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FROM TRADITIONAL TO DIGITAL: EVALUATING THE CONTRIBUTION OF CHATBOT EFFECTIVENESS TO CONSUMER ACCEPTANCE IN HOSPITALITY AND TOURISM

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Abstract:

Chatbots, have emerged as a game-changing tool in a number of industries, including tourism, due to the quick development of artificial intelligence (AI). This study examines the crucial element of perceived usefulness (PU) as a factor influencing chatbot adoption in the travel and tourism sector. Even while chatbots have potential benefits including real-time travel support, booking automation, and fast client connectivity, many travel firms frequently undervalue the full extent of these advantages. Adoption may be delayed or met with resistance as a result of this unclear understanding, especially if the perceived utility is unclear. By concentrating on the function of perceived usefulness, this study seeks to investigate the acceptability of chatbots within the tourism sector, providing both theoretical and practical contributions to the understanding of technology adoption in contemporary tourism services. The outcome shows that the acceptance of chatbot use in the travel sector was positively influenced by perceived usefulness. This study will provide industry participants with empirical support for strategically investing in and implementing chatbot technology, which will ultimately improve the visitor experience by providing faster, more personalized assistance while increasing

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the local economy's digital transformation and competitiveness in the global market.

Keywords:

Chatbot, Perceived Usefulness, Technology Acceptance, Artificial Intelligence

Introduction

The tourism sector has undergone a profound digital transformation, driven by Information and Communication Technologies (ICTs) that redefine how travelers plan and experience their journeys. Central to this evolution is the deployment of Artificial Intelligence (AI)-powered chatbots by hotels, airlines, and Online Travel Agencies (OTAs). These agents provide 24/7 customer service and automate routine inquiries, allowing human staff to focus on complex, "high-touch" interactions.

Additionally, the use of AI, especially chatbots, which offer individualized and responsive services, is a key component of this change. Staff members can concentrate on more intricate, high-touch requests by using chatbots to answer common client inquiries, suggest locations, and handle reservations based on previously examined preferences. Additionally, because contactless digital technologies greatly enhance visitors' impressions of safety and comfort, their necessity has grown critical, especially in the wake of the COVID-19 epidemic (Anwar et. al., 2024). In the other hand, Technology acceptability Model (TAM), indicated that perceived usefulness is one of the most important indicators of technology adoption, and user acceptability is frequently impacted by a number of psychological and technological factors. Perceived usefulness shows the degree to which an individual believes that adopting a particular system helps their work performance—in this case, boosting the efficiency and quality of travel-related interactions.

By positing that an individual's behavioral intention to utilize a new technology is mostly determined by their Perceived Usefulness (PU) and Perceived Ease of utilize (Davis, 1989; Venkatesh & Davis, 2000). For travelers, a chatbot is viewed as beneficial if it successfully and efficiently delivers concrete benefits, such as time-saving: Responding to urgent questions or processing reservations promptly (Huang, Backman, & Wu, 2022). Improving Information quality: Providing accurate, relevant, and comprehensive travel details (e.g., locating the correct Halal-friendly accommodation or monitoring flight status) (Abou-Shouk et al., 2025; Wüst & Bremser, 2025). Also, enhancing task performance: simplifying difficult, dangerous jobs like managing reservations and creating itineraries (Choi & Kim, 2024).

In the context of tourism, chatbots' perceived usefulness (Huang et al., 2022) determines how travelers engage with these digital agents for information searching, booking, and problem-solving. Users are more likely to embrace and stick with chatbots when they believe they are helpful, dependable, and time-saving. Therefore, this paper investigating the role of perceived usefulness provides vital insights into how chatbots affect the ongoing digital transformation of the tourism business.

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Literature Review

Artificial Intelligence in Tourism industry

According to research by Sadek (2022), hotels that use digital technology to enhance guest interactions and services typically see an increase in guest satisfaction and, consequently, a rise in guest loyalty. In addition to altering hotel operations, digital transformation is reshaping the industry's expectations for guest service. These technologies are essential to improving the visitor experience, which helps hotels succeed and remain competitive in a market that is becoming more and more cutthroat.

