**PROJECT – PTS06**

ROLE OF TECHNOLOGY IN

TOURISM MARKETING

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**An overview of Information Technology in the Tourism Industry---**

Tourism is an important sector in the economy contributing around 15% to worldwide GDP, projected to rise to nearly 17% by 2020 (World Tourism Council (2020). Tourism is one of the first and finest sectors to embrace Information Technology (IT). 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. IT developments that have taken place with respect to the tourism industry are overviewed in this paper. Challenges they pose for the sector and tourism operators generally are also identified.

Tourism is travel for recreational, leisure or business purposes. Information technology (IT) is the acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical information by a microelectronics-based combination of computing and telecommunications. Information Technology in tourism is of special significance. Information technology is used for Transport sector, Accommodation sector Attraction sector. These technologies are used in order to find out and satisfy the ever-changing demands for tourism.

**INTRODUCTION:**

Tourism has a significant economic impact at an international, domestic and regionallevel. This impact is underlined by statistical evidence (World Travel and TourismCouncil, 2004; World Tourism Organisation, 1999) demonstrating the significance oftourism in terms of GDP, employment and economic development.

The tourism industry can be seen as one of the first business sectors where businessfunctions are almost exclusively using information and communications technologies(ICT). Information Technology (IT) and ICT has played animportant role in the development of tourism. Computerised reservations Systems(CRS) were among the firstapplications of IT worldwide.The industry is one of the moresuccessful areas of e-commerce because it is largelyconsumer oriented and since services and the provision of information is at its centre.

ICT facilitates this integration and enables customisation of tourism products to suitthe needs of individuals. Due to changes in consumer behavior of the tourist themarket is becoming more segmented with each potential consumer belonging to anumber of market segmentssimultaneously. New applications are being discovered almost every day. It is not possible to anticipate what discoveries may happen in the upcoming days. But all of them will increase expectations of the tourists and make more demands on the tourism industry. The impact will be felt on the systems of hotels and restaurants, transport organisations, travel services, entertainment arrangements and in the creation and maintenance of the attractions at the sites. Both, standardisation and customisation (adjusting to the needs of individuals) will become possible in ways never before conceivable. New opportunities arise to enrich and strengthen the seven C's of travel services marketing. This Unit takes into account the role technology is playing or can play in tourism marketing. It is now possible to create images and sounds of any kind and to start and stop operations in predetermined sequences through automatic systems. The films "Jurassic Park" and "Baby's Day Out" are just two examples of the use of high’ technology as well as visual graphics to create lively images for great cinematic experience. These are relevant to the enhancement of the attractiveness of the tourists for any particular area.

Tourist operators need to be aware ofthese changes and be equipped to respond, or better still, take a proactive approach.

The challenge for the tourism operator is the provision of accurate, localised data,increasingly via IT, whilst maintaining a relationship with the tourist. Rather thanbeing just transaction based longer term relationships need to be fostered and IT canplay a role in thisrelationship building.

This paper overviews ICT/IT developments in the tourism industry andconsiders the responseof various players to the challenges that these developments bring.

# Definition of Technology:

Technology is the sum of the techniques, expertise, methods, andprocesses used in the production of products or services or the accomplishment of goals, such as scientific study. Over the last decade, information technology has played a significant role in the hospitality and tourism industry.Here are some examples of the ways that IT continues to improve the hospitality and tourism industry.

# Abstract and Figures:

Tourism is a business activity and divided into traditional tourism and modern tourism. Digital World describes how computer hardware, software, networks, and systems work. Data as a material of the digital world is gained through observation, and can be transformed into information. ICT stands on Information and Communication Technology and has an important field to have the ability to search, locate, evaluate, manage, use, present, and communicate of information. Development is a main dimension of personal life, social relations, politics, economics, and culture in the countries and regions. ICT4D stands on Information and Communication Technology, which will lead to development. Some information technologies which will lead to development are artificial intelligence & machine learning. In a brief, technology in tourism starts from information communication technologies to eTourism and smart tourism towards ambient intelligence tourism, as the next step for artificial intelligence, and machine learning. Artificial intelligence is an intelligence demonstrated by machines. Some examples of artificial intelligence in tourism are: marketing decision support, forecasting short time-series tourism demand. Recommender system is an appearance of machine learning in tourism. Information technology solutions for better tourism includes: in general, and in specific situations like pandemic. Objective of this paper is discussing information technology solutions for better tourism, and method of this paper is content analysis of recent research findings.

# Role of Technology in Tourism Industry:

* **Computer Systems:**

Computer systems allow communication between larger hotel chains in multiple locations to ease the connection. They also help to keep staff on the same page and make it easier to access information, making your guests’ experience much better. Guest requests, housekeeping information, and reservations can all be found on one system.

