

## Article

# How Can Chatbots Help Companies to Improve the Customer Experience Offered to Their End Users/Customers in the Tourism Industry?

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## Abstract

This study examines the intention of Greek tourists who visit national touristic destinations to adopt Artificial Intelligence (AI) chatbots in the tourism sector. Using the UTAUT2 model as a framework, data were collected through a closed-ended questionnaire and analyzed with correlation and regression methods to identify the main drivers and barriers to this adoption. Results show that specific factors such as performance expectancy, hedonic motivation, and perceived innovativeness significantly and positively influence chatbot usage, emphasizing the role of usefulness, enjoyment, and innovation in shaping user acceptance. Conversely, factors such as inconvenience, habit, and difficulty of use negatively affect adoption, indicating the importance of overcoming usability challenges and resistance to change. These findings highlight the need for the development of accessible and engaging chatbot systems and underscore the value of continuous technological improvements. The study concludes that adopting AI-driven solutions can help tourism providers personalize services, improve operational efficiency, and enhance customer satisfaction, fostering sustainable competitiveness in the sector.

**Keywords:** artificial intelligence; tourism and hospitality industry; customer experience; chatbots



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## 1. Introduction

Artificial Intelligence (AI) has become a transformative force across industries, reshaping business models and redefining customer engagement (Usman, 2024). In tourism, these changes are closely tied to broader developments in information and communication technologies (ICTs), which have steadily altered the way travelers plan, book, and experience their journeys. ICT-driven innovations such as online booking platforms, digital recommendation systems, and mobile applications have created new expectations for convenience, personalization, and real-time interaction (Venkatraman & Kurtkoti, 2024; Traversa, 2024). Within this evolving landscape, AI has emerged as a catalyst for further

change, enhancing operational efficiency, enabling predictive analytics, and supporting tailored service delivery (Tussyadiah, 2020; Moilanen, 2023; Ma, 2024).

Among the most visible applications of AI in tourism are chatbots and virtual assistants. These tools streamline booking procedures, provide instant responses to customer queries, and generate personalized travel suggestions (Gretzel et al., 2015; Rather, 2024; Dutta, 2024). In addition, AI-powered analytics allow tourism providers to better understand customer preferences and behavior, fostering deeper insights into market trends and facilitating the creation of memorable travel experiences (Choi & Kim, 2024; Doğan & Niyet, 2024). Complementary tools such as automated translation systems and augmented or virtual reality applications further enhance accessibility, especially for international visitors (Ivanov & Webster, 2019). By simplifying processes and supporting adaptive decision-making, AI technologies are helping the tourism industry remain competitive in a rapidly evolving environment (Ma, 2024; Talukder & Muhsina, 2024).

This study focuses on the adoption of AI-based chatbots in the Greek tourism sector. Greece was selected as the research context due to its reliance on tourism as a key driver of the economy and its diverse tourist base, which makes it an ideal setting for examining technology acceptance patterns. Despite the increasing role of AI in global tourism, little empirical research has been conducted on how Greek tourists, in particular, perceive and adopt chatbot technologies. This creates a gap in the literature that this study seeks to address by examining the behavioral and perceptual factors influencing adoption.

The research draws on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model to analyze constructs such as performance expectancy, effort expectancy, social influence, habit, hedonic motivation, and perceived innovativeness. Through this lens, the study aims to assess not only the functional and emotional drivers of chatbot adoption but also the barriers that may hinder their acceptance. An especially noteworthy aspect concerns the negative role of habit (propensity): Greek tourists with well-established routines in planning and scheduling their trips may perceive chatbots as unnecessary or even disruptive. The effort required to change existing practices can discourage the use of chatbot technologies, reinforcing resistance to new digital tools.

Tourists differ significantly from general digital consumers, making their intentions to use chatbots a distinct area of investigation. First, tourism consumption is multi-stage and highly mobile, spanning pre-trip planning, on-site experiences, and post-trip reflections, often conducted under time pressure on smartphones. This makes tourists' information needs and responsiveness expectations unique compared to static e-commerce contexts (Lin et al., 2022). Second, tourism decisions involve high uncertainty and perceived risk, as travelers deal with unfamiliar destinations, non-refundable bookings, and time-sensitive services, which increases the importance of trust, competence, and reliability in chatbot interactions (Tussyadiah, 2020). Third, tourists pursue both hedonic experiences, such as exploring attractions, and utilitarian tasks, such as booking tickets, meaning their adoption of chatbots depends on balancing emotional and functional needs (Chi et al., 2020, 2022).

In addition, the hospitality context is inherently interpersonal, meaning social presence, anthropomorphism, and trust play a stronger role in tourists' willingness to adopt chatbots than in many other consumer sectors (Tussyadiah et al., 2020; Xu et al., 2024). Situational factors also shape behavior, as studies show that conditions such as crowding can shift tourists' preferences between human staff and automated service, influencing their readiness to use chatbots in real time (Li et al., 2020). Moreover, because tourism involves diverse nationalities and cultures, cross-cultural differences in trust and acceptance strongly affect chatbot adoption, making global generalizations problematic (Lu et al., 2023). Psychological mechanisms further distinguish tourists from other consumers: for example, framing chatbots as "friends" versus "strangers" has been shown to influence adoption

decisions in travel contexts (Scarpi et al., 2024). Finally, tourism-specific use cases (such as itinerary planning, in-destination navigation, and sustainability guidance) highlight the need for sector-specific models of chatbot adoption (Tussyadiah, 2020). Collectively, these factors illustrate why tourists are distinct consumers and why their intentions to use chatbots have attracted scholarly attention.

Although AI has been widely studied in tourism and hospitality, empirical work that focuses specifically on chatbot adoption by tourists remains limited. Existing studies on AI in tourism often examine automation or service robots broadly (Gretzel et al., 2015; Tussyadiah, 2020) or address managerial perspectives rather than the consumer side. Only a few works investigate how travelers themselves perceive and adopt chatbots for tourism purposes (Melián-González et al., 2021; Scarpi et al., 2024). This scarcity highlights a clear research gap, as tourists differ fundamentally from other digital consumers: their decisions involve higher uncertainty, hedonic as well as utilitarian needs, and cultural influences that shape trust and acceptance (Chi et al., 2020, 2022; Tussyadiah et al., 2020). By situating chatbot adoption within this context, the present study directly addresses this gap and contributes to advancing sector-specific knowledge.

The significance of this study lies in its dual contribution. Academically, it extends the application of UTAUT2 by contextualizing it within tourism and by addressing the under-explored case of Greek tourists. Practically, the findings can help tourism stakeholders design chatbot systems that are user-friendly, innovative, and enjoyable, while minimizing obstacles related to usability and resistance to change. These insights are vital for companies aiming to enhance customer satisfaction and strengthen competitiveness through AI.

The remainder of this paper is structured as follows: Section 2 reviews the interaction between AI, chatbots, and customer experience. Section 3 presents the theoretical framework, outlining the UTAUT2 constructs relevant to this research. Section 4 details the research methodology, including data collection and analysis procedures. Section 5 discusses the findings, while Section 6 concludes with implications, recommendations, and directions for future research.

## 2. Artificial Intelligence, Chatbots and Customer Experience

### 2.1. Customer Experience in the Tourism and Hospitality (T&H) Industry: Evolution and the Role of AI

Customer experience in the Tourism and Hospitality (T&H) sector has undergone profound alterations over the years, shaped by historical developments and technological progress. From the inception of organized travel, hospitality has steadily played a pivotal role in peoples' interactions, emphasizing service quality and guest satisfaction. In earlier periods, communication tools such as face-to-face interaction, traditional mail, and telephones were central to shaping the guest experience and maintaining customer relationships, before being gradually complemented and later transformed by digital technologies (Buhalis & Law, 2008; Ivanov & Webster, 2019; Hoyer et al., 2020).

In its early days, customer experiences were rooted in face-to-face interactions and word-of-mouth recommendations, with personalized service often considered a hallmark of luxury. However, as technology advanced, so too did the strategies for enhancing customer experiences in the T&H sector. The advent of online booking, internet and platforms revolutionized customer engagement, offering greater convenience and accessibility. These innovations empowered customers to take greater control over travel and accommodation choices. Yet, this digital shift also presented challenges for businesses, particularly in maintaining the personal touch that defines exceptional service (Hoyer et al., 2020).