Digital transformation has been quickly adopted by the travel industry. AI-driven chatbots are becoming one of the most popular solutions for improving customer support in virtual environments. Chatbots can assist with reservations and offer personalized travel information because they can react to user inquiries instantaneously. Usually, they are employed in addition to or in substitute of human customer service representatives. Tourism businesses looking to boost operational productivity and client satisfaction have adopted them increasingly frequently due to their price, accessibility, and efficacy. Despite these benefits, user acceptability of chatbot technology differs depending on a number of psychological and contextual factors.

Artificial intelligence (AI) is a key component in improving service quality and personalization, especially when it comes to chatbots. Without the need for human intervention, chatbots have demonstrated efficacy in promptly and accurately responding to visitor queries. According to case studies, a chatbot can effectively reduce staff workload by up to 70% by answering up to 70% of guest inquiries. This frees up human employees to concentrate on more complicated requests that call for a personal touch (Anwar et. al., 2024).

Adoption of Chatbot Technology in the Tourism Industry

Rather than only availability, user experience and perceptions of system dependability have a significant impact on chatbot acceptability. Travelers are far more likely to use a chatbot if they see it as reliable, efficient, and helpful. Similarly, Raza et al. (2024) highlight the importance of emotional reactions, such as confidence and familiarity with chatbot conversations, in promoting long-term use. As for the context of airport customer service, travelers perceive the use of chatbots as particularly beneficial in situations where they require real-time feedback and information on flights, when they have questions regarding check-in and luggage, or when they require help regarding transportation from and to the airport or concerning parking (Auer et. al, 2024).

Previous research by Anwar et. al., 2024 agreed that the visitor experience is enhanced and hotel efficiency is significantly increased through digital transformation. The benefits are substantial in terms of numbers: AI chatbots can reduce staff workload by up to 70%, while cloud-based PMS can enhance operational efficiency by 30%. Big data analytics provides the qualitative advantage by enabling customized offerings that increase visitor happiness by as much as 15%. Research suggests that digital integration is now a strategic necessity for maintaining competitiveness in the hospitality market. AI-driven chatbots enhance the visitor experience through personalization and instant responsiveness. For instance, chatbots are perceived as particularly beneficial in time-sensitive environments like airports for tracking flight status or parking.

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But not everyone is accepted. Adoption is fueled by practical benefits like speed and round-the-clock accessibility, while issues like a perceived lack of "human touch" or worries about data protection may prevent use. Therefore, examining the connection between PU and behavioral intention is essential to comprehending Malaysian tourism's digital revolution.

Perceived Usefulness

Perceived usefulness is a major factor influencing adoption intention, according to studies on AI adoption in the hospitality and tourism industries (Pillai & Sivathanu, 2020). The perceived usefulness of a chatbot is linked to functional advantages that improve productivity and quality for both travel agents and tourists.

Chatbot can be considered valuable when they perform routine operations such as booking confirmation, schedule modifications, or location suggestions, allowing users to complete tasks more quickly than traditional customer care techniques. According to Raza et al. (2024), travelers enjoy chatbot that decrease confusion while providing useful, real-time support. Also, Kumar et al. (2024) discovered that visitors who used chatbot saw them as useful tools for gaining control over their own travel decisions, especially because planning is time-sensitive.

This study identified Perceived Usefulness (PU) as a key factor influencing technology adoption, building on the Technology Acceptance Model (TAM). PU indicates how much a user thinks a chatbot enhances task efficiency in the travel industry, such as by saving time while making reservations or offering precise, up-to-date information. Although chatbots can reduce workloads by up to 70% and provide significant operational benefits, consumer opposition frequently results from uncertain utility or a lack of confidence in AI accuracy.

Methodology

This study employed a non-probability purposive sampling method. Data were collected via a self-administered online survey distributed within selected respondents based on specific criteria, including their involvement in the tourism industry, familiarity or potential exposure to digital tools, and willingness to participate in the online survey. The data collection procedure illustrates the systematic steps taken to obtain relevant information from respondents to meet the research objectives. A self-administered online survey administered via Google Forms was used to gather data for this investigation. With an emphasis on tourist stakeholders, the questionnaire link was disseminated via social media and messaging platforms. This method was chosen because of its low cost, efficiency, and capacity to reach a big sample in a short period.