* **Internet and Marketing:**

The internet has a great impact on hospitality and tourism industry. A customer’s first experience with your business is surfing your website. This includes looking at pictures and reviews from the other customers. It is vital for a business to effectively utilize online advertising, social media, blogs, and online purchasing to convince their customers to accelerate the business growth in the tourism marketing industry.

* **Mobile Communication:**

Mobile tablets and smart phones have replaced large desktops, making them virtually extinct. This is helpful because many travellers take some types of mobile devices with them on a trip. This helps hospitality businesses to keep customers advised of changes and delays to their reservations, offer deals, and advertise by using GPS tracking.

**IMPLICATIONS OF TECHNOLOGY:**

Technology refers to the ways of doing things, the know-how and techniques of transforming inputs (or resources) into outputs (or results). When the ways of working change, machines, equipment,layout as well as procedures will have to change. When technology changes, people will have to learn the new ways of doing - that is new skills. Some of their existing skills may become redundant. With new skills and specializations, communications and decision making processes and the internal systems for information flow, control and coordination, planning or leadership styles will also have to change. For example, with automatic dialing for inter-city and international calls, telephone operators will cause harm and unnecessary cost to callers if they are made to hold on for long periods listening to holding music. In anoffice, it was noticed that a message received on the Fax machine had not reached the person's(addressee) table for 3 days. The message also had been transmitted on the Fax a few days after it was ready. The new technology enabling speedy communication will deliver speedily, only if there are appropriate methods which move papers speedily from and to the machine.If urgency is not necessary, the Fax technology is irrelevant. In another office, anyone wanting to send a Fax had to first call up the office and requests them not to pick up the telephone and say "Hello" when the Fax number was being dialed. Fax machines enable automatic reception even when the receiving office is closed, but the sender in another part of the world is working.This is possible only if the Fax machine remains connected throughout and not used for voice transmissions.

Technology is referred to as high and low. High technology may be understood to mean use of new discoveries that accelerate the operational processes, achieving error free, high speed, precise results. High technology also makes possible activities which cannot be done bynormal human capabilities. Electronics, computers, super conductivity, chips and satellites, optic fibers and other materials that are feather weight but stronger than steel, capable ofwithstanding extremes of temperature and pressures are some of the many advances thatmake for high technology. This contributes towards making operations both bigger andsmaller than ever before. Giant size transportation by air and sea (the jumbo jet will looksmall by 2010 A.D.), is high technology in action, extending the boundaries of humancapability.High technology demands more utilization of knowledge at work compared to use of muscleand body. It increases the need for technical skills. It increases the need for coordinationamong different activities, which must be done in predetermined sequences and ways.

The discretion to do one's own way practically does not exist. Systems will have to becomedefect free, as defects will have its impacts at several other places simultaneously. Entriesmust be made only in allotted slots in prescribed forms, none of which can be modified by anybody without the concurrence of other affected by the job. Interdependence increases,absolute autonomy decreases.High-tech has big impacts on productivity. Larger volumes, lower costs, quicker processingand high levels of precision become possible. Variations from specifications, however slightand infrequent can be detected and eliminated. More people are engaged in control,monitoring, research, data analysis, planning, etc. operations, instead of directly in theproduction process.

It is easy to introduce the latest technology. But for technology to get absorbed and to becomepart of normal routines, some infrastructural facilities are necessary. For example, scooters,mopeds, motorcycles, etc. have become part of the Indian rural scene, as much as the bullock

Carts are. This has become possible because facilities like petrol pumps, spare part dealers,and service mechanics (for puncture, repairs, servicing) have become available in every wide scalein remote rural areas. This indeed happened with the large scale use of tractors and pump sets.

The building up of these facilities took years, during which time persons acquired skills,investors with money invested in land, structures and equipment, suppliers set up facilities tosupply regularly into these outlets and communication facilities improved. It is like buildinga new colony or township. Building houses and shops, roads and water\electric connectionswill not bring people to occupy the houses and shops overnight. Both will build gradually andtogether. Services like milksupply, newspaper distribution, taxis, buses, etc. will increase aspeople move and vice versa. After some time, it will be a fully functional colony.

Technology absorptions will not happen through installation of physical facilities and equipment alone. Concerned people will have to learn appropriate habits. If a computerneeds dust free atmosphere, with controlled temperature, there is need to restrict entry intothe computer room. People used to move about freely in office, going to other people withfiles, tea, notices, messages or merely to gossip, will have to stop these practices. Not onlythose working with the computers but others also have to understand and adopt new practices. Until these practices become habits, the absorptionwill be incomplete.