More recently, artificial intelligence (AI) has emerged as a transformative tool for improving customer experience in the T&H industry. AI encompasses technologies such as

natural language processing (NLP), machine learning (ML), and robotics, which are being applied in many ways within the sector. As (Milton, 2023) highlight, AI is reshaping key areas of tourism and hospitality:

- **Personalized Recommendations:** AI algorithms analyze customer data to deliver tailored suggestions and experiences based on individual preferences and behaviors. For instance, hotels can deploy AI-powered chatbots to suggest personalized amenities and activities aligned with guests' profiles.
- **Enhanced Customer Service:** AI-driven chatbots and virtual assistants provide 24/7 support, addressing inquiries and offering multilingual assistance. This technology improves response times and ensures consistent service quality across all touch points.
- **Predictive Analytics:** By leveraging AI, businesses can analyze large datasets to forecast demand trends, optimize pricing strategies, and anticipate customer preferences. These insights enable better resource distribution and marketing tactics, ultimately enhancing customer comfort.
- **Process Automation:** Automation is becoming more common, with robotics and AI-powered systems handling tasks such as check-in/check-out processes, room service delivery, and inventory management. These technologies streamline operations, reduce errors, and free up staff to focus on creating meaningful, personalized interactions.

AI technologies are instrumental in elevating customer experiences within the T&H industry through improving satisfaction, streamlining operations, and encouraging customer loyalty. However, it is essential for businesses to strike a balance between leveraging technological innovations and maintaining the human connection that is at the heart of authentic hospitality. Genuine service often depends on human empathy and comprehending, and the efficient integration of AI must prioritize synergy between technology and human interaction rather than its replacement (Buhalis & Moldavska, 2022).

## 2.2. AI-Powered Chatbots in the Tourism Sector

AI-powered chatbots have become an integral part of the tourism industry. The term "chatbot" is derived from a combination of "chat" and "robot", reflecting their primary function -simulating human-like conversations. Essentially, chatbots are computer applications designed to engage users in natural conversations using Natural Language Processing (NLP). The concept of chatbots dates to 1966 with the creation of ELIZA, the first chatbot, which was designed to mimic human interaction and give users the impression they were conversing with a real person. Since then, chatbots have advanced significantly and are now widely utilized, particularly in customer support roles. In recent years, the tourism sector has embraced the growing capabilities and proven value of chatbots. With an increasing demand for reliable and immediate information among travelers, travel chatbots have been evolved to address these necessities and enhance the overall travel experience. These bots assist tourists with various perspectives on their journey, such as booking accommodation, offering travel ideas, and providing personalized recommendations.

Tourism chatbots can be categorized into three distinct types based on their platform integration, level of sophistication, and recommendation capabilities (Huseynov, 2023): (i) Facebook Chatbots: Integrated into social media platforms, these bots engage users directly through popular communication channels, (ii) Customer Service Bots: Focused on providing support, these bots handle inquiries, resolve issues, and improve response efficiency, (iii) AI-Driven Travel Bots: The most advanced type, these bots leverage artificial intelligence to offer personalized recommendations and tailored travel experiences based on user preferences.

### 2.2.1. Customer Service Travel Bots

Customer service bots represent the most basic type of chatbots commonly seen on websites of travel companies. The above automated bots rely on predefined responses and are primarily designed to assist users with website navigation rather than handling bookings or more complex tasks. The deployment of customer service chatbots was more widespread a few years ago compared to today. This decline suggests that many travel companies have recognized the restrictions of these early, underdeveloped bots and opted to delete them from their websites. Few of companies that have taken this measure include Booking.com, On the Beach and TAP Portugal. Despite this trend, some companies continue to offer customer service travel bots, such as Copa Airlines, Amtrak, and Air New Zealand. These bots remain useful for addressing basic customer inquiries and improving accessibility for users (Zlatanov & Popesku, 2019).

### 2.2.2. Chatbots on Facebook Messenger in the Tourism Sector

Chatbots integrated into Facebook Messenger offer a wide range of opportunities for travelers. Beyond helping users navigate specific pages, these chatbots enhance engagement by enabling booking through interactive, two-way conversations. Although users still need to place the same data required for independent booking, Facebook chatbots have demonstrated optimistic outcomes in terms of user satisfaction and prove to be a valuable investment for businesses. By 2018, there were 300,000 active chatbots on Facebook Messenger—three times the number from the last year. Among these, Expedia's chatbot is recognized as one of the most successful examples (Zlatanov & Popesku, 2019). To use Expedia's chatbot, users simply log in to their Facebook accounts then navigate to Expedia's page, and the chat window shall appear automatically. However, the Expedia chatbot has certain limitations: while it assists with accommodation bookings and travel management, it does not support flight searches, car rentals and cruises.

Another notable example is the Skyscanner chatbot, which excels at finding affordable trip options from near airports and scheduling flights based on price, duration, and quality. For travelers looking for inspiration, they can just type "anywhere" to receive a range of engaging travel suggestions. The Kayak chatbot, available on Facebook Messenger, is among the most comprehensive. It provides services for flights, hotels, rental cars, activities, and trip updates. Its standout feature is memory retention, which allows it to use past discussions and Kayak search history to offer personalized recommendations. Both the Kayak and Skyscanner chatbots are accessible across multiple platforms, including Facebook Messenger, Slack, Skype, Amazon Alexa, and Google Assistant. These platforms highlight the adaptability of travel chatbots and their growing utility. In addition to airlines and travel search engines, some tourist boards are leveraging Facebook chatbots. A noteworthy example is the Faroe Islands Tourist Board, which offers a chatbot accessible not only through their official Facebook page but also via their website using the Facebook Messenger extension.

### 2.2.3. Advanced Chatbots with Recommendation Capabilities

While chatbots in this category extend to use instant messaging in order to interact with users, they stand except for simpler types by offering personalized recommendations. These capabilities are enabled through sophisticated algorithms, access to extensive information, and integration with other applications. One notable example is KLM Royal Dutch Airlines' chatbot, BB. In addition to aiding via Facebook Messenger for tourists, BB offers a unique feature: helping users pack for their journey (Zuraida et al., 2024). By providing the trip's date, destination, and duration, users can receive a comprehensive packing list tailored to

their needs. This feature is available through Google Home Assistant, making it accessible and user-friendly.

Another example is Hello Hipmunk, a virtual assistant designed to assist users with planning and booking trips (Zlatanov & Popesku, 2019). What sets Hello Hipmunk apart is its integration with users' email and calendar information, enabling it to generate customized travel suggestions. It can create detailed travel plans that users can share with others, such as family or coworkers, streamlining collaboration on trip planning. For frequent travelers and small businesses, the HelloGBye travel assistant offers a specialized solution. Unlike other chatbots, HelloGBye is a standalone application, currently available exclusively on iOS. Although it requires purchase, its ability to handle complex travel requests for multiple users, providing comprehensive flight and hotel schedules within 30 s makes it a valuable tool for its target audience. A more recent innovation in AI-powered chatbots is Sam (Deng & Yu, 2023). While it can be used by individual travelers, Sam is particularly beneficial for frequent fliers and business travelers. Its functionality includes:

- Booking flights and consolidating trip details into a user-friendly itinerary.
- Providing real-time updates, such as weather conditions, to help users prepare and pack accordingly.
- Coordinating transportation to the airport with authorized local services.
- Supplying baggage claim details upon arrival and notifying the family of a safe flight.
- Offering a tour guide for the destination and ongoing trip updates, such as traffic conditions and flight delays.

Sam achieves these features through seamless integration with platforms like Uber, Avis, and Google Maps. By combining practical assistance with real-time support, it enhances the travel experience for both individual and business users.

### 2.3. Previous Research on the Role of AI in Customer Engagement

Research by Tula et al. (2024) highlights that chatbots and virtual assistants hold significant potential as tools for engaging with customers. However, the study emphasizes the importance of properly training these tools and integrating them with human agents to handle more complex inquiries effectively. Studies have explored the use of chatbots and virtual assistants in customer engagement (Table 1).

On the other hand, there are some studies that highlight the challenges with chatbot accuracy. A challenge arising with chatbots and virtual assistants is ensuring they're accurate. In a PwC survey, 55% of customers claimed chatbots failed to address their issues successfully. Organizations therefore need to train these systems thoroughly and back them with workflows that can escalate complex queries to humans when needed (Tula et al., 2024). Personalized marketing poses a related hurdle: keeping the data that powers recommendations both reliable and up to date. Rolling out personalization demands significant investment in analytics tools, technology platforms, and skilled staff. Firms must be careful not to overextend themselves and must focus on delivering customer value without coming across as intrusive or off-putting. Companies must ensure that their chatbots and virtual assistants are adequately trained and equipped with systems to handle intricate inquiries that necessitate human participation (Tula et al., 2024). Furthermore, an obstacle in personalized marketing and suggestions lies in guaranteeing the accuracy and currency of the data utilized to personalize the user experience. Implementing personalized marketing strategies necessitates substantial resources, such as data analytics tools, technological platforms, and proficient individuals. Companies must use caution to avoid exceeding their limits and ensure that they deliver value to customers without being excessively disagreeable. Companies must achieve an optimal equilibrium between automation and human contact to ensure a favorable client experience. An Accenture study revealed that

60% of customers express apprehension regarding the protection of their data, while 48% express anxiety about the veracity of the suggestions they receive ([Accenture, 2018](#)).

