An ICT Framework for Tourism Industry of Nepal: Prospect and Challenges ☆

Deepanjal Shrestha[1]   Seung Ryul Jeong[2*]

ABSTRACT

Information and Communication Technology (ICT) has revolutionized the world and has profound impact on the social and economic development of a country. Implementation, practice and accessibility of ICT is viewed as an integral part of any countries' strategy today. These new technologies are becoming popular due to their ability to produce, distribute and provide instant access to massive information in no time. ICT has pervaded almost every aspect of human endeavor that may include health, education, economics, governance, entertainment etc. Tourism is one such vital industry that find enormous application of ICT in its strategic and operational level, to promise long term benefits and enhance economic growth. Tourism industry in western world and some developed countries of Asia have applied ICT for more than 30 years, and have gained tremendous benefits. Nepal which is also growing as one of the favourite tourist destinations lacks proper implementation of ICT in this industry. In our study we examined how the ICT can play a vital role in developing the tourism industry of Nepal. This study is an exploratory research based on primary data collected from tourist visiting Nepal, supported by information from tour operators, government agencies, NGOs and INGOS. A framework is devised on the basis of data and information collected and finally, discussions elaborate on the prospect and challenges of implementation of ICT in tourism industry of Nepal.

☞ keyword : ICT, information access, internet, data center, tourism industry.

1. Introduction

Tourism has grown as an industry worldwide in the last two and half decades and has outshined traditional industries to become one of the world's largest and fastest growing economic activities [4] [5]. Tourism as an Industry has attracted many scholars around the world to conduct studies and research in tourism and to find out growth, impact and trends occurring. Many scholars have found that there is a huge transition in the current times due to penetration of Information and Communication Technology [16] in this industry. The development of Information and Communication Technology in terms of faster broadband, Web 2.0, intelligent applications, Mobile systems, GPRS, Geo Informatics, WAP, Social Networks and Integration of almost every system through internet has created tremendous scope for the growth of this industry [3][5]. There are new ways of communicating, planning a tour, booking a flight, exploring a new destination, reserving a room in a hotel and others of similar nature. This is not only useful to a tourist but even to the players of this business who find a massive use of this technology in marketing, operations and successful implementations of their tourism business [2][3][5]. Governments find ICT as indispensable tool to collect data and information about tourist, plan strategies to promote and expand tourism as an industry [5] [6]. ICT plays a vital role as a information carrier in case of emergency situations, changing climatic conditions and other sensitive aspects. The application of ICT is the most important aspect for a successful tourism economy [3] [5] [6] as the whole industry relies on correct and timely information. A tourist starts its planning by looking into information about a destination, he then makes a contact with a tour operator or collects as much information as possible to make contact with local tour operator of the visiting destination and arranges for his/her visit. Booking of tickets, hotels and other supporting activities rely heavily on internet technologies [4] [7] [9] and

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[1] Dept. of MIS, Pokhara University, Nepal
[2] Graduate School of Business IT, Kookmin University, Seoul, 136-702, Korea
[*] Corresponding author (srjeong@kookmin.ac.kr)

electronic media. In case, if the itinerary is taken care by a tour operator, he will also use a lot of ICT tools and technologies to arrange for a visit of a particular group or an individual. Thus ICT serves as a backbone for this industry integrating the beneficiaries, the service providers and product sectors [13] making a solid and prominent contribution and therefore must be studied closely to find better use of this technology.

Our study is an approach to explore vital aspects of ICT that are prominent for Tourism industry of Nepal. In this study we bring out the lapses that occur in the implementation of ICT in tourism. We identify the need of data and data centers and the vital role that information can play to boom the Nepalese tourism industry. The study is divided into four important parts which include the literature review, survey design and analysis, construction of an ICT model for tourism and the final part discusses the prospect and challenges associated with the implementation of proposed model.

