

# Use of Information and Communication Technology in the Tourism Industry of Maharashtra and Goa States of India: A Survey

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*Tourism is an information intensive industry and Information and Communication Technology is a key driver for developing countries in organizing and marketing their tourism products. With the help of ICT applications, tourists can view information regarding a destination, book accommodation and reserve tickets for train, flight or other forms of transport and at the same time pay for all these without leaving their homes. To assess the use of ICT in the tourism industry in the Maharashtra and Goa states of India, over 250 tour operators, travel agencies, hotels etc. were surveyed. This paper presents the survey followed by a detailed analysis of the obtained results.*

**KEYWORDS:** *Tourism, Maharashtra, Goa, Survey, Information communication tools.*

## INTRODUCTION

India is a developing country and has shown prominent presence in the field of ICT. The tourism industry is one of the major industries in India and it is expected to grow with recent developments in the technology and adoption of ICT. Maharashtra and Goa states have a huge potential to accelerate their presence as the leading tourist destination among the various states of India. In order to understand the tourism industry in the states of Maharashtra and Goa and at the same time to study the use of ICT in their tourism industry, a comprehensive survey of several tourist organizations across all the parts of these two states of India, like tour operator, travel agencies, hotels etc. has been made. This survey has been conducted through hours of discussion and questionnaire based interviews with tour operators, travel agents and hoteliers throughout the Maharashtra and Goa states of India.

## LITERATURE REVIEW

At present tourism is one of the fastest growing industries across the world. Tourist arrival all over the world grew at an average rate of 4.3% per annum and is contributing significantly in the GDP growth. World Tourism Organization (WTO) predicts one billion international arrivals in the year 2010 and has forecasted that by 2020 international tourism arrivals to the Asia pacific region will experience more than 400% growth from 105 million in 2002 to 438 million in 2020 [Gupta V., Gupta D.,2008]. Tourism is primarily a service industry as it does not produce any goods but offers services to various classes of people. It is a combination of various interrelated industries and trade like food industry, accommodation industry, transport industry etc. It involves activities like attracting people towards the destinations, transporting them, housing, feeding and entertaining etc. In the process, it brings about tremendous infrastructural improvements and helps in the development of the region. Perhaps tourism is one such rare industry, which earns foreign exchange

without exporting national wealth [ Deepthi Shanker, 2008]. In the last few decades, information communication technologies (ICTs) have deeply affected the way business is performed and the way that organizations compete [Porter 1985, 2001, Porter and Miller 1985]. The tourism industry is affected by these developments and in particular the way organizations distributed their tourism products in the marketplace [Buhalis, 2000, Buhalis D., Licata M.C., 2002, Sheldon P. , Wober K. , Fesenmaier D., 2001]. Recently researchers have started looking at "tourism" as a major research field. Several text books and research papers have made comprehensive coverage of the field. Lockwood and Medlik examines the current global dimensions, patterns and the recent trends in travel and tourism in order to provide a frame work within which to consider likely future of this global industry. They conclude with some indicative pointers to the issues likely to influence tourism in the coming decades [A. Lockwood, S. Medlik, 2001]. Sharma has explained the issues regarding human resource management and has mentioned guidelines regarding the communication techniques [K. K. Sharma, 2000]. Peters and Pikkemaat presents empirical studies that identify the major "push and pull" factors of innovation in hospitality and tourism, providing vital information on how to measure innovation in the control and sustainable management of new service development [Mike Peters, Birgit Pikkemaat, 2005]. Wall and Mathieson describes comprehensive and rigorous examination of the consequences of tourism. The authors address the nature of tourism and tourists and the economic, environmental and social impacts that result from their activities. It provides a unique blend of theoretical principles and practice for a balanced approach to tourism [Geoffrey Wall, Alister Mathieson, 2007].

