

SOCIO-ECO IMPACT OF ADAPTION OF ARTIFICIAL INTELLIGENCE ON TOURISM INDUSTRY

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ABSTRACT

Innovations have become a requisite with changing business scenario. Technology innovations and advancements have impacted nearly all business sectors. Innovations stand to provide backbone to the sectors to fight for survival in tough completions. It has been in action since decades, but nowadays a rising trend i.e. technological innovation gained importance as most innovative solutions. It has helped to increase efficiency as well supported the industries to grow. Technological innovations rather we say artificial intelligence is a most common phrase that has gained its position on behalf of its outcomes. Basically AI means machine intelligence where tasks are being performed by machines ie intelligence is being demonstrated by machines. The major merit of AI is its capacity to complete mundane tasks through intricate automation thereby increasing productivity. Tourism industry is also a beneficiary of AI. It has helped save time, money, speeding tasks, 24x7 availability. The use of online customer service has helped tourism industry. Using of data for further predictions and advancements. It has made travelling easy and convenient. Advancements and innovations will continue. The question is how successfully have AI impacted our lives and travelling. The paper makes efforts to analyse implementation and effects of artificial intelligence, the beneficiaries of AI, how has AI impacted the tourism industry. The results are concluded based on data over the net. This study aims to research, identify and discuss the socio-eco impact of Artificial Intelligence (AI) on the current status of tourism sector.

KEYWORDS: Robotics, Artificial Intelligence, Technological Innovation, Tourism Industry.

Introduction

Tourism and Information and Communication Technologies (ICT) are long interconnected, thus AI for the majority of the market remains undiscovered. In the rapidly changing economic era of globalisation and industrialisation, tourism sector has emerged as one of the world's largest industries. The concern on Tourism and development has assumed phenomenal significance at global, national and local levels. Consequently the globalised economic order, there is now free exchange of trade and culture among the countries of world. In fact, tourism is an emerging pertinent industry and it is considered a major engine of economic growth in various parts of the globe especially in the Asia- Pacific region including certain countries of Europe and South- East Asia. Several countries of the world have transformed their economies particularly, certain small countries of Europe like Switzerland followed by some of the South-East Asian Countries mainly Singapore, Malaysia, Thailand, Mauritius, South-Korea, Japan and Sri Lanka using their tourism potential the fullest. Its output is very fruitful because tourism possesses a vast employment opportunities of diverse kinds from the most specialized to the unskilled lion share population of human society.

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Artificial Intelligence

Technological innovations support increased efficiency in every industrial sector. Artificial intelligence (AI) is among the most important innovative solutions. Intelligence is measurable and clearly defined. The meaning of AI is not clearly defined; however, the term is most often associated with practical advantages and development. In the term artificial intelligence mainly two factors or technologies are taken here i.e. Big data (cloud compound) and Robotics.

Big data are the data-processing application software to adequately deal with. With cross-sell and up-sell now being challenging tasks in the well-informed clients' market, Big Data Analysis has come into the notice of almost all the businesses to understand individualistic needs of clients based on their past preferences. Many hotels have undergone a sea-change in their services like the old-traditional rooms revamped to a smart room with voice-activated control of room temperature, television, curtains, etc. Not to stop at this but the intelligent face-recognition front-desk receptions to relax the guest from carrying physical id-proofs everywhere; Chatbots to guide the guest about the services at the hotel, and also the smart mattresses that remember a guest's sleeping patterns. The hotels are making an effort to keep a record of all this data to achieve return-clients and loyalty. This voluminous Big Data has become a crucial part of the hotel space for the past couple of years. Even at an early stage, diverse big data have been applied to tourism research and made an amazing improvement.

Robotics: The technology dreamed up for those blockbuster productions is the same as what we see entering our reality today.

Review of Literature

Review of Research on Tourism Sector for the purpose of understanding the facts about the Tourism industry we have reviewed some important research papers related to Tourism sector;

Banerjee, A. (2018) stated that the major issues that are restraining the industry from achieving high economic value are shortage of qualified personnel, shortage of tourism training institutes, shortage of well qualified trainers, working conditions for the employees.

Eide, Fuglsang, & Sundbo. (2017) in his paper on Management challenges with the maintenance of tourism experience concept innovations: Toward a new research agenda described a new research agenda within the debates about tourism, the experience economy, and innovation. Knowledge about innovation and value co-creation within experience-based sectors has increased, but most studies focus on the initial steps of the innovation process.

Murphy, Hofacker, & Gretzel. (2016) explored in the paper dawning of the age of robots in hospitality and tourism: Challenges for teaching and research that it is evident that robotics will challenge businesses to unify robots into an already composite system of employees, customers, suppliers and information technologies. The paper express a wide range of utilization of robotics in tourism from industrial robots in the back of the house (integrated in intelligent algorithms) to service robots in the front of the house and underlines the importance of human-robot interaction. The identified categories are: a) "industrial" b) "professional service" c) "personal service" -39- The paper demonstrates some example of robotics that is used in tourism.

Pan, Okada, Uchiyama, & Suzuki. (2015) According to the paper, robotic technologies promote service augmentation, particularly, chat bots and virtual receptionist appear supportive to humans' skills and knowledge by infiltrating online communication between customers and intermediaries. In the tourism field those technologies enabling users to interact with digital assistants, using natural language to answer travel-related inquiries and process bookings and reservations.

Application of Artificial Intelligence in Hotel Industry

Tourism industry is no exception of the many sectors affected by AI: different smart systems are used in travel agencies and air transport companies. Predictions about the near future foresee the development of personalised solutions, which will lead to further re-arrangement in the technological revolution that has been going on for decades in the tourism industry.

Big Data

The Hotel industry is data rich industry that gathered and used the data for understanding of segment behavior, needs, and expectations; identify profitable customer segments and their buying preferences; and identify opportunities to attract new guests. But all that starts with having clear customer-driven vision, before embarking on Integrating and standardizing guest data from multiple channels, systems and properties into a unified, accurate view of all interactions.

It is vitally important for hoteliers to be able to understand guest preferences (locations, activities, and room types), purchase behavior (frequency, length of stay, and time of year) and profit potential in order to increase the brand loyalty and wallet share of their most valuable guests. To maximize profits, hotels need to increase the loyalty and wallet share of their most valuable guests by marketing to their preferences and encouraging repeat visits. Focusing on the wrong guests reduces profitability across the enterprise. For example, if a hotel targeted guests who would likely take advantage of spa services, golf and restaurants, rather than guests who only generate room nights, they could significantly increase revenues and profitability. Unfortunately, money often gets spent on blanket campaigns that don't target individual guests or segments with offers they're most likely to respond to. As a result, guests may feel that the hotel doesn't care about them, or simply doesn't offer services designed to meet their needs.

Hoteliers are starting to use more and more predictive analytics to move from reactive to proactive decision making, which would enable them to stay one step ahead of trends, set strategy and achieve goals. The segmentation approach might look as follows: initial learning from this type of segmentation could be used in developing a marketing strategy that is data-driven. We would certainly expect that local events held by the oil and gas industry might be more appropriate in one city, while financial services type events may be more prevalent somewhere else.

Robotics

This technology is applicable to almost every industry thanks to customer interaction – a prime area for smart tech to be implemented. Current state and the potential adoption of service automation and robots are by tourist, travel and hospitality companies. Hospitality robots are clearly at a tipping point. They're now cost-effective to build, are attaining cultural acceptance, and use sophisticated technology to safely live and work among us. But what's next in this fast-moving field? In this article, the five key robot trends set to emerge in the hospitality sector.

Five Key Robot Trends

- The number of people helped by hospitality robots will double by the end of 2017.
- Robots will create a large number of jobs in hospitality and other sectors.
- Hospitality will be a pioneering industry for human-robot Interaction.
- Robots will be a critical data source.
- Anxiety about robots will be replaced with feelings of comfort and delight.

Research Methodology

Data Collection

Primary data will be collected from tourists via questionnaires. The tourists would be approached so as to acquire their response through questionnaire. Questionnaires from 384 tourists, tourist guides, and local artisans got filled but 250 found suitable.

Objective

- A study that focuses on tourism and artificial intelligence
- A study that describes AI applications, methods or techniques in any field of tourism sector

Hypothesis

H₀₁ There is no impact of Application of AI on tourism inflow and demand

H₀₂ There is no social impact of AI on tourism inflow and demand

H₀₃ There is no economic impact of AI on tourism inflow and demand

Hypothesizes has been tested at various level of potential at social, economic, cultural and overall development level of tourism industry. For study and analysis purpose is divided in further four sub part.

- Application of AI
- Social Impact
- Economic Impact

For all the questions which has been asked to the respondents' about their satisfaction level towards different parameters of the social cost and benefit measured on five point Likert scales whose options are as given below:

- very much agree
- satisfied
- ok
- dissatisfied
- very much dissatisfied

Total 12 questions were framed; they are segregated in various dimensions, on the behalf of nature of questions.

	Dimensions	Questions
1	Application of AI	1,2,3
2	Social benefit	4,5,6,7
3	Economic benefit	8,9,11,12

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
awareness	Between Groups	51.269	4	12.817	15.290	.000
	Within Groups	207.060	247	.838		
	Total	258.329	251			
adoption	Between Groups	55.688	4	13.922	16.107	.000
	Within Groups	213.498	247	.864		
	Total	269.187	251			
application	Between Groups	70.051	4	17.513	21.408	.000
	Within Groups	202.056	247	.818		
	Total	272.107	251			

It had been found, that there was no significant difference in the tourism demand and adaption of AI .P-Value is found less than .05, the null hypothesis is rejected, and so alternative hypothesis is accepted. The hypothesis is rejected on the basis of all the criteria of social benefit whether it is application, adaption or awareness. It means a positive impact of adaption of AI on tourism demand

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
job Generate	Between Groups	48.010	4	12.002	15.616	.000
	Within Groups	189.843	247	.769		
	Total	237.853	251			
crowd Worker JOB	Between Groups	68.634	4	17.158	20.065	.000
	Within Groups	211.219	247	.855		
	Total	279.853	251			
Community	Between Groups	106.657	4	26.664	31.940	.000
	Within Groups	206.200	247	.835		
	Total	312.857	251			
socio Eco	Between Groups	104.198	4	26.050	34.138	.000
	Within Groups	188.480	247	.763		
	Total	292.679	251			

It had been found, that there was no significant difference in the tourism demand and social benefit. P-Value is found less than .05, the null hypothesis is rejected, and so alternative hypothesis is accepted. The hypothesis is rejected on the basis of all the criteria of social benefit whether it is a job generation, new types of job i.e. crowd worker and data handling, good for community, social benefits. It means a positive impact of the AI on tourism demand

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Revenue	Between Groups	99.495	4	24.874	27.949	.000
	Within Groups	219.822	247	.890		
	Total	319.317	251			
Price Mgt	Between Groups	90.813	4	22.703	24.866	.000
	Within Groups	225.516	247	.913		
	Total	316.329	251			
Earning	Between Groups	96.029	4	24.007	28.775	.000
	Within Groups	206.078	247	.834		
	Total	302.107	251			

It had been found, that there was no significant difference in the tourism demand and economic benefit. P-Value is found less than .05, the null hypothesis is rejected, and so alternative hypothesis is accepted. The hypothesis is rejected on the basis of all the criteria of economic benefit whether it is revenue, earning or price management. It means a positive economic impact of AI on tourism inflow and demand

Conclusion

Glancing through the amendments that AI can bring to the hospitality industry, the industry experts have deduced that its application in the Indian hotel spaces and other hospitality providing institutions is in its nascent stage. Artificial intelligence is a new form of intelligence, which is able to synthesise several different ideas simultaneously. Today's technological revolution requires effectiveness, sustainability and productivity at the same time. The use of artificial intelligence – which can be utilised in numerous different fields - is expanding in every industrial sector. For the users of the online world, it is natural to share data or send back information for big companies, and because of that, enterprisers are able to analyse big data and create a profile for each of their customers. Although AI-related solutions are still not widespread within the tourism sector, they are predicted to be used more often in the future in order to increase the quality of the tourism demand, and socio-eco benefit of tourism industry.

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