Chapter 23
A Framework for Effective Data Analytics for Tourism Sector:
Big Data Approach

Sapna Sinha

Amity Institute of Information Technology, Noida, India

Vishal Bhatnagar

Department of Computer Science and Engineering, Ambedkar Institute of Advanced Communication Technologies and Research, New Delhi, India

Abhay Bansal

Amity School of Engineering and Information Technology, Noida, India

ABSTRACT

From BRICS nations, India is the second largest tourism market after China in Asia. Technological revolution has added new dimensions to the way technologies being used in all the sectors. Also, the use of electronic gadgets leaves trail of data, which is very huge in size, this data (Big Data) is exploited by every sector for providing better services and gaining competitive edge. This trend grabbed the attention of researchers and industry for development of more optimized tools and techniques. There are many general frameworks proposed by industry and researchers for implementation of Big Data in industry but, there is no framework proposed for tourism sector. In this paper, the authors propose unified IT infrastructure framework named as tAdvisor for effective data analytics using Big Data Analytics approach for increasing productivity in tourism sector. Various challenges and issues related with the implementation of Big Data Analytics is also discussed in the paper.

1. INTRODUCTION

Tourism sector plays very important role in the social and economic growth of any country. Tourism is contributing around 10% to worldwide GDP. Tourism sector has 6.3% share in GDP of India in 2015 and generated about 22 million jobs. In 2014 foreign exchange earnings from tourism was 20236 million US$ and earning from domestic tourist visit was 1281.95 million. For the convenience of international tourists, the government has started facility of E-tourist Visa for citizens of 113 countries at 16 airports. E-Visa is the electronic visa applied online and generated online. According to stats provided by Ministry of Tourism in year 2014 total 39046 E-Visa was issued from various airports and 22286 visas was issued in the month of January to August in year 2015.

Technologies like Internet, Mobile has changed the marketing strategy and function of the different sectors. Tourism sector is also using technology for product development, marketing, distribution and training, but there is a technological gap between tourism industry and the technology industry. To bridge this gap Online Travel Agents (OTA) came into existence. It has also observed that business operators and workforce within industry do not have sufficient knowledge, tools, and /or strategy to utilize technology correctly. This sector has now started embarrassing 3rd T, i.e. Travel, Tourism, Technology. Technology can be used in all the dimensions of tourism for gaining competitive edge and providing 360 degree services to customer. With the advancement of technology and 24X7 availability, customers are also demanding 24X7 services.

According to Moor, Moor's Law: as the impact of technological revolution grows in the society, there will be rise in ethical problem (Moor, 2005, p. 117). Advanced technology provides novel methods to use them, which does not hold well defined ethical policies. Tourism is one of such sector which is using technology in various modes. With the use of these technologies, ethical issues are also increasing. The new term Technoethics came into existence which refers to dealing with the ethical issues due to use of technology. According to (Johnson, 1985), the need of Technoethics will be disappearing once technology matures.

Tourism is defined as "Travel and stay of a non-resident". It is ranked ahead of all other categories of international trade. Tourism has three major components:

1. **Attraction:** Man made or Natural tourist sites.
2. **Accommodation:** Hotels, Lodges or place of stay during visit.
3. **Transport:** Mode of transportation to tourist sites and back to permanent habitat.

Mobile technology and Internet has added new dimensions to the sector, now Tourists need detailed information for each place they intend to visit like: Geographical information, landscape, climate, accommodation and dining options, shopping facility, accessibility and availability of transport, social and cultural information of the place, activity and entertainment facilities, best season to visit, quality of services and price of stay including exchange rates. It has been observed that during their visit tourists carry electronic gadgets for their ease like: Mobile Phones, Laptop, Digital Camera's, Internet accessibility etc. These gadgets leave a trail of data which can be used by this sector for increased productivity and better services. (Vidyullata Shekhar Jadhav et al., 2011) has given layered structure of tourism industry, Figure 1 shows the layered organization of tourism sector, authors have proposed new underlying layer of unified IT infrastructure framework tAdvisor which will provide support to all the components of

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