ICT's are entering in almost all of the day-to-day activities of human being in the same manner it has also entered in the tourism industry all over the world, the Internet and development of ICT's have revolutionised the entire tourism industry, generating new business models, changing the structure of tourism distribution channels and reengineering all the traditional processes. Davcev and Gomez discusses the novel applications of technology, and experience in applying recent ICT research advances to practical situations [Danco Davcev, Jorge Marx Gomez, 2010]. Sigala et. al. comprising of nearly fifty research papers serves as a global corpus of state-of-the art ICT Travel and Tourism research [Marianna Sigala, Luisa Mich, Jamie Murphy, 2007]. Connor et. al. represents cutting-edge research on the topic of "e-Tourism: The View from the Future" [Peter O'Connor, Wolfram Höpken,

Ulrike Gretzel, 2008]. The ENTER 2008 conference papers cover a wide range of cutting edge topics currently driving research and development activities in the field of IT and travel and tourism such as online communities, user generated content, recommender systems, mobile technology, platforms and tools, website optimization, electronic marketing, ICT and tourism destinations and technology acceptance [Wolfram Höpken, Ulrike Gretzel, Rob Law, 2009]. Gretzel et. al. address advances in mobile tourism services, online destination marketing, GPS-based tracking of tourist behaviours, decision support tools, website design and evaluation, online travel distribution, ICT adoption in tourism and hospitality businesses, virtual experiences, online information search, Web 2.0, social media marketing, and the role of ICTs in sustainable tourism development. It shows a high diversity in disciplinary approaches and methodologies used to explore the intersection of tourism and technology [Ulrike Gretzel, Rob Law, Matthias Fuchs, 2010]. Paul et. al. the researchers argue that small and medium sized enterprises (SMEs) play a pivotal role in national and regional economies. These companies play a major part in sustaining domestic and regional economic growth and are important agents for alleviating poverty in developing countries. It has been suggested that the use of Information Communication Technologies (ICT) increases richness, reach and the ability of local SMEs to participate in the digital economy [Golding Paul, Donaldson Opal, Tennant Vanesa, Black Karlene , 2008]. The role of self-efficacy to computer novices through a longitudinal study is discussed by Jolie et. al. [Lam Jolie, Lee Matthew K. O., Wong Y. C., Fung John Y. C., 2005]. Jennifer et. al. examines how the ICT and Internet gradually change the tourism industry structure in China; how important such changes are; and to where such changes will lead China's tourism industry. This exploratory research is conducted based on information collected from several tourism organizations, such as airlines, hotels, tour operators, visitor attractions and the tourism authorities within China . [Jennifer Xiaoqiu Ma, Dimitrios Buhalis, Haiyan Song, 2003]. Buhalis and Connor identifies a number of key changes in Information Communication Technologies (ICT) that gradually revolutionize the tourism industry. E-tourism and the Internet in particular support the interactivity between tourism enterprises and consumers and as a result they re-engineer the entire process of developing, managing and marketing tourism products and destinations [Dimitrios Buhalis, Peter O'Connor, 2005].

## RESEARCH METHODOLOGY

This section presents the research approach, data collection and data analysis methods, sample selection and the problems and limitations of the methodology.

### Approach of Research Work

We have started our work as positivistic research. After in depth study, we analyzed the background of the research problem to create a base for the questionnaires and interviews. This was followed by a yearlong field work which consisted of identifying and interviewing tour operators, travel agents and hoteliers in Maharashtra and Goa states and made observations in a constructive approach to understand the situation. The questionnaires were made available on the internet to be filled by the participants of the survey and wherever response was not received the questionnaires were filled by visiting the participating agencies in person.

