of Tourism

Russell and Mehrabian first proposed the Stimulus-Organism-Response (S-O-R) model in 1974. It provides a fundamental framework for comprehending how external stimuli affect internal psychological states, which in turn influence behavioral responses. According to this model, which has its roots in environmental psychology, environmental cues (stimuli) cause emotional and cognitive reactions (organisms), which in turn affect a person's avoidance or approaching behavior (responses). The model's application in studies on consumers' behavior was later expanded by Erensoy et al. (2024), who emphasized its usefulness in clarifying the ways that marketing stimuli influence decision-making processes in various contexts.

The S-O-R model has been increasingly employed in studies on tourism and hospitality for over the last 20 years, especially to comprehend tourists' responses to virtual and online settings. In the context of digital tourism, the model has been applied to investigate the effects of website presentation, interactive features, and service cues on tourists' satisfaction and desired outcomes (Rafi et al., 2025). More recent studies have adapted the model to examine how people behave in response to mobile tourism apps, augmented reality, and smart tourism technologies (Sia et al., 2024). These changes reinforce the model's flexibility in capturing the evolving nature of travel experiences enhanced by technology.

As AI is being utilized in tourism at a rapid pace, either as a core element of recommender systems, conversational agents, or predictive pricing, it provides a new stimulus that is not only informative, but also adaptive, personalized, and frequently opaque. Beyond conventional satisfaction or convenience, these attributes also cause intricate internal reactions. For instance, tourists may feel uneasy or concerned about data usage and surveillance while also viewing AI-based systems as extremely beneficial and useful.

Therefore, this study proposes an expanded use of the S-O-R model by incorporating two positive organismic appraisals, namely perceived value and trust, as well as one negative appraisal, namely privacy concern. This dual-path approach acknowledges that AI-based personalization does not elicit uniform psychological responses. Instead, it evokes a spectrum of evaluations, several of which may promote behavioral engagement and several others may inhibit it. This nuanced application enables a more accurate representation of tourists' psychological processing in the context of digital tourism.

In this sense, AI-based personalization acts as a catalyst that triggers a number of internal evaluations (organisms), which in turn shapes tourists' behavioral intentions (responses). Thus, by re-examining the S-O-R model that takes AI-powered innovation into account, this study can enhance our understanding of how digital personalization affects tourists' interactions and decision-making within smart tourism ecosystem.

B. AI-Based Personalization

Artificial intelligence (AI) is changing digital tourism industry by offering highly customized experiences that are instantly adjusted to tourists' choices, actions, and historical contexts. The term "AI-based personalization" refers to the application of intelligent systems that automatically evaluate tourists' data and modify recommendations, services, or content as necessary (Gao et al., 2025). Unlike usual rule-based customization, AI-based personalization is dynamic and predictive, often anticipating users' needs before they are explicitly expressed. The tourism industry benefits from more user-friendly travel planning, personalized holiday suggestions, flexible itineraries, and instant service supports provided by various technological tools, such as mobile apps, booking platforms, or AI-based chatbots.

The capability of AI-based personalization to produce distinctive, context-based interactions that have a direct impact on tourists' decision-making is what gives it its power as a motivating factor. Digital tourism platforms, such as Booking.com, Trip.com, and Traveloka, use intelligent recommender systems that examine users' preferences and search history to tailor travel packages, tours, and lodging for each individual. Within the Stimulus-Organism-Response (S-O-R) model, these personalization cues function as salient stimuli, influencing early assessments of engagement, relevance, and utility (Palamidovska-Sterjadovska et al., 2024).

Empirical studies on tourism and digital retailing have validated the efficacy of AI-based personalization in augmenting users' experiences. Intelligent recommender systems have been shown to improve convenience, reduce decision fatigue, and foster a personalized experience, all of which increase customers' satisfaction and perceived services' excellence (Kim and Kim, 2025; Wang et al., 2025). Nonetheless, AI-based personalization also raises possible issues, such as

the ones concerning algorithmic opacity, data transparency, and users' loss of control (Schelenz et al., 2024). However, recent study indicates that when personalization is perceived as pertinent, moral, and valuable, it can also lessen privacy concerns by fostering a sense of transparency and control (Fakfare et al., 2024). Effective personalization can communicate platform's fairness and dependability rather than cause anxiety, reducing the sense of monitoring or data abuse.

Accordingly, this study conceptualizes AI-based personalization as a complex digital stimulus that activates multiple organismic responses. On one hand, efficient and relevant service experiences is expected to positively influence perceived value (Yum and Kim, 2024). It is also posited to strengthen users' trust in the platform's capabilities and ethical handling of their personal information (Cheng et al., 2024). On the other hand, instead of increasing privacy concern, this study hypothesizes a negative relationship, wherein well-implemented personalization may reduce anxiety over data use by promoting a sense of benefit and control. This triadic response pattern underscores the psychological richness of users' interaction with AI in the context of digital tourism.

Thus, based on the above conceptualization, the following hypotheses are proposed:

H1: AI-based personalization has a positive effect on perceived value.

H2: AI-based personalization has a positive effect on trust.

H3: AI-based personalization has a negative effect on privacy concern.

C. Perceived Value in AI-Driven Tourism

A significant number of people think that perceived value largely determines how they make decisions about something and what they aim to do about it, especially within service-based industries, such as tourism. In theory, perceived value denotes the degree of someone's thoughts about the usefulness of a product or service as a whole, based on how they weigh the benefits contrary to the costs (Blut et al., 2024). In the context of digital tourism, these benefits may include relevance, convenience, personalization, and enjoyment, while the costs may involve time, effort, or concerns over data use.

AI-based personalization has introduced new dimensions to the perceived value in tourism. By using real-time data and intelligent algorithms, tourism platforms are capable of delivering services that align more precisely with tourists' interests, travel goals, and contextual needs. Systems that provide customized travel suggestions, well-planned itineraries, or carefully-chosen lodging options, for instance, reduce the amount of time and mental work needed to make relevant decisions at the moment, immediately increasing functional value (Yum and Kim, 2024). In addition, the perception that the systems understand and adapt to users' preferences and interests certainly contributes to affective value, creating senses of satisfaction and enjoyment (Hanif et al., 2024).

In the context of AI-driven tourism, where digital experiences frequently take the advantage of or come before in-person interactions, the significance of perceived value is especially evident. Perceived value is an important foundation of engagement because digital tourism platforms function within a high-choice, low-touch environment, in contrast to that of conventional tour operators. Tourists are more likely to form positive opinions and intend to reuse or recommend an AI-powered tourism platform when they believe it offers pertinent, practical, and fulfilling experiences (Kang et al., 2024).

Several empirical studies have confirmed the mediating or predictive role of perceived value in technology-enabled tourism services. For instance, (Hanif et al., 2024) found that personalized travel content significantly increases users' perceptions of economic and emotional value, which in turn predicts reuse intention of travel apps. Similarly, Elshaer et al. (2025) demonstrated that higher levels of perceived value regarding online travel agencies' services lead to stronger trust and loyalty.

In this study, perceived value is conceptualized as a positive organismic response to AI-based personalization. It reflects tourists' internal evaluation of how well the personalized service enhances their travel planning or experience. The more value a tourist perceives from an AI-powered tourism platform, the more likely he/she is to form positive behavioral intentions, examples of which include reusing the platform, recommending it to others, or exploring additional services.

Thus, based on the above conceptualization, the following hypothesis is proposed:

H4: Perceived value has a positive effect on behavioral intention.

This notion emphasizes the importance of integrating personalization technologies in AI-powered tourism platforms while also ensuring that these features enhance users' decision quality, save time, and result in a meaningful experience. Therefore, enhancing perceived value should be viewed as a calculated tactic to promote users' retention and loyalty within highly competitive digital tourism markets.

D. Trust in AI Systems for Travel Decisions

The utilization of digital services is largely based on trust, especially when users are interacting with autonomous and invisible systems, such as AI-based ones. In the context of tourism, where tourists frequently rely on digital platforms to make high-stakes and experience-centric decisions, the level of their trust in the systems can significantly shape their engagement, willingness to believe in the recommendations, and long-term loyalty (Hassan et al., 2022).

