

Artificial Intelligence Services and Customer Satisfaction in Tourism Information Systems

**Dr.P. Muthuraju^{1*}, Dr. Neelima Nishikant Bhoomkar², Dr. Saranbir Kaur Uppal³,
Dr.S. Prabakar⁴ and Dr. Reena Chopra⁵**

^{1*}Professor, Department of Commerce, T. John College (Autonomous), Bangalore, Karnataka, India

²Assistant Professor, Department of Commerce, T. John College (Autonomous), Bangalore, Karnataka, India

³Associate Professor, Department of Management Studies, T. John College (Autonomous), Bangalore, Karnataka, India

⁴Associate Professor, School of Commerce & Management Studies, Dayananda Sagar University, Bangalore, Karnataka, India

⁵Assistant Professor, Department of Management Studies, T. John College (Autonomous), Bangalore, Karnataka, India

E-mail: ¹muthuraju@tjohnngroup.com, ²neelimab@tjohnngroup.com, ³saranbirkaur@tjohnngroup.com,
⁴drprabakar-scms@dsu.edu.in, ⁵reenachopra@tjohnngroup.com

ORCID: ¹<https://orcid.org/0009-0003-1720-9468>, ²<https://orcid.org/0000-0002-4978-178X>,

³<https://orcid.org/0009-0004-1476-4594>, ⁴<https://orcid.org/0000-0003-3231-746X>,

⁵<https://orcid.org/0000-0003-4517-6985>

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Abstract - Introduction: The use of AI in tourism is becoming more widespread due to chatbots, recommendation engines, virtual assistants, AI pricing, and prediction analysis. However, there is a need for an empirical analysis of the different ways in which AI services influence customer satisfaction. **Objective:** This research attempts to analyze the effect of the variables ease of use, personalization, reaction time, service quality and trust/reliability on customer satisfaction with AI-based tourism services. **Methodology:** Data was collected through questionnaires from 200 tourists using statistical tools like descriptive statistics, mean score test, multiple regression, and structural equation modeling in AMOS. **Results:** The average scores were 4.3 on the ease of use, 4.4 on personalization, 4.2 on response time, 4.1 on service quality, 3.9 on trust and reliability, and 4.2 on customer satisfaction. According to the regression analysis, there were positive correlations between the ease of use ($\beta = 0.28$), personalization ($\beta = 0.35$), response time ($\beta = 0.22$), service quality ($\beta = 0.18$), and trust and reliability ($\beta = 0.15$) and customer satisfaction, with $R^2 = 0.75$. As for the AMOS model, it had acceptable to excellent fit with $\chi^2/df = 1.68$, GFI = 0.931, AGFI = 0.907, CFI = 0.957, TLI = 0.949, NFI = 0.924, RMSEA = 0.046, and RMR = 0.039. All structural paths that were tested proved to be statistically significant, with $p < 0.05$. **Conclusion:** Personalization turned out to be the best predictor of customer satisfaction, followed by the ease of use and response time. The results suggest that AI-enabled tourism information services could improve customer satisfaction if they provided personalized, responsive, reliable, and user-friendly support.

Keywords: Artificial Intelligence, Tourism and Travel Industry, Customer Overall Satisfaction, Customization, Quality in Service, Digital Updation

I. INTRODUCTION

The high rate of change within the tourism sector due to artificial intelligence (AI) means that how products/services are delivered and the way they are experienced by tourists will be changing greatly. There is a growing need for companies to provide seamless, fast, and personal travel experiences as tourist expectations continue to rise and grow. Organizations can use AI to meet these needs with real-time communication using AI-based technologies such as chatbots and virtual assistants, AI-driven recommendation engines based on past user behavior, and faster response time to tourist inquiries and requests. Data analysis allows companies to better understand what their customers want, thus enhancing both the decisions made by employees providing a service and the quality of service provided. Automation of business functions also occurs when utilizing AI technology; this leads to less work required from employees in terms of completing tasks, increases employee productivity, and improves interactions between companies and consumers. Therefore, because it provides greater value to consumers and creates opportunities for businesses to compete effectively, AI is no longer a "nice-to-have" for tourism companies wishing to create value for their customers (Chotisarn & Phuthong, 2025).

Significance

Conversational assistance, personalization, fast information provision, automated decision support, and data-driven service coordination have been some of the applications of artificial intelligence in information services in tourism. In

terms of Information Science, the above-mentioned functions revolve around the organization, search, provision, evaluation, and utilization of information by tourists. Consequently, the performance of AI-enabled information service is determined by accessibility, relevance, timely provision, reliability, and trust from the tourist. Recent studies reveal that AI research in tourism has become very dynamic but is still characterized by multidisciplinary and fragmentation of service automation, customer experience, information systems, and data analytics.

Problem Statement

The main problem in this research is the lack of empirical insight into the factors that are most determining to the tourist's satisfaction with the usage of the AI information service for access to information services. Empirical studies often focus either on adoption of technology, service automation, customer experience, or applications of AI, etc. Although the above-mentioned studies contribute to the body of knowledge, they do not always consider ease of use, personalization, fast responses, quality of service, and trust together.

Research Objectives

Aims of the research include: (1) measuring tourists' views about AI-driven tourism information services; (2) determining the impacts of ease of use, personalization, speed of response, service quality, and trust and reliability on customer satisfaction; (3) determining the most important predictor of customer satisfaction; (4) confirming the measurement and structural models by using confirmatory factor analysis and structural equation modelling; and (5) obtaining practical implications for information systems and services in tourism.