Of the 384 targeted individuals, 271 provided complete responses, resulting in a 70% response rate. This rate is considered satisfactory for academic social science research, where averages currently trend toward 68%. While earlier literature proposed high standards for survey response rates, such as the 50 to 80 percent range suggested by Roth and BeVier (1998), the appropriate benchmark is now considered highly dependent on the survey mode and target population. In academic social science research, acceptable response rates vary significantly by field; however, a comprehensive meta-analysis indicated that the average reported rate in top journals trended toward 68 percent by 2020 (Baruch & Holtom, 2008, 2022).

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Result and Discussion

Descriptive analyses were conducted for respondents in which they had used chatbots before, as well as the tourism-related contexts they perceived as suitable to use a chatbot in and the entry points they would imagine for such an interaction. For these analyses, we used all the data that we were able to collect. For the hypothesis driven analyses focusing on our proposed conceptual acceptance model, however, we only used fully completed questionnaire responses.

Independent Variable - Perceived Usefulness

Table 1: Descriptive Statistics of Perceived Usefulness

Item	n	Mean	Standard Deviation
Using Chatbot Helps Me to Completing Travel Tasks Quickly	271	4.17	0.847
Chatbots Make My Travel Experience Better	271	4.07	0.840
Chatbots are Useful When I Book or Find Travel Information.	271	4.20	0.782
Chatbot Give Good Suggestions When I Plan Trips	271	4.11	0.804
Chatbot Reduce the Need to Talk to Human Customer Service	271	3.93	0.940

As shown in Table 1, respondents generally view chatbots as valuable functional tools. The highest-rated item—usefulness for booking and information retrieval *"Chatbots are useful when I book or find travel information"* (M = 4.20, SD = 0.782) it confirms that utility and efficiency are the primary drivers of user value. This aligns with previous findings by where performance expectancy significantly influenced adoption among travellers (Wüst, K., & Bremser, K., 2025). Utility and convenience have a significant impact on behavioral intention to use AI chatbots in tourism, according to their research utilizing the UTAUT2 model (Agapitou et al., 2025). The idea that chatbots improve productivity is further supported by the statement, *"Using chatbots helps me to complete travel tasks quickly"* (M = 4.17, SD = 0.847). Auer, Schlögl, and Glowka (2024) found that tourists' intentions to use chatbots in airport customer service are strongly influenced by their perceived usefulness and ease of use. According to their research, chatbots speed up task completion by streamlining service interactions and decreasing response times.

Additionally, users' confidence in chatbot recommendations is demonstrated by the mean score for *"Chatbots give good suggestions when I plan trips"* (M = 4.11, SD = 0.804). This is consistent with the findings of Agapitou et al. (2025), who highlighted that chatbot adoption is positively impacted by perceived innovativeness and hedonic motivation, which includes fun and satisfaction from engaging with AI. According to their research, tourists value chatbots' capacity to offer unique and interesting travel recommendations. Moreover, the statement *"Chatbots make my travel experience better"* (M = 4.07, SD = 0.840) shows that users acknowledge chatbots' role in improving travel experiences, which is in line with Anwar et al. (2024)'s claim that digital transformation, including AI tools like chatbots, enhances guest satisfaction and personalization in hospitality settings. According to their qualitative analysis, hotels can customize services and boost customer satisfaction by up to 15% thanks to AI-driven systems, demonstrating comparable experiential benefits.

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Notably, the lowest score item, *"Chatbots reduce the need to talk to human customer service"* (M = 3.93, SD = 0.940), regarding the replacement of human service suggests that while users value automation, they still desire a human connection for complex or sensitive issues. This is in line with the findings of Auer et al. (2024), who pointed out that issues with authenticity and trust might prevent complete reliance on chatbots. In a similar vein, Tussyadiah (2020) and Gretzel et al. (2015) discovered that while automation increases productivity, visitors still appreciate the personal touch in hospitality encounters, indicating that technology should enhance rather than replace human service.