Conceptually, trust in AI systems refers to a user's willingness to acknowledge his/her limitations and rely on an intelligent agent's capability to generate outputs and/or results as expected, based on the belief that the systems are competent, reliable, and acts with integrity (Wanner et al., 2022). Unlike conventional service encounters where trust may be built through human interaction, trust in AI systems is primarily determined by the systems' perceived technical performance, transparency, predictability, and alignment with users' expectations (Shaban, 2022).

In the context of AI-based tailoring in tourism, trust becomes especially crucial because the decision-making process is basically opaque and data-driven. Even though tourists often have no idea how their personal information is used to generate recommendations, they are expected to rely on the platform's outputs when making decisions about where to go, what to book, or how to plan their trip. If they think that AI system is providing accurate, relevant, and useful recommendations, they are more likely to view it as trustworthy and dependable. This sense of trust enhances their conviction for keep using the platform and reduces their uncertainty, especially in unfamiliar or risky travel situations (Wanner et al., 2022).

Empirical studies have demonstrated that trust in AI plays a critical role in driving behavioral responses in tourism and related sectors. Adilović (2024) found that trust significantly influences users' intention to use mobile travel services. Likewise, Koo et al. (2025) noted that tourists who trust AI-powered recommender systems are more likely to act based on the platform's suggestions, perceiving them as accurate and useful. This is also supported by Chou et al.'s (2025) findings, who argued that users' cognitive trust in AI system's capability strongly influences their intention to utilize the services.

In this study, trust is conceptualized as a positive organismic response within the S-O-R model. It determines how confident a tourist is in viewing the platform's capacity to fairly and successfully assist him/her in decision-making process. AI-based personalization perceived as perceptive and in line with tourists' preferences is likely to foster a trusting attitude, which in turn raises the possibility of advocacy, deeper engagement, or repeat use of the service.

Thus, based on the above conceptualization, the following hypothesis is proposed:

> H5: Trust has a positive effect on behavioral intention.

Understanding and cultivating trust in AI systems is thereby critical for digital tourism providers. Trust mediates user's emotional experience and behavioral commitment to the platform, in addition to increasing acceptance of the technology. Moreover, trust will continue to be a crucial strategic asset in establishing long-lasting connections between digital platforms and their users, since tourism industry has been increasingly relying on intelligent systems.

E. Privacy Concern in Personalized Tourism Services

AI-based personalization offers obvious benefits in terms of user experience, effectiveness, and relevance, despite also exhibits significant privacy issues. In the age of digital tourism, where customized content is largely driven by the collection and analysis of users' information, such as browsing history, location-based behavioral patterns, and preferences, tourists may become increasingly concerned with the ways their data are being gathered, stored, and used. These concerns are encapsulated in the idea of privacy concern, which refers to people's fear of potential misuse, unauthorized access, or loss of authority over their personal information (Chen et al., 2025).

Because travel data are sensitive and context-rich, privacy concerns are particularly relevant in tourism industry. When choosing lodging, booking flights, or using destination apps, tourists frequently divulge personal information. AI systems that personalize these experiences often

function with little transparency, which makes it challenging for users to comprehend the limits of data use. As a result, tourists may feel exposed, watched, or coerced, even though they actually gain more personalized recommendations and effective services from the systems (Rahaman et al., 2025).

Unlike perceived value or trust, which reflects the positive internal evaluations of AI services, privacy concern represents a negative organismic response, suggesting its nature as a psychological barrier that can dampen users' enthusiasm and limit behavioral engagement. Prior study has shown that privacy concern negatively affects users' willingness to adopt intelligent systems, particularly when personalization is perceived as intrusive or excessive (Chen et al., 2025). In the context of tourism, Aggarwal et al. (2024) found that privacy concern significantly decreased users' intention to use location-based services, even when those services were actually perceived as useful.

Recent studies on smart tourism have affirmed these findings. Rinne (2025) showed that while AI-powered recommender systems increase satisfaction and trust, they simultaneously provoke anxiety about data collection practices. Similarly, Asif et al. (2025) emphasized that transparency and perceived control are essential to mitigate privacy concerns in the use of AI-powered mobile tourism apps. These prior findings suggest that privacy concern acts not only as a moderating factor, but also as a direct inhibitor of behavioral intention.

In this study, the S-O-R model is employed to treat privacy concern as a counterbalancing psychological state. Positive evaluations, such as perceived value and trust, coexist with this state, providing a more accurate picture of how tourists internally interpret AI-based personalization. Crucially, it acknowledges that the same digital stimulus can elicit mixed feelings, namely excitement about its potential benefits and anxiety about its potential drawbacks.

Thus, based on the above conceptualization, the following hypothesis is proposed:

> H6: Privacy concern has a negative effect on behavioral intention.

Recognizing the role of privacy concern is crucial for tourism platforms seeking to implement responsible AI systems. Addressing these concerns through transparent data policies, user control mechanisms, and ethical design is not only a matter of compliance, but a strategic necessity for maintaining users' engagement in the long term. In the age of intelligent tourism, building users' trust must go hand in hand with respecting their privacy boundaries.

F. Digital Literacy as the Mediating Factor

Digital literacy denotes a person's capability to proficiently access, assess, and leverage digital technologies to achieve particular objectives in online settings (Chan et al., 2021; Khalik et al., 2025). In AI-driven tourism, digital literacy influences how users perceive and react to personalized signals generated by the systems. Tourists possessing strong digital literacy often view AI-driven suggestions as valuable, clear, and controllable, while individuals with lower literacy might consider them unclear or invasive, resulting in heightened concerns about privacy (Fitriani and Basir, 2025).

Previous study has also indicated that users possessing high digital skills would be more confident in interacting with intelligent systems, indicated by an increase in their perceived control and understanding of algorithmic processes (Gruber and Hargittai, 2023). In contrast, people with low literacy frequently face cognitive strain or scepticism, reducing their perceived value and trust while heightening privacy issues (Respi et al., 2025). Within the S-O-R model, digital literacy acts as a boundary condition influencing the strength and direction of the relationships between stimulus and organism.

This study thereby suggests that digital literacy influences the impact of AI-based personalization on three organismic states (perceived value, trust, and privacy concern). Strong literacy enhances the beneficial effects of personalization on perceived value and trust, while reducing its possibility to raise privacy issues.

Thus, based on the above conceptualization, the following hypotheses are proposed:

> H7a: Digital literacy enhances the relationship between AI-based personalization and perceived value.
>
> H7b: Digital literacy positively influences the link between AI-based personalization and trust.
>
> H7c: Digital literacy has a negative moderating effect on the connection between AI-based personalization and privacy concern.

