

# Understanding the Impact of ChatGPT on Tourism and Hospitality: Trends, Prospects and Research Agenda

## Abstract

The prevalence of ChatGPT (and generative artificial intelligence in general) has precipitated a paradigm shift in diverse industries, including tourism and hospitality. ChatGPT revolutionises all business functions (from marketing to operations), empowering tourism and hospitality organisations to transform and innovate their business models. This study seeks to comprehensively examine the use and implications of ChatGPT in tourism and hospitality by discussing the current and future state of the technology, while also suggesting an agenda for future research. To that end, six areas, namely, business intelligence and tourism analytics, tourism marketing and experience, hospitality services, cultural and heritage tourism, travel services, and destination management, are elaborated on in depth. By compiling views solicited from international experts, this groundbreaking opinion piece unveils profound insights into the evolutionary journey of an emerging technology that is shaping tourism and hospitality. The paper provides useful implications for tourism scholars and professionals alike.

## Introduction

The emergence of generative Artificial Intelligence (AI) tools (e.g., ChatGPT) is revolutionising diverse sectors, and tourism and hospitality are not an exception (Dwivedi et al., 2023b). ChatGPT enables industry players to boost operational efficiency and effectiveness by allowing staff to quickly analyse big data about guest-specific insights to design and deliver hyper-personalised services and generate promotional content (Carvalho & Ivanov, 2023). In this vein, the use of ChatGPT is envisioned to drive substantial changes in the description and design of tourism jobs and skills' requirements as well as to develop different company/brand and customer relations, communication and loyalty. Nonetheless, using this emerging technology is not without challenges and risks, which need to be carefully considered and addressed. Given that the research subject is still in its infancy stage, there remain uncertainties, particularly pertaining to its role in impacting the multi-facets of hospitality and tourism, ranging from tourist experience to destination and hospitality service management. Thus far, there is scant research that provides an overview of this wide field and charts relevant research directions.

Carvalho and Ivanov (2024) discussed how ChatGPT and large language models in general can yield impacts on tourism industry stakeholders, including tourists, tourism managers, employees, and educators. The authors also highlight the challenges and risks of using ChatGPT such as overreliance on its output, potential job displacement, and cybersecurity threats. Similar benefits and threats of using ChatGPT in tourism and hospitality are discussed by Gursoy et al. (2023), who have also analysed the use of ChatGPT in different travel stages. Sop et al. (2024) examined a more specific issue regarding ChatGPT relating to data analytics and market intelligence and they proved the potential of ChatGPT in generating quantitative data sets for data fabrication purposes. Some studies (e.g., Solomovich and Abraham (2024) also examined the roles of personality and age in influencing tourism behavior related to ChatGPT. Despite the emerging research in ChatGPT use in tourism and hospitality (Carvalho & Ivanov, 2024; Gursoy et al., 2023), there are still gaps in understanding

the impacts of this technology within specific domains and issues in these sectors. Specific rather than general and wide discussions about the use and impact of ChatGPT in tourism can better reveal and thoroughly analyse domain-specific issues in different sectors of the industry. In this vein, , the present study charts a richer context-specific future research agenda that stimulates research ideas beyond examining adoption intentions and driving factors, as demonstrated by Solomovich & Abraham (2024).

