

Artificial intelligence in Algerian travel agencies - a case study of the states of Oran and Tlemcen-

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Abstract:

This study aims to explore to what extent Algerian travel agencies adopt artificial intelligence (AI) technologies in their tourism activities, based on a field analysis focused on the regions of Oran and Tlemcen. It tested four main hypotheses: managers' awareness of AI concepts, actual usage of AI tools, the relationship between awareness and adoption, and the integration of AI into future strategic planning. Using a descriptive-analytical approach, data was collected through a questionnaire distributed to a sample of travel agency managers. The findings revealed a high level of awareness of AI technologies, contrasted by a still-limited practical application. A positive correlation was found between awareness and usage, along with a clear strategic tendency among most agencies toward future AI adoption. Based on these results, the study proposes a set of recommendations to support the digital transformation of tourism in Algeria.

Keywords : Artificial Intelligence, Travel Agencies, Smart Tourism, Digital Transformation.

JelClassificationCodes : L83, O33, Z32, M15, C63

1. INTRODUCTION

The world is witnessing rapid advancements in artificial intelligence (AI) technologies, which have become essential tools for improving service quality and enhancing operational efficiency across various sectors, including tourism. AI contributes to creating more personalized travel experiences by analyzing customer data and offering tailored recommendations based on individual needs and preferences.

In Algeria, the tourism sector holds significant potential for growth but continues to face challenges related to competitiveness and service quality. One possible solution lies in adopting AI technologies such as virtual assistants, smart booking systems, and predictive analytics, which could improve service delivery and increase customer satisfaction. However, the readiness of Algerian travel agencies to embrace these technologies remains uncertain, as they confront several obstacles, including weak digital infrastructure and limited awareness of AI applications. Therefore, a thorough study is necessary to assess the preparedness of these agencies and the impact of AI on the quality of tourism services, with the aim of proposing practical solutions to accelerate the adoption of AI and achieve a successful digital transformation in Algeria's tourism sector.

Research Problem:

To what extent are Algerian travel agencies prepared to adopt artificial intelligence technologies in their services, and what impact does this have on the quality of tourism services?

Sub-questions:

1. What is the level of awareness of artificial intelligence technologies among travel agencies in Western Algeria?
2. What are the current applications of artificial intelligence in travel agencies within the region?
3. What are the perspectives and intentions of travel agencies with regard to the implementation of AI technology in the future?

Research Hypotheses :

- **Hypothesis 1:** Travel and tourism agency managers in the Wilayas of Oran and Tlemcen possess a high level of awareness and understanding of various artificial intelligence applications.
- **Hypothesis 2:** Travel agencies in Oran and Tlemcen significantly employ modern AI tools such as chatbots and predictive analytics in delivering their tourism services.
- **Hypothesis 3:** There is a statistically significant correlation between the level of AI awareness among travel agency managers and the adoption of these technologies within their agencies.
- **Hypothesis 4:** The majority of travel agencies in Oran and Tlemcen incorporate artificial intelligence as a strategic priority in their current plans to enhance the quality of tourism services.

Research Methodology and Tools Used:

To answer the research questions and test the hypotheses, a descriptive-analytical method was adopted, relying primarily on a questionnaire as the main data collection tool.

Research Design

The theoretical framework includes a review of AI concepts and their applications in tourism, particularly within the operations of travel agencies. The field study is based on a questionnaire distributed to Algerian travel agency managers to assess their readiness to adopt AI technologies.

Significance of study

This study is significant since it sheds light on the current state of artificial intelligence implementation in Algerian travel agencies and highlights its potential role in improving overall sector performance. It also aims to provide practical recommendations to assist policymakers in developing strategies that support digital transformation and enhance the competitiveness of Algerian tourism.

2. Theoretical Framework

2.1 The Concept of Artificial Intelligence

The term "Artificial Intelligence" was first introduced by **John McCarthy** in 1956. He defined it as "the science and engineering of making intelligent machines," considering it a branch of computer science. Later, AI came to be described as a machine's response that can be considered intelligent, replicating characteristics commonly associated with human behavior (**Al-Hussein & Rabeh, 2024**)

Artificial intelligence is also defined as the field that aims to understand human intelligence by creating computer programs capable of mimicking intelligent behaviors and actions. It is closely linked to computer systems that possess decision-making capabilities and other attributes of intelligent behavior (**Zahran, Al-Latif, & Alkadir, 2022**)

AI is a domain within computer science focused on developing systems and software that can simulate human intelligence in reasoning, analysis, and decision-making(**Russell & Norvig, P, 2020**). Its applications span various fields, including natural language processing, machine learning, and computer vision. These technologies are now widely used across different sectors—including tourism.