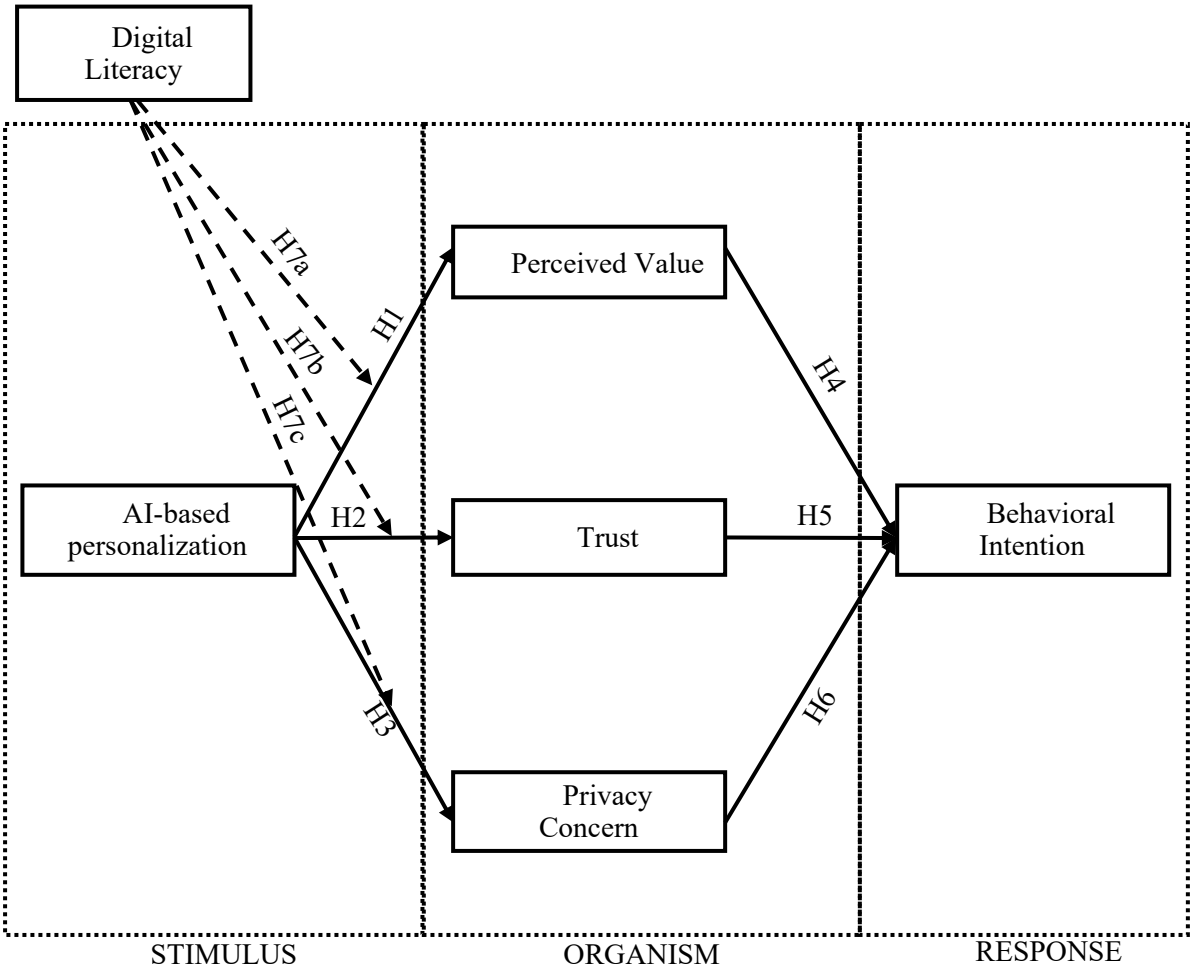

Figure 1. Research framework

III. METHODOLOGY

This study via a quantitative, cross-sectional survey approach empirically examines the effects of AI-based personalization on tourists' internal evaluations and behavioral intentions when utilizing digital tourism platforms. Through the Stimulus–Organism–Response (S-O-R) conceptual framework, this study performs a multi-path analysis that links three organismic states (perceived value, trust, and privacy concern) and AI-based personalization (Stimulus) as well as the effects these states have on behavioral intention (Response). Digital literacy—defined here as the length of time respondents had in using AI-powered tourism platformswas employed as the moderating construct to address users' diversity in understanding AI-based personalization.

The sample consisted of 360 valid respondents who have utilized AI-powered tourism platforms, such as Booking.com, Agoda, Trip.com, and Traveloka, during the previous 12 months. The eligible participants were the ones who (1) were at least 18 years old; (2) have used chatbots, personalized suggestions, or automated trip planners, all of which are examples of AI technologies in digital tourism platforms; and (3) have made reservations or booked a leisure trip within the previous 12 months.

From February to May 2025, a self-administered online survey through purposive sampling was conducted to collect data. A Google Form link containing the survey instrument was disseminated to tech-savvy Indonesian respondents, particularly the ones resided in several big cities, such as Jakarta, Bandung, Yogyakarta, and Bali, via university networks, online travel forums, and social media platforms, such as Facebook, Instagram, and Telegram. Gen Z and Millennials, the group most interested in AI-powered travel experiences, made up the majority of respondents. This approach practically targeted digitally-engaged users, since it favored younger, tech-savvy, and urban respondents. This thereby was considered a sampling bias and was acknowledged as one of this study's drawbacks.

AI-Based Personalization (Stimulus), Perceived Value, Trust, Privacy Concern (Organism), and

Behavioral Intention (Response) were five underlying constructs assessed in this study. Digital literacy defined here as the length of time respondents had in using AI-powered tourism platforms, such as Traveloka, Tiket.com, and Agoda was employed as the moderating construct. In line with established models that associate digital literacy with experience and skill application rather than self-reflective attitudes, this approach emphasized the behavioral component of digital literacy (Reddy et al., 2023). After that, the construct was normalized before the moderation analysis.

All constructs were assessed using the seven-point Likert scale, where 1 indicates strongly disagree and 7 indicates strongly agree, using multi-item scales modified from previously validated study. When translating items into Bahasa Indonesia, back-translation was performed to guarantee linguistic and conceptual coherence. The constructs, sample items, and their respective academic references are shown in Table 1.

Table 1. Constructs, Measurement Items, and Sources

Construct	Item Statement	Source
AI-Based Personalization	The travel recommendations I received matched my personal preferences.	(Kanaparthi, 2024; Schelenz et al., 2024)
	I feel that digital system in tourism platform was tailored specifically for me.	
	I found that using tourism service was easier owing to AI features.	
	Digital tourism platform accurately understood my needs.	
	AI helped me discover destinations that matched my interests.	
Perceived Value	I feel that AI features in tourism app provided benefits beyond my expectations.	(Blut et al., 2024; Tedja et al., 2024)
	AI-based services improved the efficiency of my trip planning.	
	My experience using the digital tourism app was highly valuable.	
	I believe that AI technology improved my overall tourism satisfaction.	
Trust	I trust that digital tourism platform will not misuse my personal data.	(Han et al., 2025; Yang et al., 2024)
	I believe that the recommendations provided by AI are reliable.	
	I feel comfortable following AI system's suggestions when planning my trip.	
	I trust AI system to protect my safety and privacy.	
	I believe that AI can offer objective and unbiased suggestions.	
Privacy Concern	I worry that my personal data is being stored without my permission.	(Asthana et al., 2024; Menard and Bott, 2025)
	I feel uncomfortable when the system tracks my travel behavior.	
	I am hesitant to use tourism services that require too much personal information.	
	I reconsider using AI features due to privacy concerns.	
Behavioral Intention	I intend to continue using AI-powered tourism platforms in the future.	(Ajzen, 1991; Huang et al., 2024)
	I will recommend digital tourism platforms to friends or family.	
	I am more likely to choose destinations promoted through AI technology.	
	I am likely to reuse services that offer AI-based personalization features.	
	I will continue to follow promotions and content from tourism platforms that use AI.	

To ensure accuracy, the dataset was examined for outliers and missing values prior to analysis. A number of procedural measures were taken to reduce Common Method Bias (CMB), including employing distinct scale anchors, randomizing the order of questions, and ensuring respondents' anonymity. Additionally, the results of Harman's single-factor test showed that CMB was not a significant problem, since the first factor explained less than 50% of the total variance.

The proposed relationships, including the moderating effect of digital literacy, were investigated using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS 4.0. This method's effectiveness in analyzing complex models consisting of reflective constructs and non-normally distributed data led to its selection. Internal consistency (Cronbach's alpha, Composite Reliability), convergent validity (Average Variance Extracted), and discriminant validity (Heterotrait-Monotrait Ratio) were used to assess the measurement model. Next, path coefficients, the coefficient of determination (R^2), effect's sizes (f^2), and predictive relevance (Q^2) were used to assess the structural model, and bootstrapping (5,000 resamples) was used to determine significance. Demographic variables, such as age, gender, educational background, and travel frequency, were used as control variables in supplemental analyses.

