

Artificial Intelligence in International Tourism

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Abstract

We live in an interconnected world where technology shapes industries, and tourism is no exception. AI is transforming travel through chatbots, virtual assistants, predictive analytics, and dynamic pricing. As AI expands its role, assessing its influence on customer experience, operational efficiency, and industry sustainability is more important than ever.

Most existing studies on AI in tourism primarily focus on chatbots and social media tools, analyzing their impact on shaping customer experience. However, there is little to no comprehensive literature on AI's direct impact and level of integration within the tourism sector as a whole. To draw a parallel, extensive research exists on AI's influence in fields such as medicine and engineering, where its applications and integration levels are well-documented. Despite AI's growing presence in tourism, there is a significant gap in assessing how deeply it is embedded in industry operations and, more importantly, how it directly influences customer experiences beyond isolated technological functions.

Through this systematic literature review, the study addresses two pivotal research questions: (1) What are the factors that influence customer experiences with AI-driven systems in tourism? and (2) What are the resulting dimensions of the overall customer experience shaped by AI? The findings suggest that perceived accuracy, reliability, and data confidentiality of AI tools are critical in shaping customer trust and adoption, while ease of use and the emotional resonance of AI interactions influence its integration into the broader touristic experience.

This research aims to make a meaningful contribution to both academia and the tourism industry by offering a clear framework that illustrates AI's evolution and impact on society and human behaviorism. Key elements taken into consideration include business operation streamlines, customer experience and growing trends, market scenarios, as well as the level of technological innovation and easiness of replicability, ethical implication (including sustainable practices).

Keywords: Artificial intelligence, Tourism, Personalization, Sustainability, Business Transformation

Introduction

This study was conceived to investigate the role of artificial intelligence (AI) in shaping international touristic experiences, conceptualized as the dynamic interaction between AI technologies and travelers' perceptions, attitudes, and behaviors throughout their journey. It attempted to examine how AI-driven tools—such as chatbots, recommendation systems, and crowd management platforms—contribute to personalization, operational efficiency, and sustainability within the tourism sector. By addressing these dimensions, the study seeks to provide a comprehensive assessment of AI's level of integration in tourism and its broader implications for customer experience and industry practices.

While existing research extensively explores specific applications of AI in tourism—such as customer service chatbots, real-time recommendation engines, and virtual tour guides—most studies adopt a narrow focus on isolated technical or behavioral dimensions. Consequently, there is a lack of integrative analyses that assess AI's aggregate impact on the entirety of the touristic

experience. This study seeks to address this gap by offering a comprehensive perspective on how AI reshapes the interconnected facets of modern tourism.

Over the last five years, the rapid evolution of artificial intelligence (AI)-powered systems has fundamentally reshaped the tourism industry, alongside numerous adjacent sectors. This shift has led to heterogeneous outcomes and measurable changes in travel experiences, customer satisfaction, and operational efficiency. A few years ago, human interaction was indispensable in the hospitality environment. Today, AI permeates every aspect of tourism, from personalized recommendations enabled by machine learning algorithms to real-time pricing adaptation and comprehensive assistance provided by virtual chatbots. Tourism businesses are leveraging cutting-edge technologies such as virtual reality (VR) and augmented reality (AR) for immersive touristic experiences, as well as sentiment analysis tools to gauge customer satisfaction through feedback and online comments. At an even higher level, AI is supporting sustainable practices and green tourism initiatives, notably through "Crowd Management" tools. These tools enable local authorities to balance tourist traffic, manage flows at popular attractions, and ensure enjoyable experiences for both travelers and residents. Simply put, AI is no longer an emerging trend but a cornerstone of modern tourism innovation (OECD, 2024).

Practical Motivation

With demand for automation, personalization and simplified tasks correlated with a decrease in overall costs for businesses skyrockets, AI becomes a key part of daily business operations. The principle of maximizing revenues and minimizing costs is applicable more than ever, with almost any market experiencing unprecedented competition and being pushed to its limit to differentiate itself, offer value and still be sustainable. Offering businesses the possibility to better understand how these tools work as well as use them at their best advantage would not only lead to an increase in their profitability but would also offer customers a superior experience and bring the whole economy and social structure to a better degree of comfort. The aim would be not only to understand AI but also how customers interact with it, how they feel about the interaction and, in case of tourism, their overall satisfaction with the touristic experience as influenced by AI. This would help understand how to best use AI in terms of the customers' profile sought, as well as scalability to integrate AI. Not all businesses might sense incremental value from using all possible capabilities of AI, but rather learning how to play with the one or two key features most in demand for a niche public, could go a long way in terms of profitability.