### Collection and Analysis of Data

We used the methods like questionnaires, interviews, simple observation and the literature survey to capture both qualitative and quantitative data which are essential for an accurate approach. With the qualitative data method, it was possible to grasp a holistic picture and obtained a better overview of the problem, as the interviewed person were given a chance to share their views and opinion on the issue. The quantitative approach allowed us to receive precise facts that could be measured and compared to distinguish different factors and to see trends. The qualitative data measures the extent of the use of the resources and the awareness about the benefits, potentials and problems, where as the quantitative data was measured mainly by the multiple choice-questions in the questionnaire, where questions about the infrastructure, organisation, and the extent of use of hardware and software were asked. The quantitative data consists of the number of computers in the organization, the currently used software systems, internet facility etc. [Badnjevic J., Padukova L., 2006, Creswell J. W., 2008]

### Selection and Details of Survey Sample

The selection of the companies was made by considering the tourist places around it. These companies were located using the media like phone-calls, browsing and searching

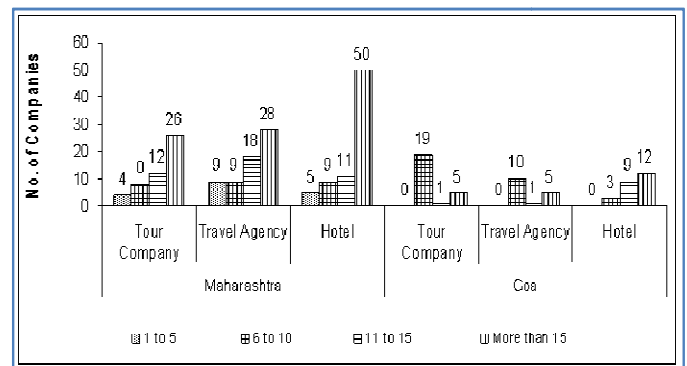
the Internet and personal acquaintances. The selected companies were expected to be situated within the Maharashtra and the Goa states. Geographically Maharashtra is divided into five different zones or regions, viz. Konkan, Marathwada, North Maharashtra, West Maharashtra and Vidharbha, consists of various districts in it. To distribute the survey evenly we identified 300 different tourism related organizations belong to each of these zones and Goa state. Out of these a total of two hundred and fifty four companies responded and actively participated in our survey and cooperated with us for filling up the questionnaire and sparing time for the interviews. The criteria for the selection of participants of the survey were the following:

- Organization is to be related with tourism e.g. tour operators, travel agents, hotels etc.
- Organization is to be situated around tourist destinations in the states of Maharashtra and Goa.

**TABLE 1.** State and category wise participants of the survey

States	Tour Operators	Travel Agencies	Hotels	Total
Maharashtra	50	64	75	189
Goa	25	16	24	65
Total	75	80	99	254

Table 1 shows the state and category wise participants for which the survey is conducted. As it is observed in the table out of the 254 organizations, 75 were tour operators, 80 were travel agencies and 99 were hotels situated at and around tourist destinations.



**Graph 1.** Distribution of employees

Graph 1 depicts the number of employees working in various tourism companies considered in our survey. It is observed that less than 27% of the tour and travel

agencies have employees between 1 & 10, in the state of Maharashtra, whereas more than 70% have employees between 1 & 10 in the state of Goa. In the case of the hotel industry it is observed that most of the hotels in both the states have employees more than 10.

### Questionnaires

A web-based multiple choice questionnaire was developed for the tourism companies to obtain important information about each company and also to gain strict raw facts. However, the majority of the companies did not answer the web-based questionnaires, so they were instead filled up by personally visiting the respondents. The questionnaires were structured containing multiple choice questions where questions are predetermined and the data from different respondents is easy to analyze and compare [Halvorsen Knut 1992]. The two hundred and fifty four questionnaires carried out in the study are used to make the analysis of the use of ICT in the tourism industry of Maharashtra and Goa States.

### Interviews

Interviews were semi-structured, meaning that the respondents had an opportunity to express their own thoughts while answering the questions of the questionnaire, at the same time as there was possibility for asking additional relevant questions. Thus, the questions were open and they required much involvement from the respondent [Halvorsen Knut 1992]. This method was chosen because of the possibility of gaining as much information as possible at the same time as one is able to lead the interview in the desirable direction. It was also possible to adjust the interviews in the way so that more emphasis was put on more interesting issues, all depending on the organization and the circumstances.

