# Applications of Information and Communication Technology in Tourism Industry.

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## ABSTRACT

In globalisation era tourism transforming through "information and communication technologies" worldwide. The importance of digital technologies in tourism, providing opportunities for innovative practices and preparing tourism industry for the future of work. Usage of ICT leads towards destination development as well as community pride. This paper presents research which developed Information and Communication Technology as a practical and modern approach to tourism destination development. It identified that several opportunities existed in destination management for using ICT based applications for managing different aspects of tourism development. ICT facilitates an individual to access the tourism products information from anywhere in any time. This research is more specifically based on the secondary data from the internet, journals, articles, books on related topics. The data and information is collected and analyzed in this study. The conclusion of this research is clearly identifies that The ICT should be widely used in industries such as airlines and travel, hospitality, tour operators, travel agencies, computer reservation and management systems for tourism and destinations.  The Information Communication Technologies plays a major role in tourism, travel and hospitality industry. The Integration of ICT in the tourism industry is an essential for success of tourism enterprise.

**Key Words:** Information and communication Technology, Social media, E-tourism, ICT Applications.

## Introduction

The world of travel and tourism existed from centuries i.e. from the nomadic era when people were travelling for the sake of food and shelter. The revolution in travel came with the introduction of wheel, steam engine; and aero-plane. People started to cross their geographical boundary and explored the world. With the modernization of the era and introduction of new trends in each and every sector, many aspects revolutionized in every field. People started to accept and demand IT in every field rather than manual human work. The metamorphosis in the travelling world came with the concept of "E-Tourism" from the beginning of 80s. The Information and Communication Technology (ICT) transformed the concept of e-tourism throughout the globe. The drastic progress of tourism is connected with the advancement of ICTs above 30years. E-tourism gave birth to the most advanced technologies of the modern days like Computer Reservation System (CRS) in

1970s, the Global Distribution System (GDS) in 1980s and the internet in late 1990s. E-tourism decreased the unnecessary heavy man power which was involved in many sectors of tourism. The new technologies like CRS, GDS and internet transformed the operational and strategic tactics of tourism dramatically. ICT gifted a direct link between the customer and the supplier by removing the intermediaries.

Tourism plays a very important role in socio-economic development of a country like India. Because all we know that India is still a developing country. The rapid development of the tourism industry generated the need to develop modern information technologies aimed to improve tourist services. The information technology should be applied in  travel agencies, insurance and transport companies, hotels, cafes and restaurants, as well as in providing services to individual tourists and tourist groups. Information and communication technologies (ICT) are a plat form to know the services offered by tourism industry in a particular destination. By ICT tourist can know what are all the tourism products that offered in the destination along with the safety and security in the place.  Information and Communication Technology  is one of the key factors of competitiveness as far as tourist markets and strategic tourism management are concerned. The tourism industry can be seen as one of the first business sectors where business functions are almost exclusively using information and communications technologies . Computerized reservations Systems (CRS) were among the first applications of Information technology used worldwide in tourism industry.

## Literature Review

"Information and communication technologies" appear to offer for commercial primarily related in four various factors:  Achieving a modest benefits, developing productivity, improving new business and facilitating innovative ways of Management (Buhalis, 1998, 2003; Gruescu et al., 2009), it looks that companies don't  practice an increase in their outcome due to the usage of "information and communication technologies", few experts considered ICT as a main factor in competitiveness, reason it reduces  operational costs (Bojnec & Kribel, 2004).  ). "Unfortunately, there is no consensus as to how effective the use of ICT is, e.g. Mihalič (2007) was unable to prove a direct positive link between the implementation of ICT and competitiveness. Other researchers argue that the competitiveness variable will improve only when there is an increase in innovation together with a wider use of technology" (Blake, 2006). Scheidegger (2006).

## Statement Of Problem

The application of ICTs on the tourism industry suggests that e-tourism reflects the digitization of all processes and value chains in the tourism, travel, hospitality and catering industries. The tactical level includes the concept of e-commerce and applies ICTs for maximizing the efficiency and effectiveness of the tourism organization. At the strategic level, e-tourism revolutionizes all business processes, the entire value chain as well as the strategic relationships of tourism organizations with all their stakeholders.

In the globalization era, information and communication technology enhancing the tourism business opportunities and it simplifies the tourism business. ICT is the flat form where the tourist can get maximum information about the travel services and their expectation about the tourism

resources available for their trip or tour. The following researchable issues are identified after a thorough literature review.

- How ICT enhancing the travel business opportunities through its applications?
- What is the role of ICT in tourism development?

## Objectives Of The Study

The main objective of the study is:

- To study ICT enhancing the travel business opportunities through its applications.
- To know the role of ICT in tourism development.

## Research Methodology

Research is designed on the basis of descriptive method here the study will investigates Information and communication technology applications in Tourism industry and the secondary data from the internet, journals, articles, books on related topic data to process the study. The information gathered from various authentic sources are analysed and reported in the study.

## Information And Communication Technology

Information and communications technology or (ICT) is extensional term for information technology (IT) that stresses the role of combined communications and the integration of telecommunications and wireless signals. Information and communications technology are the software which stores the audio-visual systems, which enable users to access, store, transmit, and manipulate information.  The term ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form.  The travel and tourism is in practice from long centuries. In nomadic era people travel for the purpose of food and shelter. Then the evolution takes place in the tourism. Later people started to travel from one place to another place for the purpose of recreation, leisure, education, business, sports, events etc. People started to cross their country border and started to explore the world. In the modernization era a new trends in tourism was developed. People started to use various technology for their travel convenience. People depend upon the ICT for identifying and developing tourism site and destination.  ICT play a potential impact on tourism business. Information technology provide new tools in tourism industry.  ICT facilitate business by networking with trading partners, distribution of services and providing information to the consumers across the globe. On the other hand consumers also using information technology to plan their trip and travel. Information technology is the key element in the tourism sector

Touristic promotional activities through ICTs and especially the Internet are today managed by governments and particular businesses. Governments take necessary measures to encourage private sector organizations to play the role of promoters of their country as a touristic destination. Because ICTs have transformed the touristic sector globally and offered a variety of new opportunities for its development during the last ten years, governments also rely on particular businesses in enhancing their tourism sectors through the employment of innovative technological tools in order to persist in the global competitive arena.

The wide range of tourism and travel websites that have been created in developing countries show the significance of ICTs in the tourism industry. This demonstrates the development of e-tourism in all parts of the world, since developed countries are not the only ones using ICTs in order to expand their tourism industries. It is true that tourism and ICTs have been linked for more than 30 years, but it's during the last decade that the Internet has emerged as the fastest growing media and communication medium and has played a boosting role in the tourism industry.

The Internet has revolutionized the tourism sector. It is almost impossible  to imagine tourism without considering the major role of ICTs and the Internet. Moreover, the Internet has facilitated prospective tourists' and current visitors' services, communication, and information access. Bringing a better quality of service to the tourism industry, the Internet has pulled down prices, made information widely available, and allowed sellers and buyers to connect more easily and make transactions. India should make many steps toward ICT development and especially the development of the Internet for use in the tourism industry in order to achieve the dream.

**ICT and Its Applications In Tourism Industry**

According to Buhalis (2003), ICTs include "the entire range of electronic tools, which facilitate the operational and strategic management of organisations by enabling them to manage their information, functions and processes as well as to communicate interactively with their stake-holders for achieving their mission and objectives."

The cooperation resulting from the use of these systems effectively mean that information is widely available and accessible through a variety of media and locations. In addition, users can use mobile devices such as laptops, mobile phones as well as digital television and self-serviced terminals/kiosks to interact and perform several functions and avail several services. This convergence of ICTs effectively integrates the entire range of hardware, software, groupware, netware and humanware as a result which blurs the boundaries between equipment and software.

The application of ICTs on the tourism industry suggests that e-tourism reflects the digitization of all processes and value chains in the tourism, travel, hospitality and catering industries. The tactical level includes the concept of e-commerce and applies ICTs for maximizing the efficiency and effectiveness of the tourism organization. At the strategic level, e-tourism revolutionizes all business processes, the entire value chain as well as the strategic relationships of tourism organizations with all their stakeholders.

The decisions and steps involved during the time of traveling have high risk to the travellers therefore they collect the detailed information before hand and thoroughly map through the GPS which decreases the uncertainties which arises because of travel. The ICT served the tourists in various ways like access to information or purchasing of any service, which were available only through the intermediaries earlier.

Effective and high-speed ICT infrastructure and software applications in the tourism industry are crucial for tourism development. ICT enabling the provider to be in direct contact with the consumer along with all tourism companies use ICTs to undertake a work that enhance the efficiency of employees in the workplace. online reservations are undertaken by tourism companies that means travel agencies, hospitality enterprises, travel agency and so on.

Development of ICT has also led to changes in demand and supply in India. Social media platforms like Facebook, Twitter, blogs etc. share information and research ratings on destination, quality of service in hotels and restaurants and environmental and social conditions of the destinations. Technology plays an important role in tourism and travel industry. Most of us are now used to booking our airline and hotel booking reservations in online.  These technological advances have allowed saving on manpower while at the same time customers can make their own decisions. Below I explained some of the areas in which information and communication technology is use.

**Google  Navigation**:  is  one  of  the  a mobile  application developed  by Google for the Android phones. By the help of this app tourist can get the directions for the destination. The application uses an Internet connection to a GPS navigation system to provide voice instructions on how to arrive at a given destination. The application requires connection to Internet data, it may be 3G, 4G or by Wi-Fi.

**Global Distribution Systems** (GDS): Is the major Computer Reservations System (CRS) that book and sell tickets for multiple airlines. GDS allow users to book hotel, rental cars, airlines tickets as well as cruise line. In the 1980s, GDS expanded all over the world. The GDS was developed according to the growth of the internet. Computer Reservations System (CRS) is a computerized system used to store and retrieve information and conduct transactions related to air travel. Originally designed and operated by airlines. From Amadeus tourist can provides search, pricing, booking, ticketing and other processing services in real-time through its Amadeus CRS distribution  business  area.  In  2000,  Amadeus  received  an ISO  9001:2000 quality certification. It is the first GDS Company that got a quality certificate.

**Digital applications** enable tourism industry to engage with a large number of tourists and promote them in a digital era. Mobile applications also play a very important role in the tourism industry.  Tourist can pay for airlines, hotels through debit or credit card by using the mobile apps provided. From mobile they can know the safety and security about the destinations regarding climatic condition of the destination.  Few applications like, Make my trip, Trivago, Goibibo app, mobile trip planner app etc.

**Destination app** is introduced from some destinations. These destination apps give the detail information about services offered in the destination. Along with the tourism products that they are selling in the destination. Destination app includes the information about entrance fees, details about the hotels, climatic conditions etc. Mysore had its own destination app. In the same way Taj Mahal also having its own destination app including detail information. This destination app includes what are all the places going to see, how much they have to pay. In some destination app they are offering the services in all the languages.

**Virtual tours** are also comes under this information technology. Virtual tour is a information about existing location, usually composed of a videos and images. It may also use sound effects, music, narration, and text for the explanation of the destination. Google had introduced the 50 products under the virtual tours. Google Business View enables tourist to have a 360 degree virtual tour. The new and existing customers can access 24 hours a day, 7 days a week, when searching in the web. Online visitors will able to view the offer from the sitting place. virtual tour will be living online on Google's Network- Google Places, Google+ and Google Local profiles.

**Social media networking** play a very important role in information and communication technology. Each state's website and social media offerings are rated on the basis of three factors: usage of social media tools, content, and user engagement. Social networking sites like Facebook, Twitter, YouTube, user-generated reviews, content sharing, blogging, geo-location, mobiles etc

are came in to existence. A various marketing tools are used in social media tools for the tourism products offered by the travel agencies and by the destination. TRAI shows us how many people who followed a social media in tourism or we can know that how many followers are there in social media for a specific web page of a destination.

The use of Internet and other information communication technologies leads to a new era of tourism economy. Social media, as one of most powerful online networking tools, has been integrated into a part of social and economic life in the real world. Wikipedia defines social media as the means of interactions among people in which they create, share, exchange and comment contents among themselves in virtual communities and network. It includes social networking sites, blogs, microblogs, consumer review sites, content community sites, wikis, internet forums and location based social media. Social media has emerged as the new way in which people connect socially, by integrating information and communication technology (such as mobile and web-based technologies), social interaction, and the construction of words, pictures, videos and audio. It is actually more than a new way to communicate, but refers to an entire online environment built on people's contributions and interactions.

The role of social media in tourism has been increasingly noted and researched as an emerging topic. Social media plays an increasingly important role in many aspects of tourism, especially in information search and decision-making behaviours and tourism promotion focusing on best practices for interacting with consumers via social media channels.

**Social Media Usage in India 2017agusut to 2018 august (in Millions)**

| Date | FB | YouTube | Instagram | PI | Twitter | LinkedIn | Google+ | Tumblr | Other |
|------|------|------|------|------|------|------|------|------|------|
| 2017-08 | 90.36 | 3.33 | 2.54 | 1.82 | 1.23 | 0.18 | 0.13 | 0.09 | 0.01 |
| 2017-09 | 91.21 | 2.14 | 1.97 | 2.23 | 1.57 | 0.22 | 0.16 | 0.09 | 0.01 |
| 2017-10 | 88.38 | 1.97 | 3.28 | 2.05 | 3.53 | 0.22 | 0.16 | 0.08 | 0.01 |
| 2017-11 | 86.37 | 5.64 | 3.76 | 1.59 | 2 | 0.24 | 0.09 | 0.06 | 0.01 |
| 2017-12 | 85.02 | 6.82 | 4.78 | 1.62 | 1.21 | 0.19 | 0.08 | 0.06 | 0 |
| 2018-01 | 85.3 | 6.73 | 4.8 | 1.64 | 1.09 | 0.12 | 0.07 | 0.05 | 0.01 |
| 2018-02 | 82.98 | 9.15 | 4.2 | 1.89 | 1.26 | 0.14 | 0.09 | 0.07 | 0 |
| 2018-03 | 81.52 | 9.38 | 5.66 | 1.74 | 1.13 | 0.17 | 0.11 | 0.07 | 0.01 |
| 2018-04 | 83.49 | 9.7 | 2.33 | 2.43 | 1.34 | 0.25 | 0.14 | 0.07 | 0.01 |
| 2018-05 | 84.2 | 9.34 | 1.97 | 2.61 | 1.12 | 0.28 | 0.15 | 0.08 | 0.01 |
| 2018-06 | 77.2 | 12.63 | 3.61 | 3.71 | 1.84 | 0.4 | 0.18 | 0.15 | 0.01 |
| 2018-07 | 77.08 | 11.11 | 4.95 | 3.92 | 2.14 | 0.27 | 0.18 | 0.1 | 0.01 |
| 2018-08 | 76.87 | 10.8 | 5.36 | 4.3 | 1.97 | 0.23 | 0.19 | 0.09 | 0.01 |
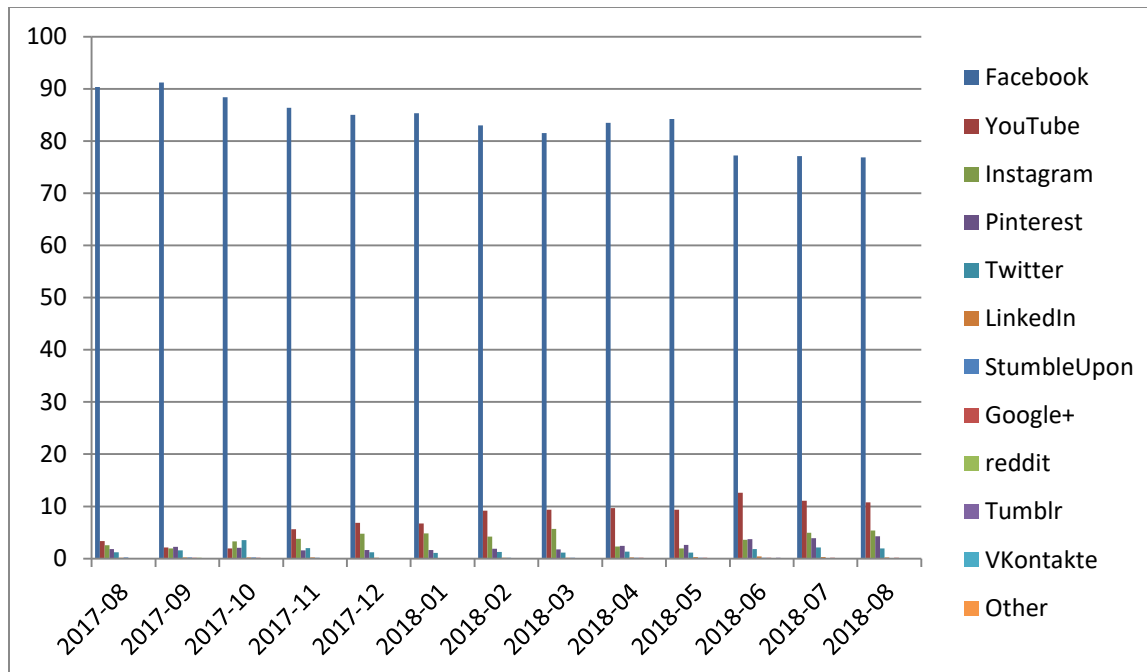
**Source:** The Statistics Portal. https://www.statista.com › Internet › Social Media & User-Generated Content.

**Google translator** also helps for the tourist to get the destination information in their language. Googles free service app called google translator, translates the words, sentences and web pages to more than 100 languages. It helps the tourist to get the destination information in their language.

**Travel blogs** are written by the tourist who visited a particular destination. It includes the information regarding tourism products, services, root map, safety and securities, feedback etc. it will be in a form of online journal, by the help of these journals tourist will get the complete information about the destination.  Blogs are usually maintained by an individual with regular entries of commentary, descriptions of events, or other material such as graphics or video. most good quality blogs are interactive, allowing visitors to leave comments and even messages each other.

**Mobile phone** marketing will become increasingly important. Smart phone use in particular is growing amongst travellers. Cell phone applications (SMS) play a important role in tourism industry. Whenever there is a Bad weather condition in a destination can be alerted by the sms. Delayed flight, Cancellations because of strike customers can get notifications using our SMS.

**Digital cameras,** Tourist photography is understood as both photographs made by tourists and host community.  Photographs made available to tourists by members of the host community. A trend is noticed in which host communities specify which images are appropriate and inappropriate for tourist.

**Internet** plays a big role in their strategy; it has been covered to every corner of the world. The Tourism and Hospitality Industry has been one of the earliest industries using Integrated Marketing Communication to promote their products and services. Because the tourism industry mostly provides intangible products, such as services and comfort, the internet has become a good way to

deliver their messages, in touch with customers and promote their branding. Internet can be maximum exploited in the tourism industry for different types of marketing or promotional activities. Internet helps the tourism industry to expand and transfer its data which helps the industry to increase the turnover ratio and internet is the most suitable way to make direct relationship with customers. Tourism industry can achieve many advantages if internet is used wisely. Since internet connection is a wide communication network, tourism agencies can make a direct relation with the public. Product distribution and services of agencies cannot depend on quantity of printed papers anymore and information about them can reach millions of the internet users.

**Wireless (Wi-Fi and WiMAX):** WiMAX technology is a standard based wireless technology which is used to provide internet access and multimedia services at very high speed to the end user. The Wi-Fi technology is still using local area network (LAN) for the predictable future. Difference between WiMAX and Wi-Fi is that WiMAX (Worldwide Interoperability for Microwave Access), also known as 802.16, is a newer network standard developed by IEEE that specifies how wireless devices communicate over the air in a wide area. Using the WiMAX standard, computers or devices with the appropriate WiMAX wireless capability communicate via radio waves with other computers or devices via a WiMAX tower. While Wi-Fi uses techniques similar to the internet standard to specify how physically to configure a wireless network. Most of today's computers and many mobile devices, such as smart phones and handheld game consoles, are Wi-Fi enabled.

**Voice over Internet Protocol (VoIP)** is a form of communication protocol that allows you to make phone calls over Internet Protocol (IP) networks, such as the Internet, instead of typical analog telephone lines. Landlines have not kept speed with the changing needs of the tourism industry. tourist need a access to voice calling on their trip. The introduction of mobile devices has made it possible for users to stay in touch when they are traveling. The information that your employees need to do their jobs may be scattered across different systems such as email, text messaging, company databases and so on.

The **GPS (Global Positioning System)** is a "constellation" of approximately 30 well-spaced satellites that orbit the Earth and make it possible for people with ground receivers to identify their geographic location. The location accuracy is anywhere from 100 to 10 meters for most equipment. Accuracy can be identified to within one (1) meter with special military-approved equipment. GPS equipment is widely used in science and has now become sufficiently low-cost so that almost anyone can own a GPS receiver. The GPS is owned and operated by the U.S. Department of Defense but is available for general use around the world. Mobile GPS technology has enabled today's smartphones with convenient and highly efficient means for end users to receive navigating instructions via a global positioning system process called "trilateration." A phone's built-in GPS receiver also communicates with an array of satellites which provides navigation instructions for those either in an automobile or on foot. More technologically advanced phones can identify individual streets and attractions on maps, as well as provide narrated tracking capability.

A **geographic information system (GIS)** is a system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data.  The key word to this technology is Geography – this means that some portion of the data is spatial.  In other words, data that is in

some way referenced to locations on the earth. Convergence (data, voice, media) . GIS is more than just software. People and methods are combined with geospatial software and tools, to enable spatial analysis, manage large datasets, and display information in a map/graphical form.

All Marketing Channels use ICT in Some Ways. ICT tools allow for new marketing techniques. ICT is essential for marketing any tourism site both inbound and outbound marketing. The marketing plan must take use of ICT to Get customer's attention by informing about the products we have and  build a trust in the mind of the tourists. Along with industry have to Motivate the tourist to buy  a products. ICT is essential to know about the  4 P's in the tourism industry.  Product, Price, Place, Promotion have the relationship with the ICT.

**Display Ads** are small, rectangular boxes containing text and perhaps a picture that companies pay to place on relevant web sites.

**Microsite** is a limited area on the Web managed and paid for by an external advertiser/ company. Microsites are individual Web pages or cluster of pages that function as supplements to a primary site or a destination.

**Internet Specific Ads and videos,** With this user can know about the destinations by You tube. my Space video and Google video, consumers and advertisers can upload ads and videos to be shared virally by millions of people.

**Online Communities:** Many companies sponsor on-line communities whose members communicate through postings, instant messaging and chat discussions about special interests related to the company's products and brands.

**RESULTS and RECOMMENDITIONS**

- ❖ **Simplification:** Certain ICT applications specially used in tourism and hospitality sector are having complex process to use it which requires high level operational and technical skills. If the ICT applications simplified there process it will be useful for the tourists.
- ❖ **Destination Based Applications:** Only in few ICT based destinations are available which makes limited options for tourists, if all the major tourist attractions of the nation has the destination based application available tourists will get more verity for their vacations.
- ❖ **Information Management:** ICT applications should be provide accurate information about the tourist attractions such as Transportation, accommodation, accessibility, facilities etc. An integrated ICT application for tourist facility management should be developed.
- ❖ **Accommodation Management:** ICT Contributing greatly regarding providing ample opportunity for the tourist to select wide verity of hotel available at the tourist destinations by which tourist can select their accommodation at the tourist destinations.

**CONCLUSION**

In modern era it is impossible to ensure the quality management of the tourist business without the introduction and application of the latest information technologies. Information and

Communication Technology (ICT) is one of the key factors to meet the competitiveness. The ICT should be widely used in industries such as airlines and travel, hospitality, tour operators, travel agencies, computer reservation and management systems for tourism and destinations.

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