Theoretical Motivation

While it is undeniable that there is considerable research exploring AI applications in tourism, such as chatbots and recommendation systems, there is still a noticeable gap in understanding AI's comprehensive impact on the overall touristic experience. Notably, areas like privacy concerns, reduced human interaction, and small business operation resource management in working with AI have not been exhaustively explored. To bridge this gap and better understand the potential of this dimension, this study aims to provide a more comprehensive analysis of AI's influence on international tourism. By briefing key takeaways from academic studies, this review seeks to deepen our understanding of AI's groundbreaking role in the tourism sector and identify areas for future research.

Literature Review

Table 1: Key Concepts and Definitions in AI-Driven Tourism

Concept	Definition	Reference
Artificial Intelligence (AI)	‘The ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings, endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience’	(Copeland, 2024)
Natural Language Processing (NLP)	‘Subfield of computer science and artificial intelligence (AI) that uses machine learning to enable computers to understand and communicate with human language.’	(Holdsworth, 2024)
Conversational Agents (CA)	‘Computer programs that simulate conversations with humans’	(Laura Martinengo, 2023)
Smart tourism	‘Aims to simplify and personalize travel. Big data, IoT, and AI are the three main aspects of smart tourism’	(Inhyouk Koo, 2025)
Personalization in AI-driven tourism systems	‘Offering unique and tailored experiences that resonate with travelers’ interests and preferences’	(CodeMax, 2024)
Anthropomorphism in AI systems	‘Attribution of human characteristics or behavior to artificial intelligence systems (...) such as emotions, intentions, or consciousness.’	(Team Predictive UX, 2023)
Customers experience dimensions in AI tourism	‘Different conceptualizations of experience resulted in different components of customer experience such as educational, escapist, aesthetic, entertainment (Pine & Gilmore, 1999); emotional, informative, practice, transformation (Aho, 2001); and hedonism, refreshment, involvement, meaningfulness, knowledge, and novelty (Kim, Ritchie, & McCormick, 2012) to name a few’	(Maksim Godovykh, 2020)

Source: Compiled by the author based on information from Copeland (2024), Holdsworth (2024), Martinengo (2023), Koo (2025), CodeMax (2024), Predictive UX (2023), Godovykh (2020), and Pine & Gilmore (1999).

Major trends over the last 5 years:

The early 2010s had AI infiltrating the tourist industry through automated booking systems and embryonic chatbot assistants intended to respond to commonly requested queries. The COVID-19 epidemic placed additional pressure for digitization and tourism was no exception, especially given the travel restrictions, resulting in the creation of more sophisticated and complete AI models by 2019. This time witnessed the rise of ‘revenge travel’, a phenomenon in which individuals endeavored to make up for missed travel chances during the epidemic, thereby fostering inventions designed to improve tourist experiences. AI has emerged as a substantial disruptor in the tourism business; post-COVID-19, the sector employs around 12% fewer personnel than before the pandemic (Krishnan, 2024).

The main point of interest of AI research in the travel sector over the past five years has been on accurate data, personalized recommendations, and convenient information access. In order to offer real-time, round-the-clock assistance, travel agencies, hotels, airlines and not only, deployed chatbots and AI-powered virtual assistants increasingly between 2019 and 2024. Predictive analytics powered by AI has facilitated location-based marketing by enhancing demand forecasting, dynamic pricing, and resource management. What is also imperative to be mentioned, is that the COVID-19 pandemic accelerated AI integration through safety-related notifications such as travel limits and hygiene instructions (Arthur Huang A. B., 2024).

True as it may be that conversational agents' origins date back to the 1960s, their form and shape as we know it today was influenced by a progression in the 2010s, fueled by consumer demand, improvements in cloud computing and natural language processing. Needless to mention the efforts of major technology companies such as IBM, Microsoft, and Google trying to automate their operational activities and minimize human input-based tasks. The evolution of CAs has been observed in five well defined phases. The initial rule-based systems demonstrated restricted interaction, followed by the second wave of NLP-driven models that enhanced language processing although still did not produce human-like answers. The third wave demonstrated voice-based and multimodal conversational agents, such as IBM's Watson, while the fourth wave, emerging in the early 2010s, presented AI assistants like Siri, Alexa, and Google Assistant, which had contextual awareness and the capacity for continual updates. The last wave, debuting in early 2020s, showcased machine-learning models like as OpenAI's GPT and Google's LaMDA, enabling adaptive reasoning and extensive real-world applications. Future developments are estimated to concentrate on voice recognition, emotional intelligence, and AI-driven decision-making, and thus improving human-AI interaction via Natural Language Understanding (NLU) (Schöbel, 2023).

