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Exploration and Implication of Factors affecting e-Tourism Adoption in Developing Countries: A case of Nepal --Manuscript Draft--

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Abstract

E-tourism plays a pivotal role in attracting tourists to a destination by offering services related to travel experience. While tourism service providers in the developed countries can efficiently take advantage of e-tourism by partnering with global providers such as TripAdvisor or Booking.com, such providers in the developing countries often struggle to reach the global markets due to impending factors that are unique to the country they operate in. The aim of this study, therefore, is to identify the key barriers of e-tourism adoption for small and medium tourism enterprises (SMTEs) in developing countries. Nepal is selected as the case for a developing country due to its enormous tourism potential that is plagued by challenges of a developing country. Based on the Technology, Organization and Environment (TOE) and e-readiness model, this study proposed ten key factors that affect e-tourism adoption by SMTEs in Nepal. A mixed-method approach using interviews with seven key stakeholders and survey with 198 SMTEs was employed for data collection and validation of the proposed factors. Finally, an e-tourism adoption framework highlighting the barriers and motivators for e-tourism by SMTEs is presented. This research found that SMTEs in Nepal are affected by environmental factors related to inadequate national infrastructure, market size, country-specific contextual factors and organizational factors comprising limited e-tourism awareness, insufficient resources, value proposition and top management support. This study also identifies motivators for an effective e-tourism adoption for Nepal that may offer implications for policy and practice in the tourism industry of developing countries.

Keywords: e-Tourism; technology adoption; Small and Medium Tourism Enterprises (SMTEs); developing countries; Nepal

1. Introduction

Recent proliferation in the use of information and communication technologies (ICTs) has greatly impacted the tourism industry by providing relevant information and knowledge to both tourism service providers and tourists. In today's multi-billion-dollar global tourism business, travellers have access to faster and cost-effective online platforms for planning, booking and paying for their future trips (Buhalis & Jun, 2011). New technologies have offered tourists the choices during pre-purchase activities such as searching, planning and comparing relevant products and services offered in the tourism sector (Buhalis & Law, 2008). Likewise, tourists can access online reviews and compare and contrast a number of tourism operators conveniently before making final purchase decisions on tourist destinations and services (Gonzalo, 2014).

In a competitive e-tourism ecosystem, developing countries are lagging behind in the adoption of ICTs due to their poor economy, lack of infrastructure and unskilled workforce. Consequently, these countries miss out on offering pre-purchase services even though they often have attractive destinations that may be of interest to potential tourists. The tourism operators in developing countries, particularly small and medium tourism enterprises (SMTEs) that lack global connections, e.g. franchise connections of hotel chains and tour operators, are incapable to offer e-tourism features as part of their services.

Using Nepal as a case study of a developing country, this research is aimed at identifying the motivators and barriers of e-tourism adoption for developing countries. Nepal has tremendous tourism potential with its natural beauty and diverse cultural heritage. Nevertheless, adoption of e-tourism practices in the country is limited as majority of the travel businesses still take traditional ad-hoc approach for travel planning or accommodation bookings. Therefore, developing countries like Nepal fail to reach its potential target market as tourism operators are unable to offer technology-enabled pre-purchase services. The primary objective of this research is twofold. Firstly, key barriers that affect e-tourism adoption of SMTEs in Nepal will be identified and secondly, a framework for e-tourism adoption in developing countries will be proposed.

Developing countries commonly share similar attributes related to turbulent macroeconomic and political factors, inadequate ICT infrastructure or low ICT adoption due to public resistance (Karanasios & Burgess 2008). General e-commerce adoption in developing countries is an extensively researched topic, however limited focus has been given towards the tourism industry. Brdesee (2013) noted that e-commerce adoption factors differ significantly from industry to industry. As a result, a 'one-size-fits-all' model for ICT adoption is unlikely to be feasible for all developing countries (Molla & Licker, 2005).

For the purposes of this study, e-commerce is defined as conducting all aspects of business activities including marketing, ordering, supply chain management, transactions using ICT tools that include digital technologies beyond voice telephony and fax (Garrett & Skevington 1999). Although several definitions limit e-commerce to online financial transactions, the widely accepted boundary of e-commerce is much broader including non-financial activities such as information dissemination, and information exchange about products and services (Karanasios & Burgess 2008). E-tourism adoption in this research refers to conducting tourism-related activities including pre-purchase promotion and service delivery using ICT tools by tourism organisations.

This study evaluates potential frameworks of e-commerce adoption suitable for the tourism industry (i.e. the e-tourism adoption) in developing countries. After analysis of existing literature and frameworks, an e-tourism adoption model is proposed. With the help of empirical data from both qualitative in-depth interviews with key stakeholders and quantitative survey with SMTEs, this study evaluates the proposed e-tourism adoption model for the case study of Nepal. The e-tourism adoption model identifies the barriers and motivators of e-tourism adoption specific to Nepal based on its unique context and specific environment. Finally, implications of the model for major stakeholders such as the government, tourism organisations and tourism associations for developing countries are discussed.

2. Background

Tourism sector earns more than eighty percent of export revenues in the developing countries (Samimi et al., 2011). World Tourism Organization (WTO) reported that tourists visiting developing countries is forty percent and increasing. The WTO further claimed that the tourism contributes between 3 to 10 percent of the Gross Development Product (GDP) in most developing countries. Karanasios & Burgess (2008) noted that tourism sector is the most suitable industry for ICT adoption due to the intangible and perishable nature of tourism services. Most tourism

services (i.e. flight and hotel reservation, tour arrangements) can be arranged online with the help of e-commerce tools and championed by tourism sites such as TripAdvisor, Expedia and Booking.com. Before making the final decision regarding their trip, tourists invest a significant amount of their time in researching about the destinations and facilities. For instance, Gonzalo (2014) reported that 27% of the hotel accommodation providers communicate with their guests before their arrival.

E-tourism enables potential travellers to compare different tourism services and view real-time prices in a transparent process (Buhalis & Jun, 2011). Tourism websites such as TripAdvisor offers opportunities to the potential visitors to ask questions and at the same time access other peoples' experiences before making purchase decisions. The impact of e-tourism can be realised through TripAdvisor's monthly statistics as it contains over 170 million reviews and more than 280 million unique visitors (Gonzalo, 2014) which continues to grow every year.

Despite exponential growth of e-tourism, adoption of ICT in this highly promising sector of Nepal has often been slow and scanty. Consequently, understanding technology adoption factors including the key barriers and motivators for e-tourism is imperative for developing countries like Nepal. The following section reviews studies related to technology adoption factors.

2.1. Technology Adoption Factors

Due to the challenges related to ICT infrastructure and services, developing countries have low ICT usage rate. Kshetri (2007) pointed out that ICT related services are often earmarked for the privileged societies in the developing countries. Therefore, ICT adoption is considered to be at an embryonic stage in these countries (Datta, 2011). Indexes related to ICT usage including e-readiness index, digital divide and ICT development index show low penetration rate of ICT usage. Results from studies conducted by Kshetri (2007) and Datta (2011) showed that the use of e-commerce brings significant benefits to the developing countries as it supports business operations, increases human efficiency and productivity, as well as communication (Karanasios & Burgess, 2008). Shemi (2013) further noted that ICT embeddedness provides greater geographic reach and facilitates information sharing and cost reduction which in turn provides unique competitive advantage to enterprises. Due to these key benefits attained through ICT, more and more developing countries are keen to deploy supporting ICT infrastructure (Kabanda & Brown, 2010; Kapurubandara & Lawson, 2006). Nevertheless, most of the businesses in developing countries have only embarked entry-level use of e-commerce due to traditional ICT infrastructural challenges, insufficient resources and poor operational security (Molla & Licker, 2005).

While e-commerce adoption has been a widely researched topic, only a few studies investigated e-commerce adoption in developing countries. These studies mostly focus on small and medium enterprises (SMEs) in general (e.g. Kabanda & Brown, 2010; Kapurubandara & Lawson, 2006; Shemi, 2013; Zaied, 2012) rather than specifically focusing on the tourism industry. In addition, although studies showed the importance of tourism-related products and services in developing countries (Karanasios & Burgess 2008; Kshetri 2007), concerns related to taxation issues, increased competition and financial security and privacy threats has been raised by other researchers (e.g. Uzoka & Seleka 2006).

Based on extant literature, critical factors related to e-commerce adoption in the developing countries includes awareness, infrastructure, resources, security issues, socio-cultural-political factors, benefits, top management and market conditions. Molla and Licker (2005) stressed that these factors are associated with five aspects that include: i) innovation, ii) the organization, iii) the environment, iv) the managers and v) interactionism (interaction among the above factors).

Table 1 below highlights the e-commerce adoption factors identified in the literature irrespective of the countries' economies.

Table 1: Factors affecting e-commerce adoption

Factor	Relevant literature
<i>Poor Internet connectivity</i>	Datta (2011); Hunaiti et al. (2009); Kshetri, (2007)
<i>Cultural barriers</i>	Datta (2011); Kapurubandara & Lawson (2006); Kshetri (2007); Zaied (2012)
<i>Lack of technical skills and knowledge</i>	Kapurubandara & Lawson (2006); Kartiwi & MacGregor (2007); Lawrence (2001); Simpson & Docherty (2004); Zaied (2012)
<i>Inadequate infrastructure (telecommunication, financial,</i>	Datta (2011); Hunaiti et al., 2009; Kapurubandara & Lawson (2006); Karanasios & Burgess (2008); Kshetri (2007)

<i>transportation</i>	
<i>Electricity</i>	Kabanda & Brown (2010); Kapurubandara & Lawson (2006); Karanasios & Burgess (2008) Shemi (2013).
<i>Lack of legal infrastructure</i>	Hunaiti et al. (2009); Kapurubandara & Lawson (2006); Kartiwi & MacGregor (2007); Shemi (2013); Zaied (2012).
<i>Low bank account and credit card penetration</i>	Kapurubandara & Lawson (2006); Kshetri (2007); Zaied (2012)
<i>Market readiness and size</i>	Molla & Licker (2005)
<i>Security concern and trust</i>	Kshetri (2007); Lawrence & Tar (2010); Shemi (2013); Zaied (2012)
<i>Privacy concerns</i>	Bella et al. (2011); Shemi (2013)
<i>Cost of resource to implement e-commerce</i>	Datta (2011); Karanasios & Burgess (2008); Kartiwi & MacGregor (2007); Uzoka & Seleka (2006)
<i>Technological resources</i>	Ahmad et al. (2015); Kapurubandara & Lawson (2006); Molla & Licker (2005)
<i>E-commerce Not suitable (poor product match)</i>	Al-Weshah & Al-Zubi (2012); Kartiwi & MacGregor (2007)
<i>Lack of Human skills and resources</i>	Kabanda & Brown (2010); Kapurubandara & Lawson (2006); Kartiwi & MacGregor (2007); Zaied (2012)
<i>Language Barrier</i>	Kapurubandara & Lawson (2006); Karanasios & Burgess (2008); Kshetri (2007)
<i>Lack of payment gateway or credit card problems</i>	Datta (2011); Karanasios & Burgess (2008); Kartiwi & MacGregor (2007); Uzoka & Seleka (2006); Kapurubandara and Lawson (2006); Kshetri (2007); Hunaiti, Masa'deh et al. (2009)
<i>Expensive and unreliable shipping service</i>	Kshetri (2007); Uzoka and Seleka (2006); Hunaiti et al. (2009)
<i>Lack of Government policies, support and laws</i>	Hunaiti et al. (2009); Kapurubandara & Lawson (2006); Zaied (2012)
<i>Political Situation</i>	Al-Weshah & Al-Zubi (2012); Kapurubandara & Lawson, (2006)
<i>Incentives from government</i>	Al-Weshah & Al-Zubi (2012); Hunaiti et al. (2009); Karanasios & Burgess (2008); Shemi (2013)
<i>Supporting IT industry</i>	Brdesee (2013); Kabanda & Brown (2010); Molla & Licker (2005)
<i>Awareness about e-commerce</i>	Ghobakhloo & SH (2011); Kapurubandara & Lawson (2006); Kshetri, (2007)
<i>Perceived benefits</i>	Grandon & Pearson (2004); Kapurubandara & Lawson (2006); Shemi (2013).
<i>Pressure from competitors</i>	Chen & McQueen (2008); Chong & Pervan (2007); Simpson & Docherty (2004)
<i>Relative advantage</i>	Ahmad et al. (2015); Brdesee (2013); Dwivedi et al. (2009); Grandon & Pearson (2004)
<i>Owner Support</i>	Al-Weshah & Al-Zubi (2012); Kapurubandara & Lawson (2006); Karanasios & Burgess (2008); Shemi (2013)
<i>Owner characteristics</i>	Brdesee (2013); Kapurubandara & Lawson (2006)

2.2. Case Study – ICT adoption & Tourism in Nepal

Computer and Internet usage in Nepal started in the early nineties, however the overall development of ICT in the country has been slow-paced. The first IT Policy was drafted by the Nepalese Government in the year 2000 (Nepal Ministry of Science and Technology, 2000) with the aim of making ICT more accessible countrywide and foster a knowledge-based society. Electronic Transaction Act 2008 was passed to provide foundation for the operational and legal aspects of e-commerce, more importantly online transactions. In addition, the act was formulated with provision for concerned authorities associated with e-commerce transaction including IT Tribunal, Controller of Certification Authority & Certification, authorities for digital certificates and dispute settlement. Nevertheless, due to socio-political challenges and other incumbent circumstances, the key objectives of the act have not been fully materialised (Dhami 2015). Likewise, the government further proposed an e-governance Master Plan (e-GMP) to achieve transparent governance and socio-economic development throughout the country. Some of the key objectives of the Master Plan includes transparency, accountability, poverty alleviation, reduction in corruption, informed citizen and better government service delivery (Bhattarai 2006). Adequate development in the ICT sector however, is yet to reach a

primary agenda as the government prioritize fundamental necessities such as poverty alleviation and primary education, or addressing basic infrastructure building problems. ICT infrastructure, as a result, remains underdeveloped in Nepal and mainly centralised in the capital city of Kathmandu.

Aryal (2016) highlighted that the absence of an appropriate international payment gateway is one of the primary reasons why there is low e-commerce adoption in Nepal. Most of the payment cards (i.e. bank cards) issued by the local banks are only functional within the country on selected websites. Also local payment gateways are used for these transaction which are operated through selected banks and websites on a commission basis. These shortcomings have significantly limited international tourists to transact online directly.

Close to 5000 tourism organizations are registered with Tourism Department of Nepal. Most of these service providers arranges tours, trekking or accommodation services. Associations such as Nepal Association of Tour and Travel Agents (NATTA), Hotel Association of Nepal (HAN) and Trekking Agents Association of Nepal (TAAN) are the independent and not-for-profit representatives of these tourism organisations. An independent government body dedicated for representing Nepal tourism to the world is Nepal Tourism Board (NTB) which operate under the federal government authority of the Ministry of Culture, Tourism and Civil Aviation (MoCTCA). Figure 1 presents an overall structure of Nepal's tourism organisations and its major stakeholders.

