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# Leveraging Artificial Intelligence for Smart Destination Marketing: The Mediating Role of Data-Driven Consumer Insights on Tourist Satisfaction

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# Research Background

The study explores the linkages between AI, Smart Destination Marketing, and Tourist Satisfaction. The following critical trends set the background of this study.

- The tourism industry is shifting from traditional destination promotion toward personalized, technology-enabled marketing.
- Smart Destination Marketing (SDM) uses digital technologies to predict tourist needs, understand visitor behavior, and provide customized tourism experiences.
- Artificial Intelligence (AI) is central to SDM because it can process large volumes of consumer data rapidly and support real-time decision-making. It is enabling tourism organizations to automate marketing and customer-service activities; predict tourist preferences and future travel behavior, personalize recommendations, content, and travel services. The industry is witnessing the use of smart chatbots and AI-based travel assistants to analyze customer feedback and behavioral data.
- Although AI adoption in tourism has expanded, the article identifies a need to better understand how AI-generated data insights translate into tourist satisfaction.
- The study therefore focuses on the central research logic of data-driven consumer insights as the mechanism connecting AI with tourist satisfaction. The authors argue that simply implementing AI is not sufficient; the value of AI depends on how effectively organizations transform consumer data into actionable insights and personalized tourism experiences.

# Research Objectives

The overall aim is to examine how AI contributes to Smart Destination Marketing and tourist satisfaction, particularly through data-driven consumer insights.

The specific objectives of this study are to:

- Examine the effect of AI on Smart Destination Marketing
- Determine whether AI positively influences the effectiveness of destination marketing operations.
- Investigate AI's role in generating consumer insights
- Examine how AI processes tourism-related data to identify tourist behaviors, preferences, and needs.
- Assess the impact of consumer insights on tourist satisfaction
- Determine whether insights generated from consumer data improve the tourist experience and satisfaction.
- Test the mediating role of consumer insights
- Investigate whether data-driven consumer insights act as the mechanism through which AI influences tourist satisfaction.

# Theoretical Framework

The study proposes three key constructs for examination:

1. **Independent Variable** — AI in Smart Destination Marketing. AI represents the use of intelligent technologies in destination marketing. The salient dimensions are:
  - Automation — automated emails, chatbots, scheduling and travel-planning functions.
  - Personalization — individualized recommendations and promotional content.
  - Predictive Analytics — using historical data to forecast tourist behavior and travel patterns.
  - Interactive Technology — smart assistants, voice search, facial recognition and machine-learning applications.
2. **Mediating Variable** — Data-Driven Consumer Insights. The salient dimensions are:
  - Consumer insights explain how AI-generated information is converted into useful marketing and service decisions.
  - Dimensions:
    - Behavioral Data Analysis — analysis of searches, social-media behavior, clicks and bookings.
    - Preference Mapping — creation of individual tourist profiles based on historical behavior, reviews and customer information.

## Theoretical Framework\_contd.

- Feedback Interpretation — analysis of ratings, reviews and comments to identify satisfaction and service problems.
- Real-Time Responsiveness — rapidly adapting recommendations, promotions and travel information to changing tourist behavior.

3. **Dependent Variable** — Tourist Satisfaction; it reflects how tourists evaluate their travel experience in relation to their expectations. The salient dimensions are:

- Experience Quality
- Emotional Fulfillment
- Personalization Satisfaction
- Likelihood to Recommend
- Proposed Relationships

H1: AI → Smart Destination Marketing / Tourist Satisfaction

H2: AI → Data-Driven Consumer Insights

H3: Data-Driven Consumer Insights → Tourist Satisfaction

H4: AI → Consumer Insights → Tourist Satisfaction (mediation)

Thus, the conceptual framework proposes that AI has a direct relationship with tourism outcomes, but an important part of its value comes from converting data into meaningful consumer insights.

# Research Methodology

The Research Approach used for this study is quantitative research with a cross-sectional research design. It is based on a structured questionnaire and is guided by a positivist research philosophy, emphasizing measurable variables and statistical hypothesis testing.

