The role of Artificial Intelligence in Tourism Service Quality: Insights from Employees

Israa Samy Shalan   HebatAllah Gaafar   Bassam Al-Romeedy   AbdElFattah Shawaly

Tourism Studies Department, Faculty of Tourism and Hotels - University of Sadat City

Abstract

Artificial Intelligence (AI) technology significantly impacts the tourism sector by enhancing information processing and responsiveness, thus improving tourist services and business competitiveness. This research aims to investigate the acceptance of AI applications among employees in tourism sector in Egypt and evaluate the employees' attitudes towards AI implementation in tourism services. A survey was conducted with 393 employees from travel agencies, airlines, and hotels in Cairo, Sharm el-Sheikh, and Hurghada, representing key tourism hubs. The survey, distributed between March and May 2024. The findings revealed the critical role of demographic factors in AI adoption, highlighting the need for tailored strategies that address the diverse needs and concerns of various employee groups. The study underscores the necessity for heightened awareness, targeted training programs, and proactive measures to support AI integration. By focusing on these areas, tourism businesses can better address employee concerns and foster effective AI adoption, ultimately enhancing operational efficiency and customer service. These insights offer valuable recommendations for advancing AI technology in the Egyptian tourism industry.

Keywords

Artificial Intelligence (AI), Employees Acceptance; Tourism Service Quality; AI Applications

1. Introduction

Artificial intelligence AI integration has revolutionized the delivery of tourism services in recent years, providing notable enhancements in service quality. Tourism services are becoming more efficient, responsive, and personalized thanks to AI technology, which range from sophisticated Chatbots and personalized recommendation systems to sophisticated data analytics. These developments are revolutionizing not just the traveler experience but also the way service providers operate, allowing for more efficient resource management and marketing tactics (Mohamed, 2022).

John Mc Mullah was the first one who defined Artificial Intelligence in 1955 as "utilizing science and engineering to manufacture smart machines". (Hsu, 2018:127) AI has four major categories; (a) Machine Learning ML, (b) knowledge presentation and knowledge – based system, (c) problem solving, (d) distributed artificial intelligence (Torra et al., 2019).

From the context of tourism, AI is being required to reduce expenses, boost effectiveness, and improve quality (Sayed et al., 2022). Also, consumer engagement levels will be greatly increased by the growing use of AI technologies to deliver a wide range of services, which will change how service quality is perceived (Chi et al., 2020). The application of AI in consumer data processing and voice engagements with customers has completely affected how businesses operations. Increasing cloud computing services and integrating the numerous sensors that are present in the actual environment to create and process the data can greatly enhance visitor experiences (Dhoundiyal& Mohanty, 2022). AI enhances customer relationship management (CRM) systems, helps create customized experiences and services, enables the use of intelligent marketing, assists in the creation of personalized forecasting, support agents, and intelligent sales assistants in the commercialization and marketing sector (Bulchand, 2020).

AI technology can outperform humans by providing a variety of information about all the important elements quickly. Given certain conditions, AI might perform better than human services (Samala et al., 2022). So one of the important elements that can alter travel habits, tourism businesses, companies, or communities is AI (Kong et al., 2021). Despite the importance of applying AI solutions, there is a shortage and limitation in using AI (Hsu, 2018).

The aim of the study isshowing the significant differences in the acceptance of AI applications among employees in the tourism sector based on demographic factors, which may help tourism industry to build tactics and strategies to develop their technological infrastructure and improve the employees` skills. This, in turn, result in improved tourism service quality, a better visitor experience, the well-being of locals, increased effectiveness and competitiveness of enterprises and destinations, and overall competitive service sustainability. and the objectives of the study are:

1-Display AI applications that can be applied in tourism destinations.

2- Determine crucial challenges of AI.

3-IdentifyUTAUT model in tourism industry.

4-Analyze correlation between AI and the tourism service quality.

The Study hypotheses: ***There are significant differences in the acceptance of AI applications among employees in the tourism sector based on demographic factors.***

H.1   There are significant differences in the acceptance of AI applications among employees in the tourism sector based on gender.

H.2   There are significant differences in the acceptance of AI applications among employees in the tourism sector based on age.