**INFORMATION & PLANNING:**

Tourists need information while planning a tour and also after' arrival at any Centre. Information may relate to distances, climate, travel and accommodation facilities, places to see, things to buy and so on. Traditionally, such information is available in printed brochures prepared for promotion. They are rarely up to date. Additional information would depend on the knowledge of the personnel meeting tourists and therefore very often incomplete and unreliable. Use of computer memories can provide complete and reliable information corrected, up to date, on every question, however uncommon the question may be. Technology exists whereby the information stored canbe in the form of pictures with even perceptions of depth. The best example of this is the CD-ROM. Here enquiries can be answered not merely by display of words but also by pictures. Besides it provides a variety of information ranging from hotels to arts, crafts and culture. Printed brochures may carry only some views of some slights, while computer memories can be more complete. Continuous updating is also possible. If proper networks exist, the updating made by the concerned authority, (on matters like hours of visit, charges, additions, closures, etc.) will automatically be available at every terminal. There would be no need for such authorities to send separate communications to all the information offices. They thus avoid errors of communication not having been received or noticed. More and more travel agencies, tour operators and tourism departments are making use of CD-ROMs, video films**,** etc. for promotional purposes.

In the tourist generating markets the prospective buyers are shown the type of attractions and facilities available at the destination dong with a demonstration of the experiences they have in store.

**EXECUTION OF RESERVATIONS SYSTEM:**

In the tourism industry one of the major applications of technology is in the area ofreservations. Manual systems find it difficult to cope because of large numbers and long leadtimes. Tourist groups planning to visit several places in one or more countries sometime inthe future have to make reservations on airlines, railways, cars, buses, hotels includingarranging for pick up h d dropping. Reservations are made days or months in advance andwill have to be executed without fail and therefore come to notice on due time to ensureperformances. With varieties of groups at different times and with different requirements, manual systems are likely to fail. A failure not only inconveniences many, but may meanspoiling the entire purpose of the trip. Several developments have taken place to make theseservices more reliable and satisfactory.

In the Indian Railways, it has become possible for a person in Town A to make a reservationfor travel from Town B to Town C. Air bookings can also similarly be done. In some places,the travel agent can access the airlines mainframe and make a booking directly. Airlines andhotels can, on their own, make reservations on each other's facilities directly world-wide,almost simultaneously. Several of these systems are owned by airlines like SABREbyAmerican Airlines, APPOLOby United, WORLDLSPANby Delta, AMADEUSby a combineof Air France, Lufthansa and the Scandinavian Airways, GALILEOby British Airways andAlitalia together. Some airlines make more money through their Centralized ReservationSystems than through air transportation. Motels and carrentals are also linked to these reservation systems. The computers would automatically generate outputs of actions to betaken, make lists of passengers to be accommodated in each compartment in trains, schedulesof arrivals and departures in hotels, vacancies in hotel rooms or airline seats, persons to bemet, cars to be arranged and so on.Some years ago, one could choose a seat on an aircraft only at the point where the aircraftwas originating. At other stations, one had mostly to occupy the free seats after boarding. Onsome international flights, the check-in counter may have a message from the aircraft flyingin, intimating the seats that would be empty on landing and one could make a choicetherefrom.

Nowadays some airlines, allow choices of seats even at the time of booking, from any station because information about bookings done and availability, can easily be known atevery point through terminals connected to the central computers on real - time basis.Reservations are not only for places and equipment, but also for food. Those who need specialfood, for religious, medical or other personal reasons, will find their pleasures thoroughlydestroyed if these do not become available. Families are known to have starved on long flights,

Because the airline did not provide the special diet as requested and promised. It is not easyto take note of and provide for such individual demands when arranging for groups.

Latesttechnology makes itpossible for such non-standardized, non-routine exceptions tooperations, like in an assembly line of car production, it is possible to incorporate individualchoices about colour, fender design, seats and upholstery, makes of tyres, brands of stereosystem, and so on.It is also possible for managers and waiters to know preferences of repeat patrons inrestaurants (for tables, spiciness of food, wines) or theatres andcinemas (seats and kinds ofplays). Patrons can beinformed and tentative reservations held, when performances of their preferences are scheduled.

Similarly tour operators can inform their patrons if theforthcoming schedules are known to match the desires of their customers. Informationtechnology makes it possible to hold such data and bring it up automatically for actionReservation networks need not only be across nations or cities. Tourists sometimes reachcities without confirm reservations and are lost without proper information on availability ofsuitable accommodation. Kiosks at airports, railway stations, bus terminals or other centralpoints linked to hotels of some standing, canprovide a very important service of not onlygivinginformation but makinga booking. Hotels that may not want to reveal details of their patronscanstill conceal details of their guests and provide information on the network onlyon availability and occupancy of rooms. With user friendly equipment, it would not benecessary to man these kiosks, provided travellers are made familiar with usage through clear visual instructions.

**EXPERIENCES OF USING TECHNOLOGY IN TOURISM:**

The possibilities of using technology to enhance the experience of the tourism product areimmense. For example, some tourists may not be able to visit all the sights, because of shortageof time, physicalweakness or other reasons. For example, the caves at Ajanta are usuallyvisited and seen from the caves level. But there is an entirely different comprehensive viewfrom up above and from where, a walking down to the caves is an exhilarating experience.