**Table 1.** Systematization of research on the use of chatbots and virtual assistants in customer engagement.

| Benefit                               | Analysis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Improved customer satisfaction</b> | In today's technological era, individuals increasingly favor the convenience of online purchasing. Studies consistently show that customers are generally satisfied with chatbot and virtual assistant interactions. An analysis of user preferences revealed that 63% of customers prefer engaging with chatbots and virtual assistants, while a survey by HubSpot found that 47% are willing to make purchases through these tools. These findings suggest that chatbots and virtual assistants can significantly enhance customer satisfaction by providing faster and more convenient support ( <a href="#">Tula et al., 2024</a> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Cost savings</b>                   | Chatbots and virtual assistants also lead to significant cost savings for both customers and companies. For businesses, these tools reduce expenses by minimizing the need for human staff to handle basic customer support queries. For customers, they save time—equivalent to saving money—and reduce fuel costs by eliminating the need for in-person visits. According to a study by Juniper Research, the adoption of chatbots and virtual assistants had the potential to generate annual cost savings of up to \$8 billion for organizations by 2022.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Increased efficiency</b>           | Research has demonstrated that integrating chatbots and virtual assistants into organizations can efficiently manage multiple conversations simultaneously, enhancing productivity and significantly reducing client wait times. This improved efficiency helps build customer loyalty toward the organization. A study by Capgemini found that implementing chatbots and virtual assistants can reduce customer support response times by up to 90% ( <a href="#">Tula et al., 2024</a> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Personalization</b>                | Studies have highlighted the effectiveness of chatbots and virtual assistants in personalizing client interactions. According to a study by Accenture, 80% of customers expressed a willingness to share personal information with chatbots and virtual assistants if it enhanced their overall experience. This finding underscores the potential of these tools to deliver tailored advice and marketing messages effectively ( <a href="#">Tula et al., 2024</a> ). The results suggest that personalized marketing and recommendations can significantly improve consumer engagement and drive sales. However, organizations must ensure the accuracy of the data used and address customer concerns about privacy and data security. Furthermore, implementing personalization strategies across multiple communication channels is crucial for creating a cohesive and seamless client experience. In recent years, extensive research on personalized marketing and advice has led to several notable conclusions ( <a href="#">Okorie et al., 2024</a> ).                                                                                                                          |
| <b>Enhanced customer engagement</b>   | A key challenge with chatbots and virtual assistants is ensuring their accuracy. A survey by PwC revealed that 55% of customers were dissatisfied with chatbots' ability to adequately address their concerns. To overcome this, companies must ensure their chatbots and virtual assistants are properly trained and equipped with systems capable of handling more complex inquiries that require human intervention ( <a href="#">Tula et al., 2024</a> ). Customer engagement is a crucial factor for every organization, and personalized marketing is a significant advancement of artificial intelligence in this regard. By utilizing personalized marketing and tailored suggestions, companies can boost consumer engagement by delivering more relevant and focused content. This relevance captures customers' attention, leading to longer engagement and increased interactions on websites. The time customers spend on a website indicates that the organization understands their needs. According to an analysis by Epsilon, personalized emails demonstrated higher open and click-through rates compared to non-personalized emails ( <a href="#">Muminov, 2024</a> ). |
| <b>Increased sales</b>                | Personalized marketing and tailored suggestions can drive sales by helping customers discover and purchase products that meet their specific needs. Companies can use dynamic content strategies to customize their websites based on customer interests and behavior, leading to improved open rates and click-through rates. A study by Accenture found that 91% of customers are more likely to shop with companies that provide relevant offers and recommendations ( <a href="#">Accenture, 2018</a> ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

In summary, the reviewed literature highlights a range of technological, psychological, and contextual factors that shape tourists' adoption of digital innovations such as chatbots. To build upon these insights and ensure a systematic empirical investigation, it is essential to translate these theoretical perspectives into testable propositions. Accordingly, the following subsection formulates the study's hypotheses, each of which is directly derived from the preceding literature review.

#### 2.4. Hypotheses Formulation

Previous research highlights that chatbots and virtual assistants hold considerable potential for enhancing customer engagement, but their effectiveness depends on factors identified in established technology adoption models such as UTAUT2. For instance, studies consistently show that performance expectancy (the degree to which users believe that technology will improve task performance) is one of the strongest predictors of technology use in tourism contexts (Venkatesh et al., 2012; Melián-González et al., 2021). When tourists perceive chatbots as useful tools that simplify planning or improve access to services, they are more inclined to adopt them. Accordingly, we hypothesize: H1: Performance expectancy (PE) positively influences Greek tourists' intention to use chatbots in the tourism sector.

In addition, effort expectancy, or the perceived ease of use of a system, is another key determinant of adoption (Venkatesh et al., 2012). While some studies suggest that user-friendly interfaces enhance adoption intentions (Verkijika, 2020), others indicate that complexity or lack of familiarity can hinder usage in tourism (Mishra et al., 2023). Based on this evidence, we propose: H2: Effort expectancy (EE) positively influences Greek tourists' intention to use chatbots in the tourism sector. Social influence has also been shown to shape tourists' technology use, especially in collectivist or highly connected cultural contexts (Chong et al., 2012; Tran & Vu, 2024). Peer recommendations, online reviews, and endorsements from family and friends can significantly impact whether travelers experiment with chatbots. Thus, we hypothesize: H3: Social influence (SI) positively influences Greek tourists' intention to adopt chatbots in the tourism sector.

Moreover, the UTAUT2 model highlights hedonic motivation (the enjoyment or pleasure derived from technology) as a critical driver of consumer adoption. In tourism, enjoyment is particularly relevant since leisure activities are closely tied to experiential value (Chi et al., 2022; Van der Heijden, 2004). Therefore, we hypothesize: H4: Hedonic motivation (HM) positively influences Greek tourists' intention to use chatbots in the tourism sector. Another important factor is habit. While prior studies emphasize that habitual use of digital tools can reinforce continued adoption (Limayem et al., 2007), in the tourism context, entrenched reliance on traditional practices may discourage consumers from experimenting with new tools such as chatbots (Huang & Rust, 2018). Thus, we test the following: H5: Habit (HB) negatively influences Greek tourists' intention to use chatbots in the tourism sector.

Beyond the core UTAUT2 constructs, scholars highlight the importance of perceived innovativeness. Tourists are often motivated by novelty, and technologies perceived as cutting-edge are more likely to be adopted (Hernández et al., 2017; Lu et al., 2023). Therefore, we hypothesize: H6: Perceived innovativeness (PI) positively influences Greek tourists' intention to use chatbots in the tourism sector. Relatedly, prior research shows that attitudes toward self-service technologies (SSTs) significantly shape consumer acceptance in tourism and hospitality (Dabholkar & Bagozzi, 2002). Tourists with favorable attitudes toward digital service platforms are more inclined to extend this acceptance to chatbots. Hence, we propose: H7: Attitude toward self-service technologies (SSTs) positively influences Greek tourists' intention to adopt chatbots in the tourism sector.

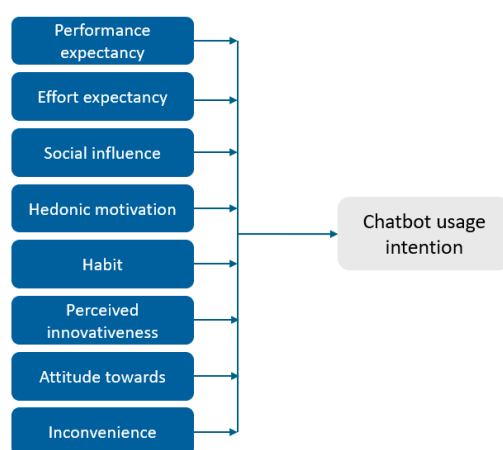
Finally, negative experiences with digital tools, such as inconvenience or difficulties in expressing queries, can deter adoption (Hill et al., 2015). Since usability remains a major concern in chatbot applications (Tussyadiah, 2020), we hypothesize: H8: Inconvenience (INC) negatively influences Greek tourists' intention to use chatbots in the tourism sector.