H.3   There are significant differences in the acceptance of AI applications among employees in the tourism sector based on type of employment   .

H.4   There are significant differences in the acceptance of AI applications among employees in the tourism sector based on profession.

H.5   There are significant differences in the acceptance of AI applications among employees in the tourism sector based on experience level.

2. AI applications in tourism

The travel and tourism industry has obstacles due to the volume of data generated and the demand for immediate responses. Both travel agencies and tourism destinations are beginning to use the AI tools. Applications of AI in tourism include built-in systems and algorithms that make it possible to anticipate visitors' future interests, customize the tourism offering, and evaluate visitor comments. As a result, they are useful at every stage of a traveler's trip (Gajdošík & Marciš, 2019).

Machine Learning, The goal of ML technology in the tourism industry is for collecting information, learning from it, and improving one's own capabilities via experience without the intervention of humans or simple reprogramming. Prior to developing analytical models, specialists' first collect, select, organize, preprocess, and transform data sets for the device. These models can be used in the different utilities such as Allora by Avvio (personalized sophisticated Recommender Engine to every user of the platform), hotel champ autopilot (recognizes and personalize the website experience in real-time to convince visitors to book direct.), Zoe by Quick text (motivate consumers to reserve direct) and Chatbots (covering chatting to customers 24/7) predict costs and customers request with the highest precision and accuracy rate by the ML model structure (Parvez, 2020).

Chatbots/Virtual travel assistants, Chatbots are the automated online chat services available around-the-clock that responds to user enquiries. Customers can have precise travel information thanks to Chatbots. A company developer can readily comprehend the wishes and demands of travelers with Chatbots, which are extremely customer-centric software, and adapt the facilities accordingly. In other words, Chatbots provide clients with individualized service (Soonthodu& Wahab, 2022).

Sam "it's a friendly, human-like name given to the technology to make it more relatable and user-friendly for travelers" is a new 24/7 personalized traveling helper that assists an individual during each phase of the journey. Sam was introduced by FCM Travel Solutions. It is primarily focused on commercial traveling, acts as both a reservation device and a travel agent, and offers real-time updates regarding updates to the itinerary as well as suggestions for nearby attractions. Additionally, it computes trip costs and offers a city guide to users. Additionally, it gathers

documents and provides reservation alternatives that adhere to a person's agency's travel policy (Altexsoft. 2018).

Augmented Reality, in AR applications, photographs of the actual world are improved using machine intelligence to provide a service or product a customized experience. The popular scenario for experimenting with AR is during conventions and meetings. Users can engage in social interaction, plan virtual tours, and see a 360-degree picture of activities thanks to AR. For audiences and activity planners, AR also provides virtual spaces and locations. Virtual events can be experienced while users are seated at their office or house. By the use of this technology, travelers can join mobile tours (Soonthodu& Wahab, 2022).

Virtual Reality, the meaning of VR technology is a technique of discovery for consumers that uses a three- dimensional simulation platform and delivers physical or immaterial objects without physically interacting. The barrier between direct and indirect interactions is narrowing with the introduction of VR (lee & yong, 2021). Individuals can travel without having left their home thanks to Virtual Reality technology. The Smithsonian Journeys Company suggests travelling to the "digital" Venice. During each virtual tour, the visitor will be guided by a personalized assistant who will show him many areas of the city and provide information on the attractions much as on a typical outing. For instance, the Eurostar rail service provides its clients with a special service that allows them to utilize virtual reality goggles while riding the train. It is essential to employ both VR and AR solutions for tourism-related applications (Podzharaya & Sochenkova, 2020). In a scenario where obtaining the physical interaction gets challenging such as COVID-19 pandemic period, VR tourism has a big role to play (lee & yong, 2021).

Social Media, it offers both users and tourism businesses a platform for communications, and it is recognized as a provider of user-generated big data that supports market evaluation (Dhoundiyal& Mohanty, 2022). AI could potentially increase social media safety. It can be used to recognize undesirable content, minimize it, and automatically manage posts. Safety on social media can be handled by AI technologies like deep fake detection and behavior analysis even without facial recognition and the privacy issues that come with it. With AI engines like AlgoFace's FaceTrace.ai, which does not offer facial recognition but mainly focused on face AI with privacy-by-design, privacy and ethics are fundamental considerations (Algoface, 2022).

