جامعة ستاردوم

STARDOM UNIVERSITY

Stardom 2nd Scientific Forum

towards Sustainable Future 2025

Stardome Scientific Journal of Social and Humanitarian Studies

3rd volume 2025- 2nd issue

ISSN: 2980-3772

اللجنة العلمية لمنتدى ستاردوم الدولي الثاني لمستقبل أكثر استدامة

The Impact of Using Artificial Intelligence in Tourism Management
The Mediating Role of Tourism Innovation le of Tourism Innovation

By: Ibrahim mohd alhaj mahd saleh[1]

E-mail: ibrahim@cuba-fly.com

ABSTRACT

Objective: The problem of the study is to investigate the impact of using artificial intelligence in tourism management through the mediating role of tourism innovation.

Theoretical Framework: In this regard, the study suggests that strategic plans on adopting AI by tourism companies need to point out key areas in which AI will fuel enhanced operations and improved customer experiences through investing in AI technologies, training employees, and integrating AI into core business processes.

Method: The population of this study consists of tourism office owners who have experience in using artificial intelligence to innovate and develop the tourism sector in Jordan. Data collection was carried out using a structured questionnaire designed specifically for this study.

Results and Discussion: The results indicated that There is a positive effect of tourism innovation as an intervening variable on the effect of using artificial intelligence in tourism management.

Research Implications: The culture of innovation and experimentation within an organization should be fostered. Companies should give all resources and support to teams that are working on AI applications in tourism management.

Originality/Value: At a time when such is the changing face, training programs for up-skilling in AI, Data Analytics, and Innovation Management should be provided for the employees in order to make them workforce-ready for the future.

Keywords: Artificial Intelligence, Tourism Management, Tourism Innovation, Jordan.

1 INTRODUCTION

Artificial intelligence (AI) has a significant impact on tourism businesses (Dwivedi et al., 2021, Hradecky et al., 2022). This is due to the fact that AI is based on the capabilities of machines to perform cognitive functions related to the human mind through computation (Dwivedi et al., 2023). When viewed from the perspective of socio-technical systems, tourism products that are offered by businesses that are involved in tourism will incorporate a significant amount of data that is processed in a cloud computing system (Schuhbert et al., 2023). Furthermore, analyzing the interactive use of social and artificial intelligence technologies can help develop more intelligent applications for tourism companies and improve tourist satisfaction, which is of great assistance to tourism businesses. This is a significant benefit of robotics service, as stated by Rasheed et al. (2023).

In the tourism industry, artificial intelligence systems have a number of potential applications. Artificial intelligence (AI) helps users find better and more relevant information, gives them greater mobility, improves their decision-making, and ultimately provides a better tourism experience (Gretzel 2011; Tussyadiah and Miller 2019). This is the perspective of the consumer. Within the realm of business, artificial intelligence has the potential to be utilized in virtually every facet of management (Buhalis et al. 2019), particularly in the areas of promotion and productivity (Tussyadiah and Miller 2019). Additionally, it is anticipated that artificial intelligence will encourage more environmentally responsible travel, as it will work to influence customers to have a more social perspective. When it comes to the tourism industry, artificial intelligence systems can either be embedded in pre-existing applications and systems or they can be operated independently (Tussyadiah and Miller 2019). The following types of systems are included in this category: recommender systems, personalization systems and techniques, conversational systems (chatbots and voice assistants), forecasting tools, autonomous agents, language translation applications, and smart tourism destinations.

Because of the perceived contribution that innovation makes to competitiveness, economic policies have prioritized innovation as a central focus. Especially in the tourism industry, the majority of innovations are incremental rather than radical. However, radical innovations that involve "changing the rules of competition" are considered to provide significant competitive advantages, and as a result, they have become the focus of state policy interventions. The complex interaction between the agents and

agencies that collectively produce the tourism experience is particularly important in tourism innovation (Hall & Williams, 2019). Process, supply-chain led, and organizational innovations (OECD, 2005) are also particularly important in the tourism industry. It is also emphasized that technological advancements are of great significance. On the other hand, it is not entirely clear whether the implementation of broad policy goals has enabled specific outcomes related to tourism innovation. According to the above, the problem of the study is to investigate the impact of using artificial intelligence in tourism management through the mediating role of tourism innovation.

Literature review

Artificial Intelligence in Tourism

Numerous segments of the tourism industry have already incorporated artificial intelligence to some degree (Kuo et al., 2017). Despite the fact that Alan Turing first proposed the idea of artificial intelligence in 1936 and that there have been successful applications of AI in the travel industry since the turn of the century (Ivanov et al., 2017), there is still a dearth of scientific research on AI's application in the tourism sector. It is important to acknowledge that there appears to have been a rise in the quantity of scientific articles published in the past two years regarding the topic. It might be related to the fact that Skift, the biggest platform for industry intelligence that offers marketing, insights, and media to important travel-related industries, recognized artificial intelligence as a megatrend in the travel and tourism industry in 2017 (Popesku, 2019).

