

Role of Information and Communication Technology (ICT) in Tourism Industry: An Empirical Study in Bangladesh

Biplab Roy*
Saud Ahmed**

***Abstract:** Information and Communication Technology (ICT) gradually is becoming the heart of the Tourism and Hospitality Industry. Now, every stakeholder of this Tourism and Hospitality industry showing their dependence on this recent global phenomenon which is popularly known as ICT. To realise the importance of Information and Communication Technology (ICT), the study aims to figure out various roles played by ICT in the tourism industry of Bangladesh. After reviewing the previous studies related to ICT a structured questionnaire using 5 points Likert scale was used to survey around 250 respondents who were mainly hoteliers, travel agency, tour operators, and airlines service providers and through the factor analysis, five important factors were identified. The study divulges that, ICT plays various roles for tourism industry such as it ensures excellence in service through providing customised services, confirms affordability, as well as accessibility by reducing cost and increasing the speed of internet, acts as a catalyst for the tourism industry, and increasing the business competitiveness. The study also emphasises on the proposed model and showing the process of creating customer loyalty through ICT.*

***Keywords:** Information and Communication Technology (ICT), Internet, Tourism and Hospitality industry, Excellence in service, Catalyst, and business competitiveness.*

Introduction

Tourism is one of the prime industry of Bangladesh like other countries of the world. The contribution of tourism to the economy is vast. Now people are very much interested in visiting different attractive places in their leisure time. To meet this demand the tourism authority is introducing new forms of tourism destinations for the different market segments. Now a day's tourism is contributing more and more to the economy of Bangladesh. According to the World Travel and Tourism Council (WTTC) in 2014, the

* Assistant Professor, Department of Tourism and Hospitality Management, Faculty of Business Studies, University of Dhaka. E-mail: biplab.thm@du.ac.bd

** Assistant Professor, Department of Tourism and Hospitality Management, Faculty of Business Studies, University of Dhaka. E-mail: saudahmed@du.ac.bd

total contribution of Travel & Tourism to the national GDP of Bangladesh was BDT 627.9bn (4.1% of total GDP) and was forecasted to rise by 6.5% pa to BDT 1,252.8bn (4.4% of total GDP) in 2025.

Moreover, in case of a contribution to the employment, in 2014, the Travel and Tourism industry contributed 3.4% of the total employment in Bangladesh (1,984,000 jobs), and this is expected to rise by 2.1% pa to 2,492,000 jobs in 2025 (3.6% of total employment) (WTTC, 2015a). On the other hand, according to the WTTC (2015b) in 2015 the total contribution of tourism to the GDP in the world was 7864 billion Dollar and expected that it would reach to 11382 billion Dollar in the year of 2025. On the other hand, the total contribution of travel and tourism to employment was 283983 billion Dollar and expected that it would reach to 356911 in the year 2025. In Bangladesh, domestic tourism is up to the mark, but in the case of international tourism, Bangladesh is far lagging behind. In 2015, France accommodated 83.7 million international tourists, but Bangladesh attracted only .125 million tourists.

Introduction to Information and Communication Technology (ICT) has made the tourism-related things for tourists easier than the previous time. Now tourist can manage all the things by staying in homes. It is helping the industry a lot to spread rapidly. While the number of Internet users worldwide is constantly growing and reaches 1.7 billion (Internet world stats, 2015), the diffusion of information technologies has improved the offer of tourist services regarding efficiency, quality and flexibility. In a global travel market estimated at roughly \$850 billion, \$216 billion, or 25%, is booked online in the U.S., Western Europe and the Asia Pacific, so more than half a trillion dollars in global travel sales is still waiting to be booked online (Juman, 2010). According to the Bangladesh Telecommunication Regulatory Commission (BTRC) (2015) in Bangladesh in the year of 2014, a total number of Internet Subscribers has reached 44.625 million where mobile internet subscriber were 43.167 million, WiMax was .208 million, and ISP + PSTN were 1.250. In Bangladesh, Computer ownership per 100 inhabitants is .8, on the other hand, Telephone Lines per 100 inhabitants are 23.24, and Internet hosts per 10,000 inhabitants are .015 (estimated), Internet cafes/tele centres per 10,000 is .19 (Ashis, 2015).

The main objective of the study is to identify the various roles played by the Information and Communication Technology (ICT) for developing tourism and hospitality industry. Tourism and hospitality industry is comprised of the some A like Accommodations including hotel, resort, and motel, Attractions, Activities, Amenities and Accessibilities among others. This industry has many stakeholders, so ICT has many roles to be played. The use of information technology, in particular, has grown from the viewpoint of the customers (tourists). Now a day's tourists become more independent and enthusiastic about a wide range of tools for planning a journey. So it is high time to work with ICT

and figure out its role in the tourism industry in Bangladesh to compete with other countries of the world in the field of tourism and hospitality.

The rationale of the study

Information and Communication Technology (ICT) is changing the nature of the tourism industry on a large scale in every aspect of the business. Almost all the things such as reservation of hotel and transportation are now completing by using computer and internet. Bangladesh is not so much lagging behind in this aspect. The tourism industry is trying to adopt this growing demand. Due to the increasing impact on efficiency and effectiveness of tourism organisations, ICTs may be perceived as an integral part of the contemporary tourism business. So, the time has come to study regarding ICT and what roles it is playing and what should it play for future improvement.

Literature Review

Today, the generation is known as Information and Communication generation. In this globalised competitive world, no businesses including tourism businesses are not able to survive without the use of Information and Communication Technology (Karimidizboni, 2013). The travel and tourism sector is facing the wave in case of adoption of information and communication technology in the area of ultimate service providers to information providers in last two decades although travel and tourism sector was one of the first sectors to be aided by the evolution of Information Technology (Sahadev & Islam, 2004). Information Technology is widely used by the airlines, buses, railways, car rentals, ships companies along with hotels, motels, resorts and tourism destination sector for different purposes (Jadhav & Mundhe, 2011). To adjust with the world phenomenon and to get the more benefits than competitors there is no alternative of the Information and Communication Technology. Airlines companies, Tour operators and Travel agencies invest heavily in electronic ticketing. Accommodation sectors such as Hotels, Motels and Resorts are using Information and Communication Technology to create and maintain relationships with their guests and distribution channels and making booking process simple and easy. Destination Management Organization (DMO) using the Information and Communication Technology for Digital Marketing and building the brand (Jucana & Baiera, 2012).

To adopt with the global trends, the accommodation sector is largely relying on the uses of Information and Communication Technology. Information and Communication Technology ensures the more benefits compare to their competitors where they provide different ICT related amenities such as calling facility along with sending documents over the internet, the scope of browsing and sending messages through e-mail, payment via cards and reservation (Salim et al., 2013).

Information and Communication Technology brings revolution in the tourism distribution system by developing direct linkage opportunity in the form of an online channel with customers that change the configuration of the system and business process and ultimately impact on the performance and activities of the travel agents and tour operators. As a result, tourists can buy more customised products according to their own choice directly from the package creators and distributors (Berné, Gómez-campillo & Orive, 2015). Information Technology influences the firm by increasing their productivity, creating unique packages for customers, reducing expenses for running the business and helping to give feedback to their customers within very short time, distribution of products directly and rapidly to customers and making the reservation system much more easier. On the other, customers can find out the various types of packages within a very short time by using the internet and give instructions for modification of the package (Ashari, Heidari & Parvaresh, 2014). Information and Communication Technology allow tourism firms to provide customised products at a low cost. ICT also reduces the distribution costs by eliminating intermediaries. Because now firms can directly target customers and sell their products to the customers directly with the help of ICT. ICT also reduce labour cost and increase the efficiency of the firms (Gruescu, Nanu & Tanasie, 2009).

Information and Communication Technologies (ICTs) are being used in the purpose of tourism publicising along with the creating relationship between tourism organisations and tourists, several departments within the business and with other organisations (Ashari, Heidari & Parvaresh, 2014).

One of the major roles Information and Communication Technology plays are the promoting of tourism products locally, regionally and globally by ensuring operational excellence. It also ensures effective collaboration between partners and removes intermediaries which ultimately brings some benefits in the form of integration (Bethapudi, 2015). Not necessarily ICT will always create scope for the firm to earn profit directly. Rather ICT will impact firm indirectly on a firm's economic performance by differentiating the existing products and creating positive perception regarding the products (Mihalic & Buhalis, 2013).

Tourists need information on different aspects such as the location of the destination, attraction, transportation, restaurants, shopping facilities, cultures, facilities and activities, car rentals and packages among others. Information and Communication Technology provides accurate and up to date information to them in a compact form. On the other hand, the company uses IT for digital marketing, direct online booking, to follow up on customer relationship and to manage the attraction sustainably. (Jadhav & Mundhe, 2011). Information and Communication Technology especially the evolution of the Internet has brought tremendous change for the tourists who now directly enter to the

service providers' information and search information regarding various aspects like buying and booking airlines tickets, hotel's room confirmation, travel agencies' and tour operators' packages which ultimately increases the excellence of the journey (Karimidizboni, 2013). With the help of ICT consumers now can search the information and purchase the package according to their choice which helps the industry to be globalised (Bethapudi, 2013).

According to the experts emerging, markets continue to grow rapidly, and web presence can be a clear competitive advantage in their development. ICT-based services can improve the efficiency of processes and systems, can help to make CSR information more readily available to stakeholders and create new technical possibilities of linking information on individual company impacts with other sources (Jucan & Baier, 2012). Corporate Social Responsibility is becoming an integral part of modern tourism business and managing the whole process is one of the complex tasks for a firm. However, the improvement of Information and Communication Technology makes it easier for the firm to manage the whole process in a simple way and different parties of tourism business can get information more easily (Jucana & Baiera, 2012).

Information and Communication Technology has various roles in the tourism and hospitality industry such as it has an impact on competition among several firms and their output level along with the growing number of market share. Information and Communication Technology also helps the hotel, restaurant, travel agency and tour operator firms to be globalised, create better chance to protect themselves in tough times, strengthen themselves, and give opportunities for modification of the products and process (Elena & Andrea, 2013). Development of Information and Communication Technology helps the firms to be more advanced and up to date than before around the world that is driven by the innovation of Computer Reservation System, Global Distribution System and Internet. The ultimate advantages the firms are getting as a result of ICT are the advancement of the relationship between tourism firms, incensement of expert knowledge, extensive advertisement and protection of destination through the concept of sustainable development (Saini, 2013).

Information and Communication Technology plays several roles to ensure socio-economic sustainability such as reduce the workforce cost, upsurge the production level which directly helps to economies of scale, increase environmental and social consciousness, decrease expenditure, drive to innovation and create better collaboration (Jucana & Baiera, 2012). The destination is the core product of the Tourism and Hospitality industry. Information and Communication Technology has a contribution in the field of destination management. It helps the Destination Management Organization (DMO) in the area of destination promotion and vending more easily to the customers (Gruescu, Nanu & Tanasie, 2009). In case of building image, developing destinations and

the using pattern of the destinations is now primarily determined by the Information and Communication Technology, and tourism entrepreneurs need to come forward with new ideas (Katsoni & Venetsanopoulou, 2013).

It has been proved that without developing structure and substructure for using Information and Communication Technology the firms of a tourism sector has no hope to be successful in the global area even in the regional and local arena (Karimidizboni, 2013).

Aim

This research aims to identify and analyse the different roles of Information and Communication Technology (ICT) for further progress of tourism as an industry in Bangladesh.

Objectives:

The objectives of this research are:

- To identify the current scenario of e-tourism of the world specifically of Bangladesh.
- To propose a model, indicating the process of creating customer loyalty through ICT and

The methodology of the study

Methodology of the study consists of the following issues:

- **Statement of the Problem:** The main focus of the research is to identify and analyse the roles of Information and Communication Technology. Moreover, the study also aims how Information and Communication Technology (ICT) create loyalty among the users of technology.
- **Research Approach:** At the initial level, exploratory research has been conducted, along with an extensive brainstorming session supported by the earlier studies.
- **Nature of the research:** Researchers have selected exploratory approach that is directly related to quantitative research strategy and in previous section researchers have argued behind its selection. Researchers have also selected this strategy keeping in mind the research questions and objectives.
- **Sample size and sample selection procedure:** The sample size for the research was 250. Convenience sampling was used. The sample is selected on the ground that they are found in the location conveniently and timely. Respondents were

tour operators, Airline's service providers and hoteliers from different parts of the country. They were asked to give a response to the roles of ICT in the tourism industry. The sample size was 250 and respondents including both male and female. The survey was conducted over a time frame of 60 days and researchers went personally to targeted respondents. 320 sets of survey questionnaires were distributed among respondents and finally received 250 sets of the questionnaire in complete form and data is collected in 5 points Likert Scale. Respondents were mainly from Dhaka city and Cox's Bazar. The target population for the research were mainly hoteliers, tour operators, travel agents and airline's service providers who use different types of Information and Communication tools in their organization. Researchers found that those who use ICT tools, from them maximum tour operators, travel agents and airlines company conduct their business from the Dhaka city. On the other hand, Hoteliers of Dhaka city and Cox's Bazar use different types of software for running their business. However, the other areas of the country are far lagging behind in case of using modern and up to date technology. So researchers selected this two areas for the research purpose.

- **Data Collection:** A research instrument is tools that are used to measure a given phenomenon. Interview, survey, paper and pencil tests are the examples of the research instrument. Researchers use survey research tool to identify the different roles of ICT in developing the tourism industry. A self-administered questionnaire in English was developed to gather information from respondents.
- **Survey Instrument:** The survey questionnaire consisted of two sections. The first section included socio-demographic characteristics of respondents and items included age, gender, occupation, computer literacy, and education. The second section was developed to assess the role of ICT where 20 items relating to roles of ICT were selected, and respondents were asked to rate each of the attributes on five points Likert scale.
- **Data Analysis:** Background and the respondents' profiles were analysed by using descriptive statistics. The common statistical tools such as mean, frequency, cumulative percentage and percentage are used to evaluate the data collected through the questionnaires survey. Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures. Factor analysis also conducted for data reduction. These statistical analyses were conducted using the Statistical Package for Social Sciences (SPSS) software.

Table 1: Snapshot of Research Design

1.	Target Population	Elements	Different stakeholders of the Tourism industry
		Sampling Unit	Tour operators, Travel Agency, Airline's service providers, and Hoteliers
		Extent	Dhaka City and Cox's Bazar
		Time	2016
2.	Sampling Frame	Private tour operators, Public and private airline companies, Hoteliers, ATAB, TOAB, Dhaka University, Bangladesh Parjatan Corporation (BPC) and Bangladesh Tourism Board (BTB) assisted in selecting the participants from diversified sector from each arena.	
3.	Sampling Technique	Convenience Sampling.	
4.	Scaling technique	5 point Likert Scale, which is a part of Non-Comparative Scaling Technique	
5.	Data Used	Primary and secondary	
6.	Sample Size	250	

Data Analysis**Table 2: Respondents Socio-Demographic Profile**

Gender	Frequency	Percentage	Profession	Frequency	Percentage
Male	219	87.6%	Airline service provider	30	12%
Female	31	12.4%	Hotelier	191	76.4%
Total	250	100%	Tour operator	22	8.8%
Age Segment			Travel agency	4	1.6%
20-30	131	52.4%	Others	3	1.3%
31-40	88	35.2%	Total	250	100%
41-50	16	6.4%	Computer Literacy		
51-60	14	5.6%	Very poor	1	.4%
Above 60	1	.4%	Poor	64	25.6%
Total	250	100%	Medium	97	38.8%
Educational Level			High	78	31.2%
Primary	1	.4%	Very high	10	4%
Secondary	4	1.6%	Total	250	100%
Higher Secondary	82	32.8%			
Diploma	19	7.6%			
Terminal Degree	144	57.6%			
Total	250	100%			

Source: Field survey

Table 2 provides the respondents' socio-demographic information. Out of a total of 250 respondents listed for analysis, 219 (87.6%) were male, and 31 (12.4%) were female. Data were collected from different age group. A large group of respondents were from 20-30 (52.4%) age group followed by 31-40 (35.2%) age group, and 144 (57.6%) respondents were a terminal degree holder, and 32.8% completed higher secondary level of education. In addition, 76.4% of respondents were hoteliers whereas 12% respondents answered that they were airlines service providers followed by 8.8% tour operators. In case of computer literacy, 38.8% had medium knowledge regarding computer, and 31.2% had a high level of computer literacy followed by poor computer literacy.

Table 3: Shows the roles score given to the attributes by the respondents

	Mean	Std. Deviation
Generates and Supply Information	4.10	.863
Provides Customized Products	3.78	.787
Direct Access to Information	4.25	.833
Cost Reduction of Customers	3.76	.925
Cost Reduction of Organization	3.52	.906
Increases Profitability	3.76	.770
Improves Business Potentiality	3.82	.891
Product Management	3.91	.857
Helps to Branding	3.80	.780
Promotes Business in a Wider area with Greater Variety	3.91	.766
Improves Efficiency	3.45	1.108
Reduces Need for Intermediaries	3.72	.866
Ensure Greater Interaction Between Buyer and Seller	3.80	.850
Enhance Affiliation with Other Organization	3.87	.722
Marketing and Promotion Through Social Media	4.04	.825
Accelerates Financial Operation	3.68	.864
Helps to improve Internet Speed	2.82	1.040
Encourages to reduce Internet Cost	2.97	1.037
The organisation can afford the service of ICT	3.75	.843
ICT Play Significant Role in the Tourism industry	3.94	.858

Source: SPSS output of primary data

The table 3 revealed that out of 20 attributes only three attributes had a highest mean score $(M=4.00)$ and fifteen attributes scored 3 and two attributes had lowest score <3 .

The highest mean score concerning role identification occurred in the case of items-Direct access to accommodation $(M=4.25)$, followed by the Generates and supply information $(M=4.10)$ and Marketing and Promotion through social media $(M=4.04)$ and lowest attributes helped to improve internet speed $(M=2.82)$. Perception attributes mean score below 2.75 are interpreted as poor; scores between 2.75 to 3.25 indicated average; scores 3.25 to 4.00 were interpreted as good and above 4.00 excellent (Birgit, 2004).

There were so many variables are associated with the studies, but researchers have used twenty variables for the study on the basis of Experts and Information and Communication Technology users opinion. These variables have been found from the previous studies, which were conducted by the renowned researchers such as Improving SMTEs' Business Performance through Strategic Use of Information Communication Technology: ICT and Tourism Challenges and Opportunities, Country Paper on Information Society Statistics: Core ICT Indicators, Tourism Distribution System and Information and Communication Technologies (ICT) Development: Comparing Data of 2008 and 2012, The Role of ICT in Tourism Industry, Role of ICT in Promoting a Rural Tourism Product, ICT Impact on tourism industry etc. These variables are as follows:

Variables	Variables	Variables
Generates and Supply Information	Product Management	Marketing and Promotion Through Social Media
Provides Customized Products	Helps to Branding	Accelerates Financial Operation
Direct Access to Information	Promotes Business in a Wider area with Greater Variety	Helps to improve Internet Speed
Cost Reduction of Customers	Improves Efficiency	Encourages to reduce Internet Cost
Cost Reduction of Organization	Reduces Need for Intermediaries	The organisation can afford the service of ICT
Increases Profitability	Ensure Greater Interaction Between Buyer and Seller	ICT Play Significant Role in the Tourism industry
Improves Business Potentiality	Enhance Affiliation with Other Organization	

Table 4: KMO and Bartlett's Test

Kaiser–Meyer–Olkin Measure of Sampling Adequacy		.856
Bartlett's Test of Sphericity	Approx. Chi–Square	1459.759
Df	190	
Sig.	.000	

It is known that if the KMO value is between .5 to 1.0, then it can be said that factor analysis is suitable for the study and here the result is .856 along with Chi-Square 1459.759 and degrees of freedom is 190. Moreover, the test is significant at .05 levels. This analysis reveals the most important roles played by the Information and Communication Technology in the tourism industry.

Table 5: Factor Analysis for the role played by ICT in the tourism industry

Component	Factor Loadings*					Communality**
	1	2	3	4	5	
Cronbach's Alpha (α)	.930	.860	.798	.744	.710	
Provides Customized Products	.773					.646
Direct Access to Information	.720					.623
Generates and Supply Information	.599					.611
Accelerates Financial Operation	.557					.543
Organization can afford the service of ICT		.700				.548
Cost Reduction of Organization		.639				.539
Cost Reduction of Customers		.639				.613
Helps to Branding			.714			.574
Promote Business in a Wider area with Greater Variety			.668			.512
Enhance Affiliation with Other Organization			.610			.555
Helps to improve Internet Speed				.858		.752
Encourages to reduce Internet Cost				.791		.700
Improves Efficiency					.881	.798
Improves Business Potentiality					.536	.672

Eigenvalues	5.830	1.716	1.427	1.195	1.050
Percentage of total variance***	29.151	8.581	7.133	5.977	5.251
Number of test measures	4	3	3	2	2

*Factor loadings => .50

** Communality => .50

**Total variance Explained 56.094

The Five topic factors

At the very top of Table 5, the number of items that make up the factor loadings, and the associated Cronbach's alpha is specified. Four items loaded onto Factor one. It is clear from Table 5 that these four items are related to the level of service ensured by the Information and Communication Technology (ICT). This factor loads onto provision of provided customised service, direct access to information, generate and supply lots of information and accelerate financial operation. This factor can be labelled, "**Excellence in service**". Cronbach's alpha for this factor is highly reliable at .930 that also supported that there is a lower measurement error in this test. Three items load onto the second factor related to the ability of both organisation and tourist to use Information and Communication Technology (ICT) in the tourism industry which shows the high loadings in the following factors: organisation can afford the service of ICT, ICT reduces the cost of organisation and ICT can reduce the cost of the consumer. Among the three variables, the variable organisation can afford the service of ICT has the highest coefficients than other variables. So it can be assumed that if the organisation can afford the service of ICT, it will reduce the cost of both the organisation and customers. So, the factor was tagged as '**Affordability**', and this is also supported by a highly reliable Cronbach's alpha (.860). Three items that load onto Factor 3 relate to spread of organisation both visible and invisible form. These three variables are: helps to brand, promote business in the wider area with greater variety and enhance affiliation with other organisation and the factor reveals great reliability (Cronbach's alpha .798) and the associated variables have coefficients are higher than .5. Therefore, this factor can be named as, "**Role of catalyst**". Items for Factor 4 related to the main pillar of the Information and Communication Technology (ICT) which is known as the Internet. The factor suggests that ICT helps to improve internet speed, on the other hand, reduce the cost of using the internet and which ensure a greater number of people and firm to use the internet. This factor can be referred to as "**Accessibility**". This factor is also found reliable ($\alpha = .744$). Factor 5 has a high coefficient for improves efficiency and business potentiality. Thus, this factor that is quite highly reliable ($\alpha = .710$) and can be tagged as "**Increasing the business competitiveness**".

Discussion

Information and Communication Technology (ICT) is the recent phenomenon in the world as a catalyst for many businesses. It is helping many industries to grow faster than the previous time. From the study, it has found that Information and Communication Technology (ICT) plays different kinds of role in the tourism industry of Bangladesh. With the help of ICT tourism industry is growing rapidly. Among many types of roles, Information and Communication Technology (ICT) provides customised products and services to the tourists.

With the help of different tools of ICT, an organisation can be easily able to know which tourists what expect and want from the service providers. By knowing the demands of tourists, the service provider can arrange the facilities according to their demand which was quiet impossible earlier. Now tourist can access directly to the websites of different hotels, motels, airlines, destinations, entertainment facilities and which reduces the need for intermediaries. Development of Information and Communication Technology (ICT) generates and supply a huge amount of information to the tourists by using different applications and tools. The internet has an advantage over any other media in its ability to permanently expose information to a global audience. When an organization gets information of tourists with the help of ICT, they are able to provide customized service to their clients which helps to organization accelerate its financial operation.

Now, by developing a good informative website, an organization can attract tourists to use their service. It reduces the cost of organization tremendously as well as make them confident to provide personalized service. So, it can be said that Information and Communication Technology (ICT) brings excellence in service in the tourism industry. Moreover, the benefits are enjoying both tourism service providers and tourists. On the other hand, one of the most important roles of Information and Communication Technology (ICT) is to ensure that the organization can afford the advantage of ICT. As previously discussed, ICT reduces the need for intermediaries and other mediums to attract customers. Elimination of middleman in service reduces the overall cost of an organization. The organization needs to only invest in the development of some applications which are very much supportive to users. When organizations are able to reduce the cost than the ultimate benefits goes to the consumers. If tourists can book their hotel rooms, air ticket directly from the website they don't need to pay extra money to intermediaries.

By this way, Information and Communication Technology (ICT) ensures the affordability of tourists to buy service from one of the service providers. From today's perspective, the success of the organization greatly depends on the brand value of the organization. Without ensuring good brand name organization cannot compete with other business organization. From this point of view, Information and Communication Technology (ICT) helps in branding the organization by providing better quality service especially by

providing customized service. It is now much easier to know about the service quality of other organization also. By knowing the quality of others individual organization can also set up their standard. Not only this but also ICT helps to promote business around the world. Tourist now prefers the global brand and try to take service from the same brand when they move from one place to another place. Information and Communication Technology also helps to enhance affiliation with other organization both within the industry and outside the industry. Now, we see frequently the affiliation between hotels, airlines and tour operators. It becomes possible only the availability of ICT. We see now lots of application, software such as GDS, Sabre and many others which are contributing to creating a relationship between two or more firms. So, it can be concluded like that Information and Communication Technology (ICT) play a role as a catalyst for the tourism industry.

In addition, ICTs can improve the managerial processes in order to ameliorate control and decision-making procedures and to support enterprises to react efficiently to environmental changes and consumer behaviour trends (Beech & Chadwich, 2006). When organizations move to use Information and Communication Technology (ICT), it pushes them to use higher speed internet which ultimately influences a country to upgrade the speed of internet facilities. Now the world is enjoying 3G, 4G even 5G internet speed. ICT not only focus on speed but also emphasize in the cost of using this service. The current world is the exclusive example of the scenario like this where the speed of internet is increasing, and the cost is decreasing. For competing with other business, the organization needs to ensure efficiency and effectiveness in business operation. The introduction of ICT makes it easier for the service providers. For example, the hotel sector now able to make a reservation a large number of guests within a very short time. Airlines can sell the tickets at the very last moment. It becomes possible only for ICT.

The process of creating customer loyalty through ICT

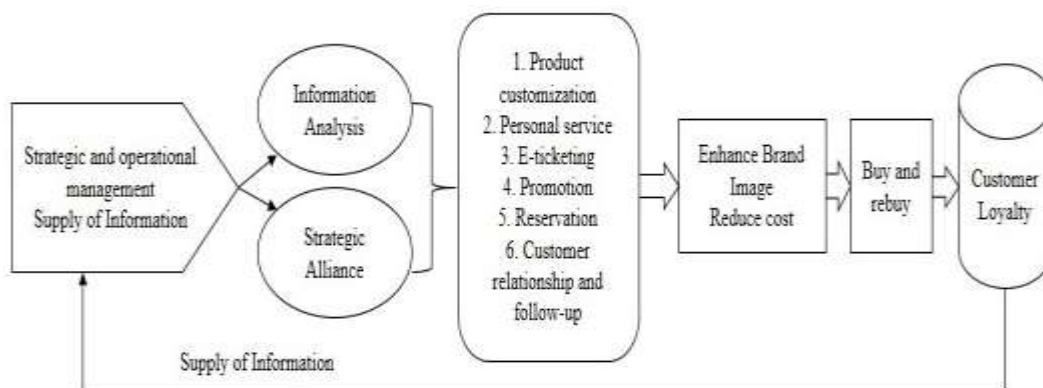


Figure 1: A proposed model developed by Authors indicating the process of creating customer loyalty through ICT

The above figure shows that how ICT will help to create customer loyalty for the organisations. ICT will reduce the hassle of strategic and operational management and simultaneously will generate and supply lots of information for the customers. When customers have lots of information, they will analyse information from the different point of view, and hassle-free strategic and operational management will drive the organisation to form a strategic alliance with other organisations. Moreover, the outcome of ICT such as customised products, personal service, E-ticketing, promotion and reservation will go to the customers which will help to enhance the brand image of the organisation and also reduce cost. Cost reduction will force customers to buy and rebuy, and it will create customer loyalty who will supply more and more information to the organisation.

On the other side, it could be said that all the time's customer loyalty will not depend on only the factors which are shown in the above model. Customer will not buy and rebuy by only cost reduction and brand image. Again the competitors of the same industry will not be interested to build alliance because of their strategic reasons. On the other hand, if loyal customers are not willing to give proper feedback than the information processing side of the ICT will be useless.

Conclusion

Bangladesh is entering a new era of Information and Communication Technology (ICT). Tourism and hospitality industry which is growing rapidly and consider as one of the fastest growing industries among all the industries of Bangladesh is going to enjoy a golden era of all time. The number of tourists both domestic and international is also increasing in huge number. The nature of new tourists is completely different from the earlier tourists. They prefer something new and quality experience when they travel to any destination. To fulfil their demand and provide service according to their needs has become a vital issue even sometimes mandatory. To handle this situation tourism and hospitality service providers move to adjust to the new phenomenon of Information and Communication Technology (ICT). This Information and Communication Technology (ICT) has many roles in developing the tourism industry of Bangladesh.

The main objective of the study was to identify and analyse the different roles of Information and Communication Technology (ICT) for further progress of tourism as an industry in Bangladesh. The study has found out several roles of ICT in the development of tourism industry in Bangladesh. The prime roles of ICT according to the findings are Excellence in service, affordability, accessibility, the role of catalyst and increasing business competitiveness. Information and Communication Technology ensures excellence in service by providing customised service and products to tourists, generate and supply lots of information and give tourists the opportunity to direct access to the information as well as accelerate the financial operation of an organisation. It also ensures the affordability by reducing the cost for both tourists and organisations. ICT

helps to brand the organisation with greater variety and wider spread of area which leads to affiliation among different service providers. Development of ICT forces the country to improve the speed of the Internet as well as reduce the cost of Internet. Bangladesh is the great example of this where we see that it improves its Internet speed from 2G to 3G and 3.5G and reducing day by day per GB data cost. With the help of ICT, many organisations are trying to improve its efficiency and potentiality. On the other hand, the researchers tried to propose a model for indicating the process of gaining customer loyalty through the use of the internet.

The research will imply that many service providers in the tourism industry will be able to know the various positive roles played by the ICT and to be inspired to adapt to their organisation.

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