2. Methodology

The study employs review of documents of related sector from the government agencies, private and public sector combined with a pilot study consisting of primary data collection based on semi structured interviews of tourist in Lakeside, Pokhara. The components of the study include:

- Literature review of academic literature related to tourism in Nepal, its key drivers and the technological perspective of tourism industry.
- A review of available documentation relating to the Tourism sector development from government, private sector, civil society and international agencies.
- Informal interview and survey based on semi-structured technique for a random sample of 45 Tourist, in Lakeside, Pokhara around 20th August and 28th August. Some interviews were conducted with some tour operators of Nepal to further elaborate the understanding on ICT and Tourism.
- A framework model of ICT in tourism is constructed based on the data and findings and finally implementation aspects, prospect and challenges are discussed.

The above components form the basis of the study and the data collected, analyzed and presented forms the core activity of the study.

3. Literature Review

Tourism research is a prominent area for scholars around the world. Till date, many researchers have studied extensively with regard to application of ICT in tourism industry. The adoption of Computer Reservation System (CRS) in airlines in 1950s and the transformation to Global Distribution Systems (GDSs) in the 1980's, Hotel property management systems and hotel CRS systems later, are some on the oldest application of ICT in tourism [9][15]. The birth of Internet brought a revolutionary change to the structure of this industry by letting the service providers sell directly. There were new models in practice which threatened the intermediaries worrying them of being cut off and replaced [7][9][15].

Work of (Poon 1993) analyzed the rapid shift-taking place between traditional tourism sector and new tourism industry [2]. He studied strategic role of ICT in reshaping the value chain in the industry and the process in which the consumers gradually adapt to the new values, lifestyles and new tourism products [2][9], which are re-engineered by the new technologies [16]. Deepti Shakner revisited the work of Poon and Sheldon and talked about ICT applications in different sectors like airlines, hotels, tour operators, road and rail transport etc. [14]. She analyzed the impact of information and telecommunication technologies on hospitality sector, entertainment sector, transport sector, management sector and other intermediaries [5]. This work of Bhupati revealed that current information and communication technology should be updated, upgraded and integrated both internally and externally to improve the tourism business operations [3]. He further stated that integration of ICT in tourism would benefit both, service providers and customers bringing together other stakeholders as well, on a common platform [3].

Similarly, there are various scholars in Nepal who have studied on tourism and its different aspects that include Tourism as an economy, impact of climatic changes on tourism destinations, tourism as source of economic and social change, Himalayan expeditions, natural life and biodiversity, role of government in promoting tourism economy in Nepal, but there are limited researches specific to the role of ICT in tourism industry of Nepal. The scholars mention ICT as a small component in their study and there are no concrete works in this area.

3.1 Tourism Studies in Nepal

Tourism in Nepal started with the camping accommodation since the very beginning of the 1950s when Maurice Herzog and his team scaled Mt Annapurna on June 3, 1950 and Tenzing N Sherpa and Edmund Hillary first ascended Mt Everest in 1953 [8]. The formal growth of accommodation facilities in Nepal started with the establishment of 'Royal Hotel' by a Russian national, Mr Boris Lissanevitch, in February 1955 [8][20]. However, the planned development of tourism in Nepal started after 1956 with the starting of the first five-year plan (1956-1961 AD) and subsequent establishment of Tourist Development Board in 1957 under the Department of Industry [1][8]. Nepal has always promoted tourism from 1956 onwards and Nepal Tourism Board has taken initiatives from time and again to organize collaborative ventures with government, private and regional forums [20]. It has continued its efforts to help attract major events to Nepal in order to assist growth of business tourism, to increase the use of customer database in order to engage into customer relationships marketing and finally to create a confidence and desire among the trade and the final consumers [8]. The different plans had different approach towards tourism but none of the plans talked about technological development till 1992. In 1992 the eighth five year plan (1992 - 1997) was the first plan that put tourism as a center of all economic activity, the plan talked about technology and its role in tourism but it failed without any outcome [1][23].