This is however strenuous, needs personal transport to reach this point, which (the transport)must then move separately to the main gate. The authorities also do not encourage movementalong this route as there are risks of accident to persons as well as damage to environment.It is possible through the use of electronics to provide everybody with this experience withoutthe physicalstrains or individual and environmental risks. It may then be possible to permitthose who may still want to walk down these slopes. The numbers may remain small or canbe restricted through high fees.Guides are not always pleasant to listen togood at explaining the history and mythology.They usually talk to groups, not all of whom are near enough to hear properly. Language andaccents also, interfere with proper understanding.

The commentaries on exhibits in themuseums can be taped and given to individuals with earphones, at a charge to be collectedback at exit. This allows each individual to adopt his or her pace depending on the personalinterests. Another method adopted is to be supplement the tour later, perhaps in an exhibitionlounge, through exhibits, with separate commentary on audio or video tape, for those whomight be interested. Similarly, separate monitors can be made available where one can callup any exhibit and watch or listen to explanations in the preferred language. One of the attractions near Ahmedabad is the Swaminarayan Campus. The exhibits depict thelife of the saint.

After a brief introduction through slides and sounds, the visitors are takenalong a route into spaces, which in sequence depict important stages in his life. His travelsthrough rain forests is shown through a dark area which has lots of trees and bushes andrivulets and water falling and sounds of animals, bids, rain, wind, etc. The total effect is as ifone is in a rain forest. This is made possible through synchronized light and soundselectronically generated and electronically regulated. Any situation and atmosphere can besimulated making for very realistic experiences, more intense and more complete than theSon-et-Lumiere (Light and Sound) shows in Red Fort, Teen Murthi in Delhi, Golconda Fortin Hyderabad and other places. A more intense and complete experience is made possible when visual projections are made.If one is at the Centre of an enclosed space like hemispherical dome and coordinated movingpictures are projected all round, one does get the experience of really moving. Sensations ofspeed, sudden climbs, depressions etc. become real.

Through additions of light and sound, one can be given the experience of going along roller coasters, or amidst wild animals orthrough turbulent seas. Computer animation of the kind used in the film Jurassic Park is afurther possible addition to enrich the experience of travelling through preferred routeswhile, in fact, sitting immobile. One &n sit in a room and have the experience of a canoe ridefrom Gangotri to the Bay of Bengal. One may be cruising along in a boat on shark infestedwaters and a shark comes in at high speed, jaws fully open and suddenly snaps at the boat tothe sounds of crumbling timber and rifle shots from the stern of the boat. Visitors are knownto scream in fright and at times even pass out during these extremely realistic simulatedexperiences. Appropriate warnings have to be issued so that people with weakhearts, forexample, do not venture into such experiences. Experiences in parks canbe made more pleasant with lights and water flows made tomodulate according.to set rhythms of music. One cancite here the Vrindavan gardens nearMysore or the dancing fountains at Paithan. Working models of sights can add to theattractiveness.

One might create at popular tourist spots like Agra or Khajuraho, cultural ortheme parks, containing perfectmodels (may be diminished sizes) of the attractions at othercentres in India with authentic settings, colours,elevations, etc. The Taj Mahal for example,could be shown in different conditions of light including a full moon night. This could have apromotional effect, creating desires to visit the real things. This may also be satisfying forthose who may not be able to make a visit. The curiosity of the historical and culturaltourists could be met to some extent by the use of such technology. Japan has created indoor beaches in which the sun beats down; there is real water and wavesand tides. They have also created indoors, a snow bound mountain slopes in which peoplecan ski or toboggan under severe cold and sometimes breezy conditions. Technically it ispossible to recreate forest hikes, caves, etc. for the adventure or sports oriented tourists.

Thus technology can enhance the value of the product for tourists whether they are being:

* **ethnic tourists**- having concern for the unique, often exotic customs of indigenous people,
* **cultural tourists**- whose interest is for local colour, festivals, costumes,
* **historical or heritage tourists**- whose interest is for buildings, architecture, museums,locales of historic events,
* **environmental tourists (eco tourists)**- who want to be with nature, watching or walkingor living in it,
* **recreational tourists**- who seek sports and physical activities,
* **Adventure tourists**- seeking sports that challenge the human systems with higher levelsof uncertainty and risks.

While these possibilities exist, it may take some time before they can become operational inIndia. The main reason is that we do not yet have the necessary infrastructure. It is essentialto have a steady and reliable source of power. The maintenance of the equipments will haveto be strictly according to prescribed routines. Restrictions regardingload, temperature, humidity, time schedules, etc., will have to be rigidly regulated. Most of all, persons associated with these systems will have to be trained to perform to a script without any scope fordeviation.These will develop as we get used to the requirements of the computer age. They cannot be and should not be rushed.