Metaverse, it refers to an updated form of the internet that merges the physical and digital realms through the use of avatars, blockchain technology, and VR headsets. With the use of VR goggles and avatars, individuals can interact with others in a virtual world. Users can fully experience high levels of involvement and realism with the use of VR haptic gloves, headsets, AR, and Extended Reality (XR) (Askr et al., 2023).

For several years, Emirates experimented with Metaverse tourism solutions, and virtual reality experiences are now at the core of the company's products. For example, the Emirates website allows customers to enjoy a 360-degree virtual tour of an Emirates aircraft's interior. In addition,

Emirates has created its own VR software, which allows users to tour the interiors of Airbus A380 and Boeing 777 airplanes. Finally, an interactive 3D seat map gives clients a clearer picture of what their seat would be like and allows them to book their favorite seat from within that virtual world (Revfine, 2023).

3. UTAUT model and AI in tourism industry

The Unified Theory of Acceptance and Use of Technology (UTAUT) is a paradigm established by Venkatesh et al. in 2003 to better understand the factors that influence technology adoption and utilization. This model combines eight previous models of technology acceptance, including the Theory of Reasoned Action, Technology Acceptance Model, Motivational Model, Theory of Planned Behavior, a combined model of Technology Acceptance Model and Theory of Planned Behavior, Model of Personal Computer Utilization, Diffusion of Innovations Theory, and Social Cognitive Theory.UTAUT seeks to give a thorough knowledge of the elements that influence technology adoption and usage (Enablers of change, 2023).

The UTAUT model has four core dimensions that are used to forecast user adoption and utilization of technology. The dimensions are (Venkatesh et al., 2003, Ali et al., 2024):

Performance Expectancy

AI-Powered customer Service: Workers anticipate that AI solutions, including Chatbots and virtual assistants, will quickly address standard client questions, freeing them up to concentrate on more difficult assignments and enhancing productivity (Nicolescu & Tudorache, 2022).

Effort Expectancy

Automated Administrative activities: AI systems that handle data input and booking administration automatically take on repetitive administrative activities, saving staff time and effort and improving their productivity (Harris, 2023). User-Friendly Interfaces: AI programs with user-friendly interfaces reduce the perceived difficulty of utilizing these tools by assisting staff members in rapidly adjusting to new technologies without the need for substantial training (Morozov & Morozova, 2020).

Social Influence

Management Support: Employee adoption of AI technology can be influenced by managers' and supervisors' encouragement and endorsement of the use of these tools (Lin, 2023). Peer Adoption: When coworkers use AI tools effectively and see favorable results, it can inspire other staff members to use related technology (Harris, 2023).

Facilitating Conditions

Training Programs: Tourism Company offers extensive training and support programs that provide staff members the confidence and skills they need to use AI technology (Morozov &

Morozova, 2020).Technical Infrastructure: The seamless deployment and use of AI technologies is made possible by the availability of essential technical resources, such as dependable internet access and modern hardware (Soonthodu& Wahab, 2022).

Behavioral Intention to Use

Positive Experiences: When workers have favorable experiences with AI tools, including greater productivity and job satisfaction, it might strengthen their resolve to use these technologies going forward (Lin, 2023). AI system trust: Increasing the accuracy, dependability, and consistency of AI systems can boost workers' intent to utilize AI-powered products in the workplace (Morozov & Morozova, 2020).

From the viewpoint of employees in the tourism industry, these examples explain how AI may affect each component of the UTAUT model, stressing the possible advantages and variables that affect their adoption and usage of AI technology.