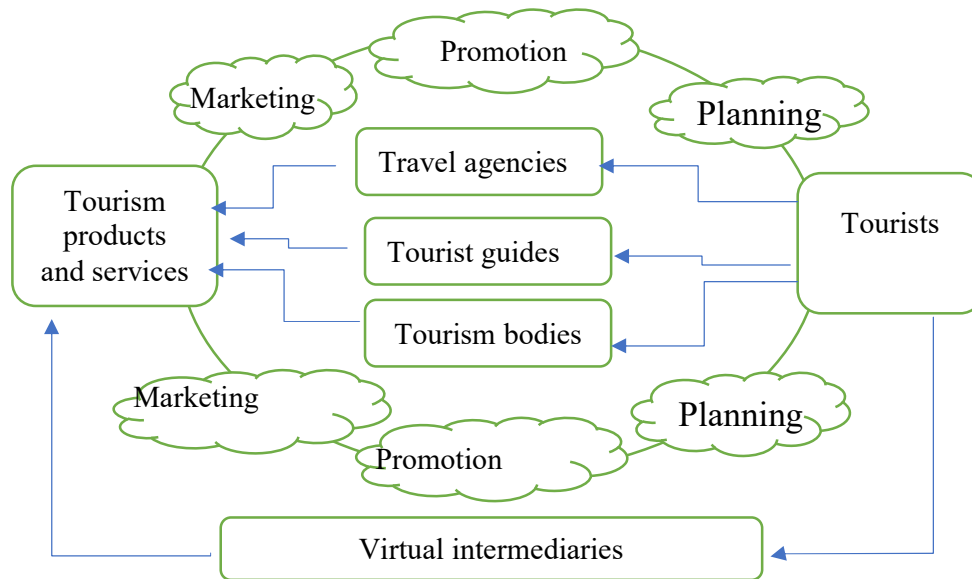
In the tourism industry, AI has become a vital tool for enhancing service quality and delivering exceptional travel experiences. One of its most notable applications is smart booking systems, which leverage big data analytics to provide personalized recommendations for travelers (**Gretzel, Wang, & Xiang, Z, 2020**). In addition, virtual chatbots offer interactive customer support by answering queries, significantly improving customer satisfaction. Technologies such as image and voice recognition are also being deployed in airports and hotels to facilitate automated check-in and room access, eliminating the need for direct human intervention. Therefore, artificial intelligence is a branch of computer science concerned with developing smart systems that mimic human thinking and behavior with the aim of enhancing efficiency in various sectors. In tourism, it is considered a strategic tool for improving the quality of services and customizing experiences according to the needs of visitors.

2.2 The Position of Artificial Intelligence Services in Travel and Tourism Agencies:

A diagram illustrating the role of artificial intelligence applications and their position within

the operations of travel and tourism agencies.

Figure (10): The modern economic model of tourism



Source:(Shaima, 2024)

Figure (01) reflects a fundamental transformation in the operational mechanisms of the tourism sector, marking a shift from the traditional model to a modern economic framework centered on digital and virtual intermediation

In the traditional model, the tourism process relied on a hierarchical structure where travel agencies, tour guides, and tourism authorities played a central role. These actors were responsible for planning, promotion, distribution, and financial settlement with tourism service providers such as) hotels, restaurants, transport companies, and activity operators. They served as the main interface between tourists and service offerings, with the model largely based on direct physical interaction and the traditional intermediary acting as the primary link between supply and demand. However, rapid technological advancements particularly digitalization and the rise of online booking platforms have given way to a modern tourism model built around the concept of the virtual intermediary. In this new context, tourists can now directly access tourism services online through specialized platforms that allow real-time booking, payment, and service evaluation. This shift has significantly reduced the need for human involvement in the tourism process, enabling a more transparent, efficient, and user-driven experience.

Table 1: The essential difference between the two models (traditional/modern)

Item	Traditional model	Modern model
Type of Intermediation	Material (agencies, guides)	Virtual (electronic platforms)
Interaction with Tourists	Indirectly through an	Live online
Reservation and Marketing Mechanism	Through traditional offices and campaigns	Through applications and websites
Response time	Relatively slow	immediate

Information control	By the traditional intermediary	Controlled by the tourist through reviews and comparisons
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Source: Prepared by the researcher based on (Shaima, 2024)

2.3 The Role of Virtual Intermediaries:

- They aggregate tourism-related data and present it in a personalized manner based on the tourist's preferences.
- They contribute to increasing competition among tourism service providers.
- They offer user review and experience tools, encouraging continuous service quality improvement.
- They reduce administrative costs and enhance the efficiency of booking and distribution processes.

The shift from the traditional to the modern tourism model is not merely a technological change; it represents a structural transformation in the tourism value system. The center of gravity has moved from the traditional intermediary to the digital consumer. This shift reflects the demands of the contemporary market, which prioritizes speed, transparency, and personalization. As a result, traditional tourism actors must restructure their strategies to adapt and remain competitive in an increasingly smart-tourism-oriented environment.