This study seeks to comprehensively examine the use and implications of ChatGPT in tourism and hospitality by discussing the current and future state of the technology, while also suggesting an agenda and directions for future research. According to past studies, tourists' behavioral patterns, tourism and hospitality marketing and services, and cultural heritage are among the important research agendas in the field (Shin & Kang, 2023). In particular, preliminary findings based on consumers' and professionals' views highlighted that ChatGPT can attain marketing effectiveness similar to that of professional marketers, and serve as an active agent in the tourism and hospitality service value-creation processes (Demir & Demir, 2023; Zhang & Prebensen, 2024). From cultural and heritage perspectives, Fan and Chen (2024) integrate cultural perspectives into tourism resource classification and exploring how ChatGPT can aid in this process, while Lapp and Lapp (2024) assessed the viability of ChatGPT as a research tool for typological investigations of Roman clay oil lamps. Despite some limitations such as the tendency to generate incorrect or nonsensical information and lacking of detailed knowledge, ChatGPT demonstrated significant potential in cultural heritage tourism that is worth exploring. Furthermore, although ChatGPT is increasingly integrated with company knowledge management systems and decision support-systems across various industries, research in hospitality and tourism has failed to examine this so far (Dwivedi et al., 2024). Based on existing research and the experts' opinion, this study identified six specific areas (namely, tourism marketing and experience, hospitality services, cultural and heritage tourism, business intelligence and tourism analytics, travel services, and destination management) whereby ChatGPT has a considerable influence. The following discussion elaborates these areas and provides directions for future research

By compiling views solicited from international experts (Table 1), this groundbreaking opinion piece unveils profound insights into the evolutionary journey of an emerging technology that is fast (re)shaping the tourism and hospitality industry. Hence, the need and value of this research note is appropriate, as it provides a platform enabling a fast assimilation and dissemination of novel ideas (Dolnicar, 2019). Overall, the study provides a critical understanding of the ChatGPT's application for various tourism organisations, including accommodation providers, restaurants, travel agencies, destinations, and attractions managers. In terms of academic value, the study stretches beyond existing studies by discussing specific issues of ChatGPT's applications across multiple important domains within tourism and hospitality. To achieve this, the research note adopted the approach frequently used in similar studies (e.g. Dwivedi et al. 2023) which is the sourcing of insights from an invited list of established researchers. Finally, the study outlines a detailed research agenda that covers both conceptual and methodological perspectives to facilitate the academic community to advance understanding in the area.

**Table 1.** Authors' contributions per topic

*(Table 1 will be provided upon paper acceptance to maintain the anonymity of the authors.)*

## Methodology

To achieve the outlined objectives, the study follows Dwivedi et al. (2024) by adopting a multi-expert approach that brings together experts in the fields to explore key debates around the role of ChatGPT in shaping the tourism and hospitality industry (Table 1). Discussions are enriched by the unique insights and experiences of each contributor. This approach helps shed lights on underexplored subjects, offering new perspectives and encouraging further discussions on emerging topics not yet widely debated. Through their diverse viewpoints, contributors underlined the opportunities, challenges, and research directions that should be taken. The methodology employed is a scientific method which is typically used in situations where the topic is of broad interest to the general public or the academic community, and when the author aims to put forth novel perspectives on an emerging phenomenon. This approach soliciting opinions from expert contributors is well-recognized within the scholarly community, and particularly within studies aiming to examine emerging phenomena that their implications are still fluid such as generative AI and the metaverse (Dwivedi et al., 2023; Gursoy et al., 2023; Koohang et al., 2023; Sigala et al., 2024).

**Table 1.** Authors' contributions per topic

Contributions	Contributors
Introduction and Conclusion	Marianna Sigala, Keng-Boon Ooi, Eugene Cheng-Xi Aw, Yogesh Dwivedi
ChatGPT and Business Intelligence and Tourism Analytics	Alessandro Inversini and Meng-Mei Chen
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### ChatGPT and Business Intelligence and Tourism Analytics

ChatGPT and other Generative AI technologies provide synthesis and analytical capabilities to generate, edit and analyse content (e.g. photos, texts, videos) beyond the imaginable (Floridi, 2023). This can be used in business intelligence and tourism analytics to facilitate the following:

1. Knowledge management: Knowledge management is the process of collecting, compiling, analysing, and disseminating knowledge within an organisation (Korzynski et al., 2023). The use of ChatGPT will allow information to spread throughout the organisation, thus enhancing knowledge creation and dissemination for all, and fostering the creation of shared business intelligence.
2. Data collection and market research: ChatGPT will support the collection of data from different sources already available on the internet; however, responses will be limited to the domain knowledge it has acquired through its training data (Vasylykiv, 2023); on the other hand, the analysis of this data can help to gather insights into emerging trends, tourist behaviour, and preferences (Haluza & Jungwirth, 2023). Tourism stakeholders can then use this data to devise marketing strategies at different levels.