AI is a powerful tool in various industries, including service automation, marketing, health tourism, and hospitality. It enhances user experience by providing personalized responses and analyzing user data to create personalized marketing strategies (Durmaz & Baser, 2023). AI-driven tools also help in tourism by improving services like maintenance, nutrition, entertainment, transportation, accommodation, and shopping. Additionally, AI optimizes operations, enhancing cost-effectiveness and providing unique experiences. For instance, e-hailing, e-wallets, and e-gate management can be streamlined using AI-based systems (Theam et al., 2021).

Tourism management

The escalating competition in the tourism industry has made destination managers and hospitality owners cognizant of the necessity of consistently introducing new innovations to establish a competitive edge (Kofler et al., 2018). The open innovation model is a frequently employed approach for incorporating business innovation. Open innovation is the idea that

companies should be receptive to ideas from outside the organization in order to generate value and gain knowledge. This model necessitates that the organization generate its own concepts and incorporate innovations from other organizations. Organizations have recently identified novel opportunities for open innovation by engaging with user communities or consumers as knowledge and innovation co-creators (Randhawa et al., 2017). The role of innovation intermediaries is essential in this process. In the realm of tourism, digital intermediaries offer online platforms that enable companies and user communities to establish business connections and surmount the trust barrier by leveraging the availability of previous reviews and testimonials (Randhawa et al., 2017). Innovation in tourism is primarily incremental, rather than radical (Rodriguez et al., 2014). It also involves some management challenges, such as the connection with the tourist experience (Eide et al., 2017) and the dependence of other interorganizational relationships (Martínez-Pére et al., 2019). In reality, the implementation of tourism innovation may be achieved by fostering partnerships and collaborations with other stakeholders (Kofler et al., 2018) and by improving the co-creation of tourist value (Buonincontri et al., 2017).

Previous studies

Future travel and tourism will probably see an increase in intelligent automation, which is made feasible by developments in artificial intelligence (AI) and related technologies. As a socio-economic activity, intelligent automation in tourism requires an explanation of theory and practice. By considering the internet of things (IoT), sustainability, adoption facilitation, and investments in environmental, social, and governance (ESG) factors, Tong et al. (2022) establish the predictive relationship between AI and intelligent automation in the tourism industry. The core ideas of this research are creating useful AI, encouraging adoption, assessing the effects of intelligent automation, and building a sustainable future with AI. The findings showed a predictive relationship between intelligent automated tourism and AI. In a similar vein, IoT, sustainability, adoption facilitation, and ESG have affected travel. Khan et al. (2024) suggest that AI could transform sustainable tourism by improving customer experience and contributing to a sustainable future. AI has naturally found its place in industries due to data analysis and computing power advances. This review discusses AI's data-driven capabilities in tourism to demonstrate how they enable intelligent automation and efficient resource management. AI-powered tourism operations improve efficiency, enabling sustainable development and conservation in green destinations. Destinations use AI for energy management, waste reduction, transportation optimization, and sustainable resource management. These AI-driven solutions reduce

tourism's impact and conserve natural resources. Through recommendation systems and virtual assistants, AI helps deliver eco-friendly experiences.

Qurbonov (2024) suggests that the advent of new technology and the emergence of novel patterns of behavior are driving deep change in the management of tourism, which necessitates rethinking of traditional approaches which must cater to the changing environment. This evolution is fueled by the integration of powerful technologies, including artificial intelligence (AI), virtual reality (VR), blockchain, and the Internet of Things (IoT), respectively reinventing the marketing, experience, and management of destinations. Ku & Chen (2024) examine how artificial intelligence innovation services are used by tourism businesses to satisfy customers. The results show that new product advantages and AI innovation greatly increase functional benefits, boosting visitor satisfaction and the intention to use AI services going forward. Positive user experience and perceived anthropomorphism, on the other hand, do not appear to have any moderating effects. Huang et al. (2022) state that susceptibility to AI adoption in the hospitality/travel industry varies depending on the type of AI used. Search and booking, and virtual agent/chatbot technologies have a high tendency to be adopted. According to Vuong & Tran (2021), in the present day, despite the lack of substantial influence from the Covid-19 epidemic, the tourism sector market has constantly intensified its competitiveness. Concurrently, the preferences of tourists have also undergone constant and swift changes in the context of industry 4.0. Confronted with such volatile obstacles, companies must consistently pursue diverse innovations to introduce fresh and alternative benefits to the tourism sector. Artificial Intelligence (AI) has the capacity to generate suitable novel values, so compelling companies to undertake product and service redesign, as well as redefining the whole innovation process. Nevertheless, AI can also emerge as a favored choice when the benefits of traditional innovation approaches are difficult to recognize. Cao et al. (2022) created a conceptual map that illustrates primary areas of focus and patterns in innovation within the hotel and tourism industry. Trade journals were identified as predominantly focused on product innovation propelled by technological advancements, whereas academic journals encompassed a wider range of subjects including employee innovation, sustainable innovation, leadership innovation, and user generated content (UGC). As stated by Booyens & Rogerson (2019), while tourism companies mostly rely on internal resources for innovation, the inclusion of external, non-local knowledge is crucial for augmenting innovation. It is revealed that although local network connections are abundant, informal, and significant for business and marketing objectives, connections with networks outside the region are crucial for acquiring knowledge and fostering innovation. It is evident that the network

connections between local and regional actors in the Western Cape are generally inadequate in supporting tourism innovation. This indicates that the local and regional innovation networks or systems are relatively underdeveloped.