### 3. Research Method

The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) is an updated and refined framework designed to explore and predict technology acceptance and usage, particularly in consumer-oriented contexts. Developed by Venkatesh et al. (2012), UTAUT2 builds on the original UTAUT model but modifies and expands the theoretical framework to incorporate several individual characteristics. This literature review aims to discuss the theoretical evolution, key concepts, usage, and analysis of the UTAUT2 model, along with its relevance in the field of technology acceptance theory. The first UTAUT model, introduced by (Venkatesh et al., 2003) synthesized eight prominent models, including the Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), and Innovation Diffusion Theory (DOI). UTAUT established performance expectancy, effort expectancy, and social influence as the main determinants of technology acceptance. Additionally, it identified age, gender, experience, and voluntariness of use as moderating variables.

Although UTAUT demonstrated effectiveness in organizational contexts, it had limited relevance for understanding the adoption of consumer technology. To address this gap, Venkatesh et al. (2012) introduced UTAUT2, which added constructs such as hedonic motivation and habit to make the model more applicable to consumer decision-making behavior. Furthermore, the model revised the moderating variables by retaining age, gender, and experience while excluding voluntariness of use, as it is less relevant in voluntary consumer technology adoption situations.

Several key constructs, which help explain technology adoption behavior, are acknowledged in the extended model. These constructs include both the original variables and the newly introduced factors (Figure 1).



**Figure 1.** Theoretical framework (UTAUT2).

Specifically, the key constructs of the UTAUT2 model include:

- **Performance Expectancy (PE):** In business settings, performance expectancy is linked to features that maximize productivity, such as fitness applications that aid in health monitoring or navigation apps that suggest routes. From a consumer perspective, performance expectancy often plays a dominant role in technology adoption, as

it directly correlates with the perceived benefits of using a particular technology (Venkatesh et al., 2012; Alalwan et al., 2017).

- **Effort Expectancy (EE):** Effort expectancy refers to the perceived ease of using a technology. User-friendly and intuitive interfaces are crucial for increasing adoption, particularly among less experienced users (Venkatesh et al., 2012). For instance, an e-learning platform that is easy to navigate is more likely to attract a broader audience of learners (Sumak et al., 2011).
- **Social Influence (SI):** Social influence involves the impact of societal trends and the influence of peers, friends, or social media on individuals' decisions to adopt technology (Venkatesh et al., 2012). This factor is especially important in collectivist cultures and among younger generations who are more likely to follow the prevailing trends (Chong et al., 2012).
- **Hedonic Motivation (HM):** One of the newer constructs in UTAUT2, hedonic motivation refers to the pleasure or enjoyment derived from using technology (Venkatesh et al., 2012). This is particularly relevant for consumer-oriented technologies such as gaming platforms and social media apps, where enjoyment is a key driver of continued use (Van der Heijden, 2004).
- **Habit (HB):** Habit refers to the automatic behavior that develops through repeated use of technology. As users become more familiar with technology, this habitual engagement strengthens their connection and encourages continued adoption (Limayem et al., 2007). For example, mobile payment systems exemplify habit, where positive user experiences drive frequent and sustained use (Zhou, 2012).
- **Attitude towards:** The way individuals feel about technology is crucial in shaping their intention to use it and their actual usage patterns. A favorable outlook on technology boosts the chances of its acceptance and utilization, as it has a direct impact on behavioral intention (Venkatesh et al., 2012). In the realm of tourism, having a positive outlook on AI technologies, like chatbots, is essential for improving customer interaction. The way tourists view the simplicity, practicality, and emotional satisfaction of these technologies influences their overall attitudes towards them. If a tourist finds a chatbot easy to engage with and sees it as useful for booking or obtaining information, they will probably have a more favorable attitude.
- **Perceived innovativeness:** Perceived innovativeness significantly impacts consumers' willingness to embrace and utilize new technologies. This describes how people view technology as fresh, innovative, and distinct from what is already available, which influences their readiness to interact with it (Venkatesh et al., 2012). In the tourism sector, when travelers encounter technology like AI-driven chatbots or augmented reality and perceive it as innovative, they are more inclined to embrace it, particularly if it improves their travel experience with personalized services or added convenience (Hernández et al., 2017).

The UTAUT2 framework has demonstrated significant importance and applicability across various technology domains. Notable studies that have applied the UTAUT2 model to different fields are presented in the following table (Table 2).

The UTAUT2 framework enhances the explanatory power of the original UTAUT model by incorporating constructs that address emotional and habitual influences, which are essential factors in the adoption of consumer technologies. Empirical studies have consistently shown that UTAUT2 explains more variance in behavioral intentions and actual usage than the original model (Venkatesh et al., 2012). The extended framework has provided valuable insights into technology acceptance and has guided both researchers and practitioners in identifying the key factors that increase user engagement and satisfaction.

**Table 2.** Application areas of UTAUT2.

| Area                    | Studies                                                                                                                                                                                                              |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mobile banking          | <a href="#">Baptista and Oliveira (2015)</a> examined mobile banking adoption in Portugal, focusing on performance expectancy, effort expectancy, and hedonic motivation as key drivers of customer decision-making. |
| E-commerce              | In a 2014 study, <a href="#">Escobar-Rodríguez and Carvajal-Trujillo</a> explored online airline ticket purchases and identified social influence as a critical factor influencing consumer decisions.               |
| Social media            | <a href="#">Alalwan et al. (2017)</a> studied the context of social media sites and found that hedonic motivation and habit were significant predictors of continued use.                                            |
| Healthcare technologies | <a href="#">Hoque and Sorwar (2017)</a> investigated the use of wearable devices and telemedicine, highlighting the roles of facilitating conditions and performance expectancy in driving adoption.                 |

However, UTAUT2 has certain limitations:

- Overemphasis on quantitative methodologies: UTAUT2 relies heavily on quantitative methods, which limits the inclusion of qualitative perspectives that could offer a broader understanding of the technology adoption experience.
- Static attributes: The model assumes static relationships between constructs, which may fail to capture the dynamic and evolving nature of technology adoption.
- Exclusion of external factors: Some experts argue that the model would benefit from incorporating additional factors such as trust, perceived risk, and security concerns, which could further strengthen the explanatory power of UTAUT2 ([Slade et al., 2015](#)).

#### 4. Research Methodology

The primary objective of this research is to accurately assess the impact of the UTAUT2 model variables on Greek tourists' intention to use chatbots for the tourism and hospitality sector. A closed-ended questionnaire based on the UTAUT2 model was developed, beginning with questions designed to profile the respondents (q1 to q7), who are exclusively Greek tourists. Participants were randomly selected through various distribution platforms, targeting to represent various age groups, educational backgrounds, and as well travel habits. The survey sample consists of 327 individuals, and the responses were gathered between 26 April 2024, and 4 May 2024, through various channels such as business colleagues, students, and different distribution methods (emails, social media, and word of mouth).

The gender distribution was nearly balanced, with 54.1% male and 45.9% female respondents, ensuring equal representation in the analysis. Regarding age, the biggest group of participants (43.1%) falls within the age range 45–55, followed by the 35–44 age group (35.8%). This indicates that most participants are mature adults, likely with steady travel habits and a higher insight into technology compared to the younger groups. In terms of education, the majority of respondents (50.5%) hold a master's degree, while an important portion (35.8%) have a university degree. This indicates a relatively high level of education within the sample, which may influence their preferences and acceptance of technological tools like chatbots. Lastly, regarding travel frequency, 92.7% of participants have traveled for leisure in the past 12 months, highlighting intense tourism activity and underscoring the potential significance of technology in shaping their travel experiences.

The rest of the questions (q8–q38) as presented in Table 3, incorporates the following constructs and measurements:

**Table 3.** Constructs and measures.

| Construct                     | Measurement |                                                                                                              |
|-------------------------------|-------------|--------------------------------------------------------------------------------------------------------------|
| Performance Expectancy (PE)   | PE 1        | 8. I find chatbots very practical and useful                                                                 |
|                               | PE 2        | 9. With chatbots I implement my tasks quicker                                                                |
|                               | PE 3        | 10. Chatbots help me define what exactly to search for                                                       |
|                               | PE 4        | 11. I often receive content tailored to my needs when using chatbots                                         |
| Effort Expectancy (EE)        | EE 1        | 12. Chatbots are user friendly                                                                               |
|                               | EE 2        | 13. It is easy to become skillful at using chatbots                                                          |
|                               | EE 3        | 14. Learning how to use chatbots is easy for me                                                              |
|                               | EE 4        | 15. I find chatbots easy to interact with                                                                    |
| Social Influence (SI)         | SI 1        | 16. Chatbots are widely used by many people in my environment                                                |
|                               | SI 2        | 17. People who are important to me think I should use chatbots                                               |
|                               | SI 3        | 18. People around me encourage the use of chatbots                                                           |
|                               | SI 4        | 19. My social circle supports the idea of using chatbots while traveling                                     |
| Hedonic Motivation (HED)      | HED 1       | 20. I enjoy using chatbots                                                                                   |
|                               | HED 2       | 21. Using chatbots is fun                                                                                    |
|                               | HED 3       | 22. Chatbots make travel planning more entertaining                                                          |
|                               | HED 4       | 23. I feel good when using chatbots during travel planning                                                   |
| Habit (HAB)                   | HAB 1       | 24. Using chatbots is my first choice when I need to search for something                                    |
|                               | HAB 2       | 25. Using chatbots has become a habit for me                                                                 |
|                               | HAB 3       | 26. The use of chatbots is automatic for me                                                                  |
|                               | HAB 4       | 27. I would feel strange if I didn't use chatbots while planning travel                                      |
| Perceived Innovativeness (PI) | PI 1        | 28. I would like to be up to date with the latest technological trends                                       |
|                               | PI 2        | 29. I always look for new applications/technology tools to make my life easier                               |
|                               | PI 3        | 30. I believe chatbots are innovative applications                                                           |
| Attitude towards SSTs (SSTA)  | SSTA 1      | 31. I enjoy receiving service through mobile/PC applications                                                 |
|                               | SSTA 2      | 32. Receiving service through mobile/PC applications has several advantages                                  |
| Inconvenience (INC)           | INC 1       | 33. I find chatbot usage inefficient as most of the time they don't understand what I am expressing          |
|                               | INC 2       | 34. I find it more difficult to express an idea to a chatbot than to a human                                 |
|                               | INC 3       | 35. I find chatbot usage less practical as I need to type my question, and it takes me more time             |
|                               | INC 4       | 36. I find chatbot usage uncomfortable as I need to adjust my wording in a way that a chatbot can understand |
| Chatbot Usage Intention (CUI) | CUI 1       | 37. I am willing to use chatbots in the future                                                               |
|                               | CUI 2       | 38. Chatbots usage will be further increased in the future                                                   |

## 5. Findings

Following the methodological framework presented in the preceding section, this part of the study reports the empirical results obtained from the survey of Greek tourists. The analysis focuses on assessing the reliability and validity of the measurement scales, examining the correlations among the UTAUT2 constructs, and evaluating their predictive power with respect to the intention to adopt AI-driven chatbots in the tourism and hos-

pitality sector. By presenting the outcomes of reliability testing, correlation analysis, and regression modeling, this section provides a systematic account of the factors that facilitate or hinder chatbot adoption, thereby offering a foundation for the subsequent discussion and interpretation of results.

First, the Cronbach's alpha results that was presented for the various constructs indicate the inner consistency of each measurement scale. Cronbach's alpha value spans from 0 to 1, with values above 0.7 regarded acceptable, above 0.8 considered good, and above 0.9 are considered excellent for research purposes.

The reliability of the constructs was assessed using Cronbach's alpha. Performance Expectancy (PE), adapted from [Venkatesh et al. \(2012\)](#), demonstrated a strong reliability with Cronbach's alpha of 0.863. Effort Expectancy (EE), Social Influence (SI), Hedonic Motivation (HED), and Habit (HAB) were also adopted from [Venkatesh et al. \(2012\)](#), all showing acceptable reliability levels. Perceived Innovativeness (PI), measured based on [Parra-López et al. \(2011\)](#), achieved a Cronbach's alpha of 0.723, indicating satisfactory internal consistency. Attitude towards SSTs (SSTA), derived from [Dabholkar and Bagozzi \(2002\)](#), showed a Cronbach's alpha of 0.769, while Inconvenience (INC), based on [Hill et al. \(2015\)](#) and [Robertson et al. \(2016\)](#), recorded a Cronbach's alpha of 0.796. Finally, Chatbot Usage Intention (CUI), drawing from [Venkatesh et al. \(2012\)](#) and [Parra-López et al. \(2011\)](#), reported a Cronbach's alpha of 0.762, further supporting the reliability of the measurement model.

Furthermore, the correlation analysis presented highlights the relationships between different constructs and the aim to use chatbots (Chatbot Usage Intention, CUI). It shows how closely different factors are associated with users' willingness to engage with chatbots in their daily activities:

- Performance Expectancy (PE): With a correlation of 0.635, PE has the strongest positive correlation with the aim to use chatbots, indicating that users who expect chatbots to be beneficial and efficient are more likely to adopt them.
- Effort Expectancy (EE): The correlation of 0.400 suggests that the ease of use of chatbots is positively associated with the intention to use, underscoring the significance of creating user-friendly interfaces.
- Social Influence (SI): A correlation of 0.361 shows that social influence also has a positive, albeit less pronounced, effect on the intention to use chatbots, suggesting that the others' opinions can influence the decision to adopt them.
- Hedonic Motivation (HED): With a correlation of 0.612, the hedonic aspect of using chatbots plays a significant role, indicating that the enjoyment or pleasure derived from utilizing chatbots strongly leads to the intention to use.
- Inconvenience (INC): A negative correlation of -0.370 demonstrates that difficulties in using chatbots can significantly deter usage intentions, highlight the importance of simplifying and improve technological solutions.

The regression analysis examines the impact of different predictor variables on the intention to utilize chatbots, based on data from 327 responses. The model has an R-squared value of 0.508, indicating that around 50.8% of the variability in the intention to use chatbots is clarified by the predictor variables. The Adjusted R-squared is 0.469, reflecting the adjusted prediction after accounting for the number of predictor variables in the model. The ANOVA analysis in Table 4, reveals an important F-statistic of 12.920 with a  $p$ -value  $< 0.0001$ , showing that the model is statistically significant and that the predictor variables differ significantly from random predictions.

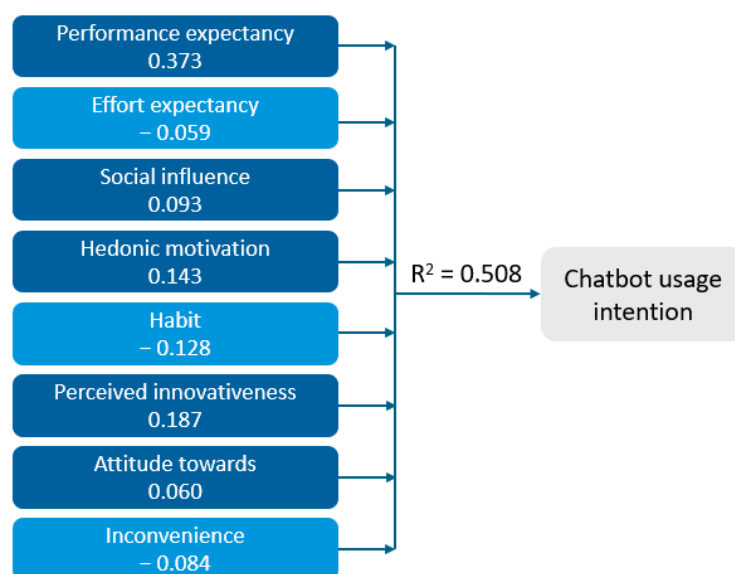
**Table 4.** Regression analysis.

| Model                                            | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig.  |
|--------------------------------------------------|-----------------------------|------------|---------------------------|--------|-------|
|                                                  | B                           | Std. Error | Beta                      |        |       |
| (Constant)                                       | 0.538                       | 0.363      |                           | 1.480  | 0.142 |
| Performance_Expectancy_PE                        | 0.373                       | 0.112      | 0.430                     | 3.330  | 0.001 |
| Effort_Expectancy_EE                             | −0.059                      | 0.070      | −0.078                    | −0.846 | 0.400 |
| Social_Influence_SI                              | 0.093                       | 0.061      | 0.126                     | 1.528  | 0.130 |
| 1 Hedonic_Motivation_HED                         | 0.143                       | 0.081      | 0.219                     | 1.755  | 0.082 |
| Habit_HAB                                        | −0.128                      | 0.062      | −0.207                    | −2.069 | 0.041 |
| Perceived_Innovativeness_PI                      | 0.187                       | 0.086      | 0.219                     | 2.169  | 0.032 |
| Attitude_towards_SSTs_SSTA                       | 0.060                       | 0.084      | 0.066                     | 0.721  | 0.473 |
| Inconvenience_INC                                | −0.084                      | 0.076      | −0.092                    | −1.113 | 0.268 |
| Dependent Variable: Chatbot Usage Intention, CUI |                             |            |                           |        |       |

Concerning the independent variables:

- Performance Expectancy (PE) is highly important ( $\beta = 0.430$ ,  $p = 0.001$ ), verifying that users viewing chatbots as valuable are more probably to use them.
- Perceived Innovativeness (PI) and Hedonic Motivation (HED) also indicate a positive correlation with aim to use, recommending that innovativeness and delight of use enhance purpose to use.
- Habit (HAB) indicates a negative correlation ( $\beta = -0.207$ ,  $p = 0.041$ ), probably suggesting that in habitual use the environment might play a hindrance role in the adoption of new technologies.
- Inconvenience (INC) has a negative impact on intention to use ( $\beta = -0.092$ ,  $p = 0.268$ ), even though this effect is not statistically important in this model, implying the need for enhancement in the accessibility and usability of chatbots.