AI usage- a study on consumers' perception

The most popular frameworks for understanding AI-based consumer behavior tend to be Natural Language Processing (NLP) for improving conversational agents' capacity, customers' trust in CA, and their impact on value creation or destruction, according to a previous systematic literature review that discussed various theoretical frameworks used to analyze customer interactions with various conversational agents as well as the relationship between their performance and the customers' behavior. The primary patterns found indicate that a person's attitude toward technology has a big influence on whether or not they are open to new trends and innovations. Customers' interactions with AI are also significantly influenced by their regional and geographic preferences. Nonetheless, the conclusion is that these characteristics distort the AI-based interaction rather than making it universal. Increased perceived convenience and ease of use are key elements that motivate customers to utilize CAs, and they are also readily deductible. Consequently, the primary motivators for AI adoption would be perceived utility and ease of use, which are crucial elements raising the possibility of AI conversational agents in a variety of settings (Marcello M. Mariani, 2023).

As far as the predictions for the future models are concerned, the models are claimed to lean in the personalization side even more with smarter, faster, more accurate designs, AI become a real life assistant providing detailed and self-updating itineraries based on past preferences and any other external factors (climate, busy seasons etc.) (Sun, 2023).

Human-like interactions are sought in every study, emotion being the key challenge artificial intelligence has yet to replicate in its interactions. Nevertheless, some aspects that still need to be considered regardless of the CA, its usage and global market importance would be ethical AI data usage and ensuring transparency and trusts for its users in order to correctly address raising concerns that personalization generates data privacy bias and ethical issues. Balancing innovation with trust might be the challenge of the next decade.

AI's perceived role in boosting customer satisfaction

AI brings to the table multiple options that traditional hospitality industry struggled to provide its customers with. Individual needs and preferences finally got to the centric view which is often correlated with perceived improved service quality and consequently enhanced customer satisfaction. Another feature that customers placed specific value on is 'real time feedback' which

meant their complaint, suggestions or positive remarks were immediately integrated by the travel service provider. Nevertheless, there have been discontent voices signaling the lack in human interactions and their problem-solving capacities of real employees, also highlighting a lack of trust in the digitalized model proposed by AI. At this point in time, the trends in preferences indicate a balanced approach between AI driven technologies and human interactions and the need of AI to replicate even to a closer extent human traits. In a nutshell, AI is gaining popularity, but like any novelty there is still place and demand of improvement, which gives away the idea that the future is forecasted to be even more dominated by AI chatbots and systems, but the human employees will still need to provide maintenance and training for them as well as handle more complex tasks (Singh, 2024).

Materials and Methods

This study examined the impact of AI on international travel using a systematic literature review (SLR) as its research approach. To learn to what degree AI is involved in shaping and transforming customers' experience at tourism industry level, as well as how businesses operate in terms of AI usage, an SLR (Systematic Literature Review) was conducted, addressing primarily:

RQ1: What are the factors that influence customer experiences with AI-driven systems in tourism?

RQ2: What are the resulting dimensions of the overall customer experience shaped by AI in tourism?

The research questions were elaborated on academic assumptions that perceived accuracy and reliability as well as confidentiality of AI-based tool would directly influence customers' experience as well as be a primary criteria when it comes to the level of AI usage for tourism related purposes. Moreover, customer comfort in interacting with AI systems is expected to impact not only the extent to which these technologies are utilized but also perceptions of their overall efficiency. These preconceptions are rooted in overall representation of AI in the media and governmental and intergovernmental institution debated, corroborated with general observation of public tendencies.

The study started with a multi-stage comprehensive search throughout Web of Science, ScienceDirect, SpringerLink, ResearchGate, and Scopus using particular search terms including 'chatbots and customer experience', 'AI in tourism', 'machine learning in customer service,' and 'AI-enhanced tourism'. In order to maintain scientific rigor and eliminate gray literature, duplication, and non-academic sources, the selection criteria concentrated on peer-reviewed journal articles and conference papers published between 2015 and 2024. Thus, in the first screenings phase as much information as possible was gathered on AI's usage in tourism, as showcased in *Figure 1-- Review approach and research methodology*.

After a continuous filtering process, 80 studies were selected from the initial search. All papers that did not explicitly address the application of AI in tourism were excluded from consideration following an evaluation of titles and abstracts. Too general or predictive conclusions disqualified a part of the articles on grounds of no added significant value, as well as studies stating and testing obvious scenarios. Analyzing the comprehensive texts of the research further facilitated the exclusion of those without enough empirical evidence or robust technique. Research yielding substantial insights into the influence of AI on service models and customer experience was emphasized throughout the quality evaluation. Ultimately, ten publications were selected for additional examination using this methodology. Key themes, emerging trends, and tensions in the

integration of AI into the tourism sector were discerned by classifying this research according to their methodological approach (quantitative, qualitative, or mixed methods).