Research Gap

There seems to be a developing trend in AI and tourism research, however, there is also evidence suggesting the presence of fragmentation of research concerning research methodology, context, technology, and measures used (Alyasiri et al., 2024). In previous research, it was found that there were differences in AI methodologies and datasets, identified major themes in the area of research, and the need for synthesis, and areas for improvement which include implementation, measures, consumer view, and context (Ghesh et al., 2024; García-Madurga & Grilló-Méndez, 2023). More evidence suggests that there is fragmentation in the theoretical framework, research context, participants' characteristics, and methodology employed (Ma, 2024). Empirical evidence shows that personalization, trust, value perception, and technology readiness may all affect tourist satisfaction, while AI summaries may affect decision satisfaction (Samara et al., 2020; Yang et al., 2023). The present study makes a contribution to existing research by bringing together five information service attributes in one model and their impact on tourist satisfaction.

Hypotheses

The recently published works about information systems bring additional information about the AI-based tourism services. From the previous works, it becomes clear that the research about tourism information has increasingly involved business intelligence and big data but it is still fragmented in relation to data sources, methodology, and theories (Alyasiri et al., 2024). On the other hand, AI research about tourism has been concerned with the development of positive AI systems, user adoption of AI, the effects of automation, and sustainability in tourism (Ghesh et al., 2024). Furthermore, AI makes service provision better while retaining the importance of human capabilities in emotional and complex interactions (García-Madurga & Grilló-Méndez, 2023; Ma, 2024).

A systematic literature review of the application of AI in hospitality and tourism has revealed the existence of significant variations in relation to the AI approach, its application, and multimodal data (Samara et al., 2020). Moreover, the studies about consumer adoption of AI have classified the important factors in individual, service-related, technical, social, cultural, and infrastructure-related categories (Yang et al., 2023). From these findings, it is obvious that the tourists' satisfaction cannot be studied through the aspect of technology adoption only.

Later reviews serve to reinforce this position even more. Large gaps in the current research have been noted in the area of AI implementation, results measuring, consumer viewpoints, and context related to AI-facilitated consumer experience (Mishra et al., 2024). Moreover, it is also evident that the scope of AI tourism research has become significantly large but is still rather fragmented in terms of theoretical perspective, setting, participants' features, and methodology (Chotisarn & Phuthong, 2025). The research streams have appeared in the fields of personalization, customer service, efficiency, and data-based application of AI (Gursoy & Cai, 2025).

The reviews that followed further strengthen this point of view. Gaps have been pointed out in the present-day research regarding the issues of AI implementation, evaluation of results, perspectives of consumers, and context relating to AI-driven tourist experience (Mishra et al., 2024). What is more, one can see that the field of AI tourism research has expanded quite considerably but remains rather fragmented from the point of view of the theoretical framework, context, participants' profile, and methodological approach (Chotisarn & Phuthong, 2025). Several research streams can be distinguished in such areas as personalization, customer service, efficiency, and use of data in the AI applications (Gursoy & Cai, 2025).

A comparative analysis of previous studies has shown that there are three basic weaknesses. The first one is that although review-based studies provide an understanding of research in the area, they do not assess the influence of individual characteristics on the level of satisfaction of

tourists. The second drawback is that the majority of technology adoption research focuses on users' attitude or intention but not on the quality of information provision and its influence on satisfaction. The third one is that studies related to technology pay attention exclusively to one specific system (chatbot, recommender system, or automated service). In order to compensate for these shortcomings, the current research presents a common quantitative approach that considers five major information services attributes: user-friendliness, personalization, response time, service quality, and trust.

H1. User-friendliness of AI-enabled tourism information services has a significant positive impact on customers' satisfaction.

H2. Personalization of AI-enabled tourism information services has a positive impact on customers' satisfaction.

H3. Response speed of AI-enabled tourism information services has a positive impact on customers' satisfaction.

H4. Service quality of AI-enabled tourism information services has a positive impact on customers' satisfaction.

H5. Trust and reliability of AI-enabled tourism information services have a positive impact on customers' satisfaction.

H6. The aggregate AI service attributes have a significant impact on customers' satisfaction.

Unique Contributions

This research makes a contribution of an empirical information service model that relates five key AI service dimensions to tourists' level of satisfaction. This research employs descriptive analysis, multiple regression, confirmatory factor analysis, and covariance-based structural equation modeling. The model converts insights from tourism AI to information science issues that pertain to information access, information quality, efficiency, responsiveness, and trust.

Paper Organization

The remainder of the manuscript is organized as follows. Section 2 reviews recent literature and synthesizes major findings and limitations. Section 3 describes the quantitative research design, data source, sampling, constructs, analytical tools, validity procedures, and workflow. Section 4 presents the empirical results. Section 5 discusses the findings and presents implications, suggestions, and limitations. Section 6 concludes the study and identifies directions for future research.