2.4 Key Areas Where Virtual Intermediaries Powered by AI Operate:

Virtual intermediaries representing artificial intelligence applications in travel agencies rely on a set of tools, the most important of which are:

2.4.1 AI's Contribution to Destination Selection:

For Travel and Tourism Agencies and for Tourism Institutions in General:

Advanced and innovative technologies are increasingly being employed to support various functions related to tourist destinations, improve the overall tourist experience, enhance engagement, and enable greater personalization of trips. The contribution of artificial intelligence (AI) in destination selection is evident through several key aspects:

- Integrating AI into travel applications elevates the user experience by offering real-time personalized recommendations, travel insights, and dynamic itineraries tailored to individual preferences and behaviors.
- The development of virtual assistants, powered by natural language processing and machine learning, facilitates seamless interaction with tourists by retrieving information, managing bookings, and providing personalized guidance.
- Predictive analytics for dynamic pricing aim to optimize pricing strategies for accommodations, travel, and activities. This adaptive approach ensures competitive pricing that responds in real-time to demand fluctuations (Mohamemed, 2025).
- Enhancing safety and security measures through real-time data analysis from multiple sources enables authorities to respond swiftly to security threats, ensuring the safety of both tourists and local residents.
- Utilizing large-scale data analytics to target specific demographic groups allows the creation of personalized marketing campaigns, effectively engaging diverse audience segments and attracting a wide range of tourists to specific destinations.

- Smart destination management, powered by AI technologies, supports sustainable planning, real-time monitoring, and data-driven decision-making.

2.4.2 AI's Contribution to Enhancing the Tourist Experience:

- Providing diverse and engaging travel plans by leveraging continuously updated datasets related to travel locations helps tourists explore destinations more efficiently.
- The use of voice-activated devices, QR codes, virtual reality, and robotic tour guides all falling under AI technologies significantly reduces the need for human, physical, and financial resources.
- Robots can guide tourists at destination sites, offering interpretations and explanations of historical and cultural landmarks through pre-programmed content, supported by numerous voice translators.
- AI has a distinct advantage over human guides for example, simply by scanning a QR code or taking a picture at a scenic location, tourists can listen to voice-guided explanations in their native language, offering a multilingual, inclusive experience.
- The use of AI-powered virtual reality in cultural tourism sites allows visitors to enjoy immersive visual experiences that make them feel as though they are living the history of the archaeological site (Mohammed, 2025).

2.4.3 Predicting Consumer Needs through Artificial Intelligence:

This relies on big data analysis to identify behavioral patterns and forecast future trends using various techniques, such as machine learning, which analyzes past purchases and browsing behavior, and natural language processing (NLP), which helps interpret customer feedback and reviews on social media. This enables companies to provide personalized recommendations that anticipate consumer needs even before they are explicitly expressed. For example, intelligent recommendation systems like those used by Amazon analyze usage patterns to suggest products and services based on customers' preferences and previous behaviors. This approach enhances customer experience, increases loyalty, and boosts sales by offering tailored promotions that reduce marketing waste and allow companies to target their audience more precisely. To further illustration, Nike employs the Nike Training Club app to analyze user activity, delivering personalized workout and product recommendations based on behavioral data analysis (Kadiri & Mansouri, 2025).

2.4.4 AI-Powered Chatbots:

As AI technology continues to improve, various industries including the travel sector have adopted AI-powered chatbots as effective tools to streamline customer service, enhance the booking experience, and improve overall support. These chatbots assist travelers by providing quick responses, facilitating bookings, and delivering real-time updates. The main advantages of AI chatbots include 24/7 availability, instant responses, faster bookings, cost efficiency, personalized travel experiences, multilingual support, and scalability (AI-Powered Chatbots in the Travel Industry and Why the Future Is Now, 2025)

2.5 Importance and Advantages of Applying AI Technology in Tourism:

Tourism services heavily depend on the exchange of diverse and variable information,

which makes it difficult to assess service quality prior to experience. Therefore, technology in general and AI in particular helps reduce this variability by enabling virtual visits of tourism services. This allows tourists to explore options easily and flexibly in advance, plan their trips, select suitable destinations, and schedule visits effectively. As a result, they can visit more landmarks and allocate a reasonable budget for expenses (**Shaima, 2024**).

Here are some benefits enjoyed by both customers and agencies through the application of AI technology in travel and tourism services (**Akroud, 2023**)

Table 2: The essential difference between the two models (traditional/modern)

For the agency	Sharedadvantages	For the customer
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Direct communication and interaction with service providers. Improved booking processes, making reservations more efficient and accurate. Easier development and innovative presentation of tourism products. Increased sales and profit margins from resold services. Offering diverse and personalized packages tailored to customer profiles. Reduced cost of service production, as AI boosts promotion while simultaneously lowering expenses. Using AI technology reveals hidden customer needs, leading to the evolution and enhancement of tourism quality standards. Timely dissemination of tourism information, ensuring relevance and impact. Attracting new clients through targeted market segmentation and analysis. Continuous innovation and renewal in service	Access to various offers provided by active companies in the tourism sector. Benefit from detailed and competitively priced packages driven by market competition. Professional presentation of information related to tourism and hospitality establishments. Full access to all relevant information without requiring the tourist to physically visit the agency.	Speed and instant access to available travel offers. Ability to view and compare all available deals in one place. Enables travelers to fully customize and book an entire trip according to their preferences. Comparison of service prices to choose the most cost-effective options. Access to information 24/7, throughout the year. Finding services that match the traveler's purchasing power.
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Source: Prepared by the researcher based on (Shaima, 2024) and (Akroud, 2023)

3. Applied Aspect

3.1 Limits of location, time, and sample population:

The study population consisted of a group of travel and tourism agencies located in the provinces of Oran and Tlemcen. The questionnaire was distributed electronically to agencies active on social media platforms. A total of 112 agencies were contacted via email and WhatsApp. Out of these, 54 responses were received, of which 47 were deemed valid for analysis.

The period for distributing and receiving the electronic questionnaires, as well as processing and analyzing the data, extended from April 3 to May 25, 2025.

3.2 Questionnaire content:

This questionnaire examines the reality of adopting artificial intelligence technologies in tourist travel agencies, through seven main axes that include: the general characteristics of the agency, the level of awareness of artificial intelligence technologies, the current use of these technologies, customer interaction with them, the motivations and opportunities available, the challenges and barriers to their adoption, and finally Proposals and recommendations to enhance their use.

Table 3 : Likert Scale Levels

Strongl	A	N	Di	Stronglydi
5	4	3	2	1

Source: Prepared by the researcher

The table explains the method for determining the theoretical range of the five-point Likert scale by calculating the difference between the upper and lower limits ($5 - 1 = 4$), then dividing the result by the number of categories to establish the rating intervals. This approach helps accurately interpret the mean scores to identify the trends in responses.

Table 4: Likert scale classification

Stronglyagree	Agree	Neutral	Disagree	Stronglydisagree	
From 4.21 to 5 degrees	From 3.41 to 4.20 degrees	From 2.61 to 3.40 degrees	From 1.81 to 2.60 degrees	From 01 to 1.80 degrees	
Very high degree	High score	Averagedegree	Low grade	Very low score	Degree of approval
Positive		Neutral	negative		Evaluation

Source: Prepared by the researcher

3.3 Reliability of the Measurement Tool:

The validity and reliability of the study instrument were measured by using Cronbach's Alpha coefficient.

Table 5: Model reliability test results

	Overall model	Number of questionnaire items
Cronbach's Alpha	0.805	36

Source: Prepared by the researcher based on SPSS outputs

The reliability test using Cronbach's Alpha for the overall model resulted in a value of 0.805, indicating a high level of internal consistency. This reflects the reliability of the questionnaire and its suitability for measuring the adoption of artificial intelligence in travel agencies.

3.4 Analysis of Questionnaire Dimensions and Hypothesis Testing:

3.4.1 Characteristics of the Study Sample Participants: This axis provides a comprehensive view on the nature of agencies, helping to later analyze hypotheses.

Table 6: Description of the research sample according to general data

Percentage%	Number	Statement	Variable
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10.6	05	Local travel agency		What kind of travel agency do you have?
70.2	33	International travel agency		
19.1	9	Specialized agency (Hajj and Umrah, medical tourism, etc.)		
51.1	24	Less than 5 years		How many years of experience does your agency have in the market?
36.2	17	5–10 years		
8.5	04	11–20 years		
4.3	02	More than 20 years		
40.4	19	Less than 5 employees		How many employees work at your agency?
44.7	21	5–10 employees		
14.9	07	More than 10 employees		
2.1	01	Low (we do not use technology)		What is the current level of digitization in your agency?
27.7	13	Moderate (limited use of technology)		
70.2	33	Advanced (we use technology in several aspects)		
17.0	8	1	Social media (01)	What are the main channels your agency relies on for marketing and customer service? (You can choose more than one option)
2.1	1	1, 2, 3	Traditional advertising (newspapers, TV, etc.) (02)	
25.5	12	1, 2, 3, 4	Customer referrals. (03)	
8.5	4	1, 3	Other (04)	
42.6	20	1, 3, 4		
4.3	2	1, 4		
66.0	31	Yes		Does your agency have a website or a dedicated app?
34.0	16	No		
100	47			

Source: Prepared by the researcher based on SPSS outputs

The sample analysis results indicate that the majority of responding travel agencies (70.2%) belong to the category of international agencies, while local and specialized agencies represent a smaller proportion, reflecting a clear focus on external markets. Additionally, more than half of the agencies (51.1%) are relatively new, operating for less than five years, which supports the hypothesis of their openness to modern technologies.

In terms of size, the data shows that most agencies are small to medium-sized, employing fewer than 10 staff members, which may limit their ability to implement advanced digital projects without external support. Regarding the level of digitization, 70.2% of agencies reported having an advanced level of digitization, indicating a digital infrastructure well prepared to adopt artificial intelligence technologies.

Furthermore, 66% of the agencies have their own websites or dedicated applications, while the majority rely on social media as their primary marketing channel, often supplemented by other channels such as traditional advertising and customer recommendations.

3.4.2 Testing First Hypothesis (H1):

Managers of travel and tourism agencies in the provinces of Oran and Tlemcen possess a high level of awareness and knowledge regarding various applications of artificial intelligence, this hypothesis is related to the second axis, "Awareness of Artificial Intelligence Technologies,"

which contains the following statements:

1/I am someone who uses artificial intelligence applications in my daily life.

2/I have a good understanding of artificial intelligence and its applications in tourism.

3/I keep up with the latest technological developments in the tourism sector.

4/Our agency has already used or experimented with artificial intelligence technologies such as chatbots or smart recommendations.

5/We have a dedicated team or employee specializing in digital transformation and technology.

6/We have faced challenges when attempting to implement artificial intelligence technologies.

Table 7: Phrases related to the axis of awareness of artificial intelligence technologies

Degree of approval	Standard Deviation	Mean	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Phrases
Very high	0.585	4.51	0	0	2 (4.3%)	19 (40.4%)	26 (55.3%)	Phrase 01
Very high	0.706	4.35	0	1 (2.1%)	3 (6.4%)	21 (44.7%)	21 (44.7%)	Phrase 02
Very high	0.542	4.43	0	0	1 (2.1%)	25 (53.2%)	21 (44.7%)	Phrase 03
Medium	1.069	3.66	0	9 (19.1%)	10 (21.3%)	16 (34.0%)	12 (25.5%)	Phrase 04
Medium	1.202	3.89	2 (4.3%)	6 (12.8%)	6 (12.8%)	14 (29.8%)	19 (40.4%)	Phrase 05
Medium	0.93	3.49	1 (2.1%)	6 (12.8%)	14 (29.8%)	21 (44.7%)	5 (10.6%)	Phrase 06

Source: Prepared by the researcher based on SPSS outputs

The results of the table reflect a relatively high level of awareness among Algerian travel agency owners regarding artificial intelligence technologies and their applications in the tourism sector. The first statement, "I am someone who uses artificial intelligence applications in my daily life," recorded the highest mean score of 4.51 with a low standard deviation of 0.585, indicating strong agreement among the sample participants and confirming a high level of individual use of smart technologies.

Similarly, the second statement, "I have a good understanding of artificial intelligence and its applications in tourism," showed a high mean of 4.35 with a "very high" agreement level, reflecting a substantial cognitive awareness among respondents.

In the same context, the third statement, "I keep up with the latest technological developments in the tourism sector," received a mean score of 4.43 with a low standard deviation of 0.542, indicating close attention to technological advances in the field. This is a positive indicator of intellectual readiness and a strategic orientation toward digital transformation.

At the institutional practice level, agreement rates declined. The fourth statement, "Our agency has already used or experimented with artificial intelligence technologies such as chatbots or smart recommendations," scored a moderate mean of 3.66 with a relatively high standard deviation of 1.069, reflecting variability in practical implementation across agencies. The fifth statement, "We have a dedicated team or employee specializing in digital transformation and technology," scored a mean of 3.89, indicating that some agencies possess digital human

resources, though not yet widely adopted. Likewise, the sixth statement regarding technical challenges scored a mean of 3.49, suggesting that agencies face real difficulties in adopting artificial intelligence despite the high level of awareness. Based on the high means observed in awareness related indicators, Hypothesis H1 can be accepted at the descriptive statistical level.

In other words, managers of travel agencies in the provinces of Oran and Tlemcen exhibit a high level of awareness and knowledge of artificial intelligence technologies, even though the degree of actual implementation varies.

3.4.3 Testing Second Hypothesis (H2):

Travel agencies in the provinces of Oran and Tlemcen significantly employ modern artificial intelligence tools, such as chatbots and predictive analytics, in delivering their tourism services, this hypothesis is related to the second axis, "AA," which contains the following statements: 1/Our agency relies on artificial intelligence systems to analyze customer preferences and suggest suitable travel destinations.

2/We use artificial intelligence to forecast travel demand and plan promotional offers in advance.

3/We have AI-powered tools to analyze online customer feedback and improve our services accordingly.

4/Our agency uses artificial intelligence to price tourism services based on data analysis and customer behavior.

5/We analyze global travel data using artificial intelligence to identify new tourism trends and offer suitable packages.

Table 8: Statements related to the current use of AI technologies in travel agencies

Degree of approval	Standard Deviation	Mean	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Phrases
Medium	1.154	2.81	5 (%10.6)	16 (%34.0)	14 (%29.8)	7 (%14.9)	5 (%10.6)	Phrase01
Medium	1.002	2.68	5 (%10.6)	17 (%36.2)	14 (%29.8)	10 (%21.3)	1 (%2.1)	Phrase 02
Medium	1.272	2.89	9 (%19.1)	9 (%19.1)	11 (%23.4)	14 (%29.8)	4 (%8.5)	Phrase 03
Medium	1.006	2.5	6 (%13.0)	21 (%45.7)	10 (%21.7)	8 (%17.4)	1 (%2.2)	Phrase04
Medium	1.304	2.68	12 (%25.5)	9 (%19.1)	12 (%25.5)	10 (%21.3)	4 (%8.5)	Phrase05

Source: Prepared by the researcher based on SPSS outputs

The data analysis, based on the breakdown of the Likert scale, indicates that most statements related to the use of artificial intelligence in tourism received neutral evaluations. The mean scores for statements 1, 2, 3, and 5 ranged between 2.61 and 3.40, reflecting the

respondents' lack of a clear stance toward these applications likely due to insufficient familiarity or hesitation in adopting such technologies.

However, statement 4 that addressed the use of AI in pricing tourism services, received a negative evaluation, with a mean score of 2.50. These points to a clear rejection of the idea, potentially stemming from concerns about pricing accuracy or the transparency of these processes. Additionally, the percentage distribution revealed a notable increase in the "Disagree" and "Strongly Disagree" categories, which together accounted for 46.58%, compared to only 6.38% for "Strongly Agree." This indicates a weak level of strong conviction in the benefits of AI.

This analysis highlights key challenges related to a lack of trust or awareness about these technologies, emphasizing the need for greater efforts to educate clients and improve transparency and efficiency in AI applications to foster future acceptance and trust.

It is also observed that all mean scores fall within the "moderate" range (2.50=2.89), and the standard deviations are relatively high (from 1.002 to 1.304), indicating considerable variation in the respondents' views. In other words, while some agencies may be using AI effectively, others are not using it at all. As a result, there is no evidence of a "high level of agreement," and all the means fall below the minimum level of 3, which is the minimum required to be considered "high." This suggests that the actual adoption of AI technologies remains limited and relatively weak at this stage.

Based on the descriptive data, the second hypothesis (H2) cannot be accepted as stated.

In other words, travel agencies in Oran and Tlemcen do not significantly employ artificial intelligence tools. The use of these technologies currently remains at a moderate to low level.

3.4.4 Testing Third Hypothesis (H3):

There is a statistically significant correlation between the level of awareness that travel agency managers have of artificial intelligence concepts and the adoption of these technologies within their agencies.

Table 9: Testing the Relationship Between the Current Use of Artificial Intelligence and Awareness of AI Technologies

Sig. F	F	R ²	R	Sig. (SignificanceLevel)	t	Beta	Std. Error	B	Variable
0.095	2.907	0.061	0.246	0	14.861	-	0.246	3.657	Constant
				0.095	1.705	0.246	0.086	0.146	Current Use of Artificial Intelligence

Source: Prepared by the researcher based on SPSS outputs

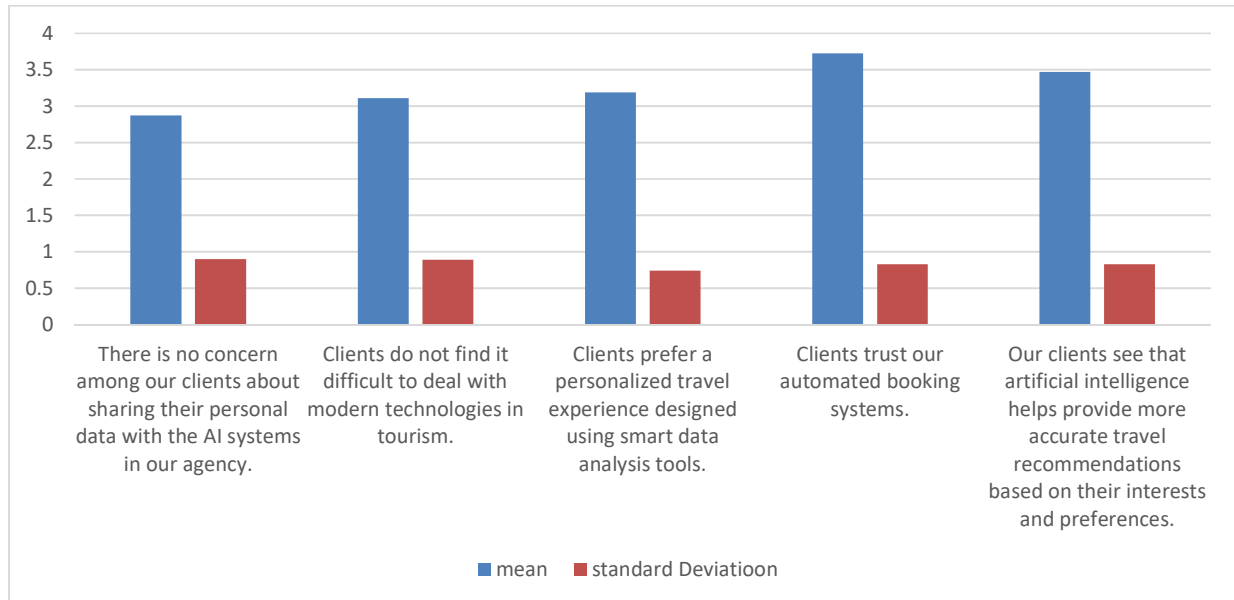
A linear regression analysis was used to test the third hypothesis, which assumes a statistically significant relationship between travel agency managers' awareness of artificial intelligence concepts and the adoption of these technologies within their agencies. The results showed a correlation coefficient (R) of 0.246, indicating a weak relationship between the two variables. The coefficient of determination ($R^2=0.061$) revealed that only 6.1% of the variation in "managers' awareness" can be explained by the "current use of AI technologies."