3. Data analytics: There are concerns about the analysis of large volumes of tourism-related data, such as booking data, customer feedback, and social media mentions, to provide insights into customer behavior, trends, and patterns (Paul et al., 2023). These data are the proprietary data of the business that can be submitted to generative AI (i.e., ChatGPT) for analysis with different prompting. In fact, ChatGPT and similar technologies have virtually no limit for analysing qualitative data (e.g., insights from unstructured text) and quantitative data (e.g., script or formula to analyse survey results). ChatGPT also offers the potential to analyse information in new and unimaginable ways as well as tests the implications of new data relations fast and efficient that humans cannot think and easily achieve.

4. Marketing automation: With ChatGPT, marketing automation can be scaled across companies, including small and medium enterprises. Given the amount of data and the speed of analysis, new performance indicators may appear soon and may be accessible to a larger audience such as advanced customer profiling (e.g. Bulchand-Gidumal, 2020) and advanced sentiment analysis (e.g. Sarker, 2021), which could facilitate the formulation of marketing course of actions (Paul et al., 2023).

Business intelligence and tourism analytics come with data-related and business analytics-related challenges. Data-related challenges, such as data authentication, verification, privacy, and accuracy, will be more prevalent than ever (Paul et al., 2023). The main challenge is the application of human judgment and critical thinking to assess the accuracy and usefulness of ChatGPT and, more in general, generative AI outputs (Floridi, 2023). Furthermore, business intelligence and tourism analytics through generative AI will unavoidably change the business processes and require resources and human capital to adapt (Mich & Garigliano, 2023).

ChatGPT and other generative AI technologies will impact business intelligence and business analytics unprecedentedly (Mich & Garigliano, 2023). Future research will most certainly focus on two major axes: (i) the high-tech and high-touch discourse (Wunderlich et al., 2013), that is to say, the extent to which technology could automate the business analytics and business intelligence of an industry based on the human touch and how this will create competitive advantages (Paul et al., 2023); (ii) the pure technological discourse (Mich & Garigliano, 2023), referring to the extent to which the development of these generative AI technologies would perfect data analysis and flatten the competitive analytics landscape. Along with these research avenues, the industry should also reflect on the needs in terms of the skills and knowledge of employees as well as the associated roles in the company (Benvenuti et al., 2023). The generative AI revolution for what concerns business intelligence and tourism analytics is here to stay, and new competencies are needed.

### **ChatGPT and Tourism Marketing and Experience**

Generative AI (such as ChatGPT) is one of the latest technological advances affecting the tourism industry. Since its launch, ChatGPT has been on the hype and global discussions by academia and industry alike. From an operational standpoint, ChatGPT functions similarly to the automated chat services or chatbots commonly found on customer service platforms utilised by various tourism and hospitality service providers. According to recent studies, ChatGPT has great potential to revolutionise tourism marketing and the way tourist experiences are designed, promoted, and delivered (Carvalho & Ivanov, 2023; Gursoy et al., 2023; Mich & Garigliano, 2023). For example, ChatGPT empowers tourism marketers by augmenting their capabilities to handle customer inquiries and provide personalised customer service in a fast

and effective way, while it also represents a cost-effective marketing tool with intelligent automation to provide customers with personalised information about promotions, discounts, generate customised itineraries and facilitate travel planning and bookings in a personalised, conversational and 24/7 way.

However, despite its huge marketing potential and numerous industry experiments with this technology, the current research focusing on generative AI and ChatGPT is still relatively scarce and in its infancy (Gursoy et al., 2023; Dwivedi et al., 2023a). More research is required to provide a more in-depth understanding of this technology's use, adoption, and implications for tourism providers and tourists alike. To inspire such research, the following future research directions are proposed:

- 1) How does ChatGPT influence the tourists' perceptions, willingness to travel, and behaviour when deciding which destination to travel?
- 2) Does the use and implications of ChatGPT affect the tourists' behaviour and perceptions similarly or differently during the various stages of the decision-making process, i.e. before, during, and after the trip?
- 3) Does the use of ChatGPT in marketing and customer service affect the way tourists perceive and live tourism experiences?
- 4) What are the preferred and/or most effective ChatGPT interface designs for tourism businesses and tourists?
- 5) How does ChatGPT's use in marketing affect the roles, job descriptions, and skills of marketing staff in tourism?
- 6) Is there any performance/productivity impact of ChatGPT on the tourism marketing function and staff?

### **ChatGPT and Hospitality Services**

The integration of ChatGPT in hospitality services supports the creation of a smart hospitality ecosystem in which automation leads to greater efficiency, improved sustainability, and augmented customer experiences (Buhalis et al., 2023). Smart hospitality ecosystems include hospitality operators and their employees and guests, asset owners, chains/franchisors, concessionaires, suppliers (e.g., technology service providers and cleaning and maintenance companies), travel intermediaries, and many other potential players. Within this smart hospitality ecosystem, ChatGPT has the potential to affect all dimensions of hospitality operations that rely on or greatly benefit from intelligence automatically derived from large amounts of external or internal data. It can also facilitate those interactions between the various ecosystem players that can be automated.

Carvalho and Ivanov (2023) list a range of ways in which ChatGPT can support back-office operations and business management processes. Most of their examples focus on ChatGPT's language processing capability to manage textual data (e.g., emails, complaints and reviews, meeting notes, and job applications), but they also offer insights on how hospitality businesses can use ChatGPT's generative capabilities to draft various documents (e.g., job descriptions, pet policies, business presentations, marketing materials, legal documents). Mich and Garigliano (2023) add writing and testing software as an important generative capability. Carvalho and Ivanov (2023) further describe ChatGPT's interactive/conversational capabilities

as providing various avenues for facilitating communication with different stakeholders, from employees to customers, and for supporting more human-centric interactions with existing systems, including revenue management or decision support systems.

Computationally intensive processes within human resources management, like scheduling and compensating staff, are also area in which ChatGPT can reduce errors and optimise operations. Generative AI's ability to process visual data means that these programs can further be used to monitor facilities and improve the efficiency of cleaning operations. Importantly, it can use surveillance footage to monitor staff and guest behaviors and enable the detection of safety issues. Doing so can prevent accidents, facilitate property maintenance and repair, reduce losses because of theft, or identify cases of human trafficking on hospitality properties.

While many of these described benefits for business operations relate to automation and increases in efficiency that result in cost reduction, the existing literature also provides examples of ChatGPT's potential to foster creativity and innovation (e.g., by providing menu ideas or identifying new target markets). These aspects of ChatGPT promise superior offerings that increase competitiveness and customer retention. Mich and Garigliano (2023) and Dwivedi et al. (2023b) also highlight ChatGPT's potential role in increasing the sustainability of hospitality operations through streamlining energy consumption or avoiding waste and nudging customers towards more sustainable options. The high energy consumption of ChatGPT and, therefore, high societal cost are usually not discussed.

According to Dwivedi et al. (2023b), ChatGPT's potential as a customer-facing technology in hospitality contexts lies in offering enhanced customer relationship management (e.g., the handling of queries and complaints), but also in supporting sales by creating more personalised options, acting as a recommender agent that can up- or cross-sell, or facilitating booking processes. ChatGPT itself mentions its capability to relay information received from customers to the appropriate departments within a hospitality operation and its ability to elicit feedback and encourage customers to submit reviews to online review platforms. Carvalho and Ivanov (2023) discuss ChatGPT's potential to support branding efforts through "themed" chatbot experiences. Gursoy, Li and Song (2023), among others, mention the opportunity to provide hospitality services in multiple languages. The emphasis in these discussions is mainly on efficient, convenient, and satisfactory customer experiences (Gursoy et al., 2023). According to Ruel and Njoku (2021), AI applications like ChatGPT not only directly but also indirectly affect customer satisfaction by increasing employee engagement, retention, and productivity.

Importantly, ChatGPT offers opportunities across Neuhofer et al. (2014)'s experiential hierarchy (from technology-assisted and technology-enhanced to technology-empowered experiences) and across all touchpoints along the hospitality customer journey. Existing literature mentions informational, learning, and optimisation opportunities for all experience stages. Dwivedi et al. (2023b) and Gursoy et al. (2023) also highlight that ChatGPT allows for customer experiences to be extended to virtual environments, thus supporting hospitality experiences in the Metaverse. However, customers might also use ChatGPT and applications that integrate it on their own accord (Carvalho & Ivanov, 2023), leaving hospitality service providers with less control over the customer experience.

What is currently missing from the hospitality literature is a conceptualisation of ChatGPT and related generative AI applications beyond efficiency and satisfaction. Creating

services that lead to delight, entertainment, and meaningful experiences requires more intricate conceptualisations of ChatGPT-mediated co-creation among the various hospitality service providers in the smart hospitality ecosystem (Buhalis et al., 2023).

Research questions that need to be answered regarding ChatGPT's role in hospitality services broadly pertain to the following areas:

1. Are there productivity paradoxes or efficiency thresholds connected to the use of ChatGPT in hospitality operations?
2. How does ChatGPT transform hospitality establishments as workplaces?
3. What impacts does ChatGPT have on the relationships among the various players within the smart hospitality ecosystem?
4. What dimensions of hospitality experiences beyond satisfaction are or can be affected by the use of ChatGPT?
5. Does the role of ChatGPT differ across the many types of hospitality services, especially in relation to the level of service provided (luxury versus budget)?

### **ChatGPT and Tourism and Travel Services**

The application of generative AI in the tourism industry can enhance the consumer experience, streamline the digital customer journey, and improve operations and the overall working experience of staff members in the industry (Wong et al., 2023). ChatGPT can revolutionise travel services by comprehensively responding to natural language inquiries. It answers travel inquiries, constructs itineraries, and provides support for hotel reservations, ground transfers, and flight scheduling (Dwivedi et al., 2023b). Travel organisations use ChatGPT to create travel itineraries and new products for specific target markets (Wong et al., 2023). By considering constraints such as budget, time, specific interests, and desired destinations, ChatGPT can design optimal itineraries on must-see sites for a particular target demographic. By supporting real-time translations, it facilitates traveller communications. ChatGPT supports high-volume queries simultaneously, 24/7, freeing up service representatives to focus on more complex issues. ChatGPT provides tour descriptions, destination guides, and positioning statements and translates content supporting global tourism marketing. ChatGPT also improves marketing by generating collateral, articles, and images for travel blogs, social media, and emails (Carvalho and Ivanov, 2023). This can indirectly help gain new potential customers, leading to higher bookings. Eventually, ChatGPT will revolutionise travel distribution and attribution.

While ChatGPT has potential benefits, its usage also comes with challenges. According to the study by Grundner and Neuhofer (2021), overreliance on AI can diminish the quality of travel experiences and increase overall stress levels. This occurs when there is multiple pieces of information are being shared with travellers. Moreover, Carvalho and Ivanov (2023) argue that tourists may lack the necessary skills to engage effectively with ChatGPT. ChatGPT does not seek clarification through questions, as a travel agent would do, thus limiting the advantages of personalised services. ChatGPT has also been trained with multiple datasets, including inputs generated from interactions with its users. This could lead to inaccurate information (Mich and Garigliano, 2023). Additionally, the creation of false information regarding a travel destination or tourism organisation will become more complex (Carvalho and Ivanov, 2023). Such incidents can potentially harm the reputation of tourism organisations and destinations. Furthermore, ChatGPT does not include destination branding strategies or

specific tourism organisation norms and values (Carvalho and Ivanov, 2023). This represents a challenge for organizations with limited resources as they need to incorporate the language models into their chatbots. Trust is a critical issue in adopting ChatGPT in the tourism industry, as customers accustomed to receiving service from human employees might be reluctant to engage with chatbots (Dwievedi et al., 2023a). ChatGPT contains vast information on travellers' personal data, such as demographic profiles, browsing history, and what information a customer requires privacy. Hackers could exploit data to gain travel behaviour insights for targeted advertising, which may lead to privacy issues (Koohang et al., 2023). Further research should explore ChatGPT futures from both traveller's and tourism organisation's viewpoints. What are the technical challenges for AI and Machine Learning, particularly for tourism? Which drivers and barriers (e.g., internal and external) determine ChatGPT use in travel? How will the usage of ChatGPT influence travellers' customer journeys? How will ChatGPT use lead to brand loyalty, customer engagement, reviews, and ratings? How should tourism organisations address issues raised by ChatGPT use, such as information accuracy, trust, and privacy concerns? More investigation is also needed in safeguarding user data and how tourism-related organisations comply with data protection regulations. Finally, the travellers' human-computer interaction and conversational experience with ChatGPT needs to be explored to improve usability, engagement, and user experience as well as integrate gamification.

### **ChatGPT and Cultural/Heritage Tourism**

The cultural heritage visitor experience has been enhanced by extended reality (XR), which combines immersive technology, such as augmented reality (AR), virtual reality (VR), and intelligent AI technology (Jung et al., 2023). Recently, ChatGPT, one of the generative AI tools, has attracted the attention of cultural heritage tourism organisations due to its potential for a transformational impact on the future of cultural heritage tourism.

The deployment of ChatGPT in cultural/heritage tourism has multiple opportunities. ChatGPT can be used to provide visitors with real-time, personalised experiences according to individual visitors' interests and previous interactions (Gursoy et al., 2023). For example, ChatGPT can be used to create a personalised guide and provide recommendations to each visitor according to their interests. In addition, ChatGPT could be used to create a game based on historical events in cultural heritage sites and allow visitors to play role-playing games where they take on the role of a historical figure. This could provide a more interactive and immersive cultural heritage experience in the metaverse space in a fun and engaging way. This could lead to an enhanced learning experience and increased engagement via a co-created visitor experience in the Metaverse. Furthermore, ChatGPT could be used for increased accessibility, especially for visitors with disabilities, by providing audio descriptions of cultural heritage sites for blind visitors or by creating sign language interpretations for deaf visitors.

One of the main challenges is the cost and responsibility of developing and maintaining a ChatGPT chatbot (Gursoy et al., 2023) in the context of cultural heritage tourism. Other issues include the low quality of response and generation of false information about cultural heritage (e.g. hallucination effect). For example, ChatGPT could provide false information about the history and significance of the Great Wall of China where the text of ChatGPT claims that it was built to keep out of the Mongols, but actually, it was built for other purposes such as defence and communication. In order to overcome these, ChatGPT chatbots need to be



integrated with existing information systems by cultural heritage tourism organisations for free access to visitors. Further, the use of AI-enabled digital humans in the cultural heritage metaverse space will raise ethical issues such as privacy, trust, and digital identity (Dwivedi et al., 2023a).