## **Target Population :**

- Tourists who had used AI-enabled tourism services, including:
- AI travel applications
- AI-based recommendations
- Smart guides such as AR/VR tourism applications

## **Sample:**

- 350 international tourists
- Sampling method used is stratified random sampling with stratification considered on the basis of :Nationality, Travel purpose, Age

# Research Methodology\_Contd.

**Data Collection** : A structured questionnaire using Likert-scale measures was used to measure the major constructs.

**Data Analysis** : A Structural Equation Modeling (SEM) was used to examine:

- Direct relationships between constructs.
- The mediating effect of data-driven consumer insights.
- Bootstrapping was used to confirm the mediation effect.
- Measurement Quality: The study reports strong reliability and convergent validity. The reported values indicate strong internal consistency and convergent validity for the three constructs. Discriminant validity was also supported using the Fornell-Larcker criterion.

| Construct               | Cronbach's Alpha | AVE  |
|-------------------------|------------------|------|
| Artificial Intelligence | 0.88             | 0.75 |
| Consumer Insights       | 0.84             | 0.70 |
| Tourist Satisfaction    | 0.91             | 0.78 |

## Key Findings

### 1. AI has a significant relationship with tourist satisfaction

- $\beta = 0.109$
- $t = 3.50$
- $p = 0.001$

The relationship was statistically significant. AI explained 20% of the relevant variance, with  $Q^2 = 0.15$ .

### 2. AI strongly influences data-driven consumer insights

- $\beta = 0.708$
- $t = 4.20$
- $p < 0.001$

AI explained approximately 36% of the variance in consumer insights.  $Q^2 = 0.25$ , indicating predictive relevance. This is one of the strongest relationships in the model, highlighting the importance of AI for extracting useful information from tourist data.

### 3. Consumer insights significantly improve tourist satisfaction

- $\beta = 0.657$
- $t = 3.80$
- $p < 0.001$

Consumer insights explained 28% of the variance in tourist satisfaction.  $Q^2 = 0.22$ . Hence the findings suggest that understanding tourists' preferences and behavior enables destinations to offer more customized experiences.

## Key Findings\_Contd.

4. Consumer insights mediate the AI-satisfaction relationship Indirect effect

- $\beta = 0.303$
- $t = 4.50$
- $p < 0.001$
- $R^2 = 0.50$
- $Q^2 = 0.35$ ;

The mediation result is central to the study: AI creates greater value for tourist satisfaction when it is translated into actionable consumer insights.

Practical examples identified in the study:

- Personalized travel recommendations.
- Dynamic scheduling.
- Identification of less-known destinations.
- Personalized food recommendations based on dietary requirements.
- Recommendations for relaxation or leisure activities.
- Customized itineraries.
- Interpretation of customer reviews and feedback.

Overall, the findings show that AI's contribution to tourism satisfaction is not simply technological; its value emerges through the organization's ability to understand tourists and respond to their individual needs.

# Academic Contribution

## 1. Establishes a mediating mechanism

- The major academic contribution is the positioning of Data-Driven Consumer Insights as a mediator between AI and tourist satisfaction. Rather than treating AI adoption as directly producing better tourism outcomes, the study explains that AI generates value through the processing, interpretation and application of consumer information.

## 2. Integrates three research domains

The study brings together an integrated framework explaining how technological capabilities can translate into consumer-level tourism outcomes.

- Artificial Intelligence
- Smart Destination Marketing
- Tourist Satisfaction

## 3. Extends understanding of AI in tourism

- The research moves beyond viewing AI primarily as an operational or automation technology. It highlights AI's role in understanding tourist behavior, mapping preferences, interpreting feedback, providing real-time responses, delivering personalized tourism experiences.

## Academic Contribution

### 4. **Identifies consumer insight dimensions**

The framework conceptualizes consumer insights through four dimensions:

Behavioral Data Analysis → Preference Mapping → Feedback Interpretation → Real-Time Responsiveness

This provides a structured way of understanding how raw tourist data can become actionable marketing knowledge.

### 5. **Links technology with experiential outcomes**

The research connects technological adoption to tourism outcomes such as:

Experience quality, Emotional fulfillment, Perceived personalization, Recommendation intentions.

Thus, the study contributes to explaining how technological capabilities can influence the tourist experience, rather than examining technology only from an organizational-performance perspective.

### 6. **Provides an empirical model**

Using data from 350 tourists and SEM-based hypothesis testing, the study empirically examines the proposed relationships and provides evidence supporting all four hypotheses reported in the article.