According to the above, the following hypotheses can be reached:

H1: There is a positive effect of using artificial intelligence on tourism management.

H2: There is a positive effect of using artificial intelligence on tourism innovation.

H3: There is a positive effect of tourism innovation on tourism management.

H4: There is a positive effect of tourism innovation as an intervening variable on the effect of using artificial intelligence in tourism management.

According to the research, we can see various fields from the point of view of the findings of "The Mediating Role of Tourism Innovation," which we can use to further analyze the different fields, by essence comparing them. While many studies focus on how AI impacts tourism engagements, the lack of a comprehensive framework showing how AI may be impacting tourism innovation seems to hold on. Future research is likely to focus on the specific mechanisms by which AI enables innovative activity in the sector. In addition, many of the prior studies which seem to have targeted a varying geographical or demographic setting are probably likely to have been restricted. It draws attention to a gap in understanding how different AI might act in different contexts (e.g., cultural tourism, eco-tourism) as well as in different locations. In addition, most studies are cross-sectional and lack longitudinal data relevant to assessing the long-term effects of the application of AI in tourist management and innovation. Future research could focus on describing how the interactions change over time with a view to obtaining more qualitative clues. Potential effects of customer perception and behavior on adoption of AI technology in tourism may be under researched. It is important to understand the reactions of visitors to AI-augmented products to have an effective implementation. Additionally, limited discussion may exist regarding the policy implications of embedding AI in the tourism industry. Research could investigate the role that legislation and standards could enable innovation and uptake of technology across the sector. Another area that could be explored is the method used to measure the impact of AI on tourism innovation, which may vary between studies. Developing a unified methodology to evaluate effectiveness could produce far more valuable insights.

Methodology

In this study, a quantitative research approach was employed to examine the effects of Using Artificial Intelligence In Tourism Management: The Mediating Role of Tourism Innovation. The research design was based on a survey method, targeting tourism office owners who have experience in using artificial intelligence to innovate and develop the tourism sector. (Nayeri & Aghajani 2010).

Population and sample

The study population consists of tourism office owners who have experience in using artificial intelligence to innovate and develop the tourism sector in Jordan. The study population was carefully defined to include tourism offices registered and recognized by the competent authorities, which use modern technologies and artificial intelligence in their work. To obtain a representative sample, a simple random sampling method was used, ensuring that everyone in the study population has an equal opportunity to be selected. According to the statistics of the Jordanian Association of Travel and Tourism Agents, the number of travel and tourism offices in Jordan reached 690 offices. A random sample of 280 travel offices was selected as explained by Sekaran and Bougie (2016). Questionnaires were distributed electronically to the randomly selected travel offices to be answered by the director or deputy director of the travel office, and responses were obtained from 268 travel offices. To enhance the response rate, follow-up reminders were sent. The sample included different categories of offices, ranging from small, medium and large offices, ensuring a comprehensive representation of the study population.

Data Collection

Data collection was carried out using a structured questionnaire designed specifically for this study. The questionnaire was divided into sections: demographic information, Artificial Intelligence, Tourism Management and The Mediating Role of Tourism Innovation. The questionnaire was distributed to the selected participants, and their responses provided the data needed for the analysis.

To analyze the collected data, the study employed SmartPLS, a statistical tool well-suited for structural equation modeling (SEM). This tool was used to assess the relationships between Artificial Intelligence in Tourism Management: The Mediating Role of Tourism Innovation.

Study Instrument

Previous research and studies related to the research topic were reviewed in this study, and the researchers benefited from previous reformulation studies related to the topic. The research instrument was developed by conducting a field survey using a questionnaire specifically designed for this purpose. A questionnaire is defined as a list of printed questions that are given to participants, which they are asked to complete and return to the researcher. The use of questionnaires allows for systematic data collection, enabling results to be generalized to the entire population when a representative sample of the target population is used (Rattray and Jones 2007). The researchers administered and collected questionnaires from participants using Google Forms. Participants were asked to provide accurate answers to all questions, whether open or closed. The questionnaire included the main variables of the study, including artificial intelligence (independent variable) consisting of 10 items, tourism management (as a dependent variable) consisting of 10 items, and the mediating variable (tourism innovation) consisting of 10 items.

The study utilized a five-point Likert scale to measure the extent of agreement or disagreement, with responses ranging from "strongly agree" to "strongly disagree." The scale assigns a score of 1 for "strongly disagree" and 5 for "strongly agree," with intermediate options in between. The Likert scale processing follows Subedi's (2016) method, where the category length is calculated as 1.3 using the equation (5−1)/3(5-1)/3 (5−1)/3. Based on this, the averages are categorized as follows: Low level: Average between 1 and 2.33, medium level: Average between 2.34 and 3.67, High level: Average between 3.68 and 5.00.

Results

This section presents the results of the study that reached using analysis the study data in SPSS.26. and Smart PLS The first section presents the descriptive statistics of demographic data for respondents and the second section presents the test of study hypotheses that conducted using simple linear regression.

Demographic data for respondents

The following table (1) presents descriptive statistics for respondents' demographic data including the frequency and percentage for each them:

The demographic data for the respondents in Table 1 indicates that 65.7% (176) were male and 34.3% (92) female. The largest age group was 35-44 years (42.2%, 113), followed by 25-34 years (35.8%, 96), with smaller percentages for 45-54 years (18.3%, 49) and 55+ years (3.7%, 10). Regarding education, 74.6% (200) held a bachelor's degree, 15.7% (42) a master's, 8.6% (23) a doctorate, and 1.1% (3) had a high school diploma. For industry experience, 34.7% (93) had 1-3 years, 28% (75) less than 1 year, and smaller portions had more than 4 years. Lastly, 63.1% (169) of respondents operated internationally, while 37% (99) operated nationally. The total number of respondents was 268.

	Frequency	**Percent**
1. What is your gender?		
Male	176	65.7
Female	92	34.3
2. What is your age group?		
25-34 years	96	35.8
35-44 years	113	42.2
45-54 years	49	18.3
55 years and above	10	3.7
3. What is your highest level of education?		
High school diploma	3	1.1
Bachelor’s degree	200	74.6
Master’s degree	42	15.7
Doctorate	23	8.6
4. How many years of experience do you have in the tourism industry?		
Less than 1 year	75	28
1-3 years	93	34.7
4-7 years	49	18.3
8-10 years	28	10.4
More than 10 years	23	8.6
5. What is the location of your tourism business?		
National	99	37
International	169	63.1
Total	**268**	**100**

Table (1) descriptive statistics of demographic data for respondents

Description of study variables

Table 2 shows the mean, standard deviation (SD), and importance rankings of the study variables. The mean score for Artificial Intelligence is 3.432 with an SD of 0.662, indicating a medium level of importance. Tourism Management has a higher mean of 3.783 with an SD of 0.598, ranked as high importance. Meanwhile, Tourism Innovation has a mean score of 3.661 with an SD of 0.611, also indicating a medium level of importance.

Table (2): The mean, SD and rank study variables

	Mean	Std. Deviation	importance
Artificial Intelligence	3.432	0.662	medium
Tourism Management	3.783	0.598	high
Tourism Innovation	3.661	0.611	medium

4.3Test of Normality

Before modeling the structural model and performing Structural Equation Modeling (SEM), it is essential to assess the normality distribution of all items measuring the constructs. Since SEM relies on parametric statistical methods, verifying that the items follow a normal distribution is crucial. According to Awang et al. (2015), a normality check is sufficient if the skewness values of all items fall within an acceptable range of -2 to 2, which indicates no substantial deviation from normality. The findings of the normality distribution assessment for all the items are summarized in Table (3).

Table (3) The Assessment of Normality for all Components

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Artificial1	-0.637	0.149	0.753	0.297
Artificial2	-0.973	0.149	0.988	0.297
Artificial3	-0.99	0.149	1.218	0.297
Artificial4	-0.675	0.149	-0.036	0.297
Artificial5	-0.733	0.149	0.398	0.297
Artificial6	-0.75	0.149	0.818	0.297
Artificial7	-0.899	0.149	0.708	0.297
Artificial8	-0.826	0.149	0.564	0.297
Artificial9	-0.687	0.149	0.098	0.297
Artificial10	-0.633	0.149	0.235	0.297
Innovation1	-0.899	0.149	1.855	0.297

Innovation2	-0.574	0.149	0.221	0.297
Innovation3	-0.735	0.149	0.284	0.297
Innovation4	-0.764	0.149	0.833	0.297
Innovation5	-0.696	0.149	0.291	0.297
Innovation6	-0.806	0.149	0.968	0.297
Innovation7	-0.753	0.149	0.504	0.297
Innovation8	-1.004	0.149	1.427	0.297
Innovation9	-0.892	0.149	1.518	0.297
Innovation10	-0.691	0.149	0.763	0.297
Management1	-0.746	0.149	1.484	0.297
Management2	-0.764	0.149	0.951	0.297
Management3	-0.629	0.149	0.757	0.297
Management4	-0.902	0.149	1.049	0.297
Management5	-0.686	0.149	0.6	0.297
Management6	-1.014	0.149	1.78	0.297
Management7	-0.945	0.149	1.452	0.297
Management8	-0.661	0.149	0.91	0.297
Management9	-1.004	0.149	2.098	0.297
Management10	-0.854	0.149	1.212	0.297

Internal Consistency of Reliability

Internal consistency reliability measures how well all the components of a scale together reflect the underlying concept (Sun et al., 2007). In organizational research, Cronbach's alpha and composite reliability are widely used to evaluate the reliability and internal consistency of scales, especially those made up of multiple items (Peterson & Kim, 2013). This study used Cronbach's alpha to assess the internal consistency of the adapted scales for specific reasons. However, Goetz et al. (2010) argue that composite reliability provides a more accurate estimate of reliability than Cronbach's alpha because it accounts for variations in the contribution of individual items to the construct. Cronbach's alpha assumes that all items contribute equally, which may lead to overestimation or underestimation of reliability. In contrast, composite reliability considers the differences in item loadings, offering a more precise evaluation. As shown in Table 4 and Figure 1, the composite reliability coefficients for the study's constructs demonstrate satisfactory internal consistency, with all values exceeding the acceptable threshold of 0.70.

Table (4) Reliability and internal consistency results

	Outer loadings	Cronbach's alpha >.7	Composite reliability >.6	Average variance extracted (AVE) >.5
Artificial Intelligence		0.724	0.937	0.597
Artificial1	0.676			
Artificial2	0.799			
Artificial3	0.659			
Artificial4	0.814			
Artificial5	0.766			
Artificial6	0.851			
Artificial7	0.836			
Artificial8	0.798			
Artificial9	0.748			
Artificial10	0.759			
Tourism Innovation		0.837	0.947	0.641
Innovation1	0.783			
Innovation2	0.728			
Innovation3	0.789			
Innovation4	0.805			
Innovation5	0.853			
Innovation6	0.822			
Innovation7	0.843			
Innovation8	0.778			
Innovation9	0.82			
Innovation10	0.776			
Tourism Management		0.813	0.928	0.568
Management1	0.737			
Management2	0.822			
Management3	0.754			
Management4	0.719			
Management5	0.789			
Management6	0.754			
Management7	0.771			
Management8	0.844			
Management9	0.825			
Management10	0.748			

Discriminate Validity

Discriminant validity refers to the extent to which a construct is distinct and does not overlap with other items, showing that it is empirically different from other constructs (Fornell & Larcker, 1981). In Smart-PLS, various criteria are employed to assess discriminant validity, with the Fornell and Larcker approach being one of the most frequently used methods. A more

comprehensive explanation of this approach will be discussed in the following section.

Variable correlation using the Fornell–Larcker criterion.

Table 5 presents the outcomes of the multivariable correlation analysis, using the Fornell-Larcker method to evaluate the discriminant validity of the measurement model. According to Fornell and Bookstein (1982), discriminant validity is confirmed when the square root of the average variance extracted (AVE) for each construct exceeds the correlations between the paired factors. In other words, the AVE values must be greater than the off-diagonal correlations in the corresponding rows and columns of the correlation matrix, as demonstrated in this study. This validates the discriminant validity of the predictor variables.

Table (5). Variable Correlation-Root Square of AVE

	Artificial	Innovation	Management
Artificial	0.773		
Innovation	0.66	0.801	
Management	0.707	0.769	0.754

Hypotheses Testing (Path Coefficient)

Hypotheses testing is essential for exploring the relationships between variables in research, particularly through structural equation modeling (SEM). In this study, path coefficient analysis is utilized to evaluate the strength and direction of the connections among constructs. Key statistics such as original sample (O), sample mean (M), standard deviation (STDEV), T-statistics (|O/STDEV|), and P-values are employed to determine the significance of these relationships. A P-value below 0.05 indicates statistical significance, confirming the validity of the hypotheses. This section presents the findings from the path coefficient analysis, enhancing the understanding of how artificial intelligence and tourism innovation influences tourism management.

Table 6 summarizes the path coefficient analysis results, highlighting significant relationships among the constructs studied. For **H1** (Artificial Intelligence → Management), the path coefficient of 0.53 indicates a moderate positive relationship, supported by a T-statistic of 7.071 and a P-value of 0.00, confirming the significant impact of artificial intelligence on management practices. In **H2** (Artificial Intelligence → Innovation), the path coefficient of 0.66 reflects a strong positive relationship, with a T-statistic of 9.303 and a P-value of 0.00, indicating a significant influence of artificial

intelligence on innovation in tourism management. For **H3** (Innovation → Management), the path coefficient of 0.42 suggests a moderate positive relationship, backed by a T-statistic of 5.307 and a P-value of 0.00, confirming the significant role of innovation in affecting management practices. Overall, the findings demonstrate strong and statistically significant relationships, emphasizing the crucial roles of artificial intelligence and innovation in enhancing tourism management.

Table (6): Table path coefficient

Hypo.	Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
H1	Artificial -> Management	0.53	0.529	0.075	7.071	0.00
H2	Artificial -> Innovation	0.66	0.664	0.071	9.303	0.00
H3	Innovation -> Management	0.42	0.424	0.079	5.307	0.00

Hypotheses Testing (indirect effect)

This section focuses on examining the indirect effects of the constructs within the study, specifically how artificial intelligence influences management through innovation. Understanding these indirect relationships provides deeper insights into the mechanisms at play in tourism management. The analysis presented in Table 7 details the total indirect effect for H4 (Artificial Intelligence → Innovation → Management), with a path coefficient of 0.277, indicating a mediate positive indirect influence. The sample mean of 0.28 and a standard deviation of 0.058 reflect consistency and low variability in the results. The T-statistics of 4.81 exceeds the critical threshold, and the P-value of 0.00 confirms statistical significance. This indicates that innovation significantly mediates the relationship between artificial intelligence and management, emphasizing the importance of innovation in enhancing management practices by artificial intelligence.

Table (7): Total indirect effect

Hypo.	Path	Original sample (O)	Sample means (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
H4	**Artificial -> Innovation -> Management**	0.277	0.28	0.058	4.81	0.00

Coefficient of Determination (***R2***)

Table (8) shows the R-square and adjusted R-square values for the latent variables. The results indicate that 43.5% of the variance in "Innovation" and 75% of the variance in "Management" are explained by the model. The adjusted R-square values (42.9% for "Innovation" and 74.5% for "Management") confirm the model's strong explanatory power, especially for "Management."

Table (8): R-Square of the Latent Variables

	R-square	R-square adjusted
Innovation	**0.435**	**0.429**
Management	**0.750**	**0.745**

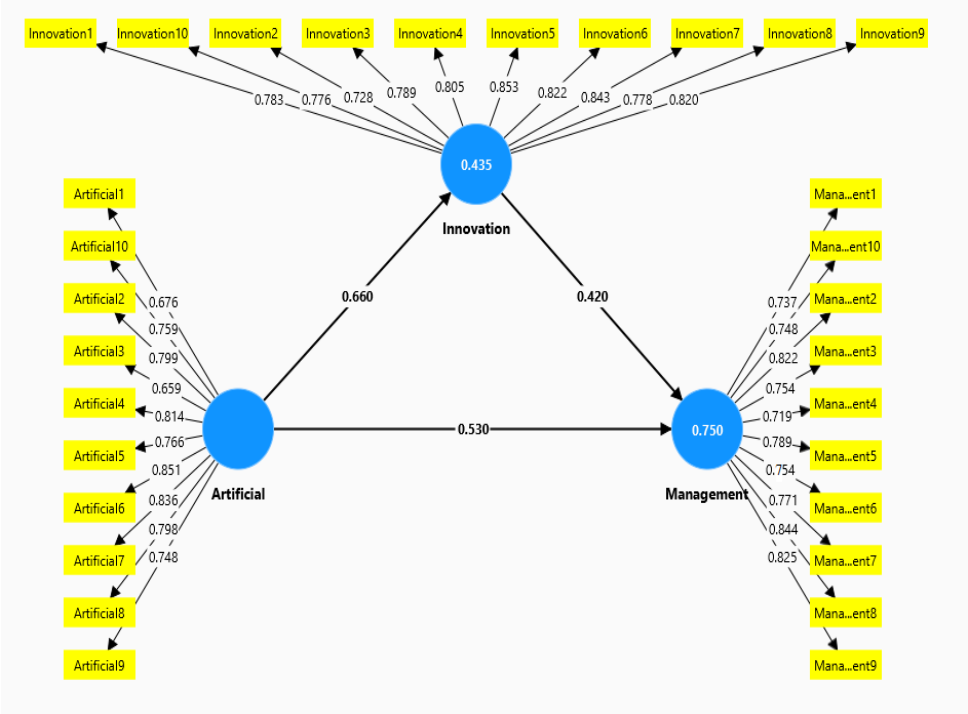

Figure (1): Full Model of relationship between IV, Mediator and DV

Discussion

The results indicated that tourism initiative management benefits from the application of artificial intelligence. This proves that big data analytics, demand estimation, and service personalization are some of the applications of artificial intelligence which might enhance the efficiency and effectiveness of tourism management. Apart from this, it proves that the application of AI positively influences innovative activity in the tourism industry. Artificial intelligence can act as a strong innovation driver when it comes to the tourism industry. With personalized recommendations and better management of resources, artificial intelligence improves the tourist experience. The application of technologies related to machine learning and data analysis will contribute to enhancing the tourism sector companies' capability to compete in better ways in the market, developing new products and services that meet their customers' needs. It was also shown that there is a positive impact of innovation in tourism on the management of the tourism industry. Innovation in the tourism industry might considerably change tourism management. For instance, new technologies may make tourism management more effective due to their contribution to the elaboration of operative processes and enhancing customer satisfaction in general. Additionally, innovation in tourism as a mediating variable is influential in ensuring the utilization of artificial intelligence in tourism management bears

positive impacts. This is not the only positive impact. It would seem in this line that innovative tourism practices can further enhance the application of artificial intelligence to tourism management. In other words, by applying artificial intelligence to enhance innovation, the outcomes for tourism management can be much better and effective.

Conclusion

Research into the effects of artificial intelligence being used in tourism management, as it relates to its function as a mediator for tourism innovation, is an important issue today. Behind this growth lies a rapid evolution of the tourism industry driven by technological innovations that prompts the relevant questions regarding the applicability and utility of such technologies for efficiency and innovation purposes. The biggest challenge is that there is currently no overarching platform providing an answer to how AI might have a direct effect on tourism innovation. While existing studies are available, the research gap involves the inability to investigate how accurately these technologies can be thought to play a role in shaping tourism practices. This work contributes a scientific mainstream by examining the effect of artificial intelligence on tourism management, specifically regarding innovation as a mediating variable. Analysis of quantitative and qualitative data is employed as a methodology which yields an overall view of how the tourism industry may gain from the use of artificial intelligence applications. The work indicated a number of hypotheses, one being that the application of artificial intelligence enhances the tourist experience by way of individualised recommendations and more efficient management of available resources. The outcomes show that artificial intelligence technologies, such as big data analysis and demand prediction, do improve tourism management effectiveness and efficiency. Innovation in tourism has also been demonstrated to have beneficial effects on industry management by resulting in optimization of the management activities and a better provision of customer satisfaction. According to the research, there is a recommendation for improved, collaborative working relationships between researchers and the tourism sector in order to create new applications of artificial intelligence. Policymakers should, at the same time, also create strategies that are conducive to technological innovation in the tourism industry. In that sense, the research proposes that strategic plans on AI implementation by tourism companies should highlight specific areas in which AI will drive better operations and better customer service by committing to adoption of AI technologies, training staff, and embedding AI within core business functions. Culture of innovation and experimentation within an organization should be encouraged. Companies should give all resources and support to teams that are working on AI applications in tourism management. Now, in the time of a changing face, so must training and development programs for future-proofing AI skills, Data Analytics, and Innovation Management be

available to all employees so that they become a workforce-ready workforce for the future. Tourism bodies must also build relationships with technology companies, academic institutions and innovation facilities in order to keep current with these advances and their implications for tourism. On the other hand, organizations should be well informed of the developments in AI and tourism innovation and thereby keep regularly evaluating the opportunities for these advances to also serve the integration into strategies for sustainable competitive advantages. It motivates additional studies on the potential effects of AI on tourism and also informs policymakers creating the conditions ensure that AI technologies are used responsibly and ethically in tourism management. Harnessing the full potential of AI in addressing these impacts and the implementation of recommendations thereof will go a long way in fostering innovation, hence ensuring sustainable growth by tourism stakeholders. Limitations of the research include not considering certain categories of tourism, which potentially allows for further research on the influence of AI in, e.g., cultural tourismand/or ecotourism. In addition, longitudinal data could be proposed in future research that will allow for monitoring how AI influences tourism management over time, thereby deepening the understanding of how this interaction develops.

REFERENCES

Archer, B., C. Cooper, and L. Ruhanen. 2005. The positive and negative impacts of tourism. Global Tourism 3: 79–102.

Awang, Z., Afthanorhan, A., & Asri, M. A. M. (2015). Parametric and non parametric approach in structural equation modeling (SEM): The application of bootstrapping. *Modern Applied Science*, *9*(9), 58.

Booyens, I., & Rogerson, C. M. (2019). Networking and learning for tourism innovation: evidence from the Western Cape. In Tourism Planning and Development (pp. 34-55). Routledge.

Buhalis, D., Harwood, T., Bogicevic, V., Viglia, G., Beldona, S., & Hofacker, C. (2019). Technological disruptions in services: lessons from tourism and hospitality. Journal of service management, 30(4), 484-506.

Buonincontri, P., Morvillo, A., Okumus, F., & van Niekerk, M. (2017). Managing the experience co-creation process in tourism destinations: Empirical findings from Naples. Tourism Management, 62, 264-277.

Cao, A., Shi, F. and Bai, B. (2022), "A comparative review of hospitality and tourism innovation research in academic and trade journals", International Journal of Contemporary Hospitality Management, Vol. 34 No. 10, pp. 3790-3813. https://doi.org/10.1108/IJCHM-11-2021-1443

Durmaz, Y., & Baser, M. Y. (2023). A Systematic Literature Review on Artificial Intelligence Applications in Tourism Marketing. International Journal of Research in Business Studies and Management, 10(1), 21-30.

Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., ... & Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. International journal of information management, 57, 101994.

Dwyer, L., P. Forsyth, and W. Dwyer. 2020. Tourism economics and policy. Bristol: Channel View.

Eide, D., Fuglsang, L., & Sundbo, J. (2017). Management challenges with the maintenance of tourism experience concept innovations: Toward a new research agenda. Tourism Management, 63, 452-463.

Fornell, C., & Bookstein, F. L. (1982). Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. Journal of Marketing research, 19(4), 440-452.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of marketing research, 18(1), 39-50.

Goetz, J. L., Keltner, D., & Simon-Thomas, E. (2010). Compassion: an evolutionary analysis and empirical review. Psychological bulletin, 136(3), 351.

Gretzel, U. (2011). Intelligent systems in tourism: A social science perspective. Annals of tourism research, 38(3), 757-779.
Hradecky, D., Kennell, J., Cai, W., & Davidson, R. (2022). Organizational readiness to adopt artificial intelligence in the exhibition sector in Western Europe. International journal of information management, 65, 102497.
Ivanov, S. H., Webster, C., & Berezina, K. (2017). Adoption of robots and service automation by tourism and hospitality companies. Revista Turismo & Desenvolvimento, 27(28), 1501-1517.
Khan, N., Khan, W., Humayun, M. and Naz, A. (2024), "Unlocking the Potential: Artificial Intelligence Applications in Sustainable Tourism", Alnoor, A., Bayram, G.E., XinYing, C. and Shah, S.H.A. (Ed.) The Role of Artificial Intelligence in Regenerative Tourism and Green Destinations (New Perspectives in Tourism and Hospitality Management), Emerald Publishing Limited, Leeds, pp. 303-316. https://doi.org/10.1108/978-1-83753-746-420241020
Kofler, I., Marcher, A., Volgger, M., & Pechlaner, H. (2018). The special characteristics of tourism innovation networks: The case of the Regional Innovation System in South Tyrol. Journal of hospitality and tourism management, 37, 68-75.
Kofler, I., Marcher, A., Volgger, M., & Pechlaner, H. (2018). The special characteristics of tourism innovation networks: The case of the Regional Innovation System in South Tyrol. Journal of hospitality and tourism management, 37, 68-75.
Ku, E. C., & Chen, C. D. (2024). Artificial intelligence innovation of tourism businesses: From satisfied tourists to continued service usage intention. International Journal of Information Management, 76, 102757.
Kuo, C. M., Chen, L. C., & Tseng, C. Y. (2017). Investigating an innovative service with hospitality robots. International Journal of Contemporary Hospitality Management, 29(5), 1305-1321.
Martínez-Pérez, Á., Elche, D., & García-Villaverde, P. M. (2019). From diversity of interorganizational relationships to radical innovation in tourism destination: The role of knowledge exploration. Journal of destination marketing & management, 11, 80-88.
Nayeri, N. D., & Aghajani, M. (2010). Patients' privacy and satisfaction in the emergency department: a descriptive analytical study. Nursing ethics, 17(2), 167-177.
OECD (2005). Oslo Manual: Guidelines for collecting and interpreting innovation data, 3rd Edition, Paris: OECD Publishing.
Peterson, R. A., & Kim, Y. (2013). On the relationship between coefficient alpha and composite reliability. Journal of applied psychology, 98(1), 194.
Popesku, J. (2019). Current applications of artificial intelligence in tourism and hospitality. In Sinteza 2019-International Scientific Conference on

Information Technology and Data Related Research (pp. 84-90). Singidunum University.
Randhawa, K., Josserand, E., Schweitzer, J., & Logue, D. (2017). Knowledge collaboration between organizations and online communities: the role of open innovation intermediaries. Journal of Knowledge Management, 21(6), 1293-1318.
Rasheed, H. M. W., He, Y., Khizar, H. M. U., & Abbas, H. S. M. (2023). Exploring Consumer-Robot interaction in the hospitality sector: Unpacking the reasons for adoption (or resistance) to artificial intelligence. Technological Forecasting and Social Change, 192, 122555.
Rattray, J., & Jones, M. C. (2007). Essential elements of questionnaire design and development. Journal of clinical nursing, 16(2), 234-243.
Rodriguez, I., Williams, A. M., & Hall, C. M. (2014). Tourism innovation policy: Implementation and outcomes. Annals of Tourism Research, 49, 76-93.
Schuhbert, A., Thees, H., & Pechlaner, H. (2023). Deep and organizational learning as innovation catalyzer in digital business ecosystems–a scenario analysis on the tourism destination Berlin. European Journal of Innovation Management.
Sekaran, U. (2016). Research methods for business: A skill building approach.
Sun, L. Y., Aryee, S., & Law, K. S. (2007). High-performance human resource practices, citizenship behavior, and organizational performance: A relational perspective. Academy of management Journal, 50(3), 558-577.
Theam, T. S., Veloo, P., Hussain, N. H. B. C., & Luu, Y. K. (2021). Travellers' Satisfaction on the Applications of Artificial Intelligence in Malaysia's Tourism and Hospitality Industry. Asia Proceedings of Social Sciences, 8(1), 38-42.
Tong, L., Yan, W., & Manta, O. (2022). Artificial intelligence influences intelligent automation in tourism: A mediating role of internet of things and environmental, social, and governance investment. Frontiers in Environmental Science, 10, 853302.
Tussyadiah, I., & Miller, G. (2019). Perceived impacts of artificial intelligence and responses to positive behaviour change intervention. In Information and Communication Technologies in Tourism 2019: Proceedings of the International Conference in Nicosia, Cyprus, January 30–February 1, 2019 (pp. 359-370). Springer International Publishing.
Vuong, H. Q., & Tran, T. M. (2021). The relationship between innovation and value creation by artificial intelligence: The case of the tourism industry in the Covid-19 pandemic. In 2nd International Conference on Human-Centered Artificial Intelligence, Computing4Human 2021 (Vol. 3026, pp. 83-90).

Huang, A., Chao, Y., de la Mora Velasco, E., Bilgihan, A. and Wei, W. (2022). "When artificial intelligence meets the hospitality and tourism industry: an assessment framework to inform theory and management", Journal of Hospitality and Tourism Insights, Vol. 5 No. 5, pp. 1080-1100. https://doi.org/10.1108/JHTI-01-2021-0021

Qurbonov, M. (2024). INNOVATION IN TOURISM MANAGEMENT: EMERGING TRENDS AND TECHNOLOGIES. Академические исследования в современной науке, 3(6), 48–51. извлечено от https://econferences.ru/index.php/arims/article/view/12652

جامعة ستاردوم
STARDOM UNIVERSITY

بحوث منتدى ستاردوم الدولي الثاني
لمستقبل أكثر استدامة 2025

مجلة ستاردوم العلمية للدراسات الانسانية و الإجتماعية
المجلد الثالث 2025 - العدد الثاني

رقم الإيداع: 3772-2980