**COMMUNICATION SYSTEM:**

Technology makes communication almost instantaneous. Documents transmitted through Email, Fax, information through Mobile Phone links and satellite computer links canreach specific pointsin remote areas. Even in Very small towns have MAIL, FAX, STDand InternationalTelephone DirectDialing facilities which can be hired at veryreasonable costs.Contents in floppies can also be transmitted electronically. The E-Mail is anotherdevelopment that promises to dominate office routines very soon. Business documents aretransmitted as Electronic data.

Many executives who travel continuously for many days keepin touch with their offices by the simple mechanism of connecting their laptop, portablecomputers to their offices through the telephone in their hotel room, using modems. Theycanreceive all the messages and mail waiting for them and issue instructions to be seen by their secretaries and acted upon, when they come to office. With the increase in businesstraveller traffic, hotels will not be popular unless the rooms provide the facilities for suchlinkages through modems.Voice mail can also be received and responded to just as written mail canbe received andresponded to.

The Voice Mail Box digitises voice and stores it in a magnetic disc for laterretrieval by the receiver on request.Telephones/Mobiles (voice), computers/Laptops (electronic), E-Mail/fax (facsimile reproduction and transmission)canall be made an integrated network. Teletexts are common in Delhi in India, providing information relating to railway schedules,airline schedules, weather news and stock market movements.

This is technology which canbe used for reservations.Notice boards and signboards need not be static pieces of furniture on which the material isupdated according to availability of the typist or the painter or the attendant who is to stickthe notice. Electronicbulletin boards make it possible to have messages get ready, at onepoint to be simultaneously displayed at several select points even over long distances. A noticeput up at the Head Office cansimultaneously be displayed at all the other offices. Electronicboards are moreattractive (they canbe made to flash) easier to read (big size letters),Colorful and can be varied frequently (enabling multiple messages as well as updating). Theyalso remain clean for longer periods.Many hotels handle groups of tourists who may be moving out during the days. If there areseveral such groups, wanting packed food and drinks to be carried, and are leaving the hotelat different times, the information about and adherence to menu, quantities and timings,becomes very critical to the quality of the service.

Manual systems with chits ticked on theboard before the supervisor, are not foolproof. Errors maybe traced to illegible handwritings,overpinningor gusts of wind that may wry the chits away from theboards.The railways in India are planning to introduce telephone services on some main line trains.Many airlines already offer these services to their passengers. The railway's objective is notonly to provide a valuable service to passengers, but also to be able to get in touch quicklywith control stations in the case of breakdowns.Tourists in forests or on mountains and rivers (both environmental and adventure tourists)can benefit immensely from the technological advances. With the use of mobile phones itwould become easier to direct tourists to rare species like tigers and lions, which are difficultto spot in forests. Innumerable tourists now return disappointed at being unable to watchthese animals despite several days of elephant and jeep rides. Hence, the use of technologycan add value to the tourism product and provide better services.

**INTERNET AND TOURISM:**

Internet is an interconnected system of networks that connects computers around the world via the TCP/IP protocol. Today, the internet is a global “people’s network” for communicating and sharing information. It consists of two powerful tools- email and the World Wide Web. The WWW is the part of the internet where a vast global information resource, or library, has emerged in recent years. The use of the Internet for communicating and transacting with customers has been growing rapidly in the worldwide tourism & hotel industry. There has been rapid increase in the online booking in the hospitality & tourism industry e.g.: e-booking of hotel/motel rooms, airline tickets, travel packages etc. due to the fact that the industry is one of several services – which can be checked, inquired, and ordered online easily, and conveniently communicated and delivered electronically via the Internet. Following are different area where internet is used in tourism industry.

1. Marketing Technology taps almost every aspect of marketing, including:

* online advertising
* editorial and newsletters
* Special website to provide information of specific region.
* search engine marketing
* email promotion
* word-of-mouth via social networks like blogs with customer reviews, communities such as the free Flickr photo sharing website and YouTube video sharing site, discussion groups and facebook

1. Booking systems Latest research suggests that more than half those who travel book online when they have the option so it pays to have a real-time system for sales and reservations.
2. Delivery of visitor experiences Tourism operators are using technology to:

* provide an initial experience on-line, for example, experience- riven web content or tasters delivered pre-trip by online audio podcast or video clips
* deliver audio tours for use on-site via MP3 players
* provide interpretation via mobile phones orhandheld devices
* Link customers to other experiences in your region,such asrecommending other things to see or do onyour website or as part of your tour or experience.In this way, you can help your customersunderstand how they can be part of a bigger visitorexperience.

1. Customer relationships and follow-upTechnology is a great way to continue customer contact using:

* a contact database
* an electronic newsletter to help keep your brand and thevisitor experiences you provide in people's minds
* group email lists for regular updates
* Incentives or encouragement for customers to placereviews on travel sharing websites such as TripAdvisor.
* customer email feedback that you can use to improveyour product
* Email-based customer satisfaction surveys.

