

THE ROLE OF ICT IN HERITAGE TOURISM WITH SPECIAL REFERENCE TO KARNATAKA

1Usha Rani K, 2Rangaraju N.S.,

1Research Scholar, 2Professor

Department of Ancient History & Archaeology, Manasagangothri, University of Mysore, Mysuru, India

ABSTRACT: In this digital era, ICT has penetrated in to many aspects of our daily lives. ICT is changing the business model of many sectors and tourism is no exception. The internet has completely transformed the tourism business. ICT affects all the phases of travel starting from the pre travel to post travel. Today, ICT is shaping travel plans by providing vast information on tourist destinations. It is helpful in improving the experience of the tourist. ICT is used extensively for the promotion of Heritage Tourism worldwide. This paper analyses as how the ICT is leveraged for the promotion and development of Heritage Tourism in Karnataka.

KEY WORDS: ICT, Heritage Tourism, Karnataka Tourism, Geo-spatial techniques and heritage

I. INTRODUCTION

Tourism is one of the largest industries of the world, which contributes significantly to the economy. Heritage Tourism constitutes a significant part of the Tourism industry. It is a niche segment attracting those tourist who want to understand and learn more about the past. In this era of digitalization, Information and Communication Technologies (ICT) have deeply penetrated in to our lives. Information and communication technologies have changed the travel business model. Today, ICT is shaping travel plans by providing vast information on tourist destinations. It is helpful in improving the experience of the tourist. In fact ICT affects all the phases of travel that is- pre travel, during the travel and post travel. India is a well known destination for Cultural and Heritage tourism. Heritage has been defined by UNESCO as, “Heritage is our legacy from the past, what we live with today, and what we pass on to the future generations” (UNESCO 2008). As per world tourism organization, cultural heritage tourism accounts for 35 to 40% of all tourism worldwide. It is growing at a rate of 15% per annum.

Heritage tourism is gaining importance in promoting India as a tourist destination. India with more than 5000 years of history has a number of living heritage cities and a vibrant culture.

Karnataka is the eighth largest state in terms of area, located in the southern part of India. It is located within 11.5 degree North and 18.5 degree north latitudes and 74 degree East and 78.5 degree East longitude. Tourism is considered one among the major economic sectors of Karnataka. Karnataka has a glorious history and is ruled by illustrious rulers. They have left behind great architectural marvels. These are today considered important tourism products of the state. Karnataka is home to three world heritage sites, Hampi, Pattadakal and Western ghats. The state has 820 state protected and 506 ASI protected monuments.

II. REVIEW OF LITERATURE

According to Buhalis (2003), continuous development of ICTs has had important application for the tourism industry. Technology is now considered as one of the essential component of cultural experience. Therefore it is important to understand the growing role of technology in the cultural sector (Di Pietro et al., 2015). According to Guccio C et al., digital technologies have determined a rapid and substantial change in the practices of utilization , supply and conservation of cultural heritage. As cited by Sheldon (1997) “information is the life-blood of the travel industry”. In communicating and understanding the cultural heritage, interactivity is a significant aspect. In this direction the most important techniques include multimedia, 3D representation (Virtual Environment) and wireless appliances (A. Mecocci, 2001). “The implementation of technology in the cultural heritage sphere can reinforce visitor experiences, enhancing both memories and a sense of belonging” (D.Pietro et al., 2018). Tourism is gradually being transformed to a

new sphere of competitiveness globally. The creation of unique, meaningful and memorable experiences for consumers has been postulated as the key to generate added consumer value and competitive advantage.