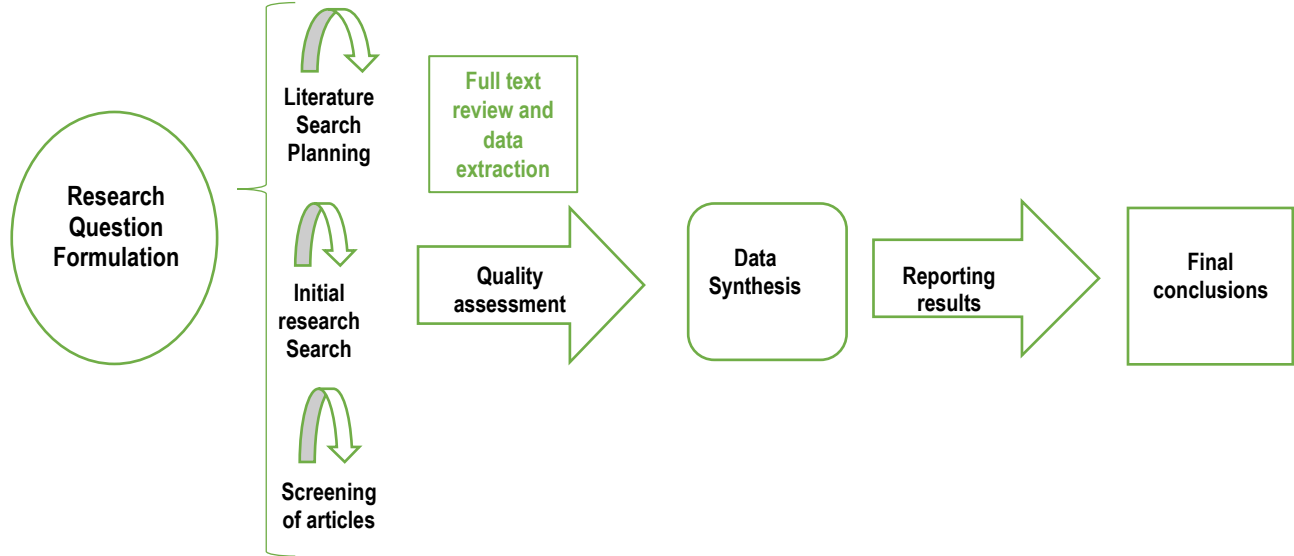


Figure 1. Review approach and research methodology

Source: Author's own research.

Results and Discussion

A number of investigations on the use of artificial intelligence (AI) in the travel and tourism sector have revealed both financial benefits and challenges. Quantitative research indicates that AI-driven customization increases customer enjoyment and fidelity, which in turn increases sales. Since an over-reliance on AI could negatively impact customer welfare, a balance between automation and human interaction is required. Qualitative research demonstrates how AI may streamline operations and improve marketing, particularly for small and medium-sized organizations, despite persistent concerns about data security and the necessity of human engagement. Mixed-methods research highlights the need of sustainable practices and user-friendly AI interfaces while noting concerns around transparency and potential social displacement. The findings show that, despite AI's many economic benefits to the travel and tourism sector, ethical issues and the preservation of human traits are necessary for long-term success. A summary of the most notable studies is provided by *Table 2- Summary of Methodologies and Key Findings on AI in Tourism*.

The literature review primarily focused on papers published between 2015 and 2024 to stay abreast of the rapid advancements in AI technology. This strategy ensured compliance with the most recent developments and trends in AI applications. The research focused examined visitor interactions with AI in the tourist industry, excluding previous systematic evaluations and focusing on papers that provided innovative and significant findings. To ensure that the results were sufficiently comprehensive to support substantial conclusions and practical implications, studies with overly narrow foci, such as those centered on a single company or a small, unrepresentative demographic, were excluded.

The research consistently emphasizes that AI-driven personalization is essential for enhancing consumer satisfaction and loyalty, leading to increased revenue for tourism businesses. However, a common concern in all studies is the potential negative impact of over reliance on AI, which may compromise customer welfare and satisfaction. This underscores the need of

maintaining a balance between AI automation and human interaction to preserve service quality and consumer trust. Ethical concerns, particularly around data privacy and transparency, are prevalent in the literature, highlighting the imperative for ethical AI implementation to avert potential societal displacement and to ensure enduring economic benefits.