**e)** Digital Coach ProgramOperators interested in learning how to get online canparticipate in Tourism Tasmania's Digital Coach Program.The Digital Coach Program is free and gives participantsaccess to six experts in online marketing and distribution.The program's coaches make getting online easy by sharingadvice on the e-connect forum, phone assistance, smallgroup and one on one support.

**INFORMATION TECHNOLOGY AND THE**

**TOURISMINDUSTRY COMPONENTS:**

a) **Transport sector-**

The travel services, all over the world and in many parts ofIndia are fully computerised. The travel services, such as,railways, car rental, bus/coach hire or trip and airlinestickets, all are computerised and thus, proper informationmanagement is possible. Information regarding the touristsor passengers of yesterday, today and tomorrow is nowreadily available through the data generated by varioustourism organizations. The various fields of travel services using computerapplications.

a.1) **Car Rental-**

Car Rental is a big business world over and in themetropolis and big cities. The main clients of car rentalare the corporate or business travellers along with thetourists wanting better service and comforts whiletravelling.The car rental business is fully computerised abroad, especially in America and Europe, and the Informationand Reservation System are being used for car rental and information.

a.2) **Railways-**

Railways are the most favored form of travel. Thecomputerization of the railway services was introduceda few years back. The software package used inticketing and other customer services has been speciallydesigned and developed for Railways. Thecomputerized system broadly centers around the PNR(Passenger Name Report) number provided on eachticket of the customers. Each one of these PNR numberis unique and identifies not only the person travelling onthe ticket along with the passenger’s personal details butalso the train and the destination of travel. Now a personcan book tickets well in advance of the date of traveland get reservation on the spot. The computerisedticketing system has also shown way to computerisedcustomer service facilities.

a.3) **Airlines-**

The airlines have seen the maximum computerisation inthe travel segment. Computer Systemis widely used to book tickets in all the airlines.It helps in generating a higher rate of occupancyand also provides a better scope of marketing anddistribution to the airlines. The increasing popularity ofair-travel globally, gave rise to the need of a better andefficient distribution mechanism. This system provided bothinformation of tourism industry, including that of airlineindustry and also provided direct booking onthe airline of choice.

b) **Accommodation sector-**

The structure of the tourism industry meant thatbusinesses in the accommodation sector lacked directaccess to travellers and consumers. Ebusiness haschanged the way firms in this sector can do business. Infact, groups in the hotel sector are developingcommunications networks designed to compete with Global system containinginformation about availability, prices, and relatedservices for Airlines, Car Companies, Hotel Companies,Rail Companies, etc. and through which reservationscan be made and tickets can be issued. Even it alsomakes some or all of these functions available tosubscribing travel agents, booking engines, and airlines.

c) **Attraction sector-**

In the case of attractions both manmade and naturalattraction ownersneed to communicate or inform theircustomers and potential customers about theirproduction. Information about the kind of attraction,where they are located and how to get there is of vitalimportance. The attraction owners particularly thenational tourist offices discharge their duty ofpromoting their country’s tourist attractions using theinformation.

**NEED OF INFORMATION IN TOURISM:**

Travel is a basic human nature. Technological revolutions inthe last few decades and the resulting changes in the socialsystems go faster its intensity in the current century. Thus,tourism is presently a mass phenomenon involving everyhuman being in the world. They need detailed informationabout each place they intend to visit. The specific elementsof such information needs are:

* Geographical information on location, landscape andclimate, etc.
* Information Needs in Tourism
* Accommodation, restaurant and shopping facilities
* Accessibility though air, railway, water and road andavailability of scheduled means of transport
* Social customs, culture and other special features of theplace
* Activities and entertainment facilities
* Seasons of visit and other unique features
* Quality of facilities and their standard prices includingexchange rates

Though the ultimate users of this information are thetourists, the actual benefits in money terms accrue to thetourism industry consisting of the destination managers andservice providers. The travel intermediaries like travelagents, tour operators, and reservation system store suchinformation in respect of each destination to service theirclients and improve their business. They need theinformation in the easiest retrieval format so that theinformation needs of the clients are met as quickly aspossible.

Tourists generally need both static and dynamic information.It includes details information about location, climate,attraction features, history, facilities available, etc.Information about airline, train and bus schedules, tariffs oftransport and accommodation units and current availabilityof such facilities is considered as dynamic as they canchange very frequently. These items of information have tobegathered, stored and disseminated on a real time basis.All types of reservation systems including air, railway andaccommodation sectors contain such information. The tourism industry is made up of three major components:

Such as,

**a)**Transport sector

**b)**Accommodation sector

**c)**Attraction sector

**Benefits of the Internet:**

Benefits from IT, particularly the Internet for tourism, are substantial. These benefits are no longer dependent on proprietary information systems as has been the past experience, since the Internet is a commonly available technology. The Internet provides many advantages to players in the tourism industry. Some of these benefits are:

* enhanced level of collaboration between tourism operators, for example, between travel agencies and service providers;
* pre-arrangements with respective suppliers no longer necessary;
* web service discovery will identify alternatives, enabling holiday packages to be constructed;
* greater negotiation of service to be purchased and customization of services/activities; and
* Generally greater levels of interoperability with internal and external applications.