IV. RESULTS

A. Respondents' Profile

As many as 360 valid responses from people who had previously used AI-powered tourism platforms were gathered. Table 2 provides the summary of respondents' demographic profile. The gender distribution was relatively balanced, with 46.7% identified as male and 53.3% as female. With 40.3% of all respondents falling into the 25 to 34-year-old age range and 30.6% falling into the 18 to 24-year-old age range, the sample primarily comprised younger adults. Only 3.3% of

all respondents were 55 years of age or older, suggesting that the majority of them were tech-savvy and actively involved in digital activities.

In terms of educational background, more than half of all respondents had at least undergraduate degree. In particular, 55.0% had a Bachelor's degree, 20.0% had a diploma, and 13.9% had a postgraduate degree. The comparatively high educational attainment among users of AI-powered tourism platforms is supported by the fact that only 11.1% had completed high school or below.

Next, travel frequency in the past year varied across the sample, with 38.9% reporting three to five trips and 27.8% taking between six and ten trips. Notably, 15.3% reported traveling more than ten times in a year, suggesting a substantial proportion of experienced and frequent tourists. Finally, regarding preferences of tourism platform, Traveloka was the most used one (42.2%), followed by Booking.com (26.7%) and Agoda (21.7%). The remaining 9.4% indicates the use of other platforms

Table 2. Respondents' Demographic Profile

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	168	46.7
	Female	192	53.3
Age Group (Years Old)	18–24	110	30.6
	25–34	145	40.3
	35–44	64	17.8
	45–54	29	8.1
	55 and above	12	3.3
Educational Background	High School or Below	40	11.1
	Diploma	72	20.0
	Bachelor's Degree	198	55.0
	Postgraduate	50	13.9
Travel Frequency (During Past Year)	1–2 times	65	18.1
	3–5 times	140	38.9
	6–10 times	100	27.8
	More than 10 times	55	15.3
Platform Most Used	Traveloka	152	42.2
	Booking.com	96	26.7
	Agoda	78	21.7
	Others	34	9.4

Table 3 shows the descriptive statistics of the constructs evaluated in this study. Overall, the findings indicate that respondents were highly engaged and had positive opinions about AI-powered tourism platforms. The majority of them thought that the digital systems were well-suited to their preferences, as evidenced by the mean score of AI-Based Personalization (M = 5.76). Similarly, high mean scores of Perceived Value (M = 5.59) and Trust (M = 5.52) indicate that users thought AI-driven tourism services were reliable and beneficial. However, the mean score of Privacy Concern (M = 4.18) is a little lower, indicating that while respondents were aware of privacy risks, their evaluations were not largely influenced by these concerns. Behavioral Intention (M = 5.85) exhibits the highest mean score, indicating a strong desire to persist in using AI-powered tourism platforms. Finally, Digital Literacy's mean score of 3.42 indicates that the sample mainly comprised digitally-seasoned tourists who have had ongoing engagement with AI-powered tourism platforms since approximately 2021. This profile as a whole corresponds with the targeted respondents, namely city-based, technology-focused users, as well as reinforces this study's emphasis on AI adoption in advanced digital tourism secto

Table 3. Constructs' Descriptive Statistics

Construct	Mean	Standard Deviation	Minimum	Maximum
AI-Based Personalization	5.76	0.90	3.00	7.00
Perceived Value	5.59	0.86	3.00	7.00
Trust	5.52	0.87	3.00	7.00
Privacy Concern	4.18	1.02	2.00	7.00
Behavioral Intention	5.85	0.82	3.00	7.00
Digital Literacy (Years of Using AI-Powered Travel Apps)	3.42	1.48	0.5	6.0

B. Measurement Model Assessment

Prior to structural model assessment, the measurement model was assessed to determine the validity and reliability of the reflective constructs. All standardized loading factors, as shown in Table 4, are higher than the suggested threshold of 0.70, suggesting that each indicator accurately assessed its corresponding latent construct. Strong item reliability across constructs are demonstrated by the AI-Based Personalization items, which range from 0.80 to 0.85, and the Behavioral Intention items, which range from 0.83 to 0.87.

Cronbach's alpha and Composite Reliability (CR) were used to confirm the measurement model's reliability and internal consistency. With Cronbach's alpha values spanning 0.80 (Privacy Concern) to 0.91 (Behavioral Intention) and CR values ranging from 0.85 (Privacy Concern) to 0.93 (Behavioral Intention), all constructs exceed the threshold of 0.70 for both metrics. These numbers thereby show that the measurement model exhibits a high degree of internal consistency and reliability.

Convergent validity was also confirmed, as all Average Variance Extracted (AVE) values exceed the threshold of 0.50. Specifically, the AVE values range from 0.59 (Privacy Concern) to 0.74 (Behavioral Intention), indicating that each construct explained more than 50% of the variance in its indicators.

Table 4. Measurement Model Assessment Results

Construct	Code	Loading Factor	Cronbach's Alpha	CR	AVE
AI-Based Personalization	AI1–AI5	0.80–0.85	0.88	0.91	0.68
Perceived Value	PV1–PV4	0.79–0.85	0.86	0.89	0.66
Trust	TR1–TR5	0.81–0.85	0.89	0.92	0.70
Privacy Concern	PC1–PC4	0.76–0.81	0.80	0.85	0.59
Behavioral Intention	BI1–BI5	0.83–0.87	0.91	0.93	0.74

The Heterotrait-Monotrait Ratio of Correlations (HTMT) was used to evaluate the measurement model's discriminant validity, and Table 5 summarizes the results. All HTMT values, which range from 0.35 to 0.81, are below the conservative threshold of 0.85 set by Henseler et al. (2015). As predicted by the related theory, the strongest correlations were found between Perceived Value and Trust (0.80) and between AI-Based Personalization and Behavioral Intention (0.81). Discriminant validity throughout the model is supported by the conceptual distinctiveness indicated by the comparatively lower HTMT values between Privacy Concern and all of the other constructs.

Table 5. Constructs' Heterotrait-Monotrait Ratio (HTMT) of Correlations

Construct	AIBP	PV	TRUST	PC	BI
AI-Based Personalization (AIBP)	–				
Perceived Value (PV)	0.78	–			
Trust (TRUST)	0.75	0.80	–		
Privacy Concern (PC)	0.42	0.39	0.35	–	
Behavioral Intention (BI)	0.81	0.79	0.77	0.40	–

Taken together, the results displayed in Tables 4 and 5 demonstrate that the measurement model meets the criteria of the following indicator: reliability, internal consistency, convergent validity, and discriminant validity, thus confirming that the measurement model used in this study are statistically robust and theoretically sound.

C. Structural Model Assessment

Table 6 demonstrates that the model's fitness indices collectively reflect a robust correspondence between the observed data and the suggested theoretical framework. The Standardized Root Mean Square Residual (SRMR) value of 0.056 is significantly below the suggested threshold of 0.08, indicating that the residual correlations between the observed and model-implied matrices are very low. This also suggests that the structural specification effectively represents the data's covariance structure with adequate accuracy. Likewise, the Unweighted Least Squares Discrepancy (d_ULS) value of 0.822 and Geodesic Discrepancy (d_G) value of 0.611 are well below the acceptable threshold of 2.85, suggesting that the model's estimation process does not significantly distort the empirical correlations. These findings thereby show that the proposed relationships statistically align with the fundamental data framework.

The Normed Chi-Square (χ^2/df) value of 1.874 further supports the model's suitability, remaining significantly beneath the common upper threshold of 3.00, which indicates a good fitness in behavioral studies (Hair et al., 2021). This low chi-square ratio suggests that model misfitness is limited and that the structural setup attains a suitable equilibrium between simplicity and explanatory depth. The model substantially improves a null model and captures a significant amount of the observed covariance, as indicated by the Normed Fitness Index (NFI) value of 0.926, which exceeds the threshold of 0.90. All of these findings provide strong empirical evidence that the proposed S-O-R model is both theoretically sound and empirically consistent.

Table 6. Model's Fitness Assessment Results

Model's Fitness Index	Value	Threshold
SRMR (Standardized Root Mean Square Residual)	0.056	< 0.08 (acceptable)
d_ULS (Unweighted Least Squares Discrepancy)	0.822	< 2.85 (lower is better)
d_G (Geodesic Discrepancy)	0.611	< 2.85 (lower is better)
Chi-Square/N (Normed Chi-square)	1.874	< 3.00 (recommended)
NFI (Normed Fitness Index)	0.926	> 0.90 (good fitness)

Table 7 outlines the explanatory and predictive capabilities of the proposed structural model. The findings indicate that the model excels in elucidating variance (R^2) and in forecasting out-of-sample accuracy (Q^2), implying that the proposed S-O-R model is both empirically robust and theoretically sound. As per Hair et al.'s (2021) criteria, Behavioral Intention (R^2 = 0.684) and Perceived Value (R^2 = 0.609) demonstrate significant explanatory strength, while Trust (R^2 = 0.573) and Privacy Concern (R^2 = 0.412) reveal moderate levels. These findings suggest that AI-Based Personalization, serving as the external factor, significantly influences two organismic states (Perceived Value and Trust), which, in turn, greatly affect Behavioral Intention. Essentially, when AI systems provide pertinent and context-aware suggestions, tourists enhance the perceived usefulness and trustworthiness of tourism platforms, thereby encouraging ongoing use and referrals.

The effect's sizes (f^2) further underscore the importance of personalization in this psychological process. AI-Based Personalization has a significant impact on Perceived Value (f^2 = 0.38), affirming the notion that algorithmic tailoring is a strong factor in users' cognitive assessments. Its moderate influence on Trust (f^2 = 0.32) indicates that establishing digital trust depends not solely on the quality of personalization, but also on wider relational signals, such as transparency and dependability. However, the minor impact of AI-Based Personalization on Privacy Concern (f^2 = 0.19) suggests that while personalization raises several worries, it accounts for just a fragment of privacy-related distress. This partial influence indicates that privacy concerns in AI-driven tourism experiences are largely influenced by intricate, multi-dimensional factors, such as perceived control over data, knowledge of institutional protections, and personal sensitivity to digital risks. In addition, the statistically weak impact of AI-based personalization on privacy concern also suggests that privacy cognition is not mainly driven by technology, but rather by users' overall trust in the governance of systemic data.

Table 7. Explanatory and Predictive Capabilities of Structural Model

Endogenous Construct	Coefficient of Determination (R^2)	Interpretation of R^2	Effect's Size (f^2)	Predictive Relevance (Q^2)
Perceived Value	0.609	Substantial	0.38	0.412
Trust	0.573	Moderate	0.32	0.395
Privacy Concern	0.412	Moderate	0.19	0.286
Behavioral Intention	0.684	Substantial	—	0.468

The structural model's strong predictive significance is confirmed by the Q^2 values. The predictive accuracy of Behavioral Intention is the highest (Q^2 = 0.468), followed by those of Perceived Value (0.412) and Trust (0.395), all of which noticeably surpass the threshold of 0.00. This demonstrates how the model successfully predicts how new users might respond to AI-based personalization in addition to accommodating the available data. In line with its low R^2 value, Privacy Concern's moderate Q^2 (0.286) suggests several predictive accuracy weakness. This finding is theoretically significant, since it implies that privacy-related responses are still somewhat

exogenous even though the model accurately captures personalization effects. This thereby suggests that factors influencing privacy concerns go beyond the interaction between users and technology, encompassing the policy landscape, the trustworthiness of institutions, and societal standards related to data security.

This empirical gap reinforces the previous claim about the lack of policy within the Sustainable Tourism Innovation (STI) framework. The restricted predictability of Privacy Concern quantitatively indicates the lack of established mechanisms, such as AI transparency standards, data governance protocols, or user rights policies, all of which could alleviate tourists' views of digital vulnerability. Consequently, the structural model's statistical inadequacy in forecasting privacy-related anxiety is not only methodological, but also signifies a more profound structural shortcoming within the existing tourism governance framework. For this reason, future studies incorporating related elements, such as perceived regulatory protection or algorithmic accountability, may provide greater explanatory strength for Privacy Concern and connect this theoretical-policy gap.

D. Hypothesis Testing and Structural Path

The results of hypothesis testing and structural path analysis are summarized in Figure 2 and Table 8. All of the proposed relationships within this study's conceptual framework are statistically significant ($p < 0.05$). Perceived Value ($\beta = 0.64$, $t = 12.97$, $p < 0.001$) and Trust ($\beta = 0.60$, $t = 11.35$, $p = 0.001$) were significantly improved by AI-based Personalization, indicating that tourists experiencing higher levels of personalization would perceive more benefits and reliability from AI-powered tourism platforms. On the other hand, AI-Based Personalization significantly decreased Privacy Concern ($\beta = -0.42$, $t = 7.88$, $p = 0.004$), suggesting that although personalization raises value and trust, it also increases awareness of potential data privacy issues. Behavioral Intention was positively impacted by Perceived Value ($\beta = 0.43$, $p < 0.001$) and Trust ($\beta = 0.38$, $p = 0.002$), confirming their mediating roles in increasing users' willingness to keep using AI-powered tourism platforms. However, Privacy Concern had a negative effect on Behavioral Intention ($\beta = -0.25$, $p = 0.007$), indicating that concerns about data use may reduce the likelihood of ongoing participation.

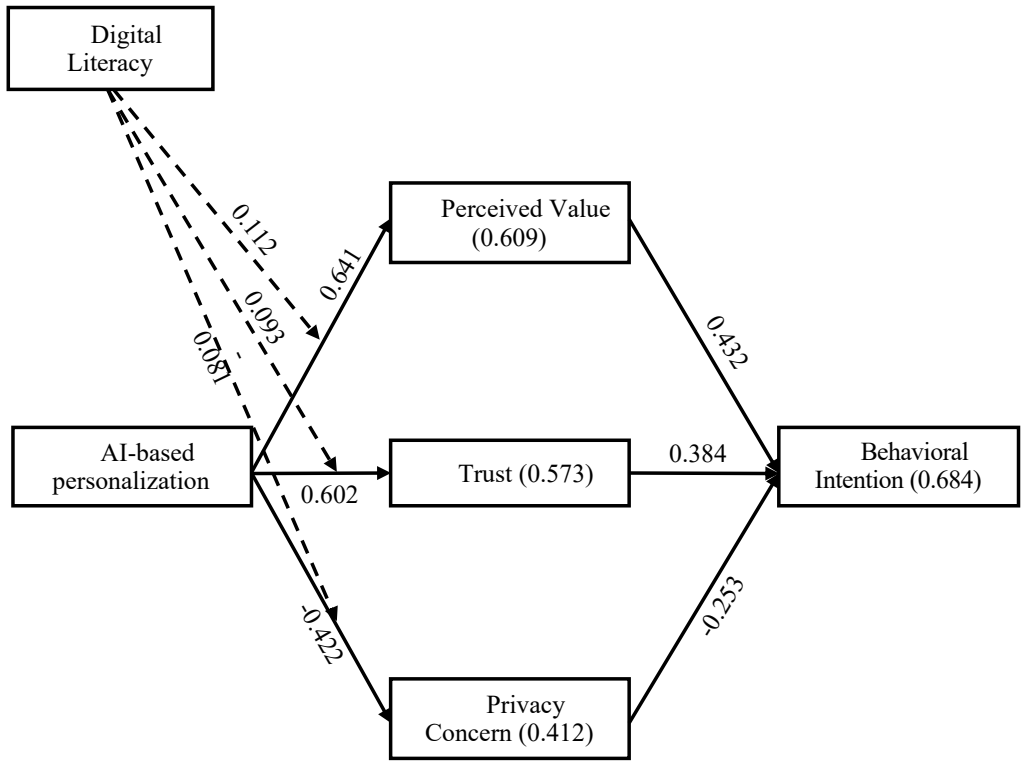

Figure 2. Path diagram

Table 8. Results of Hypothesis Testing and Structural Path Analysis

Hypothesis	Path	Coefficient	t-Value	p-Value	Conclusion
H1	AI-Based Personalization → Perceived Value	0.64	12.97	0.000	Supported
H2	AI-Based Personalization → Trust	0.60	11.35	0.001	Supported
H3	AI-Based Personalization → Privacy Concern	-0.42	7.88	0.004	Supported
H4	Perceived Value → Behavioral Intention	0.43	9.25	0.000	Supported
H5	Trust → Behavioral Intention	0.38	8.47	0.002	Supported
H6	Privacy Concern → Behavioral Intention	-0.25	5.11	0.007	Supported
H7a	Digital Literacy × AI-Based Personalization → Perceived Value	0.11	2.94	0.003	Supported
H7b	Digital Literacy × AI-Based Personalization → Trust	0.09	2.41	0.016	Supported
H7c	Digital Literacy × AI-Based Personalization → Privacy Concern	-0.08	2.18	0.029	Supported

Furthermore, the moderating analysis results show that the strength of these relationships was significantly impacted by Digital Literacy. Perceived Value (H7a: $\beta = 0.11$, $p = 0.003$) and Trust (H7b: $\beta = 0.09$, $p = 0.016$) both show positive moderation, indicating that users possessing more experience with AI-powered tourism platforms are more likely to recognize the increased benefits and reliability of personalization. Simultaneously, Digital Literacy reduced the negative correlation between AI-Based Personalization and Privacy Concern (H7c: $\beta = -0.08$, $p = 0.029$), suggesting that tourists possessing more digital experience are less likely to be concerned about privacy risks. All of these findings suggest that AI-based personalization enhances users' perceptions and behavioral intentions, and that tourists' cognitive and affective understanding of AI-powered travel experiences is strongly influenced by the level of their digital literacy.

To determine whether the structural relationships differ between younger (≤ 30 years old) and older (> 30 years old) tourists, the multi-group analysis (MGA) was performed and the results are shown in Table 9. As seen in the table, none of the differences in path coefficients between the two groups are statistically significant, since all of the p-values greatly surpass 0.05. This shows that respondents of all ages comprehend AI-based personalization and respond to it in a similar way, suggesting that the structural model is age-neutral. AI-Based Personalization's effects on Perceived Value.

V. DISCUSSION

This study revisits the Stimulus–Organism–Response (S-O-R) model to examine how AI-based personalization influences tourists' psychological states and behavioral responses in the context of digital tourism. The findings affirm the robustness of the extended S-O-R model and show that tourists' experiences with AI are shaped by a dynamic tension between perceived benefits and ethical apprehensions. The findings also align with recent empirical studies highlighting that technology-driven personalization fosters service relevance and satisfaction while introducing new dimensions of perceived vulnerability (Merfeld et al., 2025).

Table 9. Multi-group Analysis Results

Path	Younger (≤ 30 Years Old)	Older (> 30 Years Old)	Path Difference	p-Value	Significant Difference
AI-Based Personalization → Perceived Value	0.621	0.587	0.034	0.421	No
AI-Based Personalization → Trust	0.543	0.512	0.031	0.472	No
AI-Based Personalization → Privacy Concern	-0.326	-0.281	-0.045	0.369	No
Perceived Value → Behavioral Intention	0.378	0.402	-0.024	0.612	No
Trust → Behavioral Intention	0.451	0.437	0.014	0.712	No
Privacy Concern → Behavioral Intention	-0.271	-0.258	-0.013	0.743	No

This study's findings confirm that AI-based personalization strongly enhances perceived value and trust, consistent with previous studies emphasizing the role of intelligent systems in improving reliability and users' confidence (Hornos and Rodríguez-Domínguez, 2018; Karran et al., 2022). However, this study advances the discussion by demonstrating that personalization can also reduce privacy concern when users perceive transparent data practices and equitable information exchange. This finding challenges the conventional "privacy paradox" assumption and suggests a more contextual form of privacy equilibrium, where tourists consciously trade limited data access for convenience and personalization benefits (Zarezadeh et al., 2023). Rather than eroding trust, personalization within transparent environments may strengthen users' sense of control and reciprocity. This critical reinterpretation contributes to recent debates on the ethical governance of AI (OECD, 2023; UNESCO, 2024) by showing that regulatory clarity and system transparency are crucial for sustaining trust.

The three organismic states (perceived value, trust, and privacy concern) jointly influence behavioral intention, confirming that cognitive and affective mechanisms co-determine tourists' engagement with AI. The inclusion of digital literacy as a moderating construct introduces a significant theoretical extension. Tourists possessing higher digital literacy would perceive greater value, exhibit greater trust, and experience lower anxiety regarding privacy, all of which suggest that digital literacy functions as a psychological buffer against algorithmic uncertainty. This finding is supported by recent work highlighting how AI literacy improves users' confidence and reduces perceived algorithmic opacity (World Travel and Tourism Council, 2023). The finding also reflects the broader social shift from demographic-based adoption models to competence-based digital participation, where users' skill rather than age defines adaptive behavior within technological environments.

This argument is supported by the multi-group analysis results: younger and older users do not differ significantly, suggesting that exposure to digital ecosystem has lessened generational gaps. Even seasoned tourists are increasingly relying on AI-driven recommendations, which is consistent with global trends showing the adoption of technology in today's tourism practices (Deloitte, 2024). In addition, the argument that digital education should serve as a policy priority within sustainable tourism innovation is strengthened by the fact that the factors influencing trust and engagement are becoming more socio-cognitive rather than merely demographic.

These findings have significant policy implications that go beyond theoretical improvement, especially considering that the STI framework's current strategies continue to prioritize infrastructure and competitiveness over data governance, ethical oversight, and public education. This policy imbalance restricts equitable participation within digital tourism ecosystem and erodes users' trust. For this reason, the STI framework must be strengthened by incorporating AI governance mechanisms into tourism policy and practices. In this sense, to guarantee that algorithmic decisions are traceable, explicable, and risk-appropriate, regulators should set AI transparency and accountability standards in accordance with the OECD's (2023) AI guidelines. Moreover, to equip users with significant control over the level of personalization, digital tourism platforms should incorporate features that allow for adjustable consent and explainability. Additionally, in line with the UNESCO's (2024) ethical AI recommendation, which emphasize inclusive capacity building, public institutions should start digital literacy programs for both tourists and small tourism businesses. Finally, to further increase users' trust, the World Economic Forum's (2023) recommendation to implement AI ethics labelling or certification systems should be implemented by fully complying with responsible data and transparency principles.

All of these measures can close the gap between innovation and governance by making STI policy more implementable. By fusing institutional design and behavioral insights, the policy can operationalize responsible AI, shifting its roles from conceptual support to experimental regulation. However, this study offers a critical reflection: although personalization indeed can increase users' satisfaction, its ethical implications still rely on users' capability and governance maturity. The impact of AI largely depends on how systems are managed and how literate users are in interpreting the outputs; it is neither intrinsically invasive nor helpful. An important turning point in the ethics of digital tourism is this co-production of trust among people, institutions, and technology.

This agenda should be more deeply examined in future studies by integrating policy experimentation and behavioral modelling. The effects of various opt-in consent designs or algorithmic transparency formats on perceived fairness and trust could be investigated experimentally. In this sense, longitudinal and cross-cultural approaches are crucial to observe how different levels of governance maturity and digital literacy affect the long-term sustainability of AI-based personalization. Additionally, to empirically measure behavioral responses, cooperative studies with policy agencies could model STI policy interventions, such as the implementation of AI labelling or transparency mandates.

In conclusion, by demonstrating how AI-based personalization promotes trust, maintains behavioral engagement, and reduces privacy concerns through transparent governance, this study advances the existing theoretical and policy discussions. It advocates for STI frameworks that combine innovation, governance, and education as well as places digital literacy as a critical element in the adoption of ethical AI. This study also develops a more realistic and morally sound understanding of AI adoption within sustainable tourism industry by fusing behavioral data with global policy standards.

VI. CONCLUSION

By employing the extended Stimulus–Organism–Response (S-O-R) model, this study improves understanding of how AI-based personalization affects tourists' psychological states and behavioral responses in the context of digital tourism. This study's empirical findings suggest that personalization generates a variety of responses that increase perceived value and trust while also affecting privacy awareness. These twofold effects confirm that tourists' interaction with AI systems is motivated by opportunities and wary of risks, highlighting the intricate interaction of cognitive, emotional, and ethical evaluations in using digital services to achieve certain goals. This study expands the S-O-R model by incorporating privacy concern as an opposing organismic state, also by establishing digital literacy as an essential moderating factor, considering its role in enhancing AI-based personalization's positive outcomes while alleviating users' anxiety regarding data usage.

In addition to theoretical contribution, this study's findings also have important implications for industry and policy. For industry professionals, the findings emphasize the significance of integrating transparency and ethical design within personalization systems. In practice, tourism platforms' personalization technologies need to advance from efficiency-centered ones to more strategic ones that incorporate transparent AI and customizable privacy options, enabling users to seamlessly achieve their particular goals. Meanwhile, at the policy level, the findings highlight the necessity for regulatory structures within the STI framework that directly focus on algorithmic accountability, data privacy, and digital literacy. These governance mechanisms, if implemented properly, can guarantee that AI-based personalization aligns with the larger objectives of trust, inclusion, and sustainability in the advancement of tourism industry.

Nonetheless, the cross-sectional design in this study prevented temporal conclusions and the self-reported, Indonesia-based sample limited external validity. Therefore, to improve these drawbacks, future studies in this topic should 1) employ longitudinal research designs to track the dynamics of users' perceptions, 2) perform cross-cultural comparisons to assess the findings' generalizability, and 3) include behavioral metrics to confirm self-reported intentions. In addition, the significance of digital literacy requires further exploration within various demographic and cultural settings to understand how users' technological skills influence or adjust the ethical and emotional assessments of AI. By means of these extensions, future studies can contribute to develop a more ethically sound and policy-aware framework for AI integration within global tourism ecosystem.

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REFERENCES

Adilović, E. (2024). The role of perceived risk and trust in consumers' participation in tourism-based sharing economy services [Master's thesis, E. Adilović]. http://ebiblioteka.efsa.unsa.ba/xmlui/handle/EFSA/800

Aggarwal, R., Dhingra, S., & Mittal, S. (2024). What reduces the privacy concerns of the customers towards the use of location-based advertising? An empirical investigation. Journal of Location Based Services, 18(2), 139–161. https://doi.org/10.1080/17489725.2023.2256701

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Asif, F., Jamshed, K., & Shah, S. H. A. (2025). Prospects and challenges for AI and technological innovation in the European travel and tourism sector: Impact, effect and sustainable development goals. In Technological Innovation and AI for Sustainable Development in Events and Festivals (pp. 140–161). https://doi.org/10.1079/9781836990185.0012

Asthana, S., Im, J., Chen, Z., & Banovic, N. (2024). "I know even if you don't tell me": Understanding users' privacy preferences regarding AI-based inferences of sensitive information for personalization. In Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems (pp. 1–21). https://doi.org/10.1145/3613904.3642180

Bhuiyan, M. S. (2024). The role of AI-enhanced personalization in customer experiences. Journal of Computer Science and Technology Studies, 6(1), Article 1. https://doi.org/10.32996/jcsts.2024.6.1.17

Blut, M., Chaney, D., Lunardo, R., Mencarelli, R., & Grewal, D. (2024). Customer perceived value: A comprehensive meta-analysis. Journal of Service Research, 27(4), 501–524. https://doi.org/10.1177/10946705231222295

Chan, A. J., Hooi, L. W., & Ngui, K. S. (2021). Do digital literacies matter in employee engagement in digitalised workplace? Journal of Asia Business Studies, 15(3), 523–540. https://doi.org/10.1108/JABS-08-2020-0318

Chen, T., Liu, F., Shen, X.-L., Wu, J., & Liu, Y. (2025). Conceptualization of privacy concerns and their influence on consumers' resistance to AI-based recommender systems in e-commerce. Industrial Management and Data Systems, 125(5), 1844–1868. https://doi.org/10.1108/IMDS-03-2024-0251

Cheng, L., Han, J., & Nasirov, J. (2024). Ethical considerations related to personal data collection and reuse: Trust and transparency in language and speech technologies. International Journal of Legal Discourse, 9(2), 217–235. https://doi.org/10.1515/ijld-2024-2010

Chou, Y.-H., Hsiao, K.-L., Lu, Y.-T., & Su, Y.-S. (2025). Exploring the factors affecting the intention to use AI systems in the health-care field with social cognitive theory: A two-stage SEM-ANN approach. Chinese Management Studies. https://doi.org/10.1108/CMS-10-2024-0746

Elshaer, I. A., Azazz, A. M. S., Fayyad, S., Aljoghaiman, A., Fathy, E. A., & Fouad, A. M. (2025). From asymmetry to satisfaction: The dynamic role of perceived value and trust to boost customer satisfaction in the tourism industry. Tourism and Hospitality, 6(2), 68. https://doi.org/10.3390/tourhosp6020068

Erensoy, A., Mathrani, A., Schnack, A., Elms, J., & Baghaei, N. (2024). Consumer behavior in immersive virtual reality retail environments: A systematic literature review using the stimuli–organisms–responses model. Journal of Consumer Behaviour, 23(6), 2781–2811. https://doi.org/10.1002/cb.2374

Fitriani, N., & Basir, I. (2025). Understanding user acceptance of AI-powered financial advisory: A dual-process model integrating trust, satisfaction, and perceived risk. Global Review of

Tourism and Social Sciences, 1(3), 225–239. https://doi.org/10.53893/grtss.v1i3.402

Gao, J., Opute, A. P., Jawad, C., & Zhan, M. (2025). The influence of artificial intelligence chatbot problem solving on customers' continued usage intention in e-commerce platforms: An expectation-confirmation model approach. Journal of Business Research, 200, 115661. https://doi.org/10.1016/j.jbusres.2025.115661

Gruber, J., & Hargittai, E. (2023). The importance of algorithm skills for informed Internet use. Big Data and Society, 10(1), 20539517231168100. https://doi.org/10.1177/20539517231168100

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). An introduction to structural equation modeling. In J. F. Hair et al., Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R (pp. 1–29). Springer. https://doi.org/10.1007/978-3-030-80519-7_1

Hair, J. F., Sarstedt, M., Ringle, C. M., Sharma, P. N., & Liengaard, B. D. (2024). Going beyond the untold facts in PLS–SEM and moving forward. European Journal of Marketing, 58(13), 81–106. https://doi.org/10.1108/EJM-08-2023-0645

Han, H., Fakfare, P., Manosuthi, N., Lee, J.-S., & Kim, J. J. (2025). Optimum combination impact of data privacy on customer trust and willingness to accept personal information collection in the lodging sector. Journal of Hospitality and Tourism Technology. https://doi.org/10.1108/JHTT-06-2024-0377

Hanif, R., Astuti, W., & Sunardi, S. (2024). The mediating role of customer satisfaction in the effect of perceived enjoyment on customer trust in online investment application. Innovation Business Management and Accounting Journal, 3(1), Article 1. https://doi.org/10.56070/ibmaj.2024.003

Hassan, T. H., Salem, A. E., & Saleh, M. I. (2022). Digital-free tourism holiday as a new approach for tourism well-being: Tourists' attributional approach. International Journal of Environmental Research and Public Health, 19(10), 5974. https://doi.org/10.3390/ijerph19105974

Hornos, M. J., & Rodríguez-Domínguez, C. (2018). Increasing user confidence in intelligent environments. Journal of Reliable Intelligent Environments, 4(2), 71–73. https://doi.org/10.1007/s40860-018-0063-4

Huang, A., Ozturk, A. B., Zhang, T., de la Mora Velasco, E., & Haney, A. (2024). Unpacking AI for hospitality and tourism services: Exploring the role of perceived enjoyment on future use intentions. International Journal of Hospitality Management, 119, 103693. https://doi.org/10.1016/j.ijhm.2024.103693

