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ARTIFICIAL INTELLIGENCE AS A TOOL FOR TRANSFORMING THE TOURISM INDUSTRY

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Annotation

Aim: This article examines the role of artificial intelligence (AI) in transforming the tourism industry and improving tourism services. **Method:** The study is based on an analysis of academic literature and recent international research on AI applications in tourism and hospitality. **Results:** AI can improve travel planning, personalization, customer service, demand forecasting, marketing, and operational efficiency. **Conclusion:** Effective and responsible adoption of AI can increase the competitiveness of tourism businesses while improving the tourist experience, although data protection, workforce adaptation and ethical issues require particular attention.

Keywords: artificial intelligence, tourism, personalization, smart tourism, automation, hospitality

INTRODUCTION

Technological development has significantly changed the tourism industry. Tourists increasingly use digital platforms to search for destinations, compare prices, make reservations, communicate with service providers and organize their trips. At the same time, tourism businesses are using digital technologies to understand customer behaviour, manage resources and improve service quality. Among these

technologies, artificial intelligence (AI) has become one of the most influential tools of contemporary tourism transformation.

Artificial intelligence can be defined as the ability of computer systems to perform tasks that normally require human intelligence, including learning, prediction, language processing, decision-making and pattern recognition. In tourism, AI can analyse large volumes of customer and market data and use the results to support both businesses and tourists. A systematic review of 146 studies identified applications of AI in tourism and hospitality ranging from demand forecasting and tourism behaviour analysis to customer service and personalized experiences.

The rapid development of generative AI has further expanded these possibilities. Tools such as conversational AI can provide travel recommendations, create itineraries and answer customer questions in natural language. Recent research suggests that ChatGPT and generative AI can influence tourism marketing, business intelligence, travel services, hospitality and destination management.

However, AI should not be viewed only as a technological solution. Its implementation also raises questions concerning data privacy, employment, digital inequality, reliability and the preservation of human interaction. The OECD emphasizes that tourism businesses need to address consumer protection, workforce adaptation and support for small and medium-sized enterprises during the AI transition.

The purpose of this article is therefore to examine the main ways in which artificial intelligence is transforming the tourism industry and to identify practical approaches for its effective and responsible implementation.

MAIN PART

1. AI and personalized tourist experiences

One of the most important contributions of AI to tourism is personalization. Traditional tourism marketing often provides the same recommendations to large groups of consumers. AI makes it possible to analyse individual preferences, previous searches, booking behaviour and travel interests in order to offer more relevant recommendations.

For example, an AI-powered travel assistant can recommend destinations according to a tourist's budget, preferred activities, travel duration and interests. A traveller interested in cultural tourism may receive recommendations for museums, historical sites and cultural events, while another traveller interested in gastronomy may receive restaurant and food-tour recommendations.

Generative AI has further improved this process because tourists can communicate with AI systems using natural language. Instead of searching separately for hotels, attractions and transportation, a traveller can describe the desired trip and receive an integrated itinerary.

Research on ChatGPT in tourism indicates that AI can provide tailored and context-sensitive travel information and support tourist decision-making.

Therefore, personalization can improve convenience and reduce the time tourists spend searching for information. At the same time, businesses can use customer

2. AI in tourism marketing

Artificial intelligence is also changing tourism marketing. Instead of relying only on broad advertising campaigns, tourism organizations can analyse consumer behaviour and identify specific audience segments.

AI can support:

personalized advertising;

customer segmentation;

recommendation systems;

content creation;

sentiment analysis;

social media monitoring;

predictive marketing;

analysis of online reviews.

For destinations, sentiment analysis can be particularly useful. AI can process large numbers of online reviews and social media comments to identify what tourists like or dislike about a destination.

For example, if visitors frequently praise local cuisine but complain about transportation, tourism authorities can use this information to strengthen gastronomy promotion while addressing transport-related problems.

Generative AI can also assist tourism organizations in producing multilingual marketing content. However, human supervision remains necessary to ensure factual accuracy, cultural sensitivity and consistency of destination branding.

3. AI and smart tourism destinations

The development of smart tourism destinations represents a broader transformation in which AI is connected with other digital technologies and tourism infrastructure.