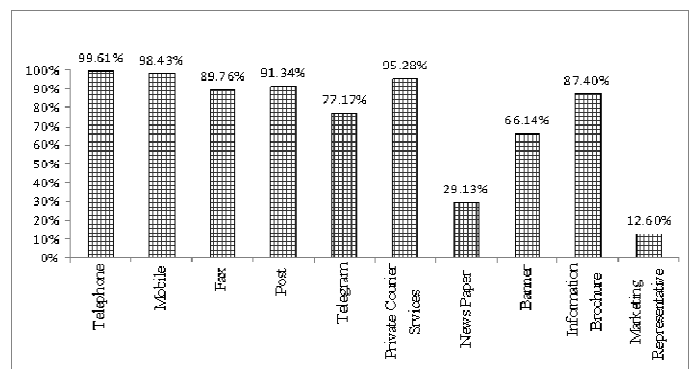
### Problems and limitations of the methodology

Since we have applied both quantitative and qualitative method to our work, the possibility of performing a large number of interviews and observations was limited. Hence there was a risk that the results would not be representative for all tour operators, travel agents and hotels in Maharashtra and Goa states but only for the group of companies that we have interviewed, especially when considering the geographical area of Maharashtra and Goa.

Another risk with the chosen method is that the persons we have performed interviews with could have felt a pressure to some degree and therefore have not been totally honest with their statements. Others were too stressed to answer immediately and to be able to think and consider the answer. Many times, we also perceived that some respondents had an attitude that made them too proud to say anything that goes against their businesses. We are therefore aware of the fact that a high grade of subjectivity could have made some negative effects on the result.

## RESULTS & ANALYSIS

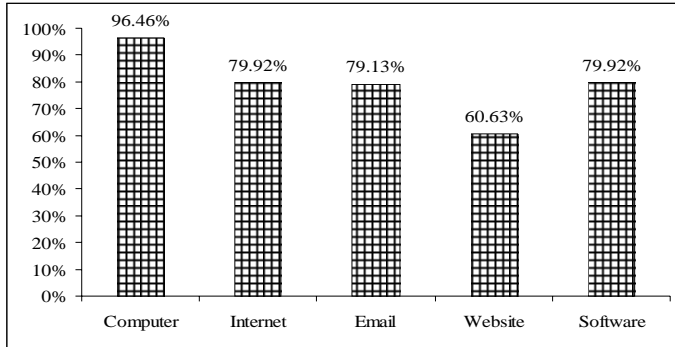
Information and communication technology tools can be broadly classified into two categories viz., traditional and modern tools. The traditional tools consist of the various print media and communication using post, courier and devices like telephones. The modern ICT tools are mostly configured around computers and consist of internet, email, websites, databases, portals, etc. We have surveyed both these type of categories and emphasized mainly on the use of modern ICT tools. Graph 2 depicts the use of traditional ICT tools and it can be seen that the tourism industry is mostly relying on the electronic media like telephone, mobile, followed by fax and telegrams for instant data transmission. As private courier agencies are offering fast and reliable communication it is also treated at par with the traditional postal system. The results show that depending on the urgency of transfer of documents fax, courier and postal services are used. Information brochures are used heavily by agencies to advertise and market their products as compared to newspapers and banners. It is also observed that a very small amount of agencies prefer using marketing representatives to market their products.



**Graph 2. Use of traditional ICT tools**

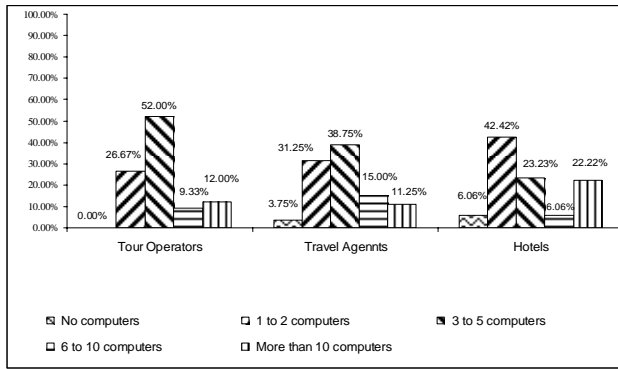
In the case of use of modern tools (see graph 3) like computers, internet, email, website and software it was

observed that nearly all agencies i.e., 96.46% have computers. It is seen that 79.92% of the agencies had internet facility, 79.13% are using email facility. 60.63% of the agencies had websites, whereas 79.92% used some kind of software on their computers.