Kanaparthi, V. (2024). AI-based personalization and trust in digital finance (No. arXiv:2401.15700). arXiv. https://doi.org/10.48550/arXiv.2401.15700

Kang, S., Choi, Y., & Kim, B. (2024). Impact of motivation factors for using generative AI services on continuous use intention: Mediating trust and acceptance attitude. Social Sciences, 13(9), 475. https://doi.org/10.3390/socsci13090475

Karran, A. J., Demazure, T., Hudon, A., Senecal, S., & Léger, P.-M. (2022). Designing for confidence: The impact of visualizing artificial intelligence decisions. Frontiers in Neuroscience, 16. https://doi.org/10.3389/fnins.2022.883385

Khalik, W., Aini, Y. N., & Azizurrohman, M. (2025). Examining the effects of smart destination management on tourists' satisfaction and perceived sustainability in Indonesia: A structural equation model. STI Policy and Management Journal, 10(1). https://doi.org/10.14203/STIPM.2025.419

Kim, S. Y., & Kim, J. (2025). The impact of AI recommendation quality on service satisfaction: The moderating roles of standardization and customization. Journal of Services Marketing, 39(4), 365–386. https://doi.org/10.1108/JSM-05-2024-0214

Koo, I., Zaman, U., Ha, H., & Nawaz, S. (2025). Assessing the interplay of trust dynamics, personalization, ethical AI practices, and tourist behavior in the adoption of AI-driven smart tourism technologies. Journal of Open

Innovation: Technology, Market, and Complexity, 11(1), 100455. https://doi.org/10.1016/j.joitmc.2024.100455

Menard, P., & Bott, G. J. (2025). Artificial intelligence misuse and concern for information privacy: New construct validation and future directions. Information Systems Journal, 35(1), 322–367. https://doi.org/10.1111/isj.12544

Merfeld, K., Klein, J. F., de Regt, A., Baltin, A.-S., & Henkel, S. (2025). In-store technology personalization: A typology and research agenda based on type of automation and data collection. Journal of Business Research, 191, 115236. https://doi.org/10.1016/j.jbusres.2025.115236

Nugroho, I. S., Priyanto, D., & Purnama, Y. (2024). Exploring the role of artificial intelligence in designing and optimizing personalization strategies to enhance customer experience in the tourism industry. Technology and Society Perspectives, 2(3). https://doi.org/10.61100/tacit.v2i3.247

Organisation for Economic Co-operation and Development. (2023). Framework for Ethical AI Governance. OECD.AI Policy Observatory. https://oecd.ai/en/catalogue/tools/framework-for-ethical-ai-governance

Palamidovska-Sterjadovska, N., Prodanova, J., & Ciunova-Shuleska, A. (2024). Why do customers value m-banking apps? A stimulus-organism-response perspective. Spanish Journal of Marketing – ESIC, 28(4), 481–499. https://doi.org/10.1108/SJME-01-2023-0024

Prasetya, A. A., & Kuswati, R. (2025). Online impulse buying: The application of stimulus–organism–response model. Indonesian Interdisciplinary Journal of Sharia Economics, 8(2), 2646–2669. https://doi.org/10.31538/iijse.v8i2.6487

Rafi, K. N., Gani, M. O., Hashim, N. M. H. N., Rahman, M. S., & Masukujjaman, M. (2025). The influence of 360 degree VR videos on tourism web usage behaviour: The role of web navigability and visual interface design quality. Tourism Review, 80(3), 725–741. https://doi.org/10.1108/TR-06-2023-0383

Rahaman, M. A., Amin, S. N., Rahman, Md. A., & Amin, Md. N. (2025). Security concerns, public perceptions and safety initiatives at tourist destinations in Bangladesh: Effective tourist police interventions for sustainable tourism. Sustainable Futures, 10, 101004. https://doi.org/10.1016/j.sftr.2025.101004

Reddy, P., Chaudhary, K., & Hussein, S. (2023). A digital literacy model to narrow the digital literacy skills gap. Heliyon, 9(4), e14878. https://doi.org/10.1016/j.heliyon.2023.e14878

Respi, C., Gui, M., Scaduto, G., Serini, M., Pizzul, D., Gerosa, T., & Lutz, C. (2025). Lower cynicism, not higher literacy, promotes protective behavior: Exploring the privacy exception in the digital inequality framework. Social Science Computer Review. https://doi.org/10.1177/08944393251341201

Revolusi, P., & Febriandy, R. K. (2025). Developing AI regulations in Indonesia: Policy recommendations based on comparative policy analysis from the European Union, the United States and Singapore. Jurnal Indonesia: Manajemen Informatika dan Komunikasi, 6(2), 1035–1049. https://doi.org/10.63447/jimik.v6i2.1380

Rifqi, H. M., & Bastiar, A. (2024). Emotive AI and the soul of heritage: Investigating how emotionally intelligent AI shapes cultural tourism experiences in Taiwan. Advances in Tourism Studies, 2(1), 27–37. https://doi.org/10.53893/ats.v2i1.49

Rinne, K. J. A. (2025). AI-powered customer engagement: How personalization, chatbots, and recommendation systems influence e-commerce customer satisfaction? [Bachelor's thesis]. http://www.theseus.fi/handle/10024/891700

Schelenz, L., Segal, A., Adelio, O., & Gal, K. (2024). Transparency-check: An instrument for the study and design of transparency in AI-based personalization systems. ACM Journal on Responsible Computing, 1(1), 1–18. https://doi.org/10.1145/3636508

Shaban, A. (2022). Spatial development and inequalities in the Global South. Regional Science Policy and Practice, 14(2), 211–214. https://doi.org/10.1111/rsp3.12531

Sia, P. Y.-H., Saidin, S. S., & Iskandar, Y. H. P. (2024). Smart mobile tourism app featuring augmented reality and big data

analytics: An empirical analysis using UTAUT2 and PCT models. Journal of Science and Technology Policy Management, 15(6), 1363–1386. https://doi.org/10.1108/JSTPM-05-2022-0088

Sidiq, Z. F., Z, S., Wahyuzi, Z., & Ifada, Z. (2025). The role of artificial intelligence in transforming smart tourism: Enhancing customer experience and service personalization. Journal of Sharia Economy and Islamic Tourism, 5(2), 82. https://doi.org/10.31764/jseit.v5i2.30705

Tedja, B., Al Musadieq, M., Kusumawati, A., & Yulianto, E. (2024). Systematic literature review using PRISMA: Exploring the influence of service quality and perceived value on satisfaction and intention to continue relationship. Future Business Journal, 10(1), 39.

United Nations Educational, Scientific and Cultural Organization. (2024). Recommendation on the Ethics of Artificial Intelligence. https://www.unesco.org/en/articles/recommendation-ethics-artificial-intelligence

Wang, Z., Yuan, R., & Li, B. (2025). Are recommendation systems annoying? An empirical study of assessing the impacts of AI characteristics on technology well-being. Journal of Consumer Behaviour, 24(1), 178–200. https://doi.org/10.1002/cb.2408

Wanner, J., Herm, L.-V., Heinrich, K., & Janiesch, C. (2022). The effect of transparency and trust on intelligent system acceptance: Evidence from a user-based study. Electronic Markets, 32(4), 2079–2102. https://doi.org/10.1007/s12525-022-00593-5

Yang, X., Zhang, L., & Feng, Z. (2024). Personalized tourism recommendations and the e-tourism user experience. Journal of Travel Research, 63(5), 1183–1200. https://doi.org/10.1177/00472875231187332

Yum, K., & Kim, J. (2024). The influence of perceived value, customer satisfaction, and trust on loyalty in entertainment platforms. Applied Sciences, 14(13), 5763. https://doi.org/10.3390/app14135763

Zarezadeh, Z. Z., Benckendorff, P., & Gretzel, U. (2023). Online tourist information search strategies. Tourism Management Perspectives, 48, 101140. https://doi.org/10.1016/j.tmp.2023.101140