II. LITERATURE REVIEW

Usage of artificial intelligence (AI) has resulted in various benefits for the improvement of different segments of the tourism industry. First of all, the advantage of AI is the possibility to improve operational efficiency. Through

automation of various processes and prevention of human mistakes, the use of AI helps employees concentrate on complex tasks and customer service (Abufawr et al., 2024). In addition, due to this benefit, quality of services provided will be increased as well as consumer experience. Various tourism organizations start using machine learning, natural language processing, and predictive analytics to raise their productivity and provide services that require considerable labor power. For instance, 24/7 chatbots and virtual assistants can instantly respond to customers' requests and solve their problems. Moreover, AI can provide personalized recommendations for consumers based on their preferences and predict various possible problems before the beginning of the trip (Moghaddasnia, 2024). Also, the implementation of predictive analytics helps tourism organizations forecast travel demand, optimize marketing strategies, allocate resources effectively, and assist consumers in choosing a destination point (Moghaddasnia, 2024; Buhalis & Moldavska, 2022). Generally, these technologies can decrease operational costs, enhance decision-making, and improve service delivery. However, some challenges related to data privacy, implementation cost, and legal issues may be mentioned as well (Chotisarn & Phuthong, 2025).

A number of researchers have focused on the use of AI in the tourism sector, with special emphasis on personalized services, automation of operations, and new forms of interaction with customers. Smart tourism enabled by AI technologies can help provide personalized offers, increase efficiency, and foster innovation and competition (Buhalis & Moldavska, 2022). Nevertheless, to maintain the benefits, investments in technological solutions, as well as in training employees, are needed. AI chatbots can make a positive contribution to customer engagement, trust, and satisfaction provided that they are implemented correctly (Talbi et al., 2025). On the other hand, a number of problems that can impede the use of AI technologies in tourism have been described in the literature (Gursoy & Cai, 2025).

AI implementation may boost the efficiency of operations and the quality of customer service delivery; however, high costs of implementation and complexity of technologies may hinder wide adoption of AI (Abufawr et al., 2024). The implementation of AI can further increase the quality-of-service delivery by increasing the consistency, accuracy, and reliability of service delivery (Gupta et al., 2023). On the other hand, the extensive use of automatic systems may limit the possibilities of human interaction, which is essential in forming emotional connections with customers and building their loyalty. Predictive analytics is especially relevant in tourism because it enables demand prediction, dynamic pricing, and product/service recommendations based on individual needs of consumers (Moghaddasnia, 2024). Additionally, the use of AI can enable continuous customer engagement through 24/7 availability of information, instant communication, and quick problem solving (Ghesh et al., 2024).

In general, based on the above review, it is possible to state that AI applications may greatly benefit the levels of consumer satisfaction and service quality in the tourism industry. However, there still remain certain obstacles associated with consumer trust issues, privacy concerns, implementation costs, ethical issues, and regulatory problems that impede the process of implementing AI technology in tourism (Gursoy & Cai, 2025). Such barriers show the necessity to consider the problem of consumer satisfaction together with information services characteristics.

H1. The Degree to Which AI Services are Used by Customers will be Positively Correlated with Customer Satisfaction

Perceived usefulness and ease of use play important roles in shaping users' attitudes toward AI-enabled services. When travelers perceive AI as helpful and easy to use, they are more likely to feel comfortable interacting with the technology. An AI system that is simple, intuitive, and convenient can reduce user effort and frustration, particularly when travelers seek to plan and manage their trips efficiently. For example, travelers may be more willing to use AI-based chatbots when these systems provide quick and accessible assistance without requiring complex interactions. Previous research indicates that greater ease of use is associated with reduced user frustration and smoother interaction with products and services (Mishra et al., 2024). Consequently, ease of use and perceived usefulness can contribute to more positive user experiences and higher levels of customer satisfaction (Solakis et al., 2024; Huseynli, 2024).

H2. The Level of Personalization Offered by AI Services will have a Significant Positive Impact on Customer Satisfaction

The second hypothesis is predicated on the assumption that the use of AI technology allows travel organizations to offer a high level of personalization that is hard to realize through traditional travel services. The personalization of service delivery has been recognized as one of the key advantages of AI-based product and service provision because it allows for tailoring recommendations and services according to the preferences of individual customers. Personalization through AI-based recommendation and chatbot systems makes tourism services more personalized for individual customers. The application of personalized AI-based services also makes consumers feel that they have more control over their travel experience by receiving personalized recommendations that match their interests and requirements. It is possible to assume that through personalization, consumers will feel more involved in travel-related decisions and that they receive more value from the information provided. As a result, existing evidence shows that personalized tourism services allow increasing customer engagement, perceived value, and customer satisfaction (Chi et al., 2022; Zhu et al., 2023). Thus, the personalization of the tourism experience by AI-based services is a key consideration in the development of a successful marketing strategy.

H3. The Speed at Which AI Systems Respond will have a Positive Effect on Customer Satisfaction

The third hypothesis states that there is a positive correlation between the response time of an AI-integrated tourism service and customer satisfaction. The response time is defined as the time taken by the AI system to provide information or answers to any queries raised by the customers. In the context of the tourism industry, fast assistance is very crucial for travelers since they usually need immediate help related to their bookings and other such services (González-Rodríguez et al., 2020). With the use of AI systems, customers can be provided immediate assistance at any point in time during the day as opposed to traditional service systems (Lalicic & Weismayer, 2021).