AI can help destinations analyse visitor flows, predict congestion and optimize the distribution of tourists across attractions. This is particularly important for destinations experiencing overtourism.

For example, if an AI system detects unusually high visitor density at one attraction, destination managers can provide real-time information about alternative sites and encourage tourists to visit less crowded locations.

The OECD notes that AI has the potential to improve visitor experiences while also supporting destination management, including the optimization of traffic and visitor flows.

For countries developing their tourism sectors, this approach can contribute to more sustainable destination management. AI can help balance tourism growth with the protection of cultural and natural resources.

4. AI and the transformation of tourism employment

The introduction of AI inevitably affects tourism employment. Automation can reduce the need for employees to perform repetitive tasks such as answering standard questions, processing simple reservations or carrying out routine administrative activities.

However, this does not necessarily mean that AI will eliminate tourism employment. Instead, the nature of many tourism jobs is likely to change.

Employees may increasingly need skills in:

digital communication;

data interpretation;

AI tool management;

problem-solving;

customer relationship management;

creativity and critical thinking.

The OECD highlights both the productivity opportunities and workforce challenges created by AI, particularly the risk of a growing gap between technologically advanced companies and smaller tourism businesses.

Therefore, education and retraining should become an important part of tourism digital transformation. Human employees should be prepared to work **with AI rather than simply compete against it**.

5. Risks and challenges of AI adoption

Despite its advantages, the implementation of AI in tourism involves several risks.

The first is **data privacy**. AI systems often require large amounts of customer information, including preferences, travel history and behavioural data. Tourism organizations must therefore ensure responsible data collection and protection.

The second challenge is **accuracy**. Generative AI can produce incorrect or outdated information. In tourism, inaccurate information about prices, transportation, opening hours or visa requirements can negatively affect the traveller's experience.

The third challenge is **loss of human interaction**. Excessive automation may make tourism services less personal. Since hospitality is fundamentally connected with human communication, businesses should maintain an appropriate balance between technological efficiency and personal service.

The fourth challenge is **digital inequality**. Large hotel chains and international tourism companies may have greater financial and technical resources than small local businesses. OECD research emphasizes that SMEs can face barriers such as limited digital skills, infrastructure gaps and implementation costs.

Consequently, AI adoption should be gradual, strategic and adapted to the capabilities of individual tourism businesses.

6. Practical recommendations for the tourism industry

Based on the analysis, several recommendations can be proposed.

First, tourism businesses should begin with clearly defined problems. AI should be introduced to solve specific operational or customer-service challenges rather than simply because it is technologically fashionable.

Second, businesses should invest in employee training. Staff need to understand how AI works, how to use AI tools and how to verify AI-generated information.

Third, human supervision should remain essential. AI can support recommendations and routine communication, while employees should handle complex, sensitive and high-value interactions.

Fourth, tourism organizations should establish clear data-protection policies. Customers should understand what information is collected and how it is used.

Fifth, small and medium-sized tourism enterprises should receive support for digital transformation. Training programs, shared digital platforms and affordable technological solutions can help reduce the digital gap.

Finally, AI should be integrated with broader smart tourism strategies. Combining AI with digital platforms, data analytics and destination management can create greater long-term value than implementing isolated technological tools.

CONCLUSION

Artificial intelligence is becoming an important instrument for transforming the tourism industry. Its applications extend from personalized travel recommendations and AI-powered customer service to demand forecasting, marketing, revenue management and smart destination management.

The main advantage of AI is its ability to process large amounts of information and convert it into useful predictions, recommendations and automated services. This can improve operational efficiency while making tourism experiences more personalized and convenient. At the same time, AI creates important challenges related to privacy, accuracy, employment, digital inequality and the preservation of human interaction.

The future of AI in tourism should therefore not be based on replacing people with technology. Instead, the most effective approach is likely to be **human–AI collaboration**, in which artificial intelligence performs analytical and repetitive tasks while tourism professionals provide empathy, creativity, cultural understanding and personal service.

Consequently, tourism organizations that combine technological innovation with responsible management and investment in human skills will be better positioned to compete in the changing tourism market. AI should not be considered the final goal of digital transformation, but rather a tool for creating more efficient, personalized, accessible and sustainable tourism experiences.

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