Whether these benefits have come to pass remains to be seen. Their realization requires a new approach to be adopted by operators in the industry, particularly for SMTEs. The question is whether they recognise these potential spin-offs and are able to take advantage of them. They all point to the need for greater levels of IT adoption to be more flexible and responsive to the market, or collaboration with other players to achieve a ‘one-stop’ planning and booking experience desired by the tourist.As the above diagram indicates (Figure 2), many businesses or tourism operators areloosely connected over the internet so as to endeavor to serve the tourist’s needs,providing the seamlessintegration of information necessary to plan and book a travelexperience. Potentially the Internet overcomes the barriers SMTEs especially haveexperienced re accessing GDS and CRM, yet it isconsidered more progress is neededin this regard. This is because it enables individual tourist operators to link their websites and present a complete virtual tourism experience.

**Issues raised by the Internet:**

The internet has resulted in a proliferation of many ineffective html document basedweb sites with small and medium tourist enterprises(SMTEs) possessing inadequate skills and insufficient resources toconduct web site effectively.

This exponential growth in the number of tourist related web sites means a lack of notoriety in a saturated market. The internet reducesdistribution costs as intermediaries commissions are eliminated, however this isfrustrated by the emergence of intermediaries, the squeeze on price, yield and revenueand the homogeneity of web sites.

It is not clear that individual SMTEs are able to use this businessintelligence, orrecognise its value. If so, information may be lost and not acted upon. A sharing ofinformation, either in a centralised or in a more collaborative manner would assist inthe use this ‘asset’ ofinformation and knowledge.

The internet is a commonly available technology, however awareness of itsfunctionality and resources and expertise to take advantage of this functionality isrequired. It is observed that many SMTEs either are not aware of this or do notpossess or have ready access to resources need to make the most of the opportunitiespotentially available.

For these benefits and others to be achieved however, and so fullexploitation of webservices, ‘it is necessary to introduce semantics to web services.

The semantic web which is an extension of the World Wide Web, is designed tobring structure and meaning to the vast array ofinformation available on the WorldWide Web. In bringing thisstructure, the web creates knowledge which is readilyaccessible by both humans and machines (eg. software agents, artificial intelligence).

The structure imposed by semantic webs isachieved through the imposition of ontology to give meaning to information. Theontologies created by semantic web users allow machines to process and understand this information by specifying ‘standard terms and machine readable definitions which allows the automation of web documentprocessing. These issues however go beyond the scope of this paper.

**Advance Intermediaries for Tourist Operators:**

Collaboration around the Internet is a way for tourist operators, such as hotels, to dealwith excess capacity and increase occupancy rates quickly. This already occurswithin many chains and is evident in the participation in intermediaries or distressedwebsites such as **MakeMyTrip.com, Yatra.com,Goibibo.com** and others. Threereasons have been identified for this change in the distribution of hotel rooms:

* a lack of understanding of hoteliers of how the Internet and onlinedistribution works;
* Hospitality lags other tourism sectors in adopting the Internet as adistribution medium. Hotels were unprepared to deal with boom in onlinebargain hunting and bookings;
* Exploitation by intermediaries of the situation following 9/11 as hotelierslooking to increase revenues via increased occupancy relied onintermediaries to promote their product.

Revenues estimates that by 2010 around 18-18% of revenues for hotels willcome from hotel bookings made on the Internet, compared to the current 8 – 10% of revenues. The active role of these intermediariesmay be viewed as a positivedevelopment for the industry.

Online bookings are more cost effective, tend to attractmore affluent customers and reduce reliance on more expensive distributionchannels.Room occupancy rises as vacancies are effectively ‘sold’ online at short notice.

However a closer analysis of the impact of this reveals a loss of control by touristoperators and a tradeoff between occupancy rates at the expense of yield and theassociated RevPAR(Revenue Per available room).Yield represents the return to the business resulting from its operations. RevPARrepresents the revenue achieved per available room. The aim of an hotelier is tomaximise yield and RevPAR. It is clear that selling rooms via distressed websites at acheaper rate increases occupancy but has a negative impact on the other indices. Thelong term impact is brand erosion in terms of quality following downward pressure onroom rates. By 2005 around 54% of hotel online bookings will bedirect sales reflecting a greater role of online intermediaries in the reservation process.