Research agenda related to ChatGPT in cultural heritage tourism are as follows:

- What is the role of ChatGPT to enhance the visitor experience, and how can cultural heritage tourism organisations create a positive visitor experience using ChatGPT?
- How can ChatGPT (co)create value for visitors and cultural heritage tourism organisations?
- How can ChatGPT and immersive tech (AR/VR) combine to provide an extended reality (XR) cultural heritage tourism experience in the context of the Metaverse?
- What are the legal and compliance implications for cultural heritage organisations when integrated with ChatGPT and existing cultural heritage tourism information systems?

### **ChatGPT and Destination Management**

ChatGPT is a disruptive technology that tackles the enduring challenges of destination management organisations (DMOs) and strengthens public-private partnerships in tourism. Specifically, as one of the official promotion channels of destinations, DMOs play a crucial role in disseminating information that represents destination personality (Huang et al., 2023). Usually, driven by strategic management, a destination image demystified by DMOs is finite and directional. Therefore, ChatGPT advances DMOs to achieve their ultimate mission of destination development by synthesising the co-created value of destination stakeholders (e.g., governments, suppliers, and residents). The broad accessibility of ChatGPT enables tourists to efficiently obtain a holistic image of destinations through colossal user-generated content.

ChatGPT empowers destination development by facilitating DMOs to develop attractive, sustainable, and safe destinations through the following predominant aspects: destination marketing, resource allocation, and destination governance. ChatGPT offers immense opportunities for destination marketing by organising extensive destination information and generating specific and personalised travel packages for tourists. Meanwhile, DMOs can adjust the promotion contents of ChatGPT according to actual development needs, thereby providing convenience for improved allocation of tourism resources and avoiding overtourism. In particular, recommendations provided by ChatGPT enable more tourists to access niche attractions or start-up hotels, achieving balanced and sustainable development of destinations. Furthermore, ChatGPT can contribute to destination governance, particularly in crisis management. ChatGPT can provide tourists with the most updated security or emergency information at the fastest speed.

Although ChatGPT can be used to enhance destination management, researchers and practitioners are concerned with several issues related to ChatGPT-generated content, including bias and misinformation (Teubner et al., 2023). The main reason is that ChatGPT is an LLM tool trained by online text. That is, ChatGPT is only responsible for presenting the analysis results of textual materials without evaluating the moral issues and accuracy of contents. Therefore, bias (e.g., racial discrimination) or fake news related to destinations in existing

online content will also be extracted and delivered to the public. In addition to the content, unequal accessibility and privacy leakage are other major issues influencing the adoption of ChatGPT in destination management.

Research on the following topics potentially clarify the prospect of ChatGPT:

- How does ChatGPT enhance the competitiveness of destination management?
- How can ChatGPT ensure the fairness and accuracy of destination information?
- How can ChatGPT convey and ensure the authenticity of destination information?

## **Conclusion**

In conclusion, the study indicates that ChatGPT holds substantial promise for improving many aspects of hospitality and tourism management, including improving customer service experience personalisation, streamlining marketing endeavours, and promoting administrative effectiveness. Our research note contributes to the hospitality and tourism literature by discussing the potential integration of ChatGPT in different hospitality and tourism domains. Despite the burgeoning research about ChatGPT in the information systems field, we argue that distinct aspects of the tourism and hospitality sector require context-specific insights. Unlike general management of information systems, integrating ChatGPT in hospitality and tourism entails the consideration of the industry's nature (i.e., service-focused), the necessity for individualized experiences, and awareness of cultural nuances (Demir & Demir, 2023; Shin & Kang, 2023; Wong et al., 2023). For instance, travelling involves specific stages, requirements and activities during the whole journey of the tourists' experience that are different from other industries. The need for ChatGPT to cater to the diverse and complex needs that arise within the tourism and hospitality sector presents a unique challenge for research and application that stands out from the typical issues found in the wider field of information systems and management. The current study highlights specific research questions (see Table 2) pertaining to the role of ChatGPT spanning across different domains of tourism and hospitality that necessitate further exploration. As an opinion piece, our study is inherently limited in terms of empirical validation and subjective perspectives. It facilitates a dialogue that can result in more comprehensive and inclusive approaches to understanding and guiding the development of emerging technologies, including ChatGPT and others. Future research can conduct empirical studies to address the proposed research questions and perform a systematic review upon maturity of the subject area.

Table 2. Research Areas and Research Questions

Area	Research Gap	Research questions
Business Intelligence and Tourism Analytics	There is a lack of understanding of how real-time data provided by ChatGPT can be effectively integrated into existing tourism analytics frameworks to predict future tourism trends.	<ul style="list-style-type: none"> <li>• How would ChatGPT revolutionize tourism analytics?</li> <li>• What are the expected new competencies required from tourism practitioners?</li> </ul>
Tourism Marketing and Experience	Insufficient exploration of the psychological impact of ChatGPT interactions on tourist experience and decision-making processes.	<ul style="list-style-type: none"> <li>• Does the use and implications of ChatGPT affect the tourists' behaviour and perceptions similarly or differently during the various stages of the decision-making process, i.e., before, during, and after the trip?</li> <li>• Does the use of ChatGPT in marketing and customer service affect the way tourists perceive and live tourism experiences?</li> </ul>

<p>Hospitality Services</p>	<p>Scant understanding regarding the operational challenges and opportunities of integrating ChatGPT in hospitality services.</p>	<ul style="list-style-type: none"> <li>• Are there productivity paradoxes or efficiency thresholds connected to the use of ChatGPT in hospitality operations?</li> <li>• How does ChatGPT transform hospitality establishments as workplaces?</li> <li>• What impacts does ChatGPT have on the relationships among the various players within the smart hospitality ecosystem?</li> <li>• What dimensions of hospitality experiences beyond satisfaction are or can be affected by the use of ChatGPT?</li> <li>• Does the role of ChatGPT differ across the many types of hospitality services, especially in relation to the level of service provided (luxury versus budget)?</li> </ul>
<p>Tourism and Travel Services</p>	<p>Lack of research on overcoming technical and infrastructural barriers to the adoption of ChatGPT and associated implications on travellers' service consumption journey.</p>	<ul style="list-style-type: none"> <li>• What are the technical challenges for AI and Machine Learning, particularly for tourism?</li> <li>• Which drivers and barriers (e.g., internal and external) determine ChatGPT use in travel?</li> <li>• How will the usage of ChatGPT influence travellers' customer journeys?</li> <li>• How will ChatGPT use lead to brand loyalty, customer engagement, reviews, and ratings?</li> <li>• How ChatGPT can be developed as a methodology for analyzing tourism and travel service journeys (e.g., collection and comparative analysis of travel narratives)?</li> </ul>

Cultural/Heritage Tourism	There appears to be a lack of studies on how ChatGPT can be used to enrich cultural and heritage tourism experiences without compromising authenticity or cultural sensitivity.	<ul style="list-style-type: none"> <li>• What is the role of ChatGPT in enhancing the visitor experience, and how can cultural heritage tourism organisations create a positive visitor experience using ChatGPT?</li> <li>• How can ChatGPT (co)create value for visitors and cultural heritage tourism organisations?</li> <li>• How can ChatGPT and immersive tech (AR/VR) combine to provide an extended reality (XR) cultural heritage tourism experience in the context of the Metaverse?</li> <li>• What are the legal and compliance implications for cultural heritage organisations when integrated with ChatGPT and existing cultural heritage tourism information systems?</li> </ul>
Destination Management	There is limited research on the strategic use of ChatGPT in destination management for competitiveness, sustainability, and stakeholder engagement.	<ul style="list-style-type: none"> <li>• How does ChatGPT enhance the competitiveness of destination management?</li> <li>• How can ChatGPT ensure the fairness and accuracy of destination information?</li> <li>• How can ChatGPT convey and ensure the authenticity of destination information?</li> </ul>

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