ABSTRACT: The unification of Information and Communication Technology (ICT) with tourism have reshaped the entire industry and brought about paradigm changes in terms of its structure and functions. ICT has benefitted both service providers and customers on a common platform. It has improved online presence of destinations through better visibility, accessibility, connectivity and infrastructure. The internet has opened up new vistas for the customer enabling them to search travel information, book tickets, make reservations, rate quality of service in hotels and restaurants etc.

Despite of having tremendous natural diasporas, North-East India has not got the prominent position that it deserves. In this context, ICT can provide significant opportunities for growth and development of local tourism industry in terms of reducing cost, time and enhancing capabilities. The subject of this research is to identify the gaps in the usage of ICT in NER’s tourism industry and further explores areas where ICT can be implemented.

Keywords: E-Tourism, ICT, North-East India, tourism industry, Web Intelligence.

I. Introduction:

E-Tourism is emerging as a key area in the field of Information and Communication Technology (ICT). E-Tourism refers to the digitalisation of various processes and value chains in travel, hospitality and catering industry [1]. It includes buying and selling of tourism products and services via electronic channel such as internet, mobile phones, other wireless communication devices, networks etc. E-tourism includes in its periphery, entire range of electronic tools, intranet, extranet, and all other marketing issues that enables the stakeholders to share, communicate, distribute and manage their information, processes and functions. The domain of e-tourism is also extended to the customers of the tourism industry who can use ICT to identify, customise and purchase tourism products and services and for information search. Besides these, adoption of e-tourism practises have positively influenced the destination management activities and supply chain management system. However the adoption and application varies across regions, countries and continents. Many countries have successfully implemented ICT tools for developing their tourism industry.
The Internet is one of the technologies that have managed to deeply modify the tourists’ behavior, the research made (Luo, 2004)[2] showed that tourists who get information on the Internet concerning the touristic destinations tend to spend more money on their trips than those who prefer other sources of information.

(Werthner, 2004)[3] showed that the tourism industry offers the largest variety of applications of e-commerce. Nevertheless, considering that the most important aspect of these applications is to facilitate the online payment, the consumers are, in general, suspicious regarding the security of this kind of payment. These suspicions are the effects of the online infraction, this being the main factor which makes some consumers unwilling to communicate information concerning the possessed banking instruments. Among the most frequent online infractions we can count: the identity robbery, the spam, the rip-off. Thus, the enterprises have to allow higher attention in order to protect their own interests well as their customers’ interests and to eliminate the loss caused by these infraction activities.

The success of Malaysia’s tourism industry cannot be singularly attributed to the natural and man-made attractions only, in fact the increased adoption of ICT and improvements made in e-tourism have enabled Malaysia to create a complete and precise information and management system which aptly meets the requirements and purposes of various stakeholders including customers such as procurement of visas, acquisition of travel tickets, hotel bookings, information about climatic conditions etc.

A probe into the Australian tourism industry reveals that the country has an effective information system with features such as live shopping centres, live advertisements for products, live weather forecasts, secure credit card payments etc. Australian websites enable customers to rate and leave comments on the places they have visited. Australian websites and social media pages are continuously updated in different languages so as to attract maximum tourists from different countries. All these have definitely contributed to the growth of Australian tourism industry.

In view of the constant developments and changes taking place in the tourism industry, with increasing customer’s expectations and more and more global players entering the travel landscape, the present paper attempts to study
the current trends of e-tourism developments across the world and explores the present status of e-tourism techniques implemented in North-Eastern Region of India. The paper also provides for some strategies to develop regional e-tourism in the region.

II. Objectives: The main objectives in this paper is -

- To study the current trends of e-tourism technologies;
- To find the gaps in the level of usage of ICT in the tourism sector of NER;
- To identify possible strategies for regional e-tourism development.

IV. Methodology:

The present study is descriptive in nature. For the purpose of the study, data have been collected from both primary and secondary sources. Primary data has been collected through a survey method, from sample respondents constituting both customers as well as tourism service providers, selected at random using a structured questionnaire and schedule. Secondary data has been collected from various reputed journals, newspapers and websites of tourism, books and e-books.