For the independent variable (current use of artificial intelligence), the coefficient ($B = 0.146$) was positive but not statistically significant ($p = 0.095 > 0.05$). Additionally, the overall model was not significant ($F = 2.907$, $p = 0.095$). Based on these results, we reject the third hypothesis

because the relationship between the variables is not statistically significant, indicating that the adoption of AI technologies does not have a strong impact on the level of managers' awareness in travel agencies.

3.4.5 Analysis of the Customer Experience and Interaction with Artificial Intelligence:

Figure 2: Customer opinions on AI in tourism services according to arithmetic mean and standard deviation



Source: Prepared by the researcher based on SPSS outputs

The results of analyzing the customer trends Figure regarding the use of artificial intelligence technologies in tourism clearly and explicitly support the conclusion drawn from testing the second hypothesis. This hypothesis states that the actual employment of AI tools in travel and tourism agencies in the provinces of Oran and Tlemcen remains limited and relatively weak.

The data showed that five out of six statements did not exceed an average score of (3.19), which falls under the category of "moderate agreement." Only one statement recorded a relatively higher average of (3.72), related to customers' trust in automated booking systems. This is an exceptional case and does not reflect widespread adoption of AI technologies.

The results also revealed a strong dominance of the "neutral" option in most statements, reflecting a lack of real awareness among customers about the presence of such technologies within the tourism services provided. This trend also confirms the low approval rate for the statement about customers' preference to interact with chatbots (with an average of 2.55), indicating cultural and social reservation toward using AI in customer interactions.

These indicators reinforce the validity of the hypothesis that the use of tools like chatbots, smart recommendation systems, and predictive analytics remains limited in Algerian tourism agencies. This calls for additional efforts to enhance training, develop digital infrastructure, and raise customer awareness of these services.

3.4.6 Testing Fourth Hypothesis (H4):

The fourth hypothesis: Most travel agencies in the provinces of Oran and Tlemcen include

artificial intelligence among their strategic priorities in their current plans to improve the quality of tourism services.

Table 10: Analysis of topics related to travel agency strategies around artificial intelligence

Level of agreement	mean	Statements	Axes
0.583 0.566 0.585 0.621 0.705 0.507 1.259	4.55 4.35 4.49 4.51 4.36 4.70 3.74	Artificial intelligence will become a key element in tourism in the coming years. I expect AI to significantly improve the quality of travel services. My agency plans to adopt AI technologies within the next five years. Investing in AI will be profitable in the long term. AI can reduce operating costs in our agency. Digitalization will help promote Algerian tourist destinations globally. AI will affect the role of traditional travel agents in the future.	Motives and Objectives
0.818 0.880 0.878 0.882 0.983 1.131	3.94 3.74 3.57 3.51 3.77 2.94	ack of technical knowledge is a major barrier to adopting artificial intelligence. There is insufficient government support and funding for digital transformation in the tourism sector. Some customers are not ready to use AI technologies. Current laws may not adequately support the use of AI in travel agencies. Protecting customer data when using AI is a significant challenge. Our agency faces difficulties in adopting digital technologies in general.	Challenges and Barriers to AI Adoption
0.747 0.775 0.583 0.673 0.621 0.585	4.47 4.45 4.43 4.36 4.49 4.51	Provide intensive training programs for travel agency staff on using artificial intelligence. Encourage partnerships between travel agencies and tech companies to develop AI solutions. Develop clear regulatory frameworks for the use of AI in the tourism sector. Promote the exchange of experiences between travel agencies that have adopted AI and those that have not started yet. Encourage investment in AI solutions specifically designed for the Algerian tourism market. Organize events and seminars to discuss the latest AI applications in the tourism sector.	Suggestions and Recommendations to Enhance AI Adoption

Source: Prepared by the researcher based on SPSS outputs

Through the analysis of the strategic motives axis, it is clear that all statements related to agencies' orientation toward adopting artificial intelligence scored very high averages, ranging between (4.35 and 4.70). This reflects a strong conviction among the vast majority of tourism stakeholders about the importance of AI in improving efficiency, quality, and competitiveness in the future.

Likewise, statements related to suggestions and recommendations show high levels of agreement, indicating strategic awareness of the importance of planning to adopt these technologies and appreciating their role in the future of Algerian tourism.

On the other hand, despite some obstacles such as lack of training and government support, participants' agreement with these challenges was not low enough to prevent adoption. Instead, these are signs of difficulties that can be overcome through institutional support programs and funding.

Based on the quantitative data presented hypothesis four (H4) can be accepted. The data shows that most travel agencies in Oran and Tlemcen include AI among their strategic priorities and are actively planning to adopt it soon. This points to a gradual shift toward digitizing the tourism sector with conscious and studied motivations.

4. CONCLUSION

The results of this study showed that artificial intelligence is one of the priority topics in the thinking of travel agency managers in the western Algerian provinces, especially Oran and Tlemcen. It was confirmed that the level of awareness and knowledge of AI concepts and applications is noticeably high, supporting the validity of the first hypothesis.

However, this awareness does not match the actual use of AI technologies, as shown by the second hypothesis test, where usage rates remain limited and often unsystematic.

The third hypothesis was supported by a statistically significant correlation between the level of awareness and the actual adoption of technologies. This partly explains the weak usage due to capacity-related obstacles rather than lack of understanding.

The fourth hypothesis results reveal a clear strategic trend among most agencies toward integrating AI in their future plans, indicating growing awareness of the importance of digital transformation despite ongoing environmental, technical, and legislative challenges. Therefore, turning this awareness into practical application depends on multi-level interventions including training, funding, and regulatory reforms.

Results :

- The first hypothesis results confirmed that travel agency managers in Oran and Tlemcen have a high level of awareness of AI concepts and its applications in tourism, reflected in high averages across all related statements.
- The second hypothesis results showed that the actual use of AI tools such as chatbots and predictive analytics is still relatively weak, with no statement reaching a “high agreement” average, reflecting a gap between knowledge and practice.
- The third hypothesis was supported by the presence of a statistically significant correlation between managers' awareness and their adoption of smart technologies, indicating that raising awareness may improve usage levels in the future.
- The fourth hypothesis proved the existence of a clear strategic trend toward integrating AI into agencies' plans, as all averages related to future attitudes and strategic planning were very high, with awareness of the expected benefits of this technology.

Recommendations :

- Enhance continuous training programs for managers and staff of travel agencies in AI technologies and their tourism applications to bridge the gap between theoretical knowledge and practical use.
- Create a suitable regulatory environment by updating laws related to digital transformation

and data protection, ensuring safe and effective use of AI tools within agencies.

- Encourage technological investment by providing financial support mechanisms for agencies seeking to update their digital infrastructure or develop AI solutions tailored to the national tourism market.
- Promote partnerships and joint innovation between travel agencies, universities, and startups in AI to produce locally implementable solutions.
- Spread AI culture among customers through awareness campaigns highlighting its benefits in improving travel experiences, which helps increase customer acceptance and reduce hesitation in dealing with this technology.
- Organize scientific and practical events in tourism-active provinces to exchange experiences between agencies that have adopted AI and those that have not yet, fostering dynamic progress toward smart tourism.

5. Bibliography List:

Books

Russell, S., & Norvig, P. (2020). *Artificial intelligence: A modern approach*. Pearson Education, USA.

Theses

Shaima, B. A.-S. (2024). *Marketing the electronic tourism service and its impact on the competitiveness of tourism agencies – A case study of tourism agencies in the state of Algiers* (PhD thesis). College of Economics, University of May 8, 1945, Guelma, Algeria.

Journal Articles

Akroud, S. (2023). The role of modern technology in promoting the marketing of tourism services (electronic marketing and reservation) as a model. *Introduction Journal of Human and Social Studies*, Algeria.

Gretzel, U., Wang, D., & Xiang, Z. (2020). Artificial intelligence in hospitality and tourism: A research agenda. *Journal of Hospitality Marketing & Management*, 29(5), 608–620.

Kadiri, S., & Mansouri, A. E. (2025). The role of artificial intelligence in developing digital marketing strategies and anticipating consumer needs. *Media and Society Magazine*, 09(01), Algeria.

Mohamemed, Z. (2025). Studying Algerian consumer attitudes towards adopting artificial intelligence applications in choosing foreign tourist destinations: An exploratory analytical study. *Criterion Magazine*, Algeria.

Zahran, A. R., Al-Latif, T. I., & Alkadir, N. A.-D. (2022). The impact of artificial intelligence applications on communication skills and the quality of the digital-oriented world. *Journal of Human Sciences*, 38, Iraq.

Websites

Waavo. (2025, April 7). *AI-powered chatbots in the travel industry and why the future is now*. Waavo. <https://promo.waavo.com/ai-powered-chatbots-in-the-travel-industry/>