According to Weber J (2014) ,“Location-based mobile Augmented Reality (AR) Games are an innovative way to attract tourists into challenges and interactive gameplay while they are exploring an urban destination or cultural heritage site. The aim of AR games is to create a deeper level of engagement with the destination by adding a game experience that educates through fun using location-based storytelling, personalised features, and social interactions. The player location and the context of playing are important dimensions in location-based AR Game play”. Technological progress has transformed tourism in a global way (Buhalis & Law, 2008). ICT can facilitate the flow of information between a number of parties and thus can stimulate relationships and thus helps in integrating tourism businesses, customers and communities (Milne, 2013; Buhalis & Minghetti, 2010). Katiyar, R.C. and Priyanka, P(2015) are of the opinion that “A common ICT based heritage tourism development strategy can be evolved using the points of convergence between cultural sector and tourism industry. Such a strategy common to the culture and tourism sectors on a regional level could be an appropriate solution to overcome major challenges associated with ICT based heritage tourism development. It enables a delicate balance between both accessibility to heritage and its preservation”. Go, Lee and Russo (2003) are of the opinion that” ICT may indeed favor the reconciliation of heritage and tourism, supporting a process of creative encounter between host and guest communities”. Further they have proposed a Business Model for Sustainable Heritage Tourism and argue that the way in which the information is put together and presented to the visitor is crucial and many aspects of cultural heritage can be effectively conveyed using graphics, images and sound.

ICT ‘s provide an opportunity to tourism destinations to improve their online presence and also offline connectivity and thereby help in competing in the global tourism market(Petti, Passiante G, 2014)

According to Bethapudi A (2013), “ICTs provide unique opportunities for innovative organizations to redesign tourism products to address individual needs and to satisfy consumer wants”.

III. RESEARCH GAP:

The role of ICT in tourism development is well documented. Many studies have critically analysed the role of ICT in tourism. Bangalore, the capital city of Karnataka is nick named as the silicon valley. Karnataka is one of the leading states in India in terms of IT industries. But there are no studies available with regard to the role of ICT in Karnataka Heritage tourism. Hence the present study helps to bridge the research gap and analyses how ICT is used in karnataka’s Heritage tourism.

IV. OBJECTIVES OF THE STUDY

The present study is undertaken in order to,

1. Understand the role of ICT in Heritage tourism.
2. To know how ICT is used for the promotion and development of Heritage tourism in Karnataka

V. METHODOLOGY:

The present study is based on collection of both primary as well as secondary data. The primary data was collected from observation and collecting information from relevant Government departments. The collected data is presented logically in the following sections.

Heritage Tourism in Karnataka

The powerful dynasties who have ruled Karnataka for centuries, have left several monuments as evidence of legacy. The popular dynasties among them were the Kadambas, the Gangas, the Chalukyas, the Rastrakutas, the Hoysalas, rulers of Vijayanagar, the Wodeyars of Mysore, and several Muslim dynasties viz., Bahamanis, Adilshahis, Baridshahis etc.,

Karnataka ranks next only to Uttar Pradesh with regard to number of protected monuments in the country. Also Karnataka tops the table with respect to the number of ASI protected monuments in south India. Mysore, Aihole, Bijapur, Badami, Chitradurga, Kittur, Hampi, Gulbarga, Bidar, Belur, Halebid, Shravanabelagola, Pattadakal, Srirangapatna are some of the Historical Destinations in Karnataka which

have tourism potential. Karnataka is also known as “cradle of temple architecture”. The following table provides details of tourists visit to the state(Table-1)

Table-1: Details of Domestic and Foreign tourists arrival in Karnataka (2013-2017)

	2013	2014	2015	2016	2017
Domestic tourists	98010140	118283220	119863942	129762600	179980191
Foreign tourists	636378	561870	636502	461752	498148
Total	98646518	118845090	120500440	130224352	180478339

Source: Ministry of Tourism, Govt. of India

From the above table it is evident that the number of tourist arrival in Karnataka is increasing year by year. Heritage tourism is one of the important types of tourism for which the state of Karnataka is known for.

Of late ICT is being used in Karnataka heritage tourism sector. The Karnataka tourism policy 2015-20, has identified ICT as one of the important tool for Tourism development in the state. The policy anticipates to encourage initiatives towards providing adequate and reliable information about destinations, accommodations, itinerary, events, online bookings and other offerings through various modes such as online web portals, tourism offices, booklets, flyers, brochures, maps etc. the policy also aims to encourage the Provision of audio guides, mobile technology, wi-fi at major tourist destinations and also to support Technology interventions for social networking and data management. The Karnataka government wants to support , other ICT initiatives for branding and promotion such as development of information and interpretation centers at tourist destinations apart from promoting a digital marketing and information collateral.

ICT initiatives and Heritage tourism in Karnataka

The department of tourism, government of Karnataka has identified and is supporting several startups such as Pinakin, Exploritage, FlippAR, Digitour etc., which have promising prospects for promotion of Heritage tourism in the state by leveraging ICT.

PINAKIN, a smart phone based application for tourism, an audio guide in multiple Indian languages has been recognized by the Tourism Department, Govt of Karnataka as one of the innovative start up solution. This app works easily in android and also in IOS mobile phones. The tourists can download this app from play store and sign in to listen to the audio guide in four different languages. Once the mobile location is switched on information about the nearby tourist places along with audio clippings of the place will be available. The audio can be downloaded or heard online. This audio guide apart from providing well researched Audio content for each site also provides interesting stories, some amazing facts, interesting trivia, Information about the place, its history, ticket prices, parking details, dress code etc. this app covers the major heritage destinations of Karnataka.

Exploritage, is another mobile app which provides audio guide to many heritage destinations in Karnataka. It is available free on android platform and the contents are well researched. It is available only in English.

FlippAR , app is available in both android and IOS platform. This augmented reality intervention is available in major heritage sites of the state. The information is provided both in English and Kannada. Tourism department is supporting this initiative. The information is provided to the tourist through video, audio, photo and text format. This free mobile application uses image and object recognition, matches real time photos with the database to display information on the smart phone.

Digitour, is another startup identified by the tourism department. Digitour initiative is to make video having several audio icons by using 360 degree photography of the heritage site. The contents can be

streamed in to the mobile phone and by clicking on the desired icon the tourist can obtain preloaded information about the site.

KSTDC mobile app, Karnataka tourism development corporation is leveraging ICT for tourism promotion in the state by incorporating it in its services and products. KSTDC is using a mobile app which is available on android and IOS platform. This app enables tourists to make reservations at KSTDC hotels, jungle lodges and resorts, Golden Chariot luxury train and KSTDC tour bookings. This app also provides information on nearby hotels, restaurants, ATM's, petrol bunks etc., apart from this the app also contains a database of trained and certified guides in the state of Karnataka.

The Archaeological Survey of India (ASI) website provides 360 degree view of several monuments of Karnataka. Further the tickets to many ASI monuments in karnataka are also available online.

The Archaeological survey of India (ASI) has taken up the 3D scanning of the monuments in the heritage town of Hampi in order to properly assess the damage and cracks, if any, in the structures. This initiative will give conservation experts a peek into the current status of the monuments and a prediction of their longevity. The process also helps ASI to plan for the protection of the monuments and an evaluation of the conservation measures taken so far.

Thus ICT is also used for the conservation of the built heritage in the state.

The **Karnataka State Council for Science and Technology** and **Indian Institute of Science**, Bangalore is also engaged in a project entitled Digital geospatial data generation and terrestrial scanning for 3-D reconstruction of Heritage site at Hampi.

ICT can also be leveraged to increase tourist experience and information in museums.

ASI in association with ISRO is in to a project called SMARAC, which involves geo locating of the monuments on BHUVAN portal. Many of the ASI monuments in the state of Karnataka have been marked with protected, prohibited and regulated zones using this technology. GIS databases are also well-suited to incorporate images taken from space, providing a platform to analyse them using Remote Sensing (RS) techniques. Broad structural and layout features invisible from the ground become conspicuous when viewed from above. Therefore, this synoptic view (a simultaneous view of a large area) readily facilitates making accurate maps and plans of cultural heritage sites marking all the surface features. (Rajangam and Rajani, 2017)

Rajani et al, (2011) have studied the, Synergistic application of optical and radar data for archaeological exploration in the Talakadu region of Karnataka.

Rajani et al (2009) have also studied about the Space observation for generating 3D perspective views and its implication to the study of the archaeological site of Badami in Karnataka.

VI. CONCLUSION

It is evident from the above sections that ICT plays an important role in Heritage Tourism. Tourism department of Karnataka is trying to provide experiential tourism especially in the heritage sphere through strat ups by leveraging the technology for the promotion of tourism.