Table 2: Summary of Methodologies and Key Findings on AI in Tourism

Methodology	No. of Studies	Relevant titles and authors	Comments-Methodology details and aspects treated	Conclusions
<i>Quantitative</i>	3	(Ranko Makivić 1, 2024) <i>AI Impact on Hotel Guest Satisfaction via Tailor-Made Services: A Case Study of Serbia and Hungary</i>	Survey-based analysis (on 500 tourists)	Customer satisfaction was mostly observed to be derived through AI based solutions and tailored recommendations (the AI features taken into consideration: personalization, responsiveness and recommendation accuracy)
		(Linxiang Lv, 2024) <i>Enhancing customers' life satisfaction through AI-powered personalized luxury recommendations in luxury tourism marketing</i>	Three scenario-based experiments across various tourism contexts)	Personalized recommendations for luxury tourism products boost life satisfaction through perceived self-growth, though this effect is weaker with user-based framing. 'Overreliance on algorithm-generated recommendations may jeopardize customers' well-being' (Linxiang Lv, 2024)
		(Arthur Huang A. B., 2024) <i>Unpacking AI for hospitality and tourism services: Exploring the role of perceived enjoyment on future use intentions</i>	Survey Expectation-Confirmation Model (ECT)	Both functional (performance and expectation confirmation) and emotional (felt enjoyment) satisfaction are necessary for the continued usage of AI in hospitality and tourism.
<i>Qualitative</i>	3	(Mouna Knani, 2022) <i>Artificial intelligence in tourism and hospitality</i>	'Bibliometric review and analysis of this research corpus'	AI streamlines operations, accelerates response times, and increases the success rate of transactions.
		(Pradhan, 2024) <i>How Artificial Intelligence Can Improve Tourism Marketing and Tourist Satisfaction</i>	Descriptive approach > case studies and expert interviews	AI has a tremendous and considerable potential to improve tourism marketing, especially for SMEs, but it is highly reliant on technological infrastructure and needs to answer data privacy concerns.
		(Dsouza, 2024) <i>Analyzing the Impacts of Artificial Intelligence Service Quality and Human Service Quality on Customer Satisfaction and</i>	Analysis focusing on AI service quality versus human service quality.	Intense competition is pushing companies operating in the tourism field to be innovative and make the most of the existing technology. However, the study also mentions the importance of keeping human interaction for this service. Human

Methodology	No. of Studies	Relevant titles and authors	Comments-Methodology details and aspects treated	Conclusions
		<i>Customer Loyalty in the Hospitality Sector</i>		interaction, at this point, is more strongly needed in this field compared to AI, as of the moment.
Mixed-Methods	4	(Rajasshrie Pillai, 2020) <i>Adoption of AI-based chatbots for hospitality and tourism</i>	Interviews and surveys	Ease of use and enjoyment are key drivers of AI chatbot customer experience; these two factors are key in generating acceptance and satisfaction as well as long term customer retention and profitability for the business.
		(Kim, 2024) <i>AI's Role in Making Space Tourism More Sustainable: Applying Mixed Methods to Compare on-Earth, Sub-orbital, and Orbital Space Tourism</i>	Survey instruments Both quantitative and qualitative questions (Harmon single-factor test and marker variable method)	Energy consumption, reducing waste and promoting eco-friendly policies are all matters in which AI can help.
		(Milwood Pauline, 2023) <i>A Scoping Study of Ethics in Artificial Intelligence Research in Tourism and Hospitality</i>	'a scoping review of a scoping reviews'	Concerns raised about the lack of transparency with which AI collects, stores and uses data There is not enough data behind the process of AI decision making. There is also the concern of 'social and economic human dislocation'
		(Abu Bakkar Siddik, 2024) <i>Artificial intelligence as a catalyst for sustainable tourism growth and economic cycles</i>	Multi-Method Approach: artificial neural network (ANN) analysis alongside traditional econometric	AI's impact on macroeconomic variables such as GDP, FDI, Inflation, UB (urbanization). AI increases the impact of these elements by promoting creativity and effectiveness. AI should be, thus, leveraged by policy makers as well as decision makers in public institutions.

Source: Compiled by the author based on information from Makivić (2024), Lv (2024), Huang (2024), Knani (2022), Pradhan (2024), Dsouza (2024), Pillai (2020), Kim (2024), Milwood (2023), and Siddik (2024).

If common conclusions were to be drawn based on the above-mentioned studies, the commonalities would indicate the capacity of AI to confer a personalized experience, as well as business advantage to the entities operating with AI. *Table 3* below summarizes these findings, presenting the key factors driving AI's adoption in tourism and the resulting implications for the industry. Optimization of pricing strategies has been mutually considered as a significant advantage in AI based model, mentioned third in terms of frequency after cost efficiency and offering customers an individualized, personalized experience. Resource allocation and efficiency are perceived as the main positive implications for businesses, however, SMEs on emerging markets might face more challenges. It would also be important to analyze long term customers' impression

and not only restrained opinions as analyzed for particular events, but rather their inclination to use AI when traveling or when engaging in tourism activities in the long run.

Table 3: Key Findings and Strategic Implications of AI Adoption in Tourism

Key findings	Implications
The most frequently reported feature of AI in tourism was personalization, which was associated with boosted customer satisfaction as well as loyalty, increased transactions	If improved customer experience is rightfully capitalized, the use of AI would also mean increased revenues for businesses operating in the tourism sector
There is a considerable number of concerns when it comes to data privacy and ethical consideration	International organization might need to coordinate and elaborate a comprehensive set of rules when it comes to data protection and ethical AI usage on order to protect both the customers and the business owners
Dynamic pricing models can be implemented as the result of using AI efficiently	Maximized revenue and increased flexibility as well as a more predictable flow of tourists
AI is a ‘must have’ tool in the view of cost reduction and ensuring operational efficiency	The availability and non-exhaustive labor force of AI allows for a better resource allocation and significant cost reductions
AI is an accurate tool when it comes to forecasting trends and patterns at the level of tourism industry	Predictability and reliability are key elements that AI can bring to tourism business owners
A more sustainable tourism experience can be ensured by using AI	In line with the global trends towards ecological and sustainable living, AI detects pollution patterns and helps manage flows of tourists which in the end leads to an overall more pleasant experience in less crowded and less polluted destinations

Source: Compiled by the author.

Addressing the research question

RQ1: What are the factors that influence customer experiences with AI-driven systems in tourism?

It becomes undebatable that there is a direct proportional relationship between customer satisfaction and the use of AI to enhance tourism. Future research could explore more in depth exactly the different degrees of customer satisfaction as a result of using AI, more specifically the incremental increase of satisfaction as a result of more personalization attained by AI usage.

The 24/7 availability and immediate, precise answers also were a key aspect influencing customers’ experience. Though the AI is not always providing ‘human-like’ answers, it is always available, never overworked and has fewer errors compared to a classic employee. NPL is promising to work and make up for the mechanic type of answers and develop adaptive response capabilities, taking into account the topic of discussion and the style of the customer.

Dynamic pricing models could be appealing not only to the tourism business owners, but also to the users as they can chose how much they want to pay for the service at different times of the year and can better anticipate their expenses and adjust. Flexibility would come here into play as budgeting and spending responsibly are more in debate. However, depending on the pricing set ups, customers’ trust might be risked as they can associate this flexibility with discrimination or manipulation.

Speed of answer, round a clock availability and ease of use were mentioned almost in above cited articles when it came to the influence of AI in customers’ satisfaction at the level of tourism industry.

Even though they were not the primary theme of the studies, almost all of them addressed the ethical considerations, militating for transparency which would in return boost customer satisfaction in direct relationship with the perceived trust.

RQ2: What are the resulting dimensions of the overall customer experience shaped by AI in tourism?

The segments of the total customer experience impacted by AI in tourism are derived from recurring themes observed in the research, demonstrating the multifaceted implications of AI technology on the industry (as highlighted in *Figure 2- . AI Dimensions in International Tourism* below). The characteristics include customization, trust and ethical considerations, operational efficiency, emotional engagement, dynamic pricing perception, and sustainability. Each component was derived from a thorough examination of qualitative, quantitative, and mixed-method research, which repeatedly demonstrated the transformative influence of AI at various phases of the customer experience.

Research by Makivić (2024) and Lv (2024) highlights the importance of personalization in AI, as it may tailor ideas and services to individual tastes, leading to increased consumer pleasure and loyalty. The findings show that tailored experiences add perceived value, particularly in specialized areas like luxury travel. Excessive reliance on AI-generated recommendations has the potential to jeopardize well-being, emphasizing the importance of striking a balance between customization and ethical norms. Trust and ethics have a huge impact on client acceptance of AI technologies. Milwood Pauline (2023) did research that highlighted challenges related to data privacy and transparency in AI decision-making processes. These findings underscore the need of tourism enterprises following ethical practices and adhering to regulatory standards in order to maintain customer trust.

Operational efficiency, as evidenced by studies such as Huang (2024), enhances the customer experience by allowing for seamless and error-free interactions. The ability of AI to ensure continual availability and improve resource allocation reduces hurdles to the user experience while also lowering operating costs. Nonetheless, while practical benefits are important, emotional participation has emerged as a major but understudied factor. Research revealed a limitation in AI's ability to imitate human-like empathy, limiting its emotional influence on customers. This limitation highlights an important topic for future advances in natural language processing (NLP) and AI-human interaction. Furthermore, dynamic pricing and sustainability were identified as key variables impacting tourism experiences. Dynamic pricing improves revenue while giving clients with flexibility and predictability; nonetheless, it requires open communication to minimize the appearance of inequality. Sustainability, on the other hand, connects AI applications to global ecological patterns, as demonstrated by Kim's (2024) research, which shows how AI systems manage visitor flows and encourage environmentally responsible behavior.