The ninth five-year development plan (1997-2002) was the first successful plan that brought private sector in to existence [1] [21] and Information and Communication Technology took as a priority in the Plan. There were developments in telecommunication industry with Digital Link with D.O.T. India through Optical Fiber in Birgunj – Raxual (1999), Launching of GSM Mobile service (1998), Implementation of SDH Microwave Radio (2000) and Launching of Internet Service (1996) [18]. The visit Nepal year 1998 used IT and communication as an extensive tool for marketing and promotion in 49 national seminars and 29 international conferences [1]. The tenth five-year plan (2002 - 2007), marked major developments in tourism and used Information Communication Technology as one of the prominent tools to attract tourist. Though internet services started in 1995 (Private) [19], the use of it gained popularity in ninth five-year plan and the tenth five-year plan saw extensive websites developments and Nepal was known in the world web portal

Studies have revealed that tourism as an industry is growing on the positive side [4] in Nepal and has a huge potential as a tourism economy but many factors like quality in-service human resource, lack of touristic brochures and lack sufficient information not only on the touristic attractions but also about the ecological environment of Nepal [8][13][20] is missing at large. Further there are possible data gaps in the accommodation sector, hospitality industry and other related sectors which are vital in tourism value creation.

Research Planning and Monitoring Department of NTB designed and carried out a research study on tourist accommodation enterprises entitled, 'Inventory of formal accommodation facilities in the major selected tourist areas of Nepal' from April to June 2010 (CEST Nepal) [8]. This research article highlighted the overall inventory scenario of accommodation facilities in Nepal and also highlighted how lack of information and gap in information is hitting Nepal Tourism sector.

3.2 A Pilot Survey of Tourism and ICT in Nepal

In order to gain deeper insight in our study, we conducted a pilot survey to trace out the situation of tourism in Nepal. Our study focused to identify the ICT scenario in Nepal tourism industry and also to find out the basic requirements of tourism industry in terms of information needs. A semi structured interview was conducted with a random sample of tourist in Lakeside Pokhara and some of the concrete information regarding the survey is discussed below.
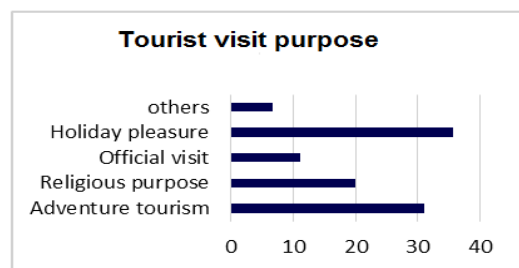

Fig. 1. Source: Direct survey data representation

On surveying about the purpose of tourist visit in Nepal, it was found that almost 70% of the tourist visited Nepal for tourism purpose only. The next favourite category was religious and official visits. These tourist when inquired about the basic problems answered that transportation was a biggest problem (61%), uneven cost and poor infrastructure was reported by (50%) while (44%) complained on poor communication and other important aspects include food and water (33%) and rescue operations (32%).
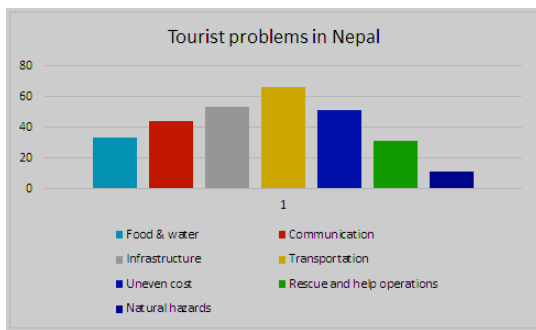
felt that government rescue plans and operations were worst in case some accidents occur.
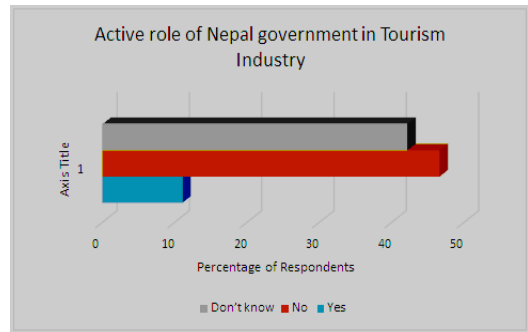
Fig. 4. Source: Direct survey data representation

Fig. 2. Source: Direct survey data representation

Regarding the information availability of tourist destinations majority of the tourist reported that information's are not complete (63%) while (27%) reported of confusing information.

Fig. 5. Source: Direct survey data representation

Our study found that the growth of tourism in Nepal was accountable to private sector (60%) and local can community sectors (54%). Government had a small share of around (16%) in the growth of tourism industry in Nepal.
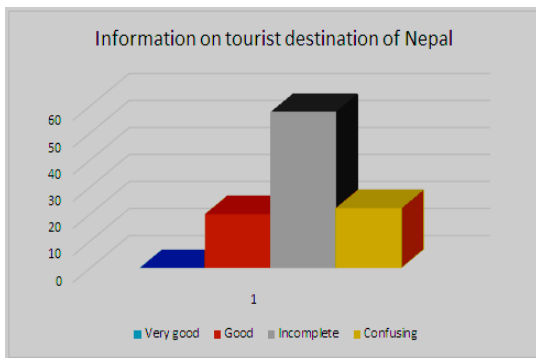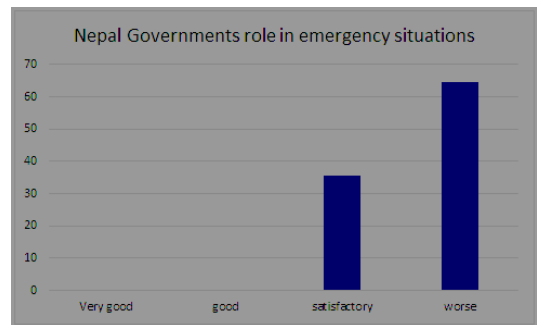
Fig. 3. Source: Direct survey data representation

It was interesting to observe that (46%) of the respondents found that Government of Nepal has no active role in tourism industry while (41%) were not aware of government's role in tourism. It was further noted that (65%) of the respondents
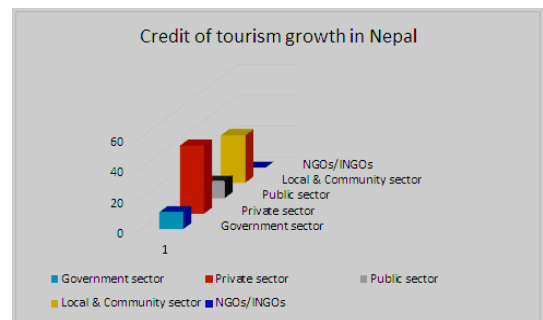
Fig. 6. Source: Field survey results on Tourism Service of Nepal

Regarding the major aspect of ICT development and initiatives in Nepal, it was observed that accessibility of communication technologies services was categorized poor (40%) to average (44%) by the respondents. They were of the view that it is acceptable in urban centers but gets poorer to worse in the remote tourist destinations. On the aspect of internet, they complained about slow speed, poor performance, high cost and inadequate operational facility. They were of the same view for the mobile and satellite phone communications. The major problems were in the connection and quality of sound reception. Almost everyone complained about the power cuts and the bad impact due to power cuts. Regarding the availability of information online and online assistance, respondents complained about incomplete information (47%), while a good number of respondents commented that situation has improved in current times (28%, 24%).
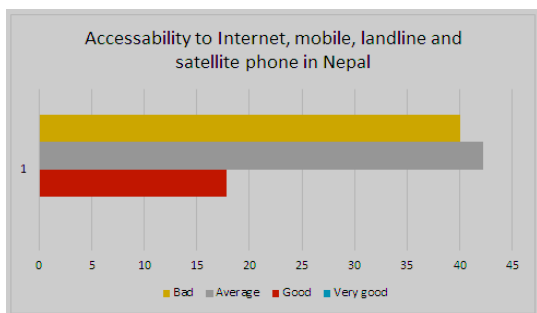

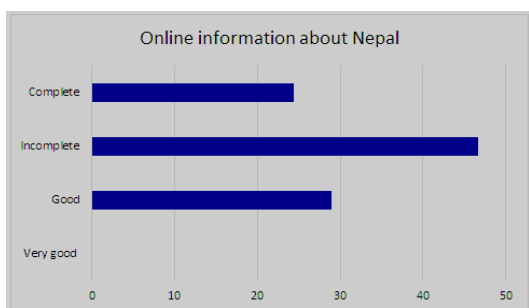Fig. 7. Source: Field survey results on Tourism Service of Nepal

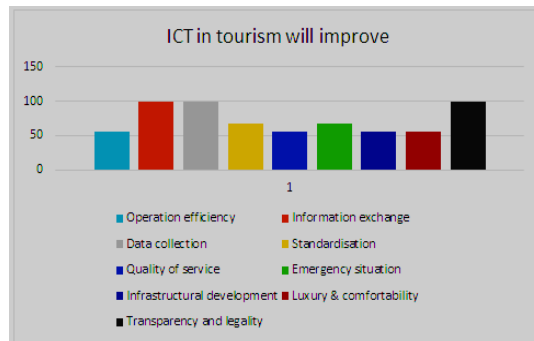Fig. 8. Source: Field survey results on Tourism Service of Nepal

Fig. 9. Source: Field survey results on Tourism Service of Nepal

The respondents were clear about role of information technology in tourism industry. Almost everyone (100%) agreed that ICT will enable better communication, data collection and improve transparency and legality in this industry. The other factors like operational efficiency, standardization, preparation for emergency situation and infrastructural development will also become better with the role of ICT in Nepal. Majority of the respondents considered Nepal as a very good tourism destination. They only complained about the poor service sector, bandhs, syndicates and high influence of local politics. Some of the respondents feared their personal security due to these aspects.
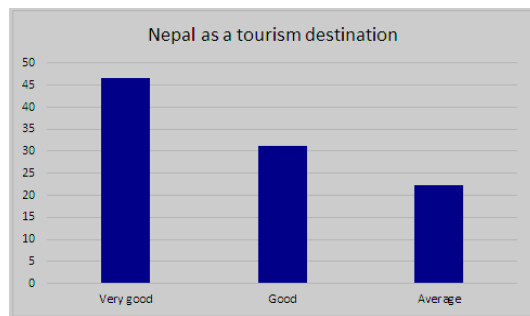

Fig. 10. Source: Field survey results on Tourism Service of Nepal

3.3 Conclusions from literature and survey

The literature review and survey indicate that Nepal Tourism Industry is struggling with many problems. The problems range in all spheres that include from promotion

agencies to service industries. The reviewed literature clearly indicated that even Government of Nepal and Tourism agencies have no aggressive strategic plans to uplift the Tourism sector besides so much diversity and potential. The very elementary requirements in terms of information requirements (update and access) was missing at large. There are very few and not up to the mark websites and web portals to provide correct and timely information. The availability of information and access to information was all scattered and fragmented which was not entertained in the current age of ICT. To summarize Nepal Tourism Industry has the undermentioned problems that include:

1. Poor promotional plans and inadequate Information access

2. Lack of Proper Management of Tourism Infrastructure and Services.

3. Fragmented databases and information gaps in all sectors of Tourism.

4. Lack of proper information access to International tourist

on health, hygiene and ecology.

5. No proper channels and mechanism for information update in terms of natural hazards, change in biodiversity, ecology.

6. Very less data on websites / portals / books / brochures regarding tourist destination in Nepal.

7. Lack of strategic vision of Government officials in the implementation of technology.

8. No proper integration and communication mechanism of public sector, private sector, local and community tourism sectors.

9. Lack of coverage of local / rural and community based tourism industries.

10. Lack of trained and skilled manpower in the tourist industry.

11. No plans to mitigate emergency situations and accidents occurring in the tourist destinations.

12. No legal frame works and standards in service industry to guarantee quality tourism approach in Nepal.
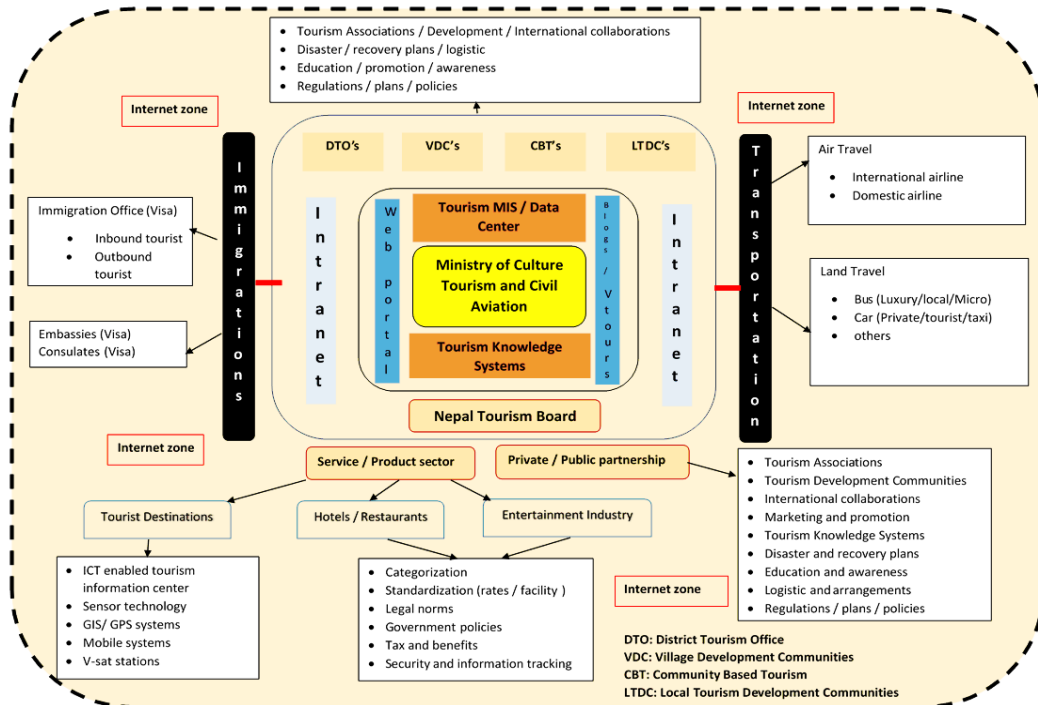

Fig. 10. Proposed ICT framework for Nepal Tourism Industry

The literature review brings about the prominent problems of tourism industry of Nepal. The problems are rooted in all sectors that include private, public and government sector. Besides many different problems extracted from literature review the informational aspect that includes availability, quality and integrity need an immediate attention. As noted tourism industry heavily relies on information, this aspect must be addressed immediately by the players of Tourism Industry. The role of The Ministry of Culture, Tourism and Civil Aviation, Nepal Tourism Board, District Tourism Offices, Village and Community Tourism Sectors should work on understanding the need of information of Tourism Industry. On the basis of literature review, data analyzed, from available documentation, technical literature, advancement of ICT technology and the pilot study conducted we have come across a model that according to our study provides one of the best and immediate solution for information and data needs for Tourism Industry of Nepal.

4. An ICT framework for Nepal Tourism Industry

The proposed ICT framework for Nepal Tourism Industry is based on the facts and data analyzed from available documentation, technical literature and advancement of ICT technology. The model is designed in such a way that it integrates the current demands of Nepal tourism industry and will address the future requirements as well. There is no complex technology considered and the whole model is realized based on computer systems, internet and communication technologies. It has been noted by us that this model is to be implemented for Nepal, hence special care is taken to address the government needs, public and private companies' prospective, local bodies' participation and sustainability of the system.

4.1 Prospect of proposed model

The proposed model is structured around three layers of participation. The first layer or the core of the model consists of Ministry of Culture, Tourism and Civil Aviation. It is also the physical block that will host three important aspects of

the system which include and MIS for Tourism which will integrate the government stakeholders scattered all over Nepal. They will be part of an Intranet and will keep track of all important and authentic data. The MIS is also used for operational achievement that includes employees and government partners. Nepal Tourism Board (NTB) is a government body that purely works to see the proper functioning of tourism rules and regulations on the country. It works to promote tourism by holding programs, seminars, conferences and creates information brochure regarding tourist destinations. It is the right hand of the Tourism ministry and works to enhance its efficiency. NTB forms the major component of proposed system, it is connected with the Tourism knowledge system and Tourism Data Center [11]. It will serve as a key player to integrate information available from various sources to enrich the tourism knowledge system. The mode of information exchange will be interactive to keep the system updated and promote participation at higher level. Transportation industry and Immigration office will be integrated through internet as both are to be regulated in terms of policies, rules and regulations. This will enforce transparency, standardization and achieve quality information access.

The private / public partnership, the service and product sector will also be integrated through internet in the proposed model. The Ministry will keep track of service providers on categorization of a service sector, standardization (rates / facility), enforcement of legal norms and government policies, taxes and benefits, security and information tracking. Tourism destinations will be equipped with ICT enabled tourism information center, Sensor technology, GIS/ GPS systems, Mobile systems, V-SAT stations that will function in real time to enforce SMART tourism [11]. The ICT enabled environment will enforce better operation of Tourism associations, Tourism development communities, International collaborations, Marketing and promotion, Disaster and recovery plans, Education and awareness, Logistic and hospitality arrangements [11].

The proposed model will be vital in terms of information provider and educator. The interactive mode will enable learning and exchange of ideas. This will enhance a visitor to collect correct and timely information as and when required. The tourist will be able to file complain and provide feedback

that can be taken as a suggestion to improve tourism industry in Nepal. As the model integrates all important and most vital aspects related to cost, service quality, security, legal enforcement, its output achievement will be tremendously high.

4.2 Challenges of the Proposed Model:

The proposed model is an integrated approach for data and information related to the tourism industry of Nepal. The model encompasses three layers that puts a lot of challenges on its implementation and realization. The core layers are totally dependent on the information content that is received by the outer or user layer, hence the quality and quantity of information will greatly decide the vitality and usability of the proposed model. The government must take care of robust architecture in terms of server down, connectivity and data transmission rate. As Nepal is a diverse landscape, the infrastructure must look into the different aspects and hurdles posed by the geography of Nepal. The problems related to language, literacy in computer education and power cuts and load shedding are important challenges to consider in our proposed model. The software licensing, legality of software programs, data security and data backup are major other concerns of the proposed system.

5. Conclusion

Nepal has a huge potential as a tourism destination. Data and records have shown that tourism is one of the most vital industries of Nepal and its progress chart is getting better year after year. There is a great role played by the tourism industry in the increase of GPD of Nepal. It is observed that there is rise in employment rate, increase in service and product sectors and the demand is increasingly every year.

These recent developments have been accounted for concentration of government to prioritize tourism industry and continuous efforts of public and private partnership. Besides these evidences of growth, Nepal is still lacking behind as a prime tourism destination. Many reasons account for this slow growth ICT implementation lagging is one of the sure reasons. Our study uncovered many aspects that support the argument that ICT is a core requirement and immediate need of the

Tourism industry in Nepal.

The information generation, storage, distribution and consumption is very poor. Our model works on the deficiencies of the current tourism industry and proposes an ICT Tourism model for Nepal that promises to uncover the ICT potential and initiates better growth of tourism Industry.

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◑ Authors ◑

Deepanjal   Shrestha

2002 B.Sc. (Computer Science)

2004 M.Sc. (Computer Science)

2005-2011: Asst. Professor, CCMT, Kathmandu, Nepal.

2012-2016: Asst. Professor, SoB, Pokhara University, Nepal

2016: (PhD student) Nanjing University of Aeronautics and Aestronautics, Dept. of Computer Science and
Technology. Nanjing, China.

Research Interests: MIS, EIS, Software Engineering, e-Governance, Digital Knowledge Ecosystems, Advance
Service Engineering.

E-mail: deepanjal@pu.edu.np, deepanjal@hotmail.com

SeungRyulJeong

1985 B.A. in Economics, Sogang Univ., Seoul, Korea

1989 M.S. in MIS, Univ. of Wisconsin - Milwaukee, WI, U.S.A.

1995 Ph.D. in MIS, Univ. of South Carolina, SC, U.S.A.

1997~Present: Professor, Graduate School of Business IT,   Kookmin Univ., Korea

Research Interests: System Implementation, Process Innovation, Text Mining, Project Management,
Information Resource Management etc.

E-mail: srjeong@kookmin.ac.kr