These findings provide significant insight into the factors that affect the intention to use chatbots and provide directions for enhancements in their layout and implementation as illustrated in the Figure 2.

**Figure 2.** Chatbot Usage Intention analysis results.

Furthermore, the correlation and regression analyses provide further insight into the dynamics between UTAUT2 constructs and the intention to adopt chatbots in tourism. Performance expectancy shows the strongest positive effect, confirming that perceived usefulness remains the dominant factor in technology adoption. Hedonic motivation and perceived innovativeness also emerge as significant predictors, suggesting that enjoyment and novelty play key roles in shaping adoption behavior, consistent with prior UTAUT2 research. Interestingly, habit demonstrates a negative effect, indicating that entrenched user routines may act as a barrier to change, a finding that enriches the theoretical discussion by highlighting resistance mechanisms within consumer behavior. While effort expectancy and social influence show weaker or insignificant effects in the regression, their moderate correlations suggest indirect roles that could become more salient in different cultural or demographic contexts. Overall, these results emphasize the multifaceted nature of technology adoption, where both utilitarian and experiential drivers coexist with barriers such as routine and inconvenience.

## 6. Discussion and Conclusions

This paper explores the effect of Artificial Intelligence (AI) on enhancing the experiences of customers in the tourism industry, with a particular emphasis on chatbots by utilizing the UTAUT2, which is a significant step toward research into consumer technology adoption. Building upon the basic concepts of the initial UTAUT framework, it allows even deeper insights into the engines that fuel technology acceptance in a more consumer-focused context. Adding hedonic motivation, and habit enriches the model's explanatory power such that it becomes a great tool for the researcher and practitioner alike. Further refining and augmenting theoretical perspectives could lead to overcoming such limitations and keeping the model's destiny alive in this rapidly changing technology environment.

An additional consideration concerns the relevance of the Greek context. Greece is one of the most tourism-dependent economies in Europe, with tourism contributing over one-fifth of GDP and employment ([World Travel & Tourism Council, 2023](#)). This structural reliance creates heightened sensitivity to innovations that affect tourist satisfaction and service efficiency. Greek tourists, in particular, represent a compelling case because they combine high travel frequency within national destinations with strong cultural preferences for interpersonal, human-centered service encounters ([Trihas & Konstantarou, 2018](#)). This creates a unique tension: while the tourism ecosystem requires efficiency gains through digital tools such as chatbots, Greek tourists may display greater resistance to substituting human interaction with automation compared to international visitors. Moreover, the demographic profile of Greek tourists, characterized by high levels of education, frequent travel, and diverse age representation, offers a distinctive testing ground for technology acceptance theories ([Gretzel et al., 2015](#)). Investigating chatbot adoption in this group therefore provides insights not only into national consumer behavior but also into how deeply rooted cultural values and routines interact with global technological trends. By situating our findings in this context, the study underscores why Greek tourists constitute a uniquely relevant group for scholarly and practical investigation of chatbot adoption.

This research contributes to tourism theory and practice by contextualizing technology adoption within the Greek tourism sector, a market where tourism plays an outsized role in economic and social life. The findings underscore that Greek tourists' adoption of chatbots is driven not only by functional benefits but also by enjoyment and perceptions of innovation, while habitual reliance on traditional practices can act as a barrier. These insights are particularly relevant for Greek tourism providers, who must balance the integration of advanced digital solutions with the preservation of personalized, human-centered service that remains highly valued in the Greek cultural context. More broadly, by focusing on

Greece, this study highlights how national tourism contexts shape the interplay between consumer attitudes and emerging technologies, offering a pathway for comparative studies across different destinations.

The findings also respond to a broader gap in the literature on chatbots in tourism. While research has explored smart tourism and AI-driven automation in general ([Gretzel et al., 2015](#); [Tussyadiah, 2020](#)), the tourist's perspective on chatbot use has received relatively little attention. Only a limited number of studies examine tourists' adoption behavior ([Melián-González et al., 2021](#); [Scarpi et al., 2024](#)), and most do not account for national or cultural particularities. By focusing on Greek tourists, this study extends the evidence base and shows how deeply rooted routines and preferences interact with perceived usefulness, enjoyment, and innovation. In doing so, it not only advances theory but also underscores the practical importance of tailoring chatbot design to the distinctive needs of travelers.

A primary research has been applied exploiting correlation and regression analyses, which consist of factors that influence Greek users' intentions to adopt chatbots in tourism are identified. The outcomes of the correlation and regression analyses show certain dynamics in the relationship among factors of Greek users' intentions to use chatbots in tourism. According to the results of the correlation, performance expectancy and hedonic motivation are the most powerful indicators of intention to use among the factors, whereas inconvenience is negative. The regression analysis indicates that the model explains approximately 50.8% of the discrepancy in users' aim to use chatbots, with Performance expectancy arising as an important factor. Additionally, perceived innovativeness and hedonic motivation positively influence intention, highlighting the significance of perceived innovation and friendly user experience in adopting emerging technologies.

Conversely, hostile, important findings for Habit suggest potential reluctance to change among users with respected routines. Although adversity of use did not reach statistical value, it stresses the need to enhance chatbot accessibility and usability. These results underscore the necessity of systematically enhancing technological solutions, ensuring the development of user-centered interfaces, and integrating psychological and social considerations into strategies that facilitate the adoption of innovative technologies in tourism. In practice, this may involve investing in intuitive design features that minimize perceived effort, implementing training or awareness initiatives to overcome resistance to change, and leveraging social influence through peer recommendations and testimonials to encourage adoption.

Greek tourism has never been researched within a chatbot context, constituting that the paper at hand delivers another type of result. Furthermore, UTAUT is useful for showing how tourists adopt mobile payment systems in the tourism context, underlining the crucial role of performance expectancy, effort expectancy, social influence, and facilitating conditions as decisive factors.

The comparison of the present findings with similar studies highlights several important consistencies and insights regarding chatbot adoption in the tourism sector. Performance expectancy emerges as a decisive factor, consistent with the results of [Melián-González et al. \(2021\)](#). Users are more likely to adopt chatbots and travel applications when they perceive clear advantages such as enhanced navigation, personalized recommendations, and real-time information, which improve both efficiency and satisfaction ([Topsakal & Çuhadar, 2024](#); [Mishra et al., 2023](#)). Similarly, social influence plays a significant role, as endorsements from friends, family, and online communities encourage adoption, while influencer marketing and user-generated content further enhance perceived value ([Tran & Vu, 2024](#); [Mishra et al., 2023](#)).

Another key finding relates to hedonic motivation. The strong association between enjoyment and intention to use chatbots aligns with the work of [Venkatesh et al. \(2012\)](#)

and Davis et al. (1992), who emphasized the importance of intrinsic pleasure in technology adoption. In tourism, the role of enjoyment in boosting engagement and willingness to adopt new digital tools has also been confirmed by Huang and Rust (2018). Perceived innovativeness is likewise consistent with earlier research, as individuals are more inclined to embrace technologies they regard as innovative and novel (Venkatesh et al., 2012; Hernández et al., 2017). In this respect, AI-powered chatbots are seen as valuable innovations that enhance personalization and user experience, reinforcing adoption (Huang & Rust, 2018).

Finally, the study underlines the role of attitude toward self-service technologies (SSTs). A positive outlook is shown to significantly encourage adoption, in line with Venkatesh et al. (2012) and Davis et al. (1992), who found that favorable perceptions of usefulness and ease of use strongly shape acceptance. Similarly, Hernández et al. (2017) noted that a welcoming mindset toward innovative tools in tourism fosters greater willingness to engage with them. Collectively, these findings confirm that the UTAUT framework remains a valuable lens for explaining AI chatbot adoption and for identifying the constructs that enhance customer interaction with travel services.

Based on these findings, several targeted recommendations can be made for both theory and practice. From a theoretical perspective, future studies should expand the UTAUT2 framework by incorporating constructs such as trust, perceived risk, and privacy concerns, which appear particularly relevant in the tourism context where sensitive data are shared. This would strengthen explanatory power and capture additional psychological barriers to chatbot adoption. From a practical standpoint, tourism providers should prioritize the development of user-friendly and intuitive chatbot interfaces that minimize learning effort, while integrating playful and personalized features to enhance hedonic motivation. Marketing strategies should highlight the innovative aspects of chatbot services and leverage social proof through testimonials and influencer engagement to overcome resistance to change. Additionally, training initiatives and transparent communication of data security policies can mitigate concerns related to habit and trust, ensuring wider acceptance and long-term engagement with chatbot technologies in tourism.

Overall, the UTAUT framework is useful to explain how AI chatbots are adopted and used within the tourism industry and provide insight into elements that may enhance customer interaction with travel services.

Challenges of implementing chatbots are often resisted because of privacy and security concerns. In areas like tourism, one must share sensitive information regarding payment and travel. Because of this, most people worry about how AI systems protect their private information (Zhang et al., 2022a; M. Camilleri & Troise, 2023). For people to trust the system, the stakeholders should put in place security policies as well as explain their data management policies. AI chatbots are limited by their inability to deal with Complex Customer Queries. One more major area limiting the scope of AI Chatbots is their inability to solve complex or even slightly intricate customer queries. This requires a more in-depth contextual understanding of the problem and does not allow for quick resolutions. This limitation points out the wide scope of difference between AI capabilities and human interaction capabilities (M. A. Camilleri et al., 2023).

According to UTAUT, there are a variety of ways to improve e-tourism technologies. Responding to its main constructs means ensuring that the users will adopt the technology and be satisfied with the application:

Enhancing performance expectancy. In order to raise the expectation of performance, developers need to emphasize features that provide real-time benefits such as personalization and map tools for easy use of the application. Such features add more value to the application, thereby increasing its use in an international region (Topsakal & Çuhadar, 2024).

Simplifying user experience. Increasing effort expectancy includes making mobile apps' interfaces easy and uncomplicated. When users can find their way around an app with ease due to simplistic and logical designs, they are more likely to use it (Verkijika, 2020). Leveraging social proof. Adding user-generated reviews, ratings and feedback eliminates the risk of users being influenced by adopting the app. The same goes for promotions through social media and influencer marketing complements this (Tran & Vu, 2024). Enhancing safety protocols. Strong security measures guarantee the protection of user information, tackling worries related to privacy and safety. Effective communication of data protection policies nurtures trust and encourages ongoing involvement (Tran & Vu, 2024).

Finally, the UTAUT model has shown itself to be effective in forecasting tourists' ongoing intention to utilize e-tourism services. People are likely to keep using technologies that they find helpful and those that others suggest to them (Ali et al., 2022; Zhang et al., 2022b). Regular use also has an important impact, as consistent engagement encourages ongoing participation (Kamboj & Joshi, 2021). As technology continues to progress, it is crucial to consider emerging elements like advancements in AI and concerns regarding data privacy, which could impact adoption (Mishra et al., 2023). There are some key implications for travel stakeholders leveraging the UTAUT framework, such as:

**Service design and optimization.** Stakeholders in tourism should give priority to the creation of effective, user-friendly e-tourism platforms to lower effort expectation and improve performance expectation. Personalized suggestions, easy-to-use interfaces, and responsive customer support—all of which help to satisfy users—are among the effective design elements (Venkatesh et al., 2012).

**Strategic advertising.** The social influence of construction emphasizes the need to use social evidence to promote acceptance of e-tourism technology. Stakeholders in tourism should use social media campaigns, influencer marketing, and peer reviews to gain credibility and confidence among potential consumers. Furthermore, these initiatives must be culturally adapted to fit the several values and preferences of various demographic groups, so as to optimize their efficacy (Zhang et al., 2022b).

**Encouragement of habit formation.** Customizing AI-driven experiences that fit user preferences will help to promote habit formation and long-term involvement. Customized content, historical booking reminders, and dynamic recommendations help to build loyalty and consistent use. Moreover, combining loyalty programs with e-tourism platforms helps to increase user retention and incentive for recurrent use, thus improving the whole travel experience (Kamboj & Joshi, 2021).

Although the UTAUT model offers a strong foundation for comprehending technology adoption, it cannot fully reflect the complexity of tourist behavior in dynamic settings, including post-pandemic tourism. Travelers' acceptance of e-tourism technology is significantly shaped by factors like health concerns, safety perceptions, and risk aversion; so, future research and platform design should include these elements.

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**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** The data supporting the findings of this study are available upon reasonable request from the corresponding author. The dataset comprises anonymized survey responses collected from Greek tourists between April and May 2024. Due to privacy and ethical considerations, the raw data cannot be made publicly available. Summary statistics and analysis scripts used in this study are available from the authors upon request.

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## References

- Accenture. (2018, May 9). *Widening gap between consumer expectations and reality in personalization signals warning for brands*, Accenture Interactive research finds. Accenture Newsroom. Available online: <https://newsroom.accenture.com/news/2018/widening-gap-between-consumer-expectations-and-reality-in-personalization-signals-warning-for-brands-accenture-interactive-research-finds> (accessed on 1 March 2025).
- Alalwan, A. A., Baabdullah, A. M., Rana, N. P., & Patil, P. (2017). Social media in business: A literature review and future research agenda. *Telematics and Informatics*, 34(8), 1515–1530.
- Ali, F., Wu, C., & Zhuang, W. (2022). Investigating the role of technology adoption in enhancing tourist satisfaction: An extension of the UTAUT model. *Tourism Management Perspectives*, 44, 101015.
- Baptista, G., & Oliveira, T. (2015). Mobile banking adoption: A literature review and research agenda. *International Journal of Information Management*, 35(3), 283–292.
- Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet—The state of eTourism research. *Tourism Management*, 29(4), 609–623. [CrossRef]
- Buhalis, D., & Moldavska, I. (2022). Voice assistants in hospitality: Using artificial intelligence for customer service. *Journal of Hospitality and Tourism Technology*, 13(3), 386–403. [CrossRef]
- Camilleri, M., & Troise, C. (2023, March 10–12). *Chatbot recommender systems in tourism: A systematic review and a benefit-cost analysis*. 8th International Conference on Machine Learning Technologies (ICMLT 2023), Stockholm, Sweden. [CrossRef]
- Camilleri, M. A., Troise, C., & Kozak, M. (2023). Functionality and usability features of ubiquitous mobile technologies: The acceptance of interactive travel apps. *Journal of Mobile Technology in Tourism*, 14(2), 188–207. [CrossRef]
- Chi, O. H., Denton, G., & Gursoy, D. (2020). Artificially intelligent device use in service delivery: A systematic review, synthesis, and research agenda. *Journal of Hospitality Marketing & Management*, 29(7), 757–786. [CrossRef]
- Chi, O. H., Gursoy, D., & Chi, C. G. (2022). Tourists' attitudes toward the use of artificially intelligent (AI) devices in tourism service delivery. *Journal of Travel Research*, 61(8), 1700–1716. [CrossRef]
- Choi, Y., & Kim, D. (2024). Artificial intelligence in the tourism industry: Current trends and future outlook. *International Journal on Advanced Science, Engineering and Information Technology*, 14(6), 1889–1895. [CrossRef]
- Chong, A. Y. L., Chan, F. T. S., & Ooi, K. B. (2012). Predicting consumer decisions to adopt mobile commerce: Cross country empirical examination between China and Malaysia. *Decision Support Systems*, 53(1), 34–43. [CrossRef]
- Dabholkar, P., & Bagozzi, R. (2002). An attitudinal model of technology-based self-service: Moderating effects of consumer traits and situational factors. *Journal of the Academy of Marketing Science*, 30, 184–201. [CrossRef]
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, 22(14), 1111–1132. [CrossRef]
- Deng, X., & Yu, Z. (2023). A meta-analysis and systematic review of the effect of chatbot technology use in sustainable education. *Sustainability*, 15(4), 2940. [CrossRef]
- Doğan, S., & Niyet, İ. Z. (2024). *Artificial intelligence (AI) in tourism* (pp. 3–21). Emerald (MCB UP). [CrossRef]
- Dutta, S. (2024). Chatbot effectiveness in enhancing guest communication: Insights from secondary data. *Journal of Propulsion Technology*, 45(4), 2137–2150. [CrossRef]
- Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (2015). Smart tourism: Foundations and developments. *Electronic Markets*, 25(3), 179–188. [CrossRef]
- Hernández, J. M., Jiménez, J. M., & Martín, J. (2017). The role of technology in enhancing customer satisfaction: A study of the travel industry. *Tourism Management*, 59, 252–263.