4. AI challenges in tourism sector

The main issues with AI as of right now are secure, reliable data processing, individualized differentiation, personalization, and adequate decision-making. All information should finally be gathered in one system as a result of ongoing data collecting and methodical data treatment (Zsarnoczky, 2017). In tourism, AI is projected to have a significant impact on many sectors of tourism business and lifestyle. Its influence is similar to the effect of computers and machines as a component of the Fourth Industrial Revolution. This raises numerous fundamental challenges that require clarification (Bulchand, 2020). AI is facing major challenges like;

 a) Social acceptance and adaptability of tourists, the development of more advanced Chatbots with AI features is more difficult and calls for considerable computing experience and expertise. Due to their lacking of intelligence, Chatbots frequently make mistakes, such as failing to comprehend the intentions of their users. Some consumers grew dissatisfied with utilizing Chatbots for facilities as a consequence (Meerschman& Verkeyn, 2019). Almost of Tourists get higher digital experience and have much higher expectations for personalization. Integrating their in-person engagement with a customized experience is challenging. To keep their competition position, tourism businesses must also evaluate a significant range of information and respond quickly (Gajdošík & Marciš, 2019).

 b) AI infrastructure and internet connectivity, Travel agents face a significant problem in providing smooth Internet connectivity to travelers. Internet connectivity is a significant concern in Asian nations, GlocalMe, a technology consultancy based in Hong Kong, has developed ground-breaking "Pocket Wi-Fi" technology to do away with this. For tourists, this technology provides a constant Internet connection. Due to this, there are potentially less hazards and threats while travelling. International travelers don't need a SIM card or roaming data packages to surf

the Internet. This software has been downloaded by over three million tourists, making it extremely popular in the travel sector (Soonthodu& Wahab, 2022).

c) Job loss issues, many labors in the tourism industry are concerned that AI may change their professions and replace them with automated machines, changing the fundamental conditions of their employment. Furthermore, there is broad consensus that AI will have a disruptive effect on the labor market, resulting in the loss of certain employment or changes to the character of those that remain (Sayed et al., 2022).

d) Privacy issues, As the tourism sector is built on the transmission of information, which can be used to build incredibly detailed, personalized, and accurate profiles of people, the recommended decision making of the travel agency may be based on information that is out-of-date, unreliable, or has been interpreted incorrectly. When the information is no more required for the reason for which it was obtained, or based on erroneous data, it may actually be challenging for a company to locate and remove a person's information if it is kept among many various systems and locations (Masseno & Santos, 2019).

5. Methodology

To achieve the objectives of the study, employees survey questionnaires was designed; to assess their acceptance and implementation of artificial intelligence in tourism sector in Egypt. The survey utilized convenience sampling for participant selection; Edgar & Manz (2017) defined a Convenience sampling is a widely used method for nonprobabilistic sampling, focusing on samples placed near a location or internet service.

The employees' questionnaire consisted of three parts; the first one focused on profile and work-related information. Which include Demographic data such as; gender, age, employer, profession and job experience, which were developed based on (Phaosathianphan & Leelasantitham, 2019; Gaffar, 2020).

The second part consisted of 4 items demonstrating the awareness on AI application which explored the awareness, adoption, concerns, and challenges related to the integration of AI applications within the tourism and hospitality industry, which were developed based on (Venkatesh et al.,2003; Phaosathianphan & Leelasantitham, 2019).

 The third part focused on Employee Acceptance of AI Applications in tourism displays 5 dimensions; Performance Expectancy which refers to an individual's perception of AI implementation, Effort Expectancy which assesses the perceived ease of use of technology, Social Influence such as Management Support, Facilitating Conditions (AI infrastructure), Behavioral Intention to Use which means workers' intent to utilize AI-powered products in the workplace. The researcher was guided by the study of Venkatesh et al. (2003), Abbad (2021), and Ali et al. (2024). These items were displayed on a 5- Point Likert Scale, rated from (1) strongly disagree to (5) strongly agree.

Five hundred employee questionnaires were distributed; only 393 employee forms responses were received. The questionnaires were distributed in Cairo, Sharm el-Sheikh and Hurghada Governorates, which are recognized as a prominent Egyptian tourism destinations. Starting from March to May 2024 targeting tourists and tourism sector employees in Travel agencies, Airlines and Hotels.

To analyze the study data and test hypotheses, the researcher used smart pls 4 and the statistical package for Social Science (SPSS) for Windows V .22.0. The data was checked and verified for recording errors and accuracy of data entry before further analyses was performed. The following statistical tests were used:

1- Validity and Reliability Tests:

a. Explanatory Factor Analysis (EFA): EFA was used to identify the underlying structure of the data by reducing the number of variables into a smaller set of factors. This helped in understanding the key dimensions that contribute to the constructs being measured.

b. Confirmatory Factor Analysis (CFA): CFA was employed to validate the factor structure identified through EFA. This test confirms whether the data fits the hypothesized measurement model, ensuring the constructs are well-defined and accurately represented.

2- Frequencies, percentages, means and standard deviation: to describe the characteristics of the sample, and to determine the responses of the sample members towards all the axes of the study tool.

3- Pearson Correlation Coefficient: to determine the strength and direction of the relationship between the study variables.

4- Simple linear regression: to indicate the effect of independent variable on dependent variable.

5- Mann-witney and kruskal-Wallis test: to identify differences in employees' acceptance of AI in travel agency. The Mann-Whitney U test was applied for comparing two independent groups, while the Kruskal-Wallis test was used for comparing more than two groups.

6. Results

Table (1) The demographic and work-related information

Demographic and Work-Related Information		Freq.	%
Gender	Male	198	50.4%
	Female	195	49.6%
Age	less than 30	186	47.3%
	30 - 40 years	162	41.2%

	40 to 50 years	28	7.1%
	More than 50 years	17	4.3%
Employer	Travel Agency	172	43.8%
	Airline	99	25.2%
	Hotel	105	26.7%
	Other	17	4.3%
Profession	Front-line staff	93	23.7%
	Manager/Supervisor	128	32.6%
	Executive/Decision-maker	105	26.7%
	Other	67	17.0%
job experience	less than one year	137	34.9%
	from 1 to 3 years	58	14.8%
	3- 5 years	143	36.4%
	More than 5 years	55	14.0%
Total		**393**	**100%**

The gender distribution within the tourism workforce is nearly balanced, with males constituting 50.4% and females 49.6%, indicating a strong commitment to diversity. Age distribution shows that the majority are under 40, with 47.3% of employees younger than 30 and 41.2% between 30 and 40, while older employees (aged 40 and above) represent a smaller portion (11.4%). Employer representation highlights the diversity of opportunities in the tourism sector: 43.8% work in travel agencies, 26.7% in hotels, 25.2% in airlines, and 4.3% in other sectors. Employees span various professional roles, including front-line staff (23.7%), managers/supervisors (32.6%), and executive decision-makers (26.7%). Job experience levels are varied, with 34.9% having less than a year of experience, 14.8% with 1 to 3 years, 36.4% with 3 to 5 years, and 14% having over 5 years. This blend of experience fosters a dynamic and collaborative environment where seasoned professionals mentor newer recruits while benefiting from fresh ideas.

Table (2) Awareness of AI application in the workplace

	Frequency	**Percent**
Yes	318	80.9
No	75	19.1
Total	**393**	**100.0**

Out of 393 respondents, the majority (80.9%) reported using AI applications in their workplace, reflecting a high level of AI adoption within the surveyed organizations. However, 19.1% indicated they do not use AI, suggesting that while AI is widely integrated, a significant portion

of individuals and organizations have yet to implement these technologies in their work environments.

Table (3) an overview of AI applications adopted within the tourism and hospitality industry

AI application	Travel agencies	Airlines	Hotels	Others	Frequencies	Percentage	Rank
Chatbots	23	47	52	9	131	52.6%	5
Social media	76	35	41	7	159	63.9%	3
Google Maps	70	66	57	17	210	84.3%	1
Language Translator	65	42	42	2	151	60%	4
Facial recognition	21	29	31	4	85	34.1%	8
Internet of Things	25	39	50	4	118	47.4%	6
Blockchain	0	0	0	0	0	0%	10
Robots	6	44	63	3	116	46.6%	7
QR code	71	49	62	1	183	73.5%	2
Other	2	3	2	0	7	3%	9

The analysis shows that AI applications are widely adopted in the tourism and hospitality industry; with Google Maps (84.3%) and QR codes (73.5%) being the most used tools, especially by travel agencies, hotels, and airlines. Social media (63.9%) is crucial for customer interaction, while language translators (60%) are essential for dealing with international clients. Chatbots (52.6%) and the Internet of Things (IoT) (47.4%) are mainly used in hotels and airlines for customer service and operational efficiency. Robots (46.6%) are prevalent in hotels for guest services, with minimal use in travel agencies. Facial recognition (34.1%) is primarily applied in hotels and airlines for security. Blockchain has 0% adoption, and other AI tools have minimal usage, indicating a focus on established technologies.

Table (4) Concern Levels of Tourism Organizations Towards AI Applications

	Frequency	Percent	Mean	SD
very unconcerned	115	29.3		
Unconcerned	157	39.9	2.25	1.15
Neutral	45	11.5		
Concerned	59	15.0		

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Very concerned	17	4.3		
Total	**393**	**100.0**		

A significant portion of respondents, 69.2%, indicated that their organizations are unconcerned or very unconcerned about AI adoption, while 15% expressed concern and 4.3% were very concerned. Additionally, 11.5% felt their organizations were neutral. The mean concern level is 2.25, with a standard deviation of 1.15, indicating varied responses. These findings highlight the need for greater awareness and proactive measures to address AI-related challenges and opportunities in the tourism and hospitality sector.

Table (5) The common challenges of applying AI in tourism organizations

Challenge	Frequencies	Percentage	Rank
Cost	200	50.9%	1
AI superstructure	50	12.7%	5
Job loss issues	158	40.2%	2
Privacy issues	55	14%	4
Lack of experience	123	31.2%	3
Others	18	4.5%	6

These findings suggest that tourism organizations face a multifaceted set of challenges in adopting AI technologies. The ability to address these issues—particularly cost, job security, skill development, and privacy concerns—will be crucial for successful AI integration and maximizing the benefits of technological advancements in the tourism industry.

Table (6) Employee Acceptance of AI Applications in Tourism sector

	Mean	SD	Rank
Performance Expectancy	4.21	.798	**1**
Effort Expectancy	3.66	.778	**4**
Social Influence	3.70	.926	**3**
Facilitating Conditions	3.41	.956	**5**
Behavioral Intention to Use	4.20	.386	**2**
Acceptance of AI Applications	3.84	.308	

Performance expectancy and behavioral intention to use emerge as the most influential factors driving acceptance of AI applications in the tourism sector, there are variations in the perceived importance of other dimensions such as effort expectancy, social influence, and facilitating conditions. Organizations can leverage these insights to tailor strategies aimed at addressing

specific concerns and promoting widespread acceptance and utilization of AI technologies among employees in the tourism sector.

Table 7 provides a detailed analysis of how various demographic factors influence employee acceptance of AI applications in the tourism sector. The analysis is grounded in the Unified Theory of Acceptance and Use of Technology (UTAUT), which is a widely recognized framework for understanding how different factors affect technology adoption. The UTAUT model considers aspects such as performance expectancy, effort expectancy, social influence, and facilitating conditions to evaluate acceptance levels.

Table 7 The differences between demographic data concerning the acceptance of AI applications

The acceptance of AI application	Variables	N	Mean Rank	Chi-Square	Sig.
according to their gender	Male	198	218.46	-3.778	0.000
	Female	195	175.21		
according to their age	less than 30	186	239.24	54.848	0.000
	30 - 40 years	162	150.21		
	40 to 50 years	28	175.29		
	More than 50 years	17	216.47		
according to their employer	Travel Agency	172	221.92	43.336	.000
	Airline	99	132.31		
	Hotel	105	214.02		
	Other	17	216.47		
accordingto their profession	Front-line staff	93	262.08	129.294	0.000
	Manager/Supervisor	128	235.88		
	Executive/Decision-maker	105	169.94		
	Other	67	74.81		
according to their Experience	less than one year	93	262.08	93.202	0.000

	from 1 to 3 years	128	235.88		
	3- 5 years	105	169.94		
	More than 5 years	67	74.81		

For male respondents, the mean rank is 218.46, indicating a higher acceptance of AI applications compared to female respondents, who have a mean rank of 175.21. The total number of male respondents is 198, while there are 195 female respondents. This difference in acceptance levels is statistically significant, as shown by the Chi-Square value of -3.778 and a p-value of 0.000. The significance level being less than 0.05 confirms that the observed difference is not due to random chance.

Employees under the age of 30 have the highest mean rank of 239.24, suggesting a strong acceptance of AI applications. This age group consists of 186 respondents, making it the largest group in the study. The high mean rank indicates that younger employees are more inclined to embrace AI technology in their tourism-related activities.

In contrast, employees aged between 30 and 40 years have a mean rank of 150.21, indicating a lower level of acceptance compared to the younger group. This group includes 162 respondents. The lower mean rank suggests that this age group is less enthusiastic about integrating AI into their work.

Employees aged between 40 and 50 years have a mean rank of 175.29, which is higher than the 30-40 age group but still significantly lower than the under-30 group. This group is the smallest, with only 28 respondents. The mean rank suggests a moderate level of acceptance of AI applications.

Interestingly, employees over the age of 50 have a mean rank of 216.47, which is higher than both the 30-40 and 40-50 age groups, but still lower than the under-30 group. This group consists of 17 respondents. The relatively high mean rank indicates that older employees while fewer in number, show a surprisingly strong acceptance of AI technology.

The Chi-Square value of 54.848 and the significance level of 0.000 indicate that the differences in acceptance levels across age groups are statistically significant. This confirms that age is a significant factor influencing the acceptance of AI applications in the tourism sector.

Employees from Travel Agencies exhibit the highest mean rank of 221.92, suggesting a strong inclination toward AI acceptance within this sector. With a substantial sample size of 172 respondents, Travel Agency employees represent a significant segment endorsing AI integration in their operational frameworks.

Front-line staff demonstrates the highest mean rank of 262.08, indicating a strong inclination towards AI acceptance. This group, represented by 93 respondents, comprises individuals directly engaged in customer-facing roles within tourism establishments. Their elevated mean rank suggests a keen readiness to embrace AI technologies to enhance customer service and operational efficiency.

Employees with less than one year of experience demonstrate the highest mean rank of 262.08, indicating a strong inclination toward accepting AI applications. This group, consisting of 93 respondents, likely represents newer entrants to the industry who may be more open to adopting emerging technologies.

These results underscore varying degrees of readiness among employees with different levels of experience regarding AI adoption. Understanding these nuances is critical for tailoring AI implementation strategies that address the specific needs, expectations, and concerns of employees at different stages of their careers in the tourism industry.

7. Conclusion

This research investigates the acceptance and implementation of artificial intelligence in tourism companies from the perspective of employees in tourism companies. The results underscored the importance of considering demographic factors when promoting AI adoption in the tourism sector. Understanding these nuances is critical for developing targeted strategies that cater to the specific needs and concerns of different employee groups, ultimately facilitating a more inclusive and effective integration of AI technologies.

The results figured out that younger employees are more receptive to AI technology, while acceptance varies among older age groups. This suggests that targeted strategies may be necessary to address the specific concerns and needs of different age groups to ensure widespread adoption of AI in the tourism industry. This is also consistent with the study by Morris & Venkatesh (2000) which highlights that compared to older workers, younger workers' technology usage decisions were more strongly influenced by attitude toward using the technology.

The results highlighted distinct perceptions and levels of readiness among employees in Travel Agencies, Airlines, Hotels, and other sectors regarding the adoption of AI applications. These insights underscore the need for tailored strategies to address sector-specific dynamics and promote widespread AI adoption effectively across the tourism industry.

Also, highlighted distinct perceptions and readiness levels among front-line staff, managers/supervisors, executives/decision-makers, and other professions regarding AI adoption. Addressing these nuanced differences is crucial for developing targeted strategies that cater to the specific needs and concerns of each professional group, ultimately facilitating effective AI integration across the tourism industry.

While underscored varying degrees of readiness among employees with different levels of experience regarding AI adoption. Understanding these nuances is critical for tailoring AI implementation strategies that address the specific needs, expectations, and concerns of employees at different stages of their careers in the tourism industry.

The results revealed that Travel agencies prioritize customer engagement and trip planning by utilizing tools such as social media, Google Maps, and QR codes. These technologies assist in streamline communication, increase client convenience, and provide more tailored services. Although travel agencies have been slower to implement AI-powered solutions like Chatbots and robots, their emphasis on easily accessible digital platforms demonstrates their commitment to supporting smooth consumer interactions. Hotels, in contrast, place an emphasis on automation and smart technology such as robotics, IoT, and Chatbots, while airlines use comparable AI tools to improve customer service and operational logistics. Despite the underutilization of blockchain, new technologies such as robotics and IoT are gaining popularity, notably in hotels. Overall, this indicates that travel agencies are more focused on improving customer-facing services rather than investing heavily in automation.

Regarding to Employee Acceptance of AI Applications in Tourism sector, the study figured out that while performance expectancy and behavioral intention to use emerged as the most influential factors driving acceptance of AI applications in the tourism sector, there are variations in the perceived importance of other dimensions such as effort expectancy, social influence, and facilitating conditions. Organizations can leverage these insights to tailor strategies aimed at addressing specific concerns and promoting widespread acceptance and utilization of AI technologies among employees in the tourism sector.

It is recommended that tourism agencies should select and implement the useful tools of AI, embrace blockchain in the tourism industry, develop comprehensive training programs for their employees and tailor AI integration strategies by developing customized training and support programs for employees across all career stages. This initiative should involve clear communication of AI benefits and active participation of staff to build trust and ensure effective AI tool usage. By leading these efforts, the authority and stakeholders can facilitate smoother adoption and enhance overall industry success. This paper investigated the acceptance and implementation of AI in tourism companies from the perspective of employees in tourism companies. There are many other concerns that can be studied in future research. First, future research should focus on exploring the impact of AI adoption on customer satisfaction and overall service quality in the tourism industry, specifically from the customer's perspective. Additionally, further studies could examine the long-term effects of AI integration on employee roles and job satisfaction, particularly in terms of how automation influences career development. Another area for future research could investigate the challenges and barriers to blockchain implementation in the tourism sector, as well as its potential to enhance security and transparency in tourism transactions. Finally, comparative studies between different regions or

countries could offer insights into how cultural factors influence the acceptance and effectiveness of AI technologies in tourism.

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دور الذكاء الاصطناعي في جودة خدمات السياحة: رؤى من الموظفين

اسراء سامي شعلان   هبة الله علي جعفر   بسام سمير الرميدي   عبدالفتاح سليمان شوالي

قسم الدراسات السياحية – كلية السياحة والفنادق – جامعة مدينة السادات

الملخص:

تؤثر تقنية الذكاء الاصطناعي بشكل كبير على قطاع السياحة من خلال تحسين معالجة المعلومات وسرعة الاستجابة، مما يعزز جودة الخدمات السياحية وتنافسية الأعمال. تهدف هذه الدراسة إلى استكشاف مدى قبول تطبيقات الذكاء الاصطناعي بين الموظفين في وجهات السياحة المصرية. تم إجراء مسح شمل 393 موظفًا من وكالات السفر، وشركات الطيران، والفنادق في القاهرة وشرم الشيخ والغردقة - وهي مراكز سياحية رئيسية. تم توزيع الاستبيان بين مارس ومايو 2024، وهدف إلى تقييم مواقف الموظفين تجاه تنفيذ الذكاء الاصطناعي في خدمات السياحة. تكشف النتائج عن الدور الحاسم للعوامل الديموغرافية في تبني الذكاء الاصطناعي، وتؤكد الحاجة إلى استراتيجيات مخصصة تلبي احتياجات وتطلعات مختلف مجموعات الموظفين. تبرز الدراسة ضرورة زيادة الوعي، وبرامج التدريب المستهدفة، والإجراءات الاستباقية لدعم تكامل الذكاء الاصطناعي. من خلال التركيز على هذه المجالات، يمكن للأعمال السياحية التعامل بشكل أفضل مع مخاوف الموظفين وتعزيز تبني الذكاء الاصطناعي بشكل فعال، مما يؤدي في النهاية إلى تحسين الكفاءة التشغيلية وخدمة العملاء. تقدم هذه الرؤى توصيات قيمة لتطوير تقنية الذكاء الاصطناعي في صناعة السياحة المصرية.

الكلمات المفتاحية: تقنية الذكاء الاصطناعي؛ قبول الموظفين ؛ جودة الخدمات السياحية؛ تطبيقات الذكاء الاصطناعي