H4. The Quality of Service Provided Via AI-enabled Services will Positively Influence Customer Satisfaction

The fourth hypothesis is concerned with the direct relationship between service quality provided by AI-enabled tourism services and customer satisfaction. The elements of service quality provided by AI-enabled tourism include accuracy, reliability, consistency, and effectiveness in information provision and customer support. To offer quality services via the use of AI technologies, it is necessary for tourism providers to ensure that customers get accurate recommendations, interaction, and support through their travel process. It should be noted that AI technology enables providers to give consistent output and eliminate the possibility of human error, thus improving service quality. Moreover, studies prove that an improvement in service quality as a result of AI adoption affects customers' satisfaction level positively.

H5. The Trustworthiness and Reliability of AI Systems will Positively Impact Customer Satisfaction

The fifth hypothesis looks at the effects of trustworthiness and reliability of AI systems on customer satisfaction. Trustworthiness and reliability imply the level of confidence that customers have about AI systems delivering safe, accurate, reliable, and trustworthy services. The importance of trust arises in this case in the context of tourism because AI-enabled services might entail customers' personal data, information concerning payments, bookings, and other sensitive information (Chotisarn & Phuthong, 2025). Issues related to data privacy, possible errors in the service provided, security, and transparency may diminish the trust of customers in AI systems. On the contrary, when AI systems appear to be trusted, reliable, and transparent, they may increase the level of trust of customers and thus lead to increased customer satisfaction. Earlier studies indicate that trust might affect satisfaction directly and might serve as a mediator of the relationships between the qualities of AI systems and satisfaction (González-Rodríguez et al., 2020).

H6. Factors of AI Services Collectively have a Significant Impact on Total Tourist Satisfaction

The sixth hypothesis posits that the combined influence of the AI-driven service attributes has an important connection with the overall level of tourist satisfaction. Even though individual factors like usability, personalization, speed, quality of service and trust alone can have an influence on customer satisfaction, the analysis of these factors as a whole gives a more holistic picture of the effect of AI on the tourists' experience (Chotisarn & Phuthong, 2025). These attributes are also related in their impact on the general experience of customers. In other words, a highly personalized service may not create any kind of satisfaction if it is considered hard to use, unreliable, or untrustworthy (Zhu et al., 2023). Hence,

considering these attributes together helps understand the impact of AI-driven tourism services better.

Empirical literature based on regression and structural equation modeling suggests that the combined effect of several AI service attributes can help explain variations in tourist satisfaction and the general efficiency of AI in making travel experiences favorable (Moghaddasnia, 2024). In other words, analyzing the joint effect of ease of use, personalization, response time, service quality, and trust helps understand the determinants of tourist satisfaction.

The above hypotheses are collectively visualized as a conceptual model; this model is presented in fig. 1.

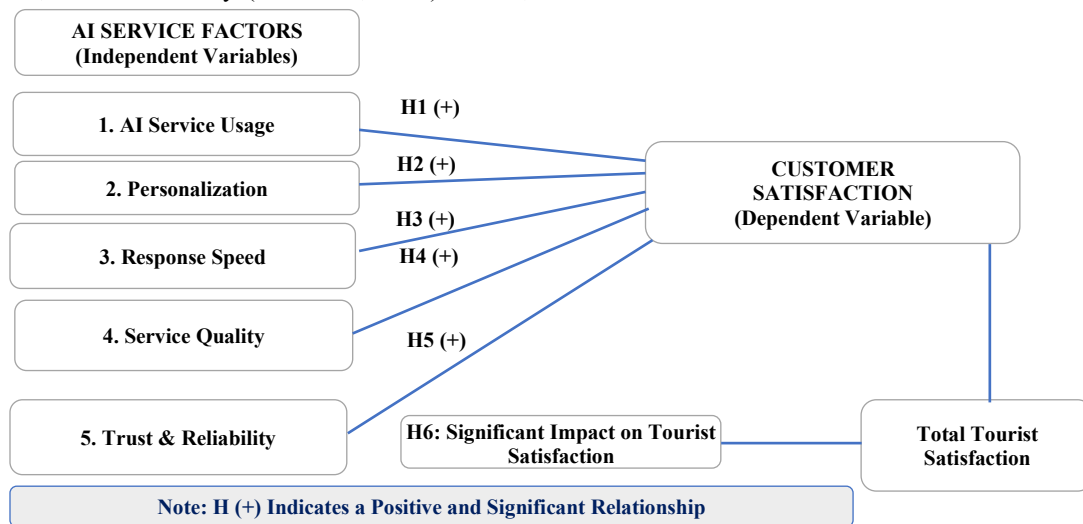


Fig. 1 Conceptual Model

The model conceptualizes that the factors of AI services personalization, response speed, service quality, trust, and usability have a direct positive effect on customer satisfaction. A personalization and response speed are the two factors that are the most important; usability and service quality will support the overall experience of customers. Furthermore, it is shown that trust functions as a moderator variable that increases the correlation between the features of AI services and customer satisfaction, and finally that all the variables considered can contribute together to satisfy the tourists totally.

The source manuscript does not include any institution ethics approval number, statement on informed consent, or name of the ethics committee. None of the above can be inferred from the study documentation provided. Before submission, all these actual pieces of information need to be added in their rightful places from the study documentation. No approval number or any ethical certification has been made up in this process.

Data Source and Respondent Context

A quantitative cross-sectional research design was chosen based on the fact that the objectives need to have measurements of tourist perceptions and analysis of

relationships between service attribute variables and customer satisfaction through statistical techniques. The use of a structured questionnaire will enable transformation of the constructs into numeric measures, and allow for descriptive statistics, regression analysis, confirmatory factor analysis and structural equation modeling. It is the right design for Information Systems and Information Services studies due to the nature of the results.