Hoteliers, ‘have difficulty maintaining market share and finding the right formula todeal with online discounters and intermediaries’demonstrating alack of internet strategy and ineffective e-Distribution approaches. Hotels need totransfer their direct sales expertise to the web environment. Realization of the need to develop a direct web distribution strategy is critical ashoteliers seek to deal successfully with online intermediaries. Distressed web siteshave a role to play in distribution, however should not be the only web distributionchannel. If a hotel has not developed a direct web distribution plan it will only appearon the internet via distressed web sites which as discussed erodes its quality.

A totalonline distribution strategy therefore is needed with a direct-to-consumer distributionmodel at the centre of the strategy, such as adopted by the airline industry. Thequestion isn’t whether you should use the Internet or traditional methods to compete.

**IT and collaboration (Tourism business networks):**

Increasingly business network behavior is becoming more prominent in research andis of interest to the tourism industry. A sharing of information, either in a centralisedor more collaborative way, would assist in maximization of the value of informationand knowledge.Scholars have identified the need for greater collaboration in theindustry, recognising the need to exploit technologies to become more responsive tothe market.

This collaboration is made possible by the spawning of onlinetechnologies, IT beinga critical driver of integration and co-operation. This integration thoughrequires internal integration of processes and systems as well as externally with otherorganisations and this hasacted to impede co-operation in the past. Figure 3 showsthe interplay around the Internet in the tourism industry.

**Facilities of Internet Forums:**

An Internet forum is ‘an online facility that provides local businesses with an internetportal using the locale, or an industry particular to the locale, as the unique sellingpoint, or common brand. This acts asan anchor providing more of a profile to entice visitors to the web site that representsthe location or destination.

Whilststudies have identified the benefits of the use of Internet amongst SMTEs in suchrural and regional areas, these authors argue that there is little evidence to suggest thatthis is being converted into action.Reasons cited for a lower uptake of the Internet in more remote reasons are severaland are discussed in a number of papers.

Yet the Internet offers the potential to overcome the disadvantagesthat remote locations raise. Impediments to SMTE adoption of e-commerce need tobe revisited and addressed to encourage the use of IT and to seek to reduce the impactof the digital divide.By developing a strategic approach that adopts a clear identity focusing on thedestination and its features encapsulated in an integrated website, the forum concepthas significant merit with respect to regional tourist destinations.

**The Internet as a facilitator of collaboration in Tourism Industry:**

In our study examine independent businesses with uniqueresource locators (URLs) located in one region. Then followed links out of thosesites to identify the extent to which such sites were linked. Little evidence was foundto show the use of websites for cooperative tourism in the study area. They concludedthere was a lack of cooperative initiatives between tourist operators in the region ofinterest. This study is of interest since lessons can be learned for consideration inother regions to promote tourist destinations.

**Internet and Technology in Cultural Tourism:**

Cultural tourism is a good example of the way in which online technologies have beeninfluential as its emergence has been fostered by the Internet. Cultural tourismfocuses on the presentation of an areas cultural heritage, ranging from environmentalattractions through historical, artistic, archaeological and folkloric components. Aspecificexample of this form of tourism is the MEDINA (Mediterranean by Internetaccess) project started in 2002, due for completion in 2005, which established acultural web portal for fourteen Mediterranean countries Access to the portal by a tourist is achieved through Smart mobile devices (e.g. personaldigital assistants or smartphones) and allows the tourist to make informed decisionsconcerning cultural sights. The emergence of artificial intelligence and mobilecomputing, have empowered the consumer of tourism services. Mobile devices areincreasingly being used by tourists as electronic personal tour guides.

**Futuristic Research& Development:**

Future research and analysis of IT developments and adoption and use in the tourismindustry is required. This is especially the case amongst SMTEs in Australia, giventhat IT strategy is centrally determined amongst tier 1 players. The authors in thefuture will replicate thestudy, initially with respect to theHervey Bay tourist region located in Queensland. Also industry forums as describedin this paper will be considered and trialed in same region. Since these forums are anexample of collaboration around IT, of particular interest for more remote touristdestinations, the findings will have implications for tourism in rural and regionalAustralia.

**CONCLUSION:**

This paper discusses field related to tourism and various information technologies available to enhance the existing infrastructure of tourism industry. The technology mentioned is mostly applicable in Transport sector, Accommodation sector Attraction sector. Using this, the present situation of tourism can be improved enormously.

Tremendous advancements are taking place in technology, ensuring very high speeds andaccuracy in information processing. This will make it possible to offer much better servicesin hotels and restaurants, more reliable and complete information about sites and attractions,and improve communications. There are immense possibilities of using simulations androbotics, generation of sounds and lights, the control and coordination of movements of life- like models. These can enhance the experience of tourist attractions, at sites and evenprovide the experience at some distances. Technologies are still developing. Use of newtechnologies requires not only the installations of equipment, but calls for changes in systemsas well as in the skills and habits of personnel. Without proper absorption, the newtechnologywill not deliver to its maximum capabilities.

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