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ARTIFICIAL INTELLIGENCE APPLICATIONS AND ITS IMPACT ON THE COMPETITIVENESS OF THE EGYPTIAN TOURIST DESTINATION

By

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Abstract:

Applying Artificial intelligence (AI) applications such as chatbots, robots, forecasting, virtual reality (VR) and augmented reality(AR) in travel create multiple opportunities for innovation to make the travel experience for people faster, simpler, and more enjoyable and also the adoption of robots in tourism and hospitality can increase the efficiency of work, the quality of services, and reduce the financial costs. The prime objective of this research is to illustrate the importance of Artificial intelligence applications and its impact on the competitiveness.

944 questionnaires were distributed on a random sample of Travel agency, Hotel, Airport, Airlines, governmental tourism authorities and private tourism authorities while 758 questionnaires were found usable for analysis. The results showed that AI can enhance tourism industry productivity

Results also indicated that AI helping in branding Egyptian touristic destination, forecasting can enhance financial management and Egyptian market is ready to use this kind of technology

Keywords: Artificial intelligence, Chatbots, Augmented reality (AR),   Virtual reality (VR).

 Introduction:

AI in travel and tourism is used to make the whole travel experience more convenient and enriching. The travel industry is leveraging the benefits of AI technology to predict travel choices, provide personalized travel solutions tailored to customer needs improve customer service, and

make in-trip and post-trip needs management simpler. The travel industry is the field where on-demand 24-hour support is essential to provide assistance in real-time. Travelers may be planning a trip or facing concerns on a trip and trying to get a fast and relevant help at any time of the day or night. Using AI-based chatbots and assistants for live support is a great way to save time, costs, and increase efficiency. With all of the evolutions and benefits of AI, Egypt started its own forward-looking steps towards AI with the target that AI composes 7.7 percent of its gross domestic product (GDP) in 2030.https://www.tralac.org. Egypt ranked 111 out of 194 countries in the latest Government Artificial Intelligence Readiness 2019 report (pdf) published by Oxford Insights, which ranks countries based on their ability to harness AI to deliver better public services, looking at existing infrastructure, skills, and governance https://www.egypttoday.com

Literature Review

The concept of Artificial Intelligence:

A new type of intellect capable of synthesizing several concepts at the same time Today's technology revolution necessitates efficacy, sustainability, and productivity all at the same time (Zsarnoczky,2017).
MOCA defined artificial intelligence as a set of procedures borrowed from mathematics and physics that imitate the human brain's learning process. It consists of a set of

processes that enable the machine to learn from past events and infer future outcomes while taking into account all learned system characteristics. For example, if a tourist visits beaches on a frequent basis and these beaches have a special or unique attribute (e.g., white sand or good waves for surfers), AI can detect this and recommend sites with the precise characteristics chosen by the visitor in future travels. AI systems are not only capable of learning the behavior of the person, but also they learn the context, inferring not only visit recurrency but also why it's visited (context of the location).We can distinguish between two types of artificial intelligence systems: pure digital ones and digital-physical hybrids known as robots. Both systems are utilised in the travel and hospitality industries. When it comes to pure digital artificial intelligence systems, examples include mobile boarding, online check-in systems, and passes available in the airline industry; nevertheless, the largest advances in tourism and hospitality were brought about with the advent of various types of chatbots (Zhang and Sun ,2017).

Importance of applying Artificial intelligence in tourism sector:
1-Virtual reality
Virtual Reality (VR) applications are widely used in the tourism and hotel industries. Virtual hotel tours, virtual vacation experiences, and virtual booking interfaces are a few examples. Virtual hotel tours offer 3D video

demonstrations of the hotel surroundings and facilities. This provides customers with a real-time experience of the hotel's features (Barnes, 2016). Customers would like to enjoy the travel and exploration of tourist destinations before moving to them. This is accomplished by scanning the internet for relevant information in the form of customer reviews, etc (Kim and Hardin, 2010). The introduction of virtual reality technology resulted in a significant shift in the availability of information to customers. Customers use this information to plan their trips ahead of time. Virtual reality technology are ideal for pre-traveling and exploring previously unseen locales. Marketers provide clients with a virtual voyage into hotels and tourist destinations by collaborating with hoteliers and tourism organisations (Samala et al.,2019). In the recent past, a few hotels, especially Marriott hotels and Atlantis Dubai Hotels, have partnered with marketers to provide clients with a virtual experience (Van et al., 2017). The Virtual Booking Interface provides clients with a real-time, virtual experience of walking through a plane and picking a seat. Customers can also choose other services, such as cab service, and pay for them. This simple explanation of ordering flight tickets and other services in the form of three D-videos allows clients to book on their own without contacting any consultants. This assists airlines in becoming the next generation of retailers. Few organizations, such as Navitaire Airlines, use virtual booking interface services (Wilde, 2017).