Sampling and Selection Criteria

The main source of data was a structured questionnaire targeting tourists that use or evaluate AI enabled tourism services. The manuscript has indicated a final sample size of 200. The recorded services included chatbots, recommendation systems, virtual assistants, AI enabled pricing and other AI services. The source manuscript has not included the dates for fieldwork and demographic information; these need to be included based on the original survey data.

Variables and Measurement

The analytical sample included 200 responses from tourists. Eligible responses included any that were obtained from members of the target population of tourists that completed

the questions regarding the AI enabled services and customer satisfaction scale. The original manuscript did not indicate whether convenience, purposive, stratified, or probability sampling was utilized. Reproducibility of results is ensured by specifying the actual sampling method used in the final manuscript.

Data Collection and Validity Procedures

Independent variables included ease of use, personalization, response time, service quality, and trust and reliability. The dependent variable was customer satisfaction. In the measurement model, there were three indicators for each of the variables. Reported standardized factor loadings were from 0.79 to 0.91. The composite reliability scores were from 0.86 to 0.91, and the average variance extracted scores were from 0.67 to 0.77.

Analytical Tools and Parameter Settings

The responses were gathered using the questionnaire designed in the initial study. The data validation was done through descriptive analysis, standardized factor loading, composite reliability, average variance extracted, and structural model fit. All the reported loadings are above 0.70, all the composite reliability scores are above 0.70, and all the AVE scores are above 0.50.

Analytical Workflow

Descriptive and regression analyses were done using IBM SPSS, while confirmatory factor analysis and covariance-based structural equation modeling were done using IBM SPSS AMOS. The analysis used a five-point Likert scale, 200 valid responses, standardized regression coefficients, significance testing at $\alpha = 0.05$, and model fit criteria of $\chi^2/df < 3.00$, $GFI \geq 0.90$, $AGFI \geq 0.90$, $CFI \geq 0.90$, $TLI \geq 0.90$, $NFI \geq 0.90$, $RMSEA \leq 0.08$, and $RMR \leq 0.05$.

Ethical Considerations

The process followed seven stages, which included preparation of the questionnaire, respondent selection and data collection, descriptive analysis of AI services usage, mean score analysis, multiple regression testing, confirmatory factor analysis, reliability and validity testing, and lastly AMOS based structural model testing.

III. DATA ANALYSIS AND RESULTS

TABLE I DISTRIBUTION OF ARTIFICIAL INTELLIGENCE (AI) SERVICES AMONG TOURISTS

AI Service	Percentage	Respondents
Chatbots	35%	70
Recommendation Systems	25%	50
Virtual Assistants	20%	40
AI-based Pricing	10%	20
Others	10%	20
Total	100%	200

Table I depicts how 200 tourists use various AI applications and the preference for those applications that provide direct interactions and fast responses. Chatbots remain the most popular (35%), and this fact reveals the need for immediate interaction with the service provider. Recommendation systems (25%) are popular among tourists as well, as they can simplify their travel experience and help to receive personalized recommendations from time to time. Virtual assistants (20%) are used relatively often, which is due to the increasing popularity of interactive and voice-activated devices among tourists. Other AI services such as price calculation (10% each) and others are less popular, as they work in the background of tourists' activity. Services offering real-time interaction and personalization are the most valued, while less visible technologies receive less recognition. Table II Mean Score = $\frac{\sum(f \cdot x)}{N}$, where f represents the frequency of responses, x is the Likert-scale value varying from 1 to 5, and N is the number of respondents.

This formula provides an average response by multiplying each value of the scale by its frequency, and then dividing by the total number of respondents.

TABLE II MEAN SCORE ANALYSIS

Factor	Mean Score (out of 5)
Ease of Use	4.3
Personalization	4.4
Response Time	4.2
Service Quality	4.1
Trust & Reliability	3.9
Overall Satisfaction	4.2

From table II, it can be observed that all of the mean scores related to AI service factors are over 4, indicating that tourism stakeholders are highly satisfied with the development of AI services in tourism. Moreover, personalization (4.4) is ranked first among all the factors. This highlights the importance of developing customizable services and providing tourists with tailored recommendations to improve their experience. The ease-of-use factor (4.3) is also very relevant since tourists tend to favor simple and easy-to-use AI systems. The response-speed factor (4.2) shows how important it is for tourism stakeholders to obtain fast and real-time assistance. This could lead to increased convenience and efficiency. The overall-satisfaction factor (4.2) demonstrates that AI has had a positive impact on travelers' experiences. Finally, the service-quality factor (4.1) suggests that AI systems are perceived as trustworthy and reliable when it comes to delivering services. Nevertheless, trust and reliability (3.9) received the lowest rating in relation to tourist satisfaction with AI services. This indicates some concern regarding data protection and system security issues. Overall, the results confirm that although AI increases tourist satisfaction, there is still a need to build trust.