Relationship between Perceived Usefulness and Chatbot Acceptance

H1: Perceived usefulness has a positive influence on the acceptance of using a Chatbot in the tourism industry.

Table 2: Correlation Coefficient for Perceived Usefulness and Chatbot Acceptance

		Perceived Usefulness	Acceptance of Using Chatbot
Perceived Usefulness	Pearson Correlation	1	789**
	Sig. (2-tailed)		<001
	n	271	271
Acceptance of Using Chatbot	Pearson Correlation	789**	1
	Sig. (2-tailed)	<001	
	n	271	271

Table 2 displays the number of respondents, the significance value, and the Pearson correlation coefficient. According to the analysis, there is a statistically significant correlation between the variables because the p-value was less than 0.001, which is less than the significance level of 0.01. The perceived usefulness and acceptance of chatbot use in the travel business are highly positively correlated, as indicated by the correlation coefficient of r = 0.789. This result implies that visitors' acceptability and readiness to adopt chatbot technology also rise as they believe chatbots to be increasingly beneficial.

Additionally, this supports the fact that when users perceive that the technology enhances their travel planning, provides efficient support, and improves task performance, they are most likely to adopt chatbot services. This is in line with the Technology Acceptance Model, which postulates that perceived usefulness is a significant determinant influencing behavioral intention toward technology adoption. The result is also in tandem with earlier studies, such as Ho et al. (2022) and Pillai & Sivathanu (2020), who found that tourists tend to accept chatbot technology if they perceive it as beneficial in simplifying bookings, travel enquiries, and customer service. Therefore, the results support H1, which confirms that perceived usefulness significantly contributes to the acceptance of chatbot usage in tourism.

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This finding also supported by Fahlevi et al. (2025) show that Intention to Use and Actual Use are both directly and indirectly influenced by the independent variables Perceived Eoverallase of Use and Perceived Usefulness. Additionally, expands on the TAM model, identifying Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) as the primary determinants of behavioral intention and emphasizing the critical role of Trust in conjunction with PU and PEOU for adoption (Nazri et al., 2024). Moreover, Wüst, K., & Bremser, K. (2025) supports that the four-item Perceived Usefulness scale has a high Cronbach's Alpha of 0.939, indicating excellent support for the Technology Acceptance Model (TAM) in the booking scenario.

Conclusion

This study confirms that AI-powered chatbots are instrumental in enhancing operational efficiency and guest satisfaction within the tourism sector. The strong correlation between perceived usefulness and acceptance underscores that utility is the cornerstone of digital adoption. Chatbots help travelers finish chores faster, give precise travel information, and make tailored trip recommendations that increase enjoyment. These outcomes are consistent with earlier studies emphasizing that performance expectancy, perceived usefulness, and enjoyment are primary factors influencing technology adoption in travel contexts. By better understanding consumer wants in the tourism industry, this research helps AI providers create more specialized features or products.

However, the study also shows that users still value human interaction in spite of these benefits, particularly in situations that are complicated or emotionally sensitive. According to the somewhat lower mean score for lowering the demand for human services, trust, empathy, and emotional connection are still crucial elements of the travel experience (Anwar et al., 2024). Industry players should implement a hybrid human-AI model. Chatbots should handle routine, time-sensitive tasks (bookings, FAQs) to maximize efficiency, while human agents remain available for high-empathy, complex interactions.

Referring to trust and reliability, developers must focus on the accuracy of suggestions (M=4.11) and data security to overcome the skepticism that often accompanies automated systems.

In summary, this study confirms the increasing body of evidence that digital transformation may improve customer happiness and competitiveness in the hospitality and tourism industries when it is properly combined with human components. Chatbots and other AI-driven products rely on users' trust, emotional involvement, and cultural acceptance in addition to their technical abilities. To conclude this, while digital transformation offers a competitive edge, its long-term success depends on balancing technological innovation with human-centered factors like trust and usability.

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