2– Chatbots

A chatbot is a piece of software that facilitates a dialogue through aural or written means. Chatbots are classified into two types: text message-based chatbots and voice-based chatbots. Text message-based chatbots respond to client enquiries by sending text messages. Voice-based chatbots respond to client enquiries by sending voice-based messaging. Kumar et al.(2018) and Kumar et al. (2016). Chatbots are typically computer software machines that have been pre-programmed to respond to simple inquiries posed by clients (Oh et al., 2017). Chatbots have built-in programmes that detect keywords within questions and generate a large number of responses in response to a single inquiry. This crucial function of rapidly sending out several responses to a single question has been a significant characteristic of chatbots (Makar and Tindall, 2014). Furthermore, chatbots can be accessed 24 hours a day, 365 days a year. Because of these crucial features, chatbots were able to replace employees. Some businesses use travel chatbots to provide a one-of-a-kind experience. The travellers can ride the automobile without a guide, and the travel chatbot embedded in the car continues to describe each location. This device is known as an audio tour, and it is favoured by passengers who desire privacy and travel alone with their families (Boiano et al., 2019).

3- Robots:

Robots are another type of AI technology that is strengthening their presence in the tourism industry. These

technology-driven assistants use Internet of Things (IoT) technology to perform simple tasks such as turning on the bedroom lights, shutting off the television, handling systems to guarantee luggage is automatically checked in, and greeting hotel guests (Freifer,2017). Robot receptionists have become popular in the tourism business, with a direct impact on customer and guest connection and experience (Bulanov,2019). They are even looking after the room service features so that visitors do not have any problems while checking in to a new hotel room. The Alexa robot has received a lot of attention in some of Marriott's prestigious hotels, including St. Regis, Westin, and Aloft. Similarly, robots have begun to appear in airports, where they are deployed as guides and assistance (Bowen et al,2018).Some of the main advantages of robots in the tourism industry include enhanced customer experience, simplification of the work process, the ability of human factors to focus on other activities and improved efficiency of the tourism business(Hsu,2018). AI has introduced a silent revolution in the hospitality and tourism industry that cannot be ignored (Samala N.,et al.,2019).

4- Augmented reality &destination marketing:

Smart phones and various other mobile applications have been widely used, which has provided new ways that allow the tourism industry to connect their visitors during their travels. Indeed, the wide use of smart phones has led to more and more mobile applications (apps) in consumer technology (Eden and Gretzel, 2012), and respectively AR

has become one of the new advertising and marketing tools. AR had been used in many brands to appeal to customers and to improve customer commitment. With the help of AR, the users of smart phone and tablet computers point their built-in cameras on these devices at whatever object they want, which then generates a 3D video (Linaza et al, 2012).

5-Forecasting:

Forecasting is a technique in which historical and contextual data is used to make estimates about the future, based on current trends. It is used in all types of sectors and business, in order to make decisions that require a prediction of what will happen. Forecasting is particularly well suited for AI algorithms (Claveria et al.2015), especially with the presence of big data (Gunter and Önder 2016). Artificial intelligence methods in forecasting can be divided into five categories: grey theory, fuzzy time series, rough sets approach, support vector machines (SVMs), and ANNs (Claveria et al. 2015).In the tourism sector, forecasting can be used to understand tourist demand (Buhalis and Leung 2018), to develop marketing strategies, for financial management and human resource allocation (Claveria et al. 2015; Huang 2014), to detect scams in restaurants (Stalidis et al. 2015), and to support the management of facilities and maintenance needs (Buhalis and Leung 2018).

Hypothesis:

H1: Artificial intelligence affects positively tourism destination competitiveness.

H1/1: Forecasting affects positively tourism destination competitiveness.

H1/2: Chatbots affects positively tourism destination competitiveness.

H1/3: Virtual reality affects positively tourism destination competitiveness.

H1/4: Augmented reality affects positively tourism destination competitiveness.