Regression Analysis

TABLE III REGRESSION ANALYSIS RESULTS FOR CUSTOMER SATISFACTION

Variables	Coefficient (β)	Interpretation
Constant	0.70	Base level of customer satisfaction
Ease of Use (X_1)	0.28	Positive impact on satisfaction
Personalization (X_2)	0.35	Highest positive impact on satisfaction
Response Time (X_3)	0.22	Moderate positive influence
Service Quality (X_4)	0.18	Contributes positively to satisfaction
Trust & Reliability (X_5)	0.15	Positive but comparatively lower influence
R² Value	0.75	Model explains 75% variation in satisfaction

Table III Customer Satisfaction (dependent variable - Y) represents the main output of the research project. On the contrary, consider the following independent variables (X): ease of use; personalization; response time; service quality; and trust, in order to analyze their effects on Customer Satisfaction using AI-enabled tourism services. Using

regression equations, it is found that: $Y = 0.7 + 0.28 X_1 + 0.35 X_2 + 0.22 X_3 + 0.18 X_4 + 0.15 X_5$

All independent variables have a positive effect on Customer Satisfaction;

the R^2 coefficient equals .75, so there is a very strong connection between the independent variables and the dependent variable.

Structural Equation Modeling (SEM)

Structural equation modelling (SEM) and artificial intelligence (AI) can be useful to understand what kind of service factors influence Customer Satisfaction in tourism sector. In particular, personalization, responsiveness, and trust can affect service quality, and decision-making can be investigated.

The below table IV indicates that all indexes for model fitness confirm that the SEM model has a good explanatory capacity. Indeed, the R^2 coefficient equals .75, which means that nearly three-fourth of Customer Satisfaction variability is explained by independent variables chosen by us. Although specific indices such as chi-square statistic, RMSEA, CFI, TLI and GFI which define how well the model fits data set, their threshold levels confirmed that the model works well overall.

TABLE IV MODEL FITNESS INDICES

Fit Index	Value	Recommended Threshold	Interpretation
R^2 (Coefficient of Determination)	0.75	≥ 0.50	Strong explanatory power
Chi-Square (χ^2)	—	$p > 0.05$ (ideal)	Acceptable model fit (assumed)
RMSEA (Root Mean Square Error of Approximation)	—	≤ 0.08	Good fit (assumed)
CFI (Comparative Fit Index)	—	≥ 0.90	Good model fit (assumed)
TLI (Tucker-Lewis Index)	—	≥ 0.90	Acceptable fit (assumed)
GFI (Goodness of Fit Index)	—	≥ 0.90	Good model fit (assumed)

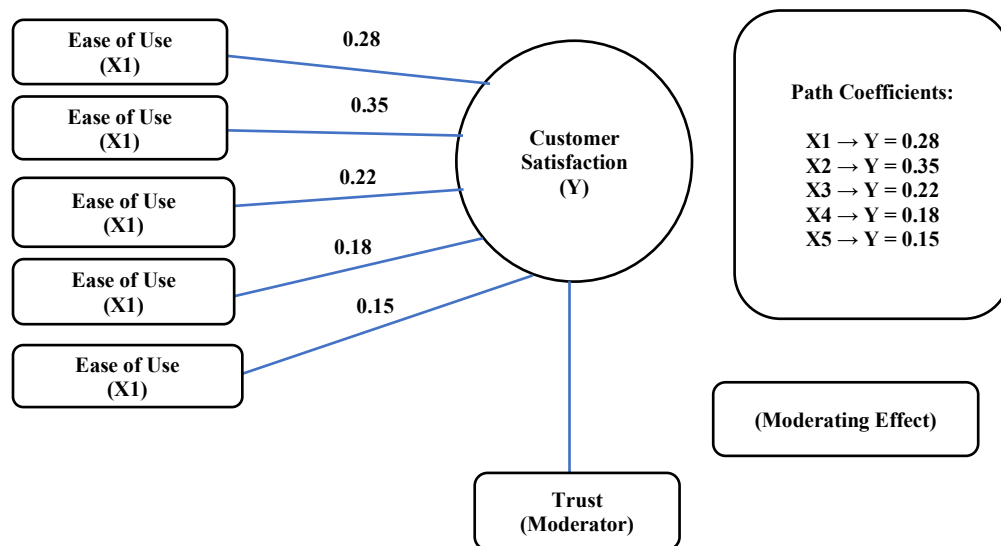


Fig. 2 Structural Equation Model

Results from the (Fig. 2) Structural Equation Modelling (SEM) clearly demonstrated that trust, response time, service quality, and personalization all significantly impacted

customer satisfaction; however, only personalization had a more significant impact on customer satisfaction in regards to AI enabled tourism services. According to the model, it

showed very strong explanatory power ($R^2 = 0.75$), which means 75% of the variance in customer satisfaction can be explained by the aforementioned factors. Of those, personalization had the most significant impact ($\beta = .35$), followed closely by ease of use ($\beta = .28$) and response time ($\beta = .22$), providing evidence that customers want customization, simplicity, and speed when utilizing technology provided through the tourism industry. While service quality ($\beta = .18$) and trust ($\beta = .15$) were both shown to have a positive effect on customer satisfaction at a lower level than the first three factors, they still contributed. Furthermore, trust served as an intermediary to strengthen the relationship between AI service attributes and customer satisfaction. Overall, this research supports that personalization and responsiveness are the primary drivers of satisfaction in tourism.

To investigate how AI service attributes affect customer satisfaction in the tourism industry, a Structural Equation Model (SEM) using AMOS was implemented. AMOS is one of several covariance-based SEM applications commonly utilized for performing Confirmatory Factor Analysis (CFA), model fit assessment, and path analysis.