**Graph 3. Use of modern ICT tools**

It was however necessary to study the depth i.e., the actual qualitative use of these modern ICT tools. In order to achieve this, questions in the questionnaire were formulated accordingly, of which results are discussed below.

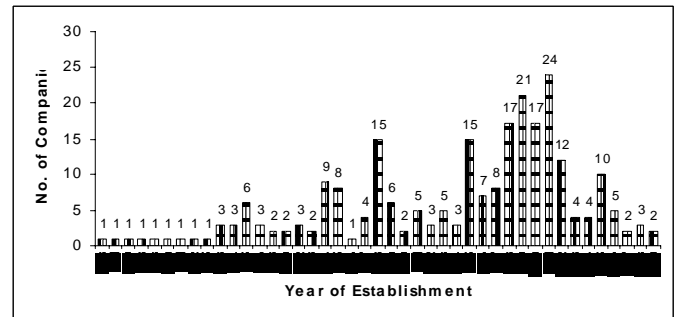


**Graph 4. Category of companies versus number of computers**

It is observed from graph 4 that all the tour operators make use of computers and 52% of them have computers between 3 and 5. 12% of them have computers more than 10, which is usually in the case of well established and internationally recognized tour operators like Thomas-cook, Kesari, Sachin, SOTC etc. These companies operate worldwide and hence all such companies come under the category of using more than 10 computers. It observed that nearly 26.67% tour operators had between 1 and 2 computers, careful re-examination of the data revealed that all of these were local tour operators doing business on a small scale.

In the case of travel agents it is observed that 38.75% of all travel organizations have between 3 and 5 computers, whereas 15.00 % had between 6 and 10 and 11.25% had more than 10 computers. When this data was co-related with the number of employees working in the travels agencies, it was seen that the number of computers was proportional to the number of employees working. Only 3.75% i.e., 3 travel companies did not have computers, but they used the services of cyber café, DTP (Desktop Publishing) shops to get their work done. However these companies feel the necessity of computers and claimed to procure computers in the near future.

Whereas 42.42% of the hotels had either 1 or 2 computers, 23.23% of hotels had computers between 3 and 5. The use of these computers is mostly for billing, accounting and office correspondence. The big hotel groups (nearly 22%) have computers more than 10, which are either situated at different departments and on different floors of the hotel building. With an exception of 3 hotels, none of the hotels provided internet facility in the room to the customer/tourist. However some hotels claimed that they do allow their office computers to be used by their customers to access internet for sundry work. 6 hotels (6.06%) did not have computers at all and performed their daily work manually. At a time of filling questionnaires, by oral discussion with all the three categories of respondents it was observed that many companies had computers but they rarely used them.

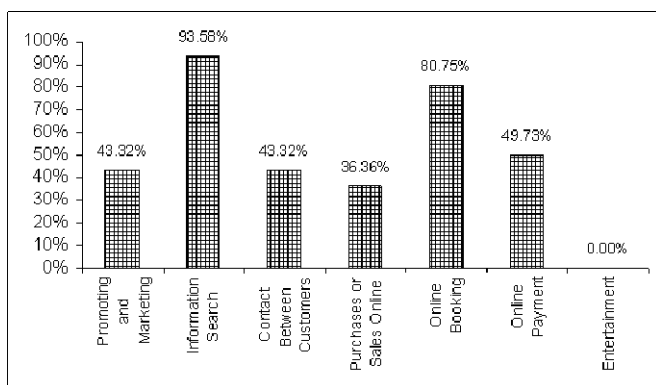


**Graph 5. Year of establishment versus number of companies using computers.**

When a study was made regarding companies using computer as ICT tools and are operating today, it was observed that most of the companies flourished during 1995 to 2007(see graph 5). The result does not show any relation between the year of establishment and use of computers. All of the companies have felt the need of computers and have procured them as and when needed. The companies that do not use computers total 9 were more recently established.

A total of 203 companies had internet facility. Out of those about 163 companies used broadband connectivity, 39 used dialup connections, while one had a leased line connection. Nobody preferred Internet connectivity through V-SAT because of its high cost and requirement of sophisticated infrastructure. Most (80%) of the companies that had internet connectivity used broadband due to its easy availability through cable or from the telephone operator, whereas 20% preferred to use dialup. Out of the companies that had internet connectivity less than 25% of the total staff used internet in nearly 80% of the companies. The utilization of the internet connectivity by the remaining 75% of the staff was very poor, due to lack of computer literacy, internet awareness and understanding of the English language.

The prime purpose of most of the companies of using internet was searching information (93.58%) and online booking (80.75%). 43.32% of the companies claimed to use internet for promoting and marketing their business, 43.32% used internet for communicating with their customers, suppliers, and partners. 36.36% of the companies were using internet for on line purchase and sales. 49.73% were using internet for online payment purpose. Nobody claimed to use internet for entertainment. However the discussions revealed that very few companies were using internet for their business or day to day work. The internet connectivity was rarely used mostly due to the lack of awareness of facilities and services provided by Internet.

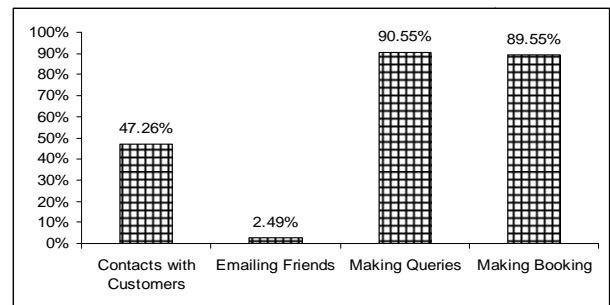


**Graph 6. Purpose of using Internet**

The 51 companies who did not subscribe for internet connectivity were asked about not using internet to which 14 companies said that they find it irrelevant to their business, 24 companies answered that internet connectivity was very expensive while the remaining 13 said that internet was just a waste of time. But all companies were

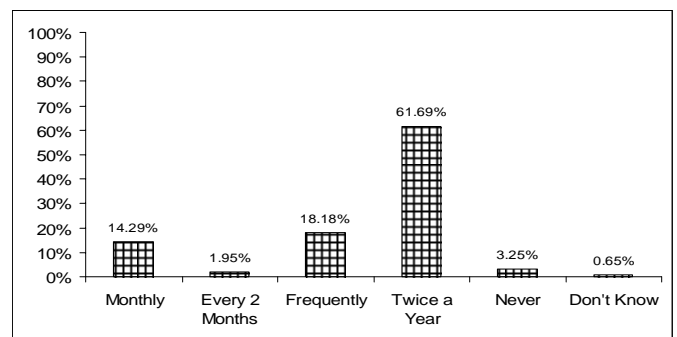
willing to consider using the internet for the business in future.

201 companies out of 254 had e-mail accounts. Out of these 90.55% companies claimed that they are using e-mail for making queries while 89.55% used it for the purpose of booking. 47.26% companies used e-mail for communicating with their customers while 2.49% companies allowed and used email for personal communication. Less than 25% of employees were using e-mail in 77.61% companies, while 25% to 50% of employees were using the e-mail in 14.43% companies and 50% to 75% of employees were using the e-mail in 3.48% companies however 75% to 100% of employees were using the e-mail in only 4.48% companies. 97.01% companies claimed checking email every day while 2.99% companies checked email few times a week.



**Graph 7. Purpose of using e-mail**

All 201 companies had an email facility but actually out of which around 50% companies were not utilizing this facility because of unawareness. They were using their traditional tools (telephones and mobile phones) for communicating with their partners and people.

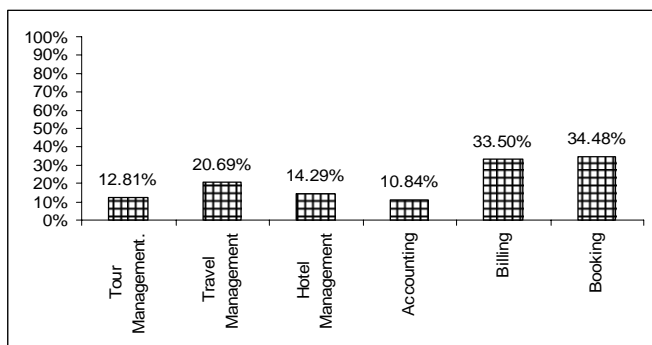


**Graph 8. Frequency of updating website**

154 companies i.e., 60% have their own websites which means 40% of the companies do not have a web site. However those without websites, excluding one claimed to be planning to develop a website in future. When the

websites of these organizations were visited it was found that except very few, most of the websites do not contain detailed information about that particular business. The sites were not updated and they seemed the same as they would have been on the day of their launch. Some of the websites consisted of single web page and were hosted on general web portals. Many of such websites had very long names and the portals on which they were hosted were not related to the business of the company. Majority of websites did not have facilities like online reservation, online booking, online payments etc. The websites were mostly static in nature. One website had some contents in Marathi, while all the remaining web sites were in English. None of the web sites supported foreign languages like Chinese, Japanese etc., for use of foreign tourists.

138 companies hosted and maintained their websites with the help of web hosting company. In 8 companies the websites were maintained by in-house by company's own staff. 22 companies made claimed that they updated their websites monthly or more often. 3 companies claimed that they made updates every 2 months. 28 companies made update several times a year. 95 companies made updates twice a year while 5 companies never made any updates. The updating of the web sites is not satisfactory. It was learnt that it was due to the heavy charges to be paid to the web hosting companies to frequently update the websites.

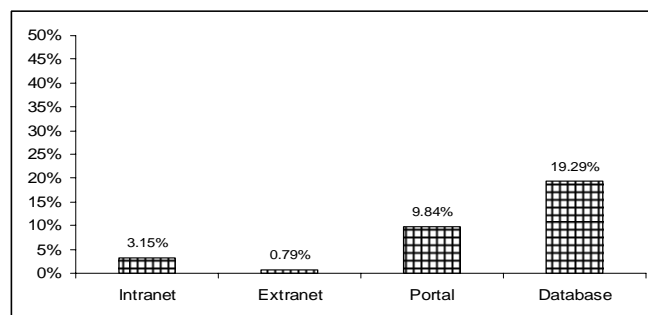


**Graph 9. Kind of software systems**

203 companies out of 254 were having different software for different purposes while remaining companies did not had any software but 49 companies were planning to develop some software in future while 2 did not. 203 companies were using various kinds of software systems: Tour management, travel management, hotel management, accounting, booking and billing widely used by the tour companies, travel agencies, and hotels and similar for making reservations of travel services. Tally is Indian-made accounting software famous among small and medium sized businesses. The most used system was Tally

which was found in 22 of these companies. 34.48% companies used booking software, 33.50% companies used billing software, 12.81% used tour management software, 20.69% used travel management software and 14.29% used hotel management software. All software was made by local companies. Majority of these companies had Tally along with others software system. One company stated that they were considering buying a travel systems called Payana, developed by the Indian company Infosys.

Less than 25% of employees were using software in 168 companies, while 25% to 50% of employees were using the software in 28 companies and 50% to 75% of employees were using the software in 7 companies. There was no company where 75% to 100% of employees were using software. Majority of companies had software. They had purchased that software from local vendors and most of the software was related to billing, booking and accounting.



**Graph 10. Use of intranet, extranet, database and portal**

Graph 10 depicts the use of Intranets, extranet, databases and portals by the tourism companies. It is seen that very few i.e., 3.15% and 0.79% make use of intranet and extranet respectively. 9.84% companies have participated in some web portal for their business, 19.29% companies were using database for the business. Use of Intranets and extranet is not popular in the tourism industry of Maharashtra and Goa although their existence can help the business to grow. Very few companies are affiliated to tourism web portals due to lack of awareness. There is a need to have a ICT based web portal to be designed to bring all these tourism actors on one common platform. Although most of the companies were using databases on their computers only 19.29% said that they were using databases. This statistics related to the use of database however is found to be incorrect and misleading.

## DISCUSSION

The key factor that we noticed during our travel at various tourist destinations was lack of continuous power supply. In most of the regions load shedding by the Maharashtra State Electricity Board is for more than 8 hours, while in surrounding villages it goes to more than 12 hours. Modern ICT infrastructure requires power backup to operate continuously and offer quality services. However tour operators and other small scale business cannot afford costly backup facilities added to the high cost of ICT infrastructure. More over knowledge of English and working knowledge of operating computers is essential for effective use of ICT. Although most of the companies have ICT infrastructure it is not effectively used due to lack of skilled manpower. Websites are used by tourism companies all over the world to market and sell their products with the help of e-commerce. In the case of Maharashtra and Goa, use of websites for such purpose is in the stage of infancy and more work needs to be done. The tourism industry needs to offer nearly all of the business on their websites for national and international customers and in multilingual format for people to feel comfortable with. Toll free number and customer support through website online feedback is also necessary, which was found to be missing most of the websites. Maps/Photos and other visual information should be placed on the websites to attract and inform the user related to the products and services. The content of the websites should be frequently updated and should be dynamic in nature. The domain names should be purchased and sites should be personally owned by the organization, instead of just participating in some web portal. In order to educate and train the personnel associated with the tourism business, workshops and training programmes related to awareness and use of effective ICT needs to be implemented. ICT needs to be made a key component in the design and structuring of the curricula for courses like travel and tourism, hotel and hospitality management.

## CONCLUSION AND FUTURE WORK

Out of the 254 participants of the survey nearly all are relying on the traditional ICT tools for communication and information dissemination. Nearly 96% of the firms have computers, their use is mostly for email and information search. Out of the 254 companies, 201 companies had email facility, but only 50% were making use of email for business purpose. Only 34.48% of the firms use computers

for online booking, 33.50% for billing and 10.84% for accounting purpose. There is also a very poor use of specialized software related to tour management 12.81%, travel management 20.69% and hotel management 14.29%. Unless specialized software for these purpose are used in a network, the tourism industry will not use ICT to its full potential. The minimum required ICT infrastructure i.e., computers, Internet connectivity is present with nearly all the participants, however services like websites, specialized software and trained human resources are very poor. It is therefore observed that even though the tourism companies of Maharashtra and Goa have adequate ICT tools they are not put to quality use.

The tourism sector of Maharashtra and Goa has thus failed to utilize the far reaching impact of the information and communication technologies which directly affects in the dull pace of revenue generation in the economy of both the states. As tourism is a leading earner of foreign exchange for India and in turn also mobilizes the economy of the states, it is expected that the government should participate into this activity by providing skilled trainers and appropriate funds to develop the infrastructure. ICTs can be used as a powerful tool in tourism industry for monitoring, forecasting, location identification, online payments, information gathering and management. A coordinated effort is essential to educate, train and modernize the services offered by the tourism industry to put ICT to effective use. Both of the states need to effectively prepare themselves to make use of Internet and other enabling technologies to make them the most sought after destination in the world. We also feel that there is a need to develop an ICT based business model that will support integration of information in variety of sectors.

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