ROLE OF ICT IN TOURISM

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ABSTRACT:-Tourism as an industry has evolved as one of the largest and lucrative industry in Indian economy. It is regarded as one of the most effective instruments for national integration and harmony and leading towards social transformation and upliftment of the rural poor. The success of the tourism sector is highly influenced by the supporting industries such as hotels, transportation, communication, banking, ICT and so on. Today ICT plays very important role in each fields. Tourism was one of the first sectors to embrace Information and communication Technology (ICT). ICT Enabled various process reengineering in tourism sector so it is crucial to the tourism industry and its success. IT has bought with it a number of changes and challenges that affect business and tourism.

Today through the, internet anyone can get world wide information within a fraction of seconds. Frequent technological updates are adding new trends in different field which tend to improve a lot in respective fields. Use of ICT for tourism industry has increased enormously over past few years.

Tourism is currently one of the fastest growing industries across the world. It is mostly a service industry because it renders services to various classes of people. Hence it is largely an information product. This paper deals with how ICT is useful in tourism, pros and cones of ICT in tourism, and innovative trends of ICT like CRS, GIS, Online WOM, DMS, etc., in tourism.

KEYWORDS: CRS, DMS, e-Tourism, GIS, ICT, Online WOM

I) INTRODUCTION:

Tourism is one economic sector in India that has the potential to grow at a higher rate and has the capacity to capitalize on the country's success in the services sector. Travel and tourism competitiveness report by World Economic Forum has ranked India among the top 10 destinations in terms of natural and cultural attractions (WEF, 2011). Tourism in India is the largest service industry contributing up to 6.23 percent to GDP and providing 8.78 percent of the total employment opportunity in India (India Brand Equity Foundation, 2013). As per statistics updated by the Ministry of Tourism, Government of India, the foreign tourist arrival in India continued to grow from 2.54 million in 2001 to 6.58 million in 2012.

The tourism industry can be seen as one of the first business sectors where business functions are almost exclusively using information and communications technologies (ICT) (Garzotto et al. 2004). Information Technology (IT) and ICT have played an important role in the development of tourism. Computerised reservations Systems (CRS) were among the first applications of IT worldwide. The industry is one of the more successful areas of e-commerce because it is largely consumer oriented and since services and the provision of information is at its centre. Werthner & Klein (1999) suggest tourism is a hybrid industry since even though it is dominated by the provision of information; essentially it is about a physical product. This requires the 'seamless integration of information and physical service, with flexible configurations of the physical and the informational parts" (Werthner & Klein, 1999, p. 257). ICT facilitates this integration and enables customisation of tourism products to suit the needs of individuals. Due to changes in consumer behaviour of the tourist the market is becoming more segmented with each potential consumer belonging to a number of market segments simultaneously. Tourist operators need to be aware of these changes and be equipped to respond, or better still, take a proactive approach [2][3].

The challenge for the tourism operator is the provision of accurate, localised data, increasingly via IT, whilst maintaining a relationship with the tourist. Rather than being just transaction based longer term relationships need to be fostered and IT can play a role in this relationship building. This paper overview ICT/IT development in the industry.

II) POPULAR FORMS OF TOURISM DETERMINING SUSTAINABLE TOURISM IN INDIA

Today global tourism has so many diverse forms to sustainable tourism which are discussed below:

2.1) Agri Tourism: It is a style of vacation in which hospitality is offered on farms. Agri-tourism is widespread and includes any farm open to the public at least part of the year. Tourists can pick vegetables, fruits, ride horses, taste honey and much more. In India it is being developed as a valuable component of a business model to support many agricultural entities when the farm products they produce are no longer economically competitive otherwise[6][7].

2.2) Adventure Tourism: It is a type of niche tourism involving exploration or travel to remote areas, where the traveller should expect the unexpected. It may involve the performance of acts that require significant effort and grit and may also involve some degree of risk. Various states of India are full of these places for sustainable tourism suitable for adventure.

2.3) Cultural Tourism: It generally focuses on traditional communities who have diverse customs, unique form of art and distinct social practices, which basically distinguishes it from other types of tourism. Cultural tourism includes tourism in urban areas, particularly historic or large cities and their cultural facilities such as museums and theatres. It can also include tourism in rural areas showcasing the traditions of indigenous cultural communities and their values and lifestyle.

2.4) Disaster Tourism: It is the act of travelling to a disaster area, not to help, but to look with interest upon the devastation. It can become a nuisance if it hinders rescue, relief and recovery operations. Uttarakhand after natural calamity is full of these sites where researchers and other tourist can look for the options.

2.5) Eco-Tourism: It means ecological tourism; where ecological has both environmental and social connotations. It is defined both as a co incept-tourism movement and as a tourism section. Generally speaking, eco-tourism focuses on local cultures, wilderness adventure, volunteering, personal growth and learning new ways to live on the planet.

2.6) Garden Tourism: It is a type of niche tourism involving visits or travel to botanical garden and places which are significant in the history of gardening. Garden tourists often travel individually in countries with which they are familiar, a bit often prefer to join organized garden tours in countries where they might experience difficulties with language, travel or finding accommodation in the vicinity of garden.

2.7) Cultural Heritage Tourism: It is the cultural attractions that plays an important role in tourism at all levels, from the global highlights of world culture to attractions that underpin local identities. Cultural heritage tourism is a branch of tourism oriented towards cultural heritage. Cultural heritage tourism is important for various reasons, it has a positive economic and social impact, it establishes and reinforces identity, it helps preserve the cultural heritage, with culture as an instrument, it facilitates harmony and understanding among people, it supports culture and helps renew tourism.

2.8) Neo-tourism: is a term that describes the newly changing trend of tourism which satisfies individual interests and purposes appearing with post modern social change. It further avoids environmental destruction and ensures experiencing the un-touched nature. It also manages various matters such as gathering information and making reservation through internet.

2.9) Literary tourism: is a type of cultural tourism that deals with places and events from fictional texts as well as the lives of their authors. Literary tourists are specifically interested in how places have influenced writing and at the same time how writing has created place. In addition to visiting author and book sites, literary tourists often engage in bookstore tourism, browsing local bookshops for titles specifically related to the sites as well as other regional books and authors.

2.10)Medical tourism: is the act of travelling to other countries to obtain medical, dental, and surgical care. Here people travel to other countries to obtain medical care while at the same time touring, vacationing and enjoying the attractions of the countries which they are visiting at the cheaper cost and better services as compared to other countries.

2.11)Leisure Tourism: Some tourists visit only for fun or enjoying their leisure. They usually visit hill stations, beaches, waterfalls, zoological parks, etc.

2.12) Pilgrimage Tourism: Tourists especially senior citizens are interested only in visiting temples and offering worship to their favourable deity. They move to tourist centres only if time permits and provided the trip is easy on the purse. For Example Char Dham Yatra.

2.13)Heritage Tourism: Tourists irrespective of their varied interests have one thing in common i.e. they would like to go around heritage monuments

2.14)Cemetery Tourism: Due to past influence of British period many states like Uttarakhand is a tourist place for many Cemeteries in and around Dehradun, Mussorie. Tourists are interested in visiting these places owing to its historical value associated with cemetery.

2.15) Rural Tourism: Rapid industrialization has forced the people to move out of villages. Rural tourism, in recent years, recorded an upward trend in terms of tourism demand. This has led tourism and services operators for the rural communities to have a new economic and social perspective. Rural tourism offers different alternative consequences of massive urbanization, represented by keeping the particularities of the local community with everything that involves life in rural areas. As a result, people especially children do not know what constitutes a village. The parents are keen to show their children the idyllic surroundings of native villages. In a country like India, rural tourism deserves special attention. It involves visiting existing rural environments for recreational experience. It can be participation in rural activities, mingling with local people and experiencing the rural culture expressed in customs, values, beliefs, traditions, economy, history, agriculture, etc[6][7].

III) INFORMATION NEEDS IN TOURISM

Travel is a basic human instinct. Technological revolutions in the last few decades and the consequent changes in the social systems accelerated its intensity in the current century. Thus, tourism is presently a mass phenomenon involving every human being in the world. They need detailed information about each place they intend to visit. The specific elements of such information needs are:

- Geographical information on location, climate, landscape, etc.
- Attraction features
- Social customs, culture and other special features of the place
- Accessibility though air, water, rail and road and availability of scheduled means of transport
- Accommodation, restaurant and shopping facilities
- Activities and entertainment facilities
- Seasons of visit and other unique features
- Quality of facilities and their standard prices including exchange rates
- Entry and exit formalities and restrictions if any on tourists, etc.

The following diagram depicts the groups of players involved in the industry.
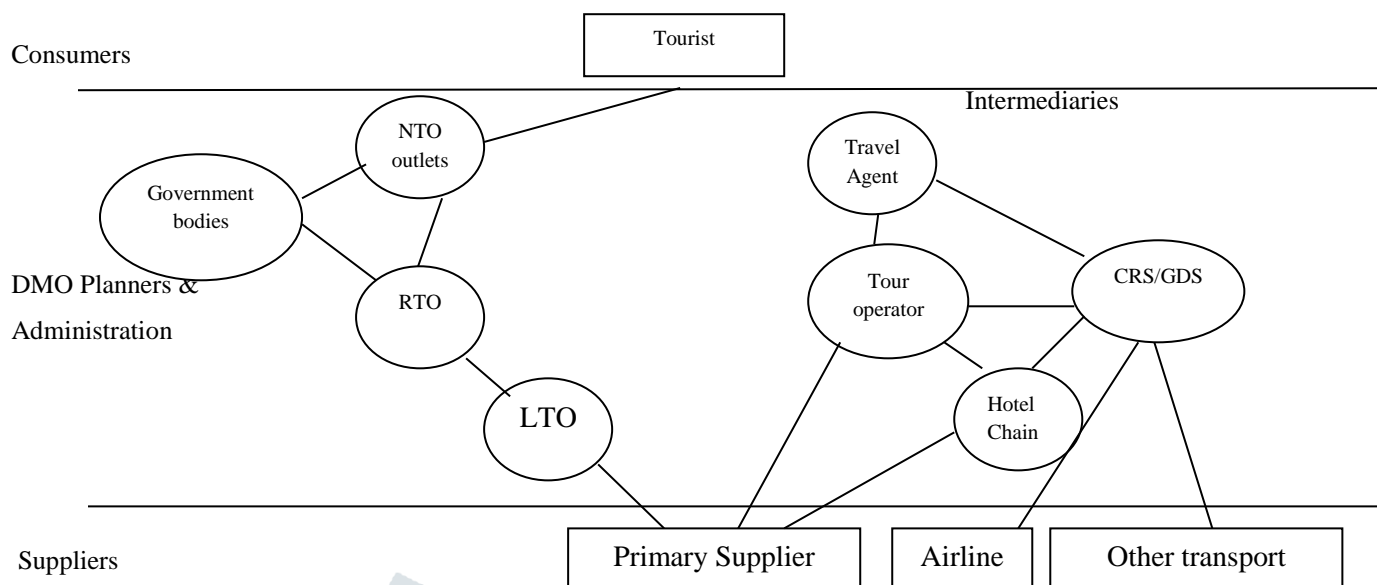
Figure 1: Overview of players involved in tourist industry. (Werthner & Klein, 1999, p. 257).

(NTO, RTO and LTO represent tourist organisations on a national, regional and local level)

Though the ultimate users of this information are the consumers i.e. the tourists, the actual benefits in money terms accrue to the tourism industry consisting of the destination managers and service providers. There is, therefore, a strong competition amongst various destination countries in the world to produce and package such information in the most attractive format to attract the consumers from the tourist generating countries[10]. The travel intermediaries like travel agents, tour operators, and reservation system store such information in respect of each destination to service their clients and improve their business. They need the information in the easiest retrieval format so that the information needs of the clients are met as quickly as possible.

Tourists generally need both static and dynamic information. Information on those features which do not change rapidly over time is termed as static information. It includes details information about location, climate, attraction features, history, facilities available, etc. Information about airline, train and bus schedules, tariffs of transport and accommodation units and current availability of such facilities is considered as dynamic as they can change very frequently. These items of information have to be gathered, stored and disseminated on a real time basis. All types of reservation systems including air, rail and accommodation sectors contain such information[12].

IV) ROLE OF ICT IN TOURISM

ICT played an outstanding role for development of modern tourism. It has provided new tools and enabled new distribution channels, thus creating a new business environment. ICT tools have facilitated business transaction in the industry by networking with trading partners, distribution of product services and providing information to consumers across the globe. On the other hand consumers are also using online to obtain information and plan their trip and travel. Information is the key element in the tourism industry. It can be used by tourist professionals to define the boundaries of the proposed tourist site as well its surrounding areas and the communities living in it. It can also get information on roads linking to the sites and availability of other utilities like water, power, market etc. Such technologies are also useful for site management and monitoring. The role of ICT tools in the industry for marketing, operation, and management of customer is widely known[10][11].

Marketing techniques can be more innovative through ICT tools. The Internet, in particular, has been useful in many regards to the travel and tourism sector. It is used to provide multimedia information about destination to prospective travellers. It also affects auxiliary industries, such as the transport sector, which plays a major role in the tourism industry. With the aid of ICT applications, prospective travellers can view a destination, book accommodation, book the flight and other forms of transport and pay for all these without leaving their homes. The use of ICTs has spread the travel and tourism industry. ICTs in this industry consist of various components that include computerized reservation systems, teleconferencing, video, video brochures, management information systems, airline electronic information systems, electronic funds transfer, digital telephone networks, smart cards, mobile communication, e-mail, and Internet (Mansell & When, 1998).

Time Period	Technology	Scope	User
1945-1960	Early electronic computers	Calculation	Single User
1960-1975	Mainframes, databases	Information processing inside a company	Time Sharing(Multiuser)
1975-1990	Host systems, PC, networks, Communication protocols	Communication between companies	Multi user
1990-2005	Distributed systems, multimedia, WAN, Internet	Communication between companies	Distributed computing
2005-2015	Mobile computing, grid computing, Cloud Computing	Secured and portable communication	Distributed computing

Table 1: Technological advancement in ICT

Table 2 gives information about some innovative trends of ICT used in tourism, which describes how ICT is helpful to meet the requirements quickly. Through these technological updates everyone can connect worldwide without any detailed knowledge.

S.No.	Innovative Trends	Description / Uses
1.	Collaborative filtering	Through this data mining software from customer database, it is easy to identify customers with similar interest, preferences, travel pattern etc., based on previously accommodated customer knowledge. E.g. Amazon.com, skyMall
2.	Computer reservation system (CRS)	Basically used for inventory management by airlines, hotels, and other tourism and hospitality enterprises.
3.	Destination management System (DMS)	DMS attempt to utilise a customer centric approach in order to manage and market the destination as a holistic entity, typically providing strong destination related information, real-time reservations, destination management tools and paying particular attention to supporting small and independent tourism suppliers
4.	E-payment	It enables electronic transaction
5.	GIS application in Tourism planning	Data entry, storage and manipulation, Map production, Database integration and management, Data queries and searches, Spatial analysis, Spatial modelling, Decision support
6.	Global distributed system (GDS)	A GDS provides all kinds of tariffs and tourism services to subscribers every day, allowing the users to make, change and cancel reservations, as well as to print tickets and avail themselves of any kind of rights related to services and products.
7.	Knowledge- based software	This software takes criteria set by customers and goes into digital databases. It then gets available choices for the consumers and it also narrows down the choices and lets customer find the best deal.
8.	Online word of mouth (WOM) monitoring	Based on the definition of WOM by Westbrook (1987), electronic Word-of-Mouth eWOM can be defined as all informal communications directed at consumers through Internet-based technology related to the usage or characteristics of particular goods and services, or their sellers. This includes communication between producers and consumers as well as those between consumers themselves – both integral parts of the WOM flow, and both distinctly differentiated from communications through mass media (Goldsmith 2006; Lazarsfeld, Berelson, and Gaudet, 1944).
9.	Personalization software	This data mining software tracks and monitors the preferences and purchasing behaviours of consumers and perform direct marketing
10.	Video-conferencing	The tourism sector can take the help of this amazing technology for introducing new places and promoting the culture of different tourist spots online. The vivid description of the place will become more effective with the help of video conferencing where the tourists can witness the real beauty before actually experiencing it. This will obviously help in building a long lasting relation of trust and loyalty. These days the tourists want to be sure whether the money spend on the vacation is worth it or not
11.	Virtual reality and web casting	It displays three dimensional worlds. Web casting provides online live videos and events.

Table 2. Innovative Trends Of ICT In Tourism

IV) ADVANTAGES OF ICT USAGE IN TOURISM

➢ Optimal product information for customer
       Multimedia, global search engines, recommendation
➢ Reduction of effort for information gathering and travel planning (transaction costs)
➢ Reduction of product complexity
➢ Information about customer for supplier
       Customer profiles and preferences (eCRM)
       Customer behaviour and needs (web mining)
➢ Flexibility of tourism offers
       Customization of products
       Yield Management & dynamic pricing

Dynamic packaging

➢ ICT tools have facilitated business transaction in the industry through networking with trading partners, distribution of product services and providing information to consumers across the globe.

➢ Consumers can directly obtain information and plan their trip and travel with www.

➢ ICT pervades almost all aspects of tourism and related industry.

➢ Internet offers the potential to make available information and booking facilities available to large number of tourists at relatively low costs.

➢ Internet also provides a tool for communication between tourism suppliers, intermediaries, as well as end-consumers.

➢ ICT is useful to increase efficiency, reduce cost and improve customer service.

V) CONCLUSION:

India is a largest hub for tourism. People from various countries are coming to India for different purposes. Information and Communication Technology plays an important role in various activities in almost all types of tourism and every level of it. All the major stakeholder of tourism industry; like consumer , supplier get tremendous benefit of new technologies , Apart from that all the associated business like Hotel, Transporters, and Shopping Mall also utilised various innovation in ICT. This will enabled these businesses to provide low cost services to the customers. Over a period of time ICT has become a boon for day to day activities of service sector like tourism.

VI) REFERENCES:

1. Dr. Joseph Jelsy, Adalarasu. B., A Vision of tourism sector in India, Indian Journal of Marketing, Vol XXXVIII No.12, December 2008 pg 29.

2. Werthner, H & Klein, S 1999a, 'ICT and the changing landscape of global tourism Distribution', *Electronic Markets*, vol. 9, no. 4, p. 256.

3. Werthner, H & Klien, S 1999a, *Information, technology and tourism: A challenging relationship*, Springer Computer Science, Springer, Vienna, Austria.

4. Joo, J 2002, 'A business model and its development strategies for electronic tourism markets', *Information Systems Management*, vol. 19, no. 3, pp. 58-69

5. Buhalis, D. and R. Law, 2008. Progress in information technology and tourism management:20 years on and 10 years after the Internet – The state of e-tourism   research. Tourism Management, 29(4): 609-623.

6. Buhalis, D., 2003. E-tourism. Information technology for strategic tourism   management,Prentice Hall

7. Deepthi Shanker ICT and Tourism: Challenges and Opportunities Conference on Tourism in India – Challenges Ahead, 15-17 May 2008, IIMK

8. Frew, A.J. and Horan, P (2007) Destination Website Effectiveness – A Delphi Study-based eMetric Approach, Proceedings of the Hospitality Information   Technology AssociationConference, HITA 07, Orlando, USA

9. Hooman Tahayori , Masoomeh Moharrer, E-Tourism : The Role of ICT In Tourism Industry,Innovations and Challenges

10. O'Connor, P. & Frew, A. (2000). Evaluating electronic channels of distribution in the hotel sector: A Delphi study. Information Technology and Tourism, Vol. 3,   No.3/4, pp.177-193.

11. Romain, P., C. Christophe and N. Christophen, 2010. TourismKM: a new web semantic based approach for e-tourism. International Journal of Trade, Economics and   Finance. Vol. 1, No.1.

12. Smith, C. & Jenner, P. (1998). Tourism and the Internet. Travel and Tourism Analyst, Vol.1, pp. 62-81

13. "UNWTO technical manual: Collection of Tourism Expenditure Statistics". World Tourism Organization. 1995. p. 10. Retrieved 26 March 2009.

14. WTTC, 2005. World Travel and Tourism Council.