III. Statement of the Problem:

Why Need E-Tourism- Although it is quite evident that ICT has revolutionised the global tourism industry, the implementation of ICT tools in NER’s tourism industry is still in its nascent stage. Statistics reveal that Foreign Tourist Arrivals and Domestic Tourist Arrivals to NER in 2010 accounts for only 0.3% and 0.9% of the national average, which is not a very impressive figure. One of the reasons for such low count despite having every potential to attract tourists can be the absence of a sound Information and Management System. The success stories of world’s top destinations such as Malaysia, Australia, France etc indicate the presence of a strong Information System which meets various requirements of the customers. Considering the present trends in the tourism industry, with more and more global players constantly upgrading and updating to the latest technology, the need of the hour, for NER, is to fully exploit the potential of e-tourism technologies to maximise the economic and social gains from the industry.
V. Result and Discussion:

V.A. E-Tourism: Current Trends And The Road Ahead:

The current trends of e-tourism are increasingly changing the structure, organisation and functionality of the tourism industry. Although numerous e-tourism technologies have been developed and adopted across the globe, discussing all of them is beyond the scope of this paper. Some of the latest e-tourism technologies adopted across the globe are discussed in this segment:

- **Intelligent Software Agents:**
  The semantic Web vision includes intelligent software agents, which understand semantic relationships between Web resources and seek relevant information as well as perform transactions for humans [4]. Software Agents assist travellers in various tasks starting from finding sources of tourism products and services, tracking visitors’ schedules, monitoring meeting schedules and monitoring user’s travel plans. Software agents are very suitable for monitoring traveller’s plan as they ease out and minimise many possible forms of failure such as flight cancellations and schedule changes to hotel rooms etc.

- **Dynamic Packaging Systems:**
  Dynamic packaging systems create customized tourism packages for the consumers. The objective of dynamic packaging is to pack all the components chosen by a traveller to create one reservation. Regardless of where the inventory originates, the package that is created is handled seamlessly as one transaction, and requires only one payment from the consumer. Dynamic packages are primarily sold online, but online travel agencies will also sell by phone owing to the strong margins and high sale price of the product.

- **Recommender Systems:**
  These systems aid the tourists in their destination selection process and also considers individual traveller preferences. Recommender systems creates personalised recommendations to tourists about their ideal tourist location by collecting and analysing information based on the user profile.
Information about airlines, restaurants, hotels, weather, traffic, transportation, maps etc are provided to assist the traveller in their search of tourism products and services.

- **Mobile Tourism Guides:**
  There are numerous web-based mobile tourism guides proposed and evaluated [5] The most of them offer to the user a map-oriented interaction paradigm. The GUIDE system provides tourists with up-to-date and context-aware information about a city via a PDA (Personal Digital Assistant). The GUIDE system is based on a client/server architecture, with a Fujitsu TeamPad 7600 used as terminal. Based on the closest access point, the client determines the approximate location of the tourist and provides him/her with information about sights, a map, and the possibility of creating a tour.

- **Web Intelligence And Intelligent Wireless Web (IWW):**
  The vision of Intelligent Wireless Web (IWW) goes beyond just connecting mobile devices to the Internet. It includes the creation of a pervasive, user centred mobile environment, which has the ability to provide highly specific data and services to users on as needed basis, by intelligent interpretation of the user context. IWW services could provide mobile tourists highly precise data and services on an as-needed basis, with flexibility of use for the user. Emergence of high-speed wireless networks, such as Wi-Fi, Bluetooth and 3G, and analogous developments in Internet technologies such as the Semantic Web, Web Services, Agent based technologies and Context Awareness, has made possible the implementation of IWW.

- **Context Aware Computing:**
  Context-aware computing is the use of environmental characteristics such as the user’s location, time, profile, identity and activity to inform the computing device so that it may provide information to the user that is relevant to the current context. Context-aware computing plays an instrumental role in realisation of the vision of the IWW by allowing tourism applications to better understand user context and adapt services to
the interpreted context, thereby ensuring that the busy tourist gets highly specific data and services. Using context aware services delivery, it is possible to eliminate distractions for mobile tourists, related with the volume and level of information.

Virtual Tour And Virtual Reality:
Virtual tourism refers to pre-planning alternative tourist activity before your departure, by integrating multiple digital resources to explore regions of the world without having to physically travel. It helps focus attention onto people, places and exploring changes over time! Virtual reality (VR) offers numerous distinct advantages over the actual visitation of a tourist site:
1) it affords access into a controlled environment, as all variables in the VR can be modified to create the perfect virtual experience, and
2) a virtual vacation dispenses many of the hassles that accompany an actual vacation.