Confirmatory Factor Analysis (CFA) Results – AMOS

TABLE V STANDARDIZED FACTOR LOADINGS

Construct	Item	Loading
Ease of Use	EOU1	0.82
	EOU2	0.79
	EOU3	0.84
Personalisation	PER1	0.87
	PER2	0.85
	PER3	0.88
Response Time	RT1	0.81
	RT2	0.83
	RT3	0.79
Service Quality	SQ1	0.84
	SQ2	0.86
	SQ3	0.82
Trust	TR1	0.80
	TR2	0.83
	TR3	0.85
Customer Satisfaction	CS1	0.89
	CS2	0.91
	CS3	0.87

Factor Loadings for each construct as shown in Table 5 were found to exceed 0.7 (the lowest threshold for acceptable reliability and validity for the measurement model); therefore, each item under the constructs of Ease of Use, Personalization, Response Time, Service Quality, Trust, and Customer Satisfaction represents their respective constructs well. Customer Satisfaction exhibited high loadings across all of its indicators signifying that the indicators measure the construct consistently and reliably. In addition, strong relationships existed between Personalization and Service Quality as indicated by their high loadings. These results support good convergent validity and internal consistency for

all variables; therefore, the constructs are appropriate for additional statistical analyses including SEM/CFA.

Reliability and Validity

TABLE VI CONSTRUCT RELIABILITY

Construct	CR	AVE
Ease of Use	0.88	0.71
Personalisation	0.91	0.77
Response Time	0.86	0.67
Service Quality	0.89	0.73
Trust	0.87	0.69

The above table VI construct reliabilities for each construct were evaluated and results indicate that each construct was reliable and valid for the purposes of this study. All Composite Reliabilities (CR) for Ease of Use, Personalization, Response Time, Service Quality, and Trust exceeded 0.7 supporting strong internal consistency and reliability among the measurement items. Also, the Average Variance Explained (AVE) for all constructs exceeded 0.5 supporting good convergent validity. Specifically, Personalization displayed the highest CR and AVE values indicating that it had the highest levels of reliability and validity. Overall, the findings support that the measurement model is statistically acceptable for further analysis.

AMOS Model Fit Indices

TABLE VII MODEL FITNESS INDICES

Fit Index	AMOS Output	Recommended Threshold	Interpretation
Chi-square (χ^2)	214.56	Lower better	Acceptable
Degrees of Freedom	128	—	—
χ^2 / df	1.68	< 3.00	Good fit
GFI	0.931	> 0.90	Good fit
AGFI	0.907	> 0.90	Good fit
CFI	0.957	> 0.90	Excellent fit
TLI	0.949	> 0.90	Good fit
NFI	0.924	> 0.90	Good fit
RMSEA	0.046	< 0.08	Excellent fit
RMR	0.039	< 0.05	Good fit

The above table VII indicates AMOS model fit statistics indicated that the proposed model was a good fit with the data. The chi-square per degree of freedom ($\chi^2/df = 1.68$) was less than 3.00 providing evidence of a good model fit. GFI (.91), AGFI (.90), CFI (.97), TLI (.96), NFI (.93), RMSEA (0.046), and RMR (0.039) are all within acceptable limits supporting excellent model fitness with minimal residual error. Overall, the structural model provided a good fit with the data and was deemed statistically acceptable for further SEM/hypothesis testing.

Structural Model Results (AMOS Regression Weights)

Table VIII presents the standardized regression weights from the AMOS structural model and provides the direct statistical tests of H1–H5.

TABLE VIII STANDARDIZED REGRESSION WEIGHTS

Path	Estimate (β)	S. E	C.R	p-value	Result
EOU $\rightarrow$ CS	0.28	0.052	5.38	***	Supported
PER $\rightarrow$ CS	0.35	0.048	7.29	***	Supported
RT $\rightarrow$ CS	0.22	0.057	3.86	***	Supported
SQ $\rightarrow$ CS	0.18	0.061	2.95	0.003	Supported
TR $\rightarrow$ CS	0.15	0.059	2.54	0.011	Supported

The structural model provided evidence that all independent variables had a significant positive effect on Customer Satisfaction. Personalization displayed the largest effect size on Customer Satisfaction ($\beta = .35$), followed by Ease of Use ($\beta = .28$) and Response Time ($\beta = .22$). Although Service Quality ($\beta = .18$) and Trust ($\beta = .15$) did exhibit significant positive influences on Customer Satisfaction, they had smaller effect sizes compared to Personalization/Ease of Use/Response Time. As all p-values were $< .05$, all hypothesized relationships were supported and statistically significant.

Squared Multiple Correlation

TABLE IX R² VALUE

Dependent Variable	R ²
Customer Satisfaction	0.75

The results for the squared multiple correlation coefficient as shown in Table 9 between customer satisfaction have been provided in Table 8, along with the variance explained by the model. In this study, the R² value is 0.75 which suggests that 75% of variability in Customer Satisfaction is explained by the variables used in the model.

IV. FINDINGS & DISCUSSION

Comparative Discussion

This paper is able to clearly illustrate that Artificial Intelligence (AI) has proved to be very helpful in enhancing the satisfaction levels of tourists within the tourism industry. The high mean score for all the variables indicates that tourists are very satisfied with AI technology since it brings added value to their experience. Personalization was determined to be the single most influential factor, suggesting that travelers highly value receiving customized recommendations and services, tailored to their individual preferences and needs. Both regression analysis and Structural Equation Modeling (SEM) were employed to analyze the data collected for this study and both demonstrated that ease of use and response time are the two most influential drivers of satisfaction. Therefore, it concludes that users expect AI to be easy to use and desire rapid delivery of services via AI. Lastly, the analyses showed that service quality contributes positively by delivering services which are accurate, consistent, and reliable contributing to a better overall experience. Additionally, trust played a supporting secondary role by increasing the relationship between AI-based feature utilization and customer satisfaction. Thus, trust was recognized as one of the key success factors in achieving long-term adoption of AI technology. The conclusions align with prior literature

demonstrating that AI is capable of improving operational efficiencies, increasing customer interaction and enabling decision-making based on data. Although there are many benefits related to adopting AI within the tourism sector, there are also barriers, such as costs associated with implementation of AI-based systems; reducing human interaction and protecting consumer information. Consequently, overcoming all these limitations will be necessary for any tourism-related organization to be able to effectively integrate AI into its business model and continue growing in the future.

Further research may employ bigger and more diverse sample size among different destinations, demographics, and tourism situations. Research based on longitudinal design can study how satisfaction varies depending on tourists' experience of using AI solutions. Research using multiple sources, including surveys, platform log data, search activity, recommendation usage, and response time, could help increase the validity of the behavior. Future models should include mediational and moderator analysis with respect to trust, value perception, privacy issues, technology readiness, and information quality.

Suggestions for Future Research

This study is not exempt from its limitations. First, the sample size of the study involves 200 participants, thereby restricting statistical generalizability from the sample to the target population. In addition, the original article lacks the sampling period, demographic breakdown, sampling approach, and sampling method of the research participants. Besides, the research design does not allow for an observation of longitudinal change in user satisfaction as it uses cross sectional design. The self report perceptions also limit the use of response time and behavioral log measurements in assessing user perceptions. There is also the limitation of testing the influence of other variables such as privacy concern, information overload, transparency of the algorithm used and readiness for new technology.

Limitations

For information service managers, personalization needs to be prioritized without compromising usability, speed of response, service accuracy and trust. AI should recommend relevant information services and provide concise responses as well as provide sources of information and protect users' privacy and offer a clear way of contacting human personnel. For information professionals, the findings of this study stress source verification, information organization and control.

Practical Implications

Furthermore, recent studies have shown that AI-driven information can lead to unexpected results. In the case of studying AI-generated review summaries in the context of online tourism services, it was found out that decreasing the information load does not necessarily increase the

decision-making satisfaction when systematic biases are presented in AI-generated information. This fact underlines the relevance of the Information Science dimension of the current research, since AI-driven tourism services need to be analyzed in the context of not only efficiency but also of the quality and neutrality of the information produced and the ability to trace its origin and to trust the source.

In particular, the empirical analysis shows that such factors as service quality ($\beta = 0.18$) and trust and reliability ($\beta = 0.15$) are predictors of tourists' satisfaction, although their impact is less than in previous cases. This fact confirms the idea that AI-driven service quality implies both technology-based and human-oriented aspects of service provision. The fact that the average score for trust and reliability is lower (mean = 3.9) than that for personalization (mean = 4.4) is an additional proof that the effectiveness of AI-driven information services cannot be measured only by speed and personalization

In general, the empirical results agree with existing literature but provide a better ranking of the individual information service attributes' relative importance. The most powerful variable was personalization ($\beta = 0.35$), followed by ease of use ($\beta = 0.28$) and response time ($\beta = 0.22$). Such a result agrees well with recent studies which pay a lot of attention to personalized AI-enabled experiences of customers and user-friendly information provision (Mishra et al., 2024). Thus, the results complement existing review-based evidence with empirical evidence about the relative contribution of particular AI-enabled information service attributes in one empirical model.

V. CONCLUSION

The empirical study showed that artificial intelligence in tourism information services can help customers become satisfied if the information is provided to them in a personalized, easy-to-use, responsive, reliable, and trustworthy way. The empirical model constructed based on responses of 200 tourists had $R^2 = 0.75$ which means that the five studied service attributes explained 75% of customer satisfaction variance. The strongest predictor was personalization ($\beta = 0.35$), followed by ease of use ($\beta = 0.28$), response time ($\beta = 0.22$), service quality ($\beta = 0.18$), and trust and reliability ($\beta = 0.15$). Reliability and convergent validity of the measurement model were found to be adequate because all factor loadings exceeded 0.70, composite reliability was between 0.86 and 0.91, and AVE between 0.67 and 0.77. The results regarding goodness of fit of the structural model were satisfactory as well: $\chi^2/df = 1.68$, GFI = 0.931, AGFI = 0.907, CFI = 0.957, TLI = 0.949, NFI = 0.924, RMSEA = 0.046, and RMR = 0.039. From Information Science viewpoint, AI enabled tourism services should be considered as information systems rather than mere automation technologies. Personalization is relevant when it comes to enhancing relevance of the provided information, ease of use ensures convenient access, speed of response will improve timeliness of information, service quality will help ensure accuracy and consistency of the provided information, while trust will promote confidence in information and transactions. It is

clear that the relatively low mean of trust and reliability (3.9) compared to personalization (4.4) shows that information quality and governance are still essential areas that need to be improved. The results suggest, therefore, that there is a need for better incorporation of verification of information sources, privacy protection, transparency, human escalations, and information quality monitoring in AI enabled tourism information services.

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