It is suggested that, there is a need to establish interpretation centers well backed up by ICT at major heritage destinations in Karnataka, in order to provide unique experience and also to inform the tourist about the heritage value of the site. ICT can be used in museums as well. Apart from this Geo spatial techniques can help in developing 3D image and 3D scanning of the monuments and there by help in its conservation. Further such techniques can also be used to mark the zones around the heritage site and there by can contribute greatly to the heritage planning and development.

VII. REFERENCES

1. D. Buhalis, eTourism, Information technology for strategic tourism management, Prentice Hall, 2003.
2. Di Pietro, L., Guglielmetti Mugion, R., Mattia, G., & Renzi, M. F. (2015). Cultural heritage and consumer behaviour: A survey on Italian cultural visitors. *Journal of Cultural Heritage Management and Sustainable Development*, 5(1), 61–81. doi:10.1108/JCHMSD-03-2013-0009
3. P. Sheldon, *Information Technologies for Tourism*, CAB International, Oxford, 1997.
4. A. Mecocci, *3D Virtual Environment and Wireless Appliances for Visual Arts*, MuseumNet, Florence, 2001, 137–142
5. Laura Di Pietro, Roberta Guglielmetti Mugion & Maria Francesca Renzi (2018) Heritage and identity: technology, values and visitor experiences, *Journal of Heritage Tourism*, 13:2, 97-103
6. Barbara Neuhofer ,The Technology Enhanced Tourist Experience in Information and Communication Technologies in Tourism , Rodolfo Baggio Marianna Sigala Alessandro Inversini Juho Pesonen (Eds) eProceedings of the ENTER 2014 PhD Workshop in Dublin, Ireland. January 21, 2014.
7. Weber J”, Augmented Reality Gaming: A new Paradigm for Tourist Experiences?” in *Information and Communication Technologies in Tourism* , Rodolfo Baggio Marianna Sigala Alessandro Inversini Juho Pesonen (Eds) eProceedings of the ENTER 2014 PhD Workshop in Dublin, Ireland. January 21, 2014.
8. Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet - The state of eTourism research. *Tourism Management*, 29(4), 609-623. doi: 10.1016/j.tourman.2008.01.005
9. Milne, S. (2013). *Tourism*. In M. Rappaport (Ed.), *The Pacific Islands: Environment & Society* (2nd ed., pp. 1284-1316). Honolulu, Hawaii: Bess Press
10. Minghetti, V., & Buhalis, D. (2010). Digital Divide in Tourism. *Journal of Travel Research*, 49(3), 267-281. doi:10.1177/0047287509346843
11. Petti C, Passiante G (2014) Getting The Benefits Of ICTs In Tourism Destinations: Models, Strategies and Tools accessed from <https://www.researchgate.net/publication/50367379>
12. Bethapudi A (2013) The role of ICT in tourism industry, *journal of applied economics and business*, vol.1, issue 4 , PP. 67-79
13. Krupa Rajangam and M. B. Rajani (2017) Applications of geospatial technology in the management of cultural heritage sites – potentials and challenges for the Indian region, *Current Science*, vol. 113, NO. 10, 25 November pp 1948-1960.
14. Rajani, M. B., Bhattacharya, S. and Rajawat, A. S., Synergistic application of optical and radar data for archaeological exploration in the Talakadu region, Karnataka. *J. Indian Soc. Remote Sensing*, 2011, 39(4), 519–527.
15. Rajani, M. B., Patra, S. K. and Mamta, V., Space observation for generating 3D perspective views and its implication to the study of the archaeological site of Badami in India. *J. Cult. Heritage*, 2009, 10(Suppl. 1), e20–e26.
16. Nalini, N. S. and Rajani, M. B., Stone fortress of Chitlédroog: visualizing old landscape of Chitradurga by integrating spatial information from multiple sources. *Curr. Sci.*, 2012, 103(4), 381–387.
17. www.digitalhampi.in
18. www.tourism.gov.in
19. Annual report 2017, ministry of Tourism, Government of India.