- Hill, J., Randolph Ford, W., & Farreras, I. G. (2015). Real conversations with artificial intelligence: A comparison between human–human online conversations and human-chatbot conversations. *Computers in Human Behavior*, 49, 245–250. [\[CrossRef\]](#)
- Hoque, R., & Sorwar, G. (2017). Understanding factors influencing the adoption of mobile health services: A meta-analysis. *Journal of Health Communication*, 22(10), 866–881.
- Hoyer, W. D., Kroschke, M., Schmitt, B., Kraume, K., & Shankar, V. (2020). Transforming the customer experience through new technologies. *Journal of Interactive Marketing*, 51, 57–71. [\[CrossRef\]](#)
- Huang, M. H., & Rust, R. T. (2018). Artificial intelligence in service. *Journal of Service Research*, 21(2), 155–172. [\[CrossRef\]](#)
- Huseynov, F. (2023). Chatbots in digital marketing: Enhanced customer experience and reduced customer service costs. In *Contemporary approaches of digital marketing and the role of machine intelligence* (pp. 46–72). IGI Global. Chapter 3. [\[CrossRef\]](#)
- Ivanov, S., & Webster, C. (2019). *Robots, artificial intelligence, and service automation in travel, tourism, and hospitality*. Emerald Publishing.
- Kamboj, S., & Joshi, R. (2021). Examining the factors influencing smartphone apps use at tourism destinations: A UTAUT model perspective. *International Journal of Tourism Cities*, 7(1), 135–157. [\[CrossRef\]](#)
- Li, X., Yen, C. L. A., Uysal, M., & Song, Z. (2020). Service robots or human staff: How social crowding shapes tourist service-provider preference. *Tourism Management*, 83, 104161. [\[CrossRef\]](#)
- Limayem, M., Hirt, S., & Cheung, C. (2007). How habit limits the predictive power of intention: The case of information systems continuance. *MIS Quarterly*, 31, 705–737. [\[CrossRef\]](#)
- Lin, H.-C., Liu, X., Huang, Y., & Chen, H.-Y. (2022). Determinants of continued use of tourism and hospitality e-commerce platforms and the role of information transparency. *Current Issues in Tourism*, 26(1), 1–20. [\[CrossRef\]](#)
- Lu, V. N., Wirtz, J., Kunz, W., Paluch, S., Gruber, T., Martins, A., & Patterson, P. (2023). Service robots, customers, and service employees: What can we learn from the academic literature and where are the gaps? *Information & Management*, 60(3), 103700. [\[CrossRef\]](#)
- Ma, S. (2024). Enhancing tourists' satisfaction: Leveraging artificial intelligence in the tourism sector. *Pacific International Journal*, 7(3), 89–98. [\[CrossRef\]](#)
- Melián-González, S., Gutiérrez-Taño, D., & Bulchand-Gidumal, J. (2021). Predicting the intentions to use chatbots for travel and tourism. *Current Issues in Tourism*, 24(1), 192–210. [\[CrossRef\]](#)
- Milton, T. (2023). Artificial intelligence in tourism—A review of trends opportunities and challenges. *International Journal for Multidimensional Research Perspectives*, 1(2), 1–11.
- Mishra, A., Singh, D., & Rathore, N. (2023). Examining user adoption of travel apps using the UTAUT model: A case study from emerging markets. *Journal of Tourism and Technology*, 15(2), 198–215.
- Moilanen, T. (2023). Opportunities and challenges of artificial intelligence in the tourism industry. *Global Journal of Tourism, Leisure and Hospitality Management*, 1(1), 555553. [\[CrossRef\]](#)
- Muminov, H. (2024). Personalization in email marketing how to increase open rates and engagement. *European Journal of Artificial Intelligence and Digital Economy*, 1, 36–41. [\[CrossRef\]](#)
- Okorie, G., Egieya, Z., Ikwue, U., Udeh, C., Adaga, E., DaraOjimba, O., & Oriekhoe, O. (2024). Leveraging big data for personalized marketing campaigns: A review. *International Journal of Management & Entrepreneurship Research*, 6, 216–242. [\[CrossRef\]](#)
- Parra-López, E., Bulchand-Gidumal, J., Gutiérrez-Taño, D., & Díaz-Armas, R. (2011). Intentions to use social media in organizing and taking vacation trips. *Computers in Human Behavior*, 27(2), 640–654. [\[CrossRef\]](#)
- Rather, R. A. (2024). AI-powered ChatGPT in the hospitality and tourism industry: Benefits, challenges, theoretical framework, propositions and future research directions. *Tourism Recreation Research*, 50(3), 652–662. [\[CrossRef\]](#)
- Robertson, N., McDonald, H., Leckie, C., & McQuilken, L. (2016). Examining customer evaluations across different self-service technologies. *Journal of Services Marketing*, 30(1), 88–102. [\[CrossRef\]](#)
- Scarpi de Claricini, D. (2024). Strangers or friends? Examining chatbot adoption in tourism. *Tourism Management*, 102, 104873. [\[CrossRef\]](#)
- Slade, E. L., Williams, D., & O'Neill, M. (2015). Exploring the role of trust in technology adoption: Implications for e-commerce. *Journal of Electronic Commerce Research*, 16(2), 123–145.
- Sumak, B., Hericko, M., & Pucihar, A. (2011). E-learning acceptance model: Analyzing the acceptance of e-learning systems by higher education students. *Computers & Education*, 57(1), 711–719.
- Talukder, M. B., & Muhsina, K. (2024). AI assistants for tour and travel operation. In *Generating entrepreneurial ideas with AI* (pp. 292–320). Advances in business strategy and competitive advantage book series. IGI Global. [\[CrossRef\]](#)
- Topsakal, U. U., & Çuhadar, M. (2024). Factors influencing mobile app adoption in the tourism sector: A UTAUT-based analysis. *Tourism Management Perspectives*, 42, 100994.
- Tran, N. T., & Vu, T. D. (2024). Understanding digital tourism adoption through social influence and user experience: Evidence from Asia-Pacific travelers. *Asia-Pacific Journal of Tourism Research*, 29(1), 85–101.
- Traversa, F. (2024). *Artificial intelligence in tourism*. Elsevier BV. [\[CrossRef\]](#)
- Trihas, N., & Konstantarou, A. (2018). The role of local culture and hospitality in Greek tourism. In E. Avdimiotis (Ed.), *Tourism, culture and heritage in a smart economy* (pp. 223–240). Springer. [\[CrossRef\]](#)

- Tula, S., Kess-Momoh, A., Omotoye, G., Bello, B., & Daraojimba, A. (2024). AI-enabled customer experience enhancement in business. *Computer Science & IT Research Journal*, 5(2), 365–389. [CrossRef]
- Tussyadiah, I. P. (2020). A review of research into automation in tourism: Launching the annals of tourism research curated collection on artificial intelligence and robotics in tourism. *Annals of Tourism Research*, 81, 102883. [CrossRef]
- Tussyadiah, I. P., Zach, F. J., & Wang, J. (2020). Do travelers trust intelligent service robots? *Annals of Tourism Research*, 81, 102886. [CrossRef]
- Usman, M. (2024). *Harnessing artificial intelligence: Redefining industries and economic landscapes*. Available online: <https://engrxiv.org/preprint/view/4036/7097> (accessed on 10 March 2025).
- Van der Heijden, H. (2004). User acceptance of hedonic information systems. *MIS Quarterly*, 28(4), 695–704. [CrossRef]
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478. [CrossRef]
- Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157–178. [CrossRef]
- Venkatraman, D. P., & Kurtkoti, M. (2024). Artificial intelligence in the service industry: Transforming operations and enhancing customer experience. *Nanotechnology Perceptions*, 20, 198–201. [CrossRef]
- Verkijika, S. (2020). Assessing the role of simplicity in the continuous use of mobile apps. *Journal of Organizational and End User Computing*, 32, 26–42. [CrossRef]
- World Travel & Tourism Council. (2023). *Economic impact report: Greece 2023*. WTTC. Available online: <https://wttc.org> (accessed on 10 March 2025).
- Xu, Y. W., Li, M., & Kim, H. (2024). When disclosing the AI technology behind hospitality services helps (or hurts). *Journal of Business Research*, 174, 114402. [CrossRef]
- Zhang, Y., Zhang, H., & Zhao, L. (2022a). Leveraging social influence in e-tourism marketing: A study of trust and adoption. *Journal of Hospitality and Tourism Technology*, 13(3), 409–426.
- Zhang, Y., Zhang, H., & Zhao, L. (2022b). The role of privacy concerns and social influence in chatbot adoption in tourism. *Tourism Technology Journal*, 11(1), 143–157.
- Zhou, T. (2012). Understanding mobile online shopping continuance: An empirical test of the revised expectation-confirmation model. *CyberPsychology, Behavior, and Social Networking*, 15(4), 248–253.
- Zlatanov, S., & Popescu, J. (2019). Current applications of artificial intelligence in tourism and hospitality. In *Sinteza 2019—International scientific conference on information technology and data related research 2019* (pp. 84–90). Singidunum University. [CrossRef]
- Zuraida, L., Suriana, I., & Ghani, B. (2024). The role of Facebook group features for travelers and tourism service providers in planning a trip to Bali. *Jurnal Sositelknologi*, 23, 347–357. [CrossRef]

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