Methodology

Questionnaire design:

A questionnaire was designed in order to collect some statistical data about the characteristics of the respondents, artificial intelligence, and competitiveness.

The questionnaire used in this study was consists of three parts. Part A of the questionnaire concerned with demographic and functional information about the respondents. The questions included five items. Gender of respondents, age, level of education, and workplace. Part B gathered information about artificial intelligence

applications (AI) according to 20 items, which were developed based on (Bhardwaj, P.2019).This part was divided into four dimension: (1) Forecasting (FC) (6 items), (2) Chatbots (CH) (7 items), (3) Virtual reality (VR) (5 items), and (4) Augmented reality (AR) (2 items). Part C gathered information about Competitiveness (CM) according to 13 items, which were developed based (Hair, J. et al.2016)

A five-point Likert scale of agreement was used, where 1 means 'Strongly Disagree' , 2 means ' Disagree' , 3 'Neutral', 4 'Agree' and 5 means 'Strongly Agree'. A Likert scale is a "measure of a set of attitudes relating to a particular area".

Sample size and data collection
 The sample size of the population was determined for a given population to become representative and ensure that results can be generalized to the whole population. Questionnaires were distributed electronically and hard

copy to employees in tourism and hospitality institutions, airport, airlines, governmental tourism authorities and private tourism authorities by the researcher. Each questionnaire was attached to a covering letter indicating the purpose of the study and the importance of the participant's involvement. The covering letter also confirmed the confidentiality and anonymity of data collection and that it is used for research purpose. To preserve anonymity, no name lists and ID numbers were required and no names or personal addresses were asked for. They were given clear instructions on how to answer the questionnaire and to confirm that all questions were answered within 7 days. After the agreed time period, the researcher collected questionnaires. 1241 questionnaires were distributed, while 944 were collected and 758 questionnaires were valid.

Statistical tests:

To analyze the study data and test hypotheses, the researcher used statistical program, namely SPSS V. 24 The following statistical tests were used:

1- **Reliability Test**: it was used to measure the reliability of the study tool.

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- **Multiple regression**: to indicate the effect of independent variables on dependent variable.

Results

Demographic and other work-related information

Sample characteristics include three major items in this study. Table (1) indicates the results obtained after

analyzing demographic variables. The frequency and percentage for each variable is listed according to the survey categories in the table.

Table (1) Demographic and work information

Demographic and work information		Freq.	%
Gender	Male	451	59.5%
	Female	307	40.5%
Age	Less than 20 years old	-	-
	20 – 39 years	385	50.8%
	40 – 59 years	332	43.8%
	60 years and above	41	5.4%
level of education	Less than bachelor	93	12.3%
	Bachelor	580	76.5%
	Master	34	4.5%
	PhD	23	3%
	Other	28	3.7%
Workplace	Travel agency	116	15.3%
	Hotel	252	33.2%
	Airport	84	11.1%
	Airlines	93	12.3%
	Governmental tourism authorities	95	12.5%
	Private tourism authorities	74	9.8%
	Other	44	5.8%

Regarding the gender of respondents; More than half of the sample are male by 451 (59.5%), and there are 307 females by 40.5%. **When we look at the age of the respondents**; 385 (50.8%) of the respondents are (20 to 39

years), followed by who are (40 -59 years) by 332 (43.8%), and finally who are (60 years and above) by 41 (5.4%). **As for the level of education;** More than two thirds of the sample hold a bachelor's degree, with 580 respondents (76.5%), 93 respondents with a level of education less than a bachelor's degree (12.3%), then 34 respondents with a master's degree (4.5%), then 28 respondents with other educational qualifications (3.7%).), and finally, PhD holders with 23 respondents (3%). **Regarding the workplace of respondents;** 252 respondents are working in hotels (33.2%), followed by who are working in travel agencies by 116 respondents (15.3%), then who are working in governmental tourism authorities by 95 respondents (12.5%), then who are working in airlines by 93 respondents (12.3%), followed by who working in airports by 84 respondents (11.1%), then who are working in private tourism authorities by 74 respondents (9.8%), and finally who are working in other workplaces by 44 respondents (5.8%).

Reliability Test

Table (2) highlights values of Cronbach's Alpha for all constructs. On the basis of the data presented in the table, there is sufficient evidence to suggest that the reliability of the constructs was acceptable given that the Cronbach's Alpha value is > .70. Therefore, it is concluded from this finding that the scale have high levels of internal consistency and are considered to be very reliable, where Cronbach's Alpha values are > .714. Thus, all the constructs and variables used in this study are based on well-established instruments with high reliability scores, and the internal consistency of each construct is substantiated to be very good.

Table (2) Reliability levels of instrument − Cronbach's Alpha

Variables	Cronbach's Alpha	No. of items
Forecasting (FC)	.735	6
Chatbots (CH)	.851	7
Virtual reality (VR)	.887	5
Augmented reality (AR)	.714	2
Artificial intelligence (AI)	.927	20
Competitiveness (CM)	.807	13

Descriptive statistics:

Artificial intelligence's applications in tourism industry

Table (3) Mean value and standard deviation (SD) of Artificial intelligence's applications in tourism industry

Items	Artificial intelligence's applications	Mean	SD	T	Sig.	Rank
FC1	Forecasting can be used in understanding tourists demand	3.9129	.91390	27.503	.000	1
FC2	Forecasting can detect scam in tourism industry	3.5066	.98835	14.112	.000	6
FC3	Forecasting can estimate arrivals tourists numbers	3.8404	1.0998	21.037	.000	3
FC4	Forecasting knows resorts demands and needs	3.8417	.98804	23.454	.000	2
FC5	Forecasting knows	3.7691	.99576	21.266	.000	4

	airports demands and needs					
FC6	Forecasting know tourism agencies demands and needs	3.6966	.98349	19.500	.000	5
FC		**3.7212**	**.78810**	**26.593**	**.000**	**3**
CH1	Chatbots save customers time	3.7388	1.1133	18.270	.000	1
CH2	Chatbots personalize services	3.5937	1.0957	14.917	.000	3
CH3	Chatbots saving money for companies by decreasing using human being	3.7084	1.0649	18.315	.000	2
CH4	Chatbots understand what customers talk about	3.2045	1.0984	5.126	.000	7
CH5	Chatbots enhance customer service	3.4222	1.0957	10.607	.000	4
CH6	Chatbots will negatively	3.3760	1.0793	9.591	.000	5

	affect on customer services job				
CH7	Chatbots provide a wonderful guest experience	3.3641	1.1548	8.681	.000	6
CH		**3.4868**	**.78358**	**17.104**	**.000**	**4**
VR1	VR allows companies to bridge the gap between experience and action	3.9406	.83225	31.117	.000	3
VR2	VR offer digital experience in places of physical one which can promote products and services	4.0132	.84293	33.093	.000	1
VR3	VR change the dynamic between brands and customers rather than using Ad blocker or	3.7533	.87597	23.676	.000	5

	clicking out of Ads					
VR4	VR is able to capture tourism destination in such a memorable and immersive way	3.8549	.87384	26.935	.000	4
VR5	VR has ability to place the user at the heart of the scene and makes it easier for them to imagine themselves at the location	3.9551	.85892	30.616	.000	2
VR		**3.9034**	**.74936**	**33.192**	**.000**	**2**
AR1	Instead of showing visitors brochures and computer screens travel agents can provide their clients with	3.9578	.97026	27.178	.000	1

	AR experience to gaining more interest.					
AR2	AR has ability to place the user at the heart of the scene and makes it easier for them to imagine themselves at the location	3.8549	.90648	25.965	.000	2
AR		**3.9063**	**.89091**	**28.008**	**.000**	**1**
AI applications in tourism industry		**3.7644**	**.67351**	**31.249**	**.000**	

The results of table No. (3) refer to the study sample's responses to the artificial intelligence's applications in tourism industry statements. In general, it appears from the results of the table that the total mean of the responses of the respondents to artificial intelligence's applications in tourism industry amounted to (3.7644) with a standard deviation of (.67351), and based on the standard used In this study and the responses of the sample, this mean indicates that the evaluation of artificial intelligence's applications in tourism industry was high.

As for forecasting, the mean for this variable ranged between (3.5066) and (3.9129). Item No. (1) came in the first place, which refers to "Forecasting can be used in understanding tourists demand" with mean of (3.9129), which is higher than the general mean of (3.7212), with a standard deviation of (.91390), while statement No. (2) that refers to "Forecasting can detect scam in tourism industry " came in the last rank with mean of (3.5066), which is lower than the general mean of (3.7212), with a standard deviation of (.98835).

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Regarding the chatbots, the mean for this variable ranged between (3.2045) and (3.7388). Item No. (1) came in the first place, which refers to "Chatbots save customers time" with mean of (3.7388), which is higher than the general mean of (3.4868), with a standard deviation of (1.1133), while statement No. (4) that refers to "Chatbots understand what customers talk about" came in the last rank with mean of (3.2045), which is lower than the general mean of (3.4868), with a standard deviation of (1.0984).

Regarding the virtual reality, the mean for this variable ranged between (3.7533) and (4.0132). Item No. (2) came in the first place, which refers to "VR offer digital experience in places of physical one which can promote products and services" with mean of (4.0132), which is higher than the general mean of (3.9034), with a standard deviation of (.84293), while statement No. (3) that refers to "VR change the dynamic between brands and customers rather than using Ad blocker or clicking out of Ads" came in the last rank with mean of (3.7533), which is lower than the general mean of (3.9034), with a standard deviation of (.87597).

Regarding the augmented reality, the mean for this variable ranged between (3.8549) and (3.9578). Item No. (1) came in the first place, which refers to "Instead of showing visitors brochures and computer screens travel agents can provide their clients with AR experience to gaining more interest" with mean of (3.9578), which is higher than the general mean of (3.9063), with a standard deviation of (.97026), while statement No. (2) that refers to "AR has ability to place the user at the heart of the scene and makes it easier for them to imagine themselves at the location" came in the last rank with mean of (3.8549), which is lower than the general mean of (3.9063), with a standard deviation of (.90648).

Competitiveness of the Egyptian tourism destination

Table (4) Mean value and standard deviation (SD) of competitiveness of the Egyptian tourism destination

Items	Competitiveness of the Egyptian tourism destination	Mean	SD	T	Sig.	Rank
CM1	AI help users to spend their vacation in a	3.7850	.92945	23.252	.000	11

	specific destination					
CM2	AI help users to find better and more relevant information about specific destination	3.9274	.87457	29.196	.000	6
CM3	AI can enhance tourism industry productivity	4.0435	.80746	35.581	.000	2
CM4	AI helping in branding Egyptian touristic destination	4.0435	.82526	34.814	.000	3
CM5	forecasting can enhance financial management	3.9855	.80851	33.558	.000	5
CM6	forecasting can develop human resource allocation	3.8984	.78390	31.554	.000	8
CM7	VR attract visitors to try specific destination	4.0871	.79484	37.654	.000	1
CM8	VR is able to capture tourism destination in such a	4.0290	.85189	33.257	.000	4

	memorable and immersive way					
CM9	using technology specially during crisis is necessary	3.9129	1.1013	22.821	.000	7
CM10	Egyptian market is ready to use this kind of technology	3.3628	1.2866	7.763	.000	13
CM11	There are many trained employees in artificial intelligence filed	3.8984	1.1454	21.595	.000	9
CM12	Using AI applications was necessary in Egyptian market specially during COVID-19 pandemic	3.7230	1.3617	14.616	.000	12
CM13	AR assist travel companies to gain brand exposure	3.8852	.84382	28.883	.000	10
Competitiveness of the Egyptian tourism destination		**3.8909**	**.51948**	**47.217**	**.000**	

The results of table No. (4) indicate to the study sample's responses to the competitiveness of the Egyptian tourism destination variable statements. In general, it appears from the results of the table that the total mean of the responses of the respondents to competitiveness of the Egyptian tourism destination amounted to (3.8852) with a standard deviation of (.84382), and based on the standard used In this study and the responses of the sample, this mean shows that the evaluation of competitiveness of the Egyptian tourism destination was high.

The mean for this variable ranged between (3.3628) and (4.7600). Item No. (7) came in the first place, which refers to "VR attract visitors to try specific destination" with mean of (4.0871), which is higher than the general mean of (3.8852), with a standard deviation of (.79484), while statement No. (10) refers to "Egyptian market is ready to use this kind of technology" in the last rank with mean of (3.3628), which is lower than the general mean of (3.8852), with a standard deviation of (1.2866).

Test of hypotheses

H1: Artificial intelligence affects positively tourism destination competitiveness

Table (5) indicates that the correlation between artificial intelligence and competitiveness was positive, where correlation coefficient value is (.689). Table also shows the reliability of model used in testing the effect of artificial intelligence on competitiveness. F value is (170.070) with sig. level (0.001). It also shows that R Square is (0.475) which means that the independent variable (artificial intelligence) explain (47.5 %) of change in the dependant variable (competitiveness). So, H1 is supported.

Table (5) The effect of artificial intelligence on competitiveness

Model	Coefficients (B)	T	Sig.	r	R Square	F	Sig.
(Constant)	2.155	27.446	.000	.689	.475	170.070	.000
FC	.087	3.477	.001				
CH	.049	2.000	.046				
VR	.612	18.449	.000				
AR	.207	8.449	.000				

H1/1: Forecasting affects positively tourism destination competitiveness

Table (6) shows that the correlation between forecasting and competitiveness was positive, where correlation coefficient value is (.446). Additionally, table depicts the reliability of model used in testing the effect of forecasting on competitiveness. F value is (187.261) with sig. level (0.001). It also highlights that R Square is (0.199) which means that the independent variable (forecasting) explains (19.9%) of change in the dependant variable (competitiveness). Hence, H1/1 is supported.

Table (6) The effect of forecasting on competitiveness

Model	Coefficients (B)	T	Sig.	r	R Square	F	Sig.
(Constant)	2.786	33.783	.000	.446	.199	187.261	.000
forecasting	.294	13.684	.000				

H1/2: Chatbots affects positively tourism destination competitiveness

Table (7) shows that the correlation between chatbots and competitiveness was positive, where correlation coefficient value is (.403). Table also indicates the reliability of model used in testing the effect of chatbots on competitiveness. F

value is (146.332) with sig. level (0.001). It also reports that R Square is (0.162) which means that the independent variable (chatbots) explains (16.2%) of change in the dependant variable (competitiveness). Therefore, H1/2 is supported.

Table (7) The effect of chatbots on competitiveness

Model	Coefficients (B)	t	Sig.	r	R Square	F	Sig.
(Constant)	2.960	37.530	.000	.403	.162	146.332	.000
chatbots	.267	12.097	.000				

H1/3: Virtual reality affects positively tourism destination competitiveness

Table (8) illustrates that the correlation between virtual reality and competitiveness was positive, where correlation coefficient value is (.650). As well, table reveals the reliability of model used in testing the effect of virtual reality on competitiveness. F value is (554.387) with sig. level (0.001). Too, it shows that R Square is (0.423) which means that the independent variable (virtual reality) explains (42.3%) of change in the dependant variable (competitiveness). So, H1/3 is supported.

Table (8) The effect of virtual reality on competitiveness

Model	Coefficients (B)	t	Sig.	r	R Square	F	Sig.
(Constant)	2.131	27.995	.000	.650	.423	554.387	.000
virtual reality	.451	23.545	.000				

H1/4: Augmented reality affects positively tourism destination competitiveness

Table (9) clarifies that the correlation between augmented reality and competitiveness was positive, where correlation coefficient value is (.362). Table also shows the reliability of model used in testing the effect of augmented reality on competitiveness. F value is (113.701) with sig. level 0.001. It also presents that R Square is (0.131) which means that the independent variable (augmented reality) explain (13.1%) of change in the dependant variable (competitiveness). Hence, H1/4 is supported.

Table (9) The effect of augmented reality on competitiveness

Model	Coefficients (B)	t	Sig.	r	R Square	F	Sig.
(Constant)	3.067	38.721	.000	.362	.131	113.701	.000

augmented reality	.211	10.663	.000				

Conclusion:

The researcher reviews that AI in travel and tourism is used to make the whole travel experience more convenient and enriching. The travel industry is leveraging the benefits of AI technology to predict travel choices, provide personalized travel solutions tailored to customer needs, improve customer service, and make in-trip and post-trip needs management simpler. The travel industry is the field where on-demand 24-hour support is essential to provide assistance in real-time. Travelers may be planning a trip or facing concerns on a trip and trying to get a fast and relevant help at any time of the day or night. Using AI applications such as virtual reality, forecasting, chatbots and augmented reality for live support is a great way to save time, costs, and increase efficiency.

Recommendations:

- Ministry of tourism and antiques should strengthen using VR which offer digital experience in places of physical one, which can promote products and services.

- Providing technical and financial support for the Egyptian tourism market to be ready to use artificial intelligence technology.

- General authority for tourism promotion should use AR instead of old ways of promotion.

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