These traits emphasize AI's disruptive potential while revealing key areas for improvement, notably in emotional engagement and trust, indicating the need for greater research and innovation in these sectors

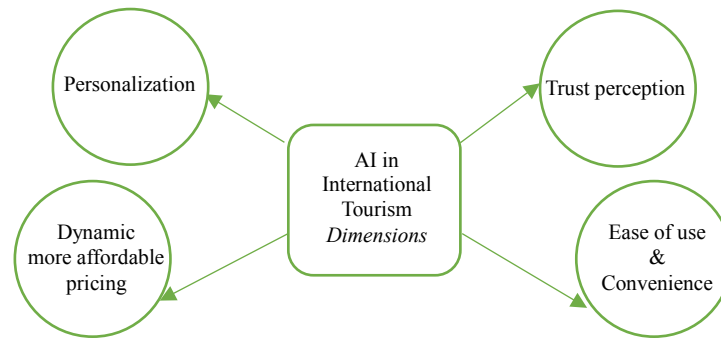


Figure 2. AI Dimensions in International Tourism

Source: Compiled by the author.

Conclusions

The synthesis of the examined research highlights the influence of AI on tourism's dynamic pricing, sustainability, trust and transparency, customization, and operational efficiency. AI-driven customization improves customer happiness and loyalty through customized suggestions, yet algorithmic bias and insufficient openness in decision-making present issues of justice and trust. While AI improves service availability, cost effectiveness, and resource allocation, its shortcomings in emotional intelligence restrict its use in the hotel industry, where human connection cultivates engagement and trust. Although automation improves efficiency, the necessity for hybrid AI-human service models is emphasized by its incapacity to discern nuanced emotional cues.

Studies show that consumers display suspicion regarding pricing algorithms and ambiguous data governance, making trust and transparency critical issues. Although dynamic pricing increases income potential, its opacity threatens customer trust. The use of AI is impeded by ethical dilemmas about algorithmic responsibility, legal deficiencies, and data protection challenges.

The capacity of AI to improve tourist dynamics and mitigate environmental effects is unequivocally beneficial for sustainability; yet its efficacy depends on institutional backing and regulatory consistency. Future research must emphasize cross-sectoral analysis, progress in emotional computing, and transparent AI governance to harmonize automation with human-like interaction, while maintaining economic sustainability and ethical accountability.

The primary goal of future research must be the creation of morally transparent AI systems that prioritize accountability, equitable data consumption, and regulatory compliance. Improving AI's capacity for emotional engagement with humans requires progress in affective computing and natural language understanding.

This study is constrained by specific limitations. The analysis was limited by the absence of multiple perspectives that a collaborative method may offer, as it represents the perspective of a single author. Due to time limitations, only the 10 most pertinent research were examined, perhaps excluding important insights from the wider academic literature. The research is restricted to the tourist sector, hence constraining the applicability of its findings to other sectors or businesses. These limitations highlight the imperative for next research to integrate interdisciplinary viewpoints, broaden the dataset, and investigate the cross-sectoral effects of AI deployment.

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References

- Abu Bakkar Siddik, M. S. (2024). Artificial intelligence as a catalyst for sustainable tourism growth and economic cycles. *Volume 210, 2025 ISSN 0040-1625*. Retrieved January 20, 2025, from <https://www.sciencedirect.com/science/article/pii/S0040162524006735>
- Arthur Huang, A. B. (2024). Unpacking AI for hospitality and tourism services: Exploring the role of perceived enjoyment on future use intentions. *International Journal of Hospitality Management*. Retrieved November 9, 2024, from <https://www.sciencedirect.com/science/article/pii/S0278431924000057>
- Arthur Huang, A. B. (2024). Unpacking AI for hospitality and tourism services: Exploring the role of perceived enjoyment on future use intentions. *International Journal of Hospitality Management*. Retrieved January 5, 2025, from <https://www.sciencedirect.com/science/article/abs/pii/S0278431924000057>
- CodeMax. (2024). *AI-Enhanced Tourism: Personalized Travel Recommendations*. Codemax. Retrieved January 7, 2025, from <https://codemax.app/explore/ai-enhanced-tourism-personalized-travel-recommendations/>
- Copeland, B. (2024). Artificial Intelligence. *Encyclopedia Britannica*. Retrieved January 7, 2025, from <https://www.britannica.com/technology/artificial-intelligence>
- Dsouza, E. (2024). Analysing the Impacts of Artificial Intelligence Service Quality and Human Service Quality on Customer Satisfaction and Customer Loyalty in the Hospitality Sector. *JO - Turizam*. Retrieved January 25, 2025, from https://www.researchgate.net/publication/380908577_Analysing_the_Impacts_of_Artificial_Intelligence_Service_Quality_and_Human_Service_Quality_on_Customer_Satisfaction_and_Customer_Loyalty_in_the_Hospitality_Sector
- Holdsworth, C. S. (2024). *What is NLP?* IBM. Retrieved January 6, 2025, from <https://www.ibm.com/think/topics/natural-language-processing>
- Inhyouk Koo, U. Z. (2025). *Assessing the interplay of trust dynamics, personalization, ethical AI practices, and tourist behavior in the adoption of AI-driven smart tourism technologies*. Retrieved January 7, 2025, from <https://www.sciencedirect.com/science/article/pii/S219985312400249X>
- Kim, M. J. (2024). AI's Role in Making Space Tourism More Sustainable: Applying Mixed Methods to Compare on-Earth, Sub-orbital, and Orbital Space Tourism. Retrieved January 25, 2025, from https://www.researchgate.net/publication/381460770_AI's_Role_in_Making_Space_Tourism_More_Sustainable_Applying_Mixed_Methods_to_Compare_on-Earth_Sub-orbital_and_Orbital_Space_Tourism_Accepted
- Krishnan, A. C. (2024). What AI means for travel—now and in the future. *The McKinsey Podcast*. Retrieved January 1, 2025
- Laura Martinengo, X. L. (2023). *Conversational Agents in Health Care: Expert Interviews to Inform the Definition, Classification, and Conceptual Framework*. Retrieved 3 January, 2025, from <https://www.sciencedirect.com/org/science/article/pii/S143888712300852X>
- Linxiang Lv, S. C. (2024). Enhancing customers' life satisfaction through AI-powered personalized luxury recommendations in luxury tourism marketing. *International Journal of Hospitality Management*. Retrieved January 12, 2024, from <https://www.sciencedirect.com/science/article/pii/S0278431924002263>

- Maksim Godovykh, A. D. (2020). *Customer experience in tourism: A review of definitions, components, and measurements*. Retrieved January 7, 2025, from <https://www.sciencedirect.com/science/article/abs/pii/S2211973620300611>
- Marcello M. Mariani, N. H. (2023). Artificial intelligence empowered conversational agents: A systematic literature review and research agenda. *Journal of Business Research Volume 161*. Retrieved January 7, 2025, from <https://www.sciencedirect.com/science/article/pii/S0148296323001960>
- Milwood Pauline, H.-C. S. (2023). A Scoping Study of Ethics in Artificial Intelligence Research in Tourism and Hospitality. *Book: Information and Communication Technologies in Tourism 2023 (pp.243-254)*. Retrieved January 24, 2025, from https://www.researchgate.net/publication/367160783_A_Scoping_Study_of_Ethics_in_Artificial_Intelligence_Research_in_Tourism_and_Hospitality
- Mouna Knani, S. E. (2022). *Artificial intelligence in tourism and hospitality: Bibliometric analysis and research agenda*. *International Journal of Hospitality Management*, Volume 107. Retrieved January 12, 2025, from <https://www.sciencedirect.com/science/article/pii/S0278431922001797>
- OECD. (2024). *Artificial Intelligence and tourism*. OECD Tourism Papers, 2024/02, OECD. Retrieved February 2, 2024, from https://www.oecd.org/en/publications/artificial-intelligence-and-tourism_3f9a4d8d-en.html
- Pradhan, B. (2024). How Artificial Intelligence Can Improve Tourism Marketing and Tourist Satisfaction. *Research Gate*. Retrieved January 12, 2025, from https://www.researchgate.net/publication/377178774_How_Artificial_Intelligence_Can_Improve_Tourism_Marketing_and_Tourist_Satisfaction
- Rajasshrie Pillai, B. S. (2020). Adoption of AI-based chatbots for hospitality and tourism. *International Journal of Contemporary Hospitality Management*. Retrieved January 12, 2025, from <https://www.emerald.com/insight/content/doi/10.1108/ijchm-04-2020-0259/full/html>
- Ranko Makivić 1, D. V. (2024, October). AI Impact on Hotel Guest Satisfaction via Tailor-Made Services: A Case Study of Serbia and Hungary. *MDPI*. Retrieved January 7, 2025, from <https://www.mdpi.com/2078-2489/15/11/700>
- Schöbel, S. &. (2023). Charting the Evolution and Future of Conversational Agents: A Research Agenda Along Five Waves and New Frontiers. *Information Systems Frontiers*. Retrieved January 7, 2025, from https://www.researchgate.net/publication/370151883_Charting_the_Evolution_and_Future_of_Conversational_Agents_A_Research_Agenda_Along_Five_Waves_and_New_Frontiers
- Singh, P. (2024). The power of AI: enhancing customer loyalty through satisfaction and efficiency. *Cogent Business & Management*. Retrieved January 7, 2025, from <https://doi.org/10.1080/23311975.2024.2326107>
- Sun, J. (2023). How is AI reshaping the travel experience? *WORLD ECONOMIC FORUM*. Retrieved November 11, 2024
- Team Predictive UX. (2023). *Anthropomorphism in AI*. Retrieved January 7, 2025, from <https://predictiveux.com/insights/the-effects-of-anthropomorphism-in-ai-exploring-human-like-ai-interactions#:~:text=Anthropomorphism%20refers%20to%20the%20attribution%20of%20human%20characteristics,human-like%20qualities%2C%20such%20as%20emotions%2C%20in>