V.B. ICT In NER’s Tourism Industry- Assessing Usage Gaps:

The North-Eastern Region of India, due to its unique geographical location and features, suffers from a plethora of problems, the presence of which is seen in all the sectors of the region’s economy and the tourism sector is no exception. The rugged topography and isolation of the region from the rest of the country does not provide a favourable climate to attract investors in building up a sound infrastructural base and communication network, which serves as the base for ICT implementation. As such, there exists huge gaps in the use and adoption of ICT tools and practises in the region when compared globally. Assessing the gaps in the usage level of ICT from two perspectives:

Customers’ Perspective:
For the purpose of the study, a sample of 100 respondents were selected randomly from Guwahati city and certain factors were taken to assess the usage of ICT by them during different phases of their travel such as information search for tourist products and services; information about events and tourist places, information about climatic conditions, online booking of hotels, online booking
of tickets, virtual tour, sharing travel experiences over social networks, rating a website etc.

**Figure 1: Diagram showing ICT usage by customers for various purposes.**

![ICT Usage By Customers](image)

From the above diagram, it is clear that the most common use of ICT by the respondents in NER is for making hotel bookings which accounts for 45%, followed by 28% of respondents using ICT for information search about various tourism products and services, 18% of the respondents use ICT for online acquisition of travel tickets, 7% of the respondents make use of ICT for searching information about events and places of tourist interest, 2% of them search information on the internet to know about climatic conditions, and 0% of the tourists make use of ICT for virtual tours.

**Service Providers’ Perspective:**

To understand the usage level of ICT by service providers, a number of tourist enterprises from different sectors such as airlines and travel agencies, hotels and hospitality industry and other tourism organisations were selected at random and certain variables such as internet connectivity, availability of organisation’s website, presence over social media, ICT trained employees, knowledge of and integration of latest ICT tools, E-Airlines, E-Hospitality, E-travel agencies etc.
Figure 2: Diagram showing ICT Usage by service providers for different purposes.

The above diagram shows that maximum use of e-tourism services is taking place in the hotel and hospitality industry with 35% of the service providers providing online booking facilities, data ports, internet access to customers etc. This is followed by tourist enterprises having their own websites which account for 23%, 12% of the service providers in the travel sector has adopted e-travel agencies by integrating back office and front office functions with the help of ICT, 10% of the service providers have been able to make their online presence over social platforms such as facebook, twitter, social blogs and the only 2% of the sample service providers have implemented e-airlines services which includes online reservations of travel tickets, enquiry for flight fares and availability etc.

V.C. Strategising Regional E-Tourism Development in NER:

The changing face of the tourism industry is reflected in the rapid shifts that have taken place from the traditional tourism activities to modern tourism activities. This transition has been made possible due to the integration of ICT with the tourism sector, which has in turn enabled business linkages across different sectors of the world. However, in spite of the evident advantages of ICT application, developing countries have not been very successful in adopting and implementing it. Such in capacity and in equality gives rise to ‘Digital Divide’.
and therefore it has become all the more important for developing countries to overcome this gap and integrate themselves with the knowledge and information society.

In the context of NER, a lot remains to be done in implementing ICT application as failure to do so will leave the behind and strip them of many opportunities in the arena of e-tourism. Strategies for regional e-tourism must be developed to overcome the problem of ‘Digital Divide’ and achieving further industry growth. Some of the strategies for developing regional e-tourism are:

- Need for electrification of the entire North-East Region and minimising the possibility of power failure;
- Increasing awareness of the stakeholders of tourism industry towards the latest upgradation of ICT tools and integrating the same with their business;
- Contribution and involvement of public authorities for development of communication infrastructure and human capacity through adequate funding;
- Developing Computer Reservation System (CRS);
- Encouraging and integrating mobile commerce with tourism industry for increasing B2C transactions;
- Introducing and implementing Electronic Personal Guide;
- Accessing internet with wireless device such as mobile phones;
- Organising webinars for tourist service providers for their B2B and B2C transactions;
- Creation of attractive and informative websites of the tourist enterprises;
- Introducing and enabling sophisticated internet features such as virtual presentation of tourist sites and monuments, live weather forecasts, live advertising, live shopping centres etc;
- Possibilities for promoting rural e-tourism by generating new markets for agrarian and handloom and handicraft products;
- Possibilities for promoting ICT based heritage tourism.
V. Conclusion:

ICT has changed the dynamics of the tourism industry; technological progress has made the industry more competitive and innovative. It benefits the customers and the service providers of the industry on a common platform. E-tourism has a wide scope of products and services ranging from E-Airlines, E-Hospitality, E-Tour Operators, E-Travel Agencies etc. Adopting and implementing e-tourism services will not only increase the internal efficiency of the firm but also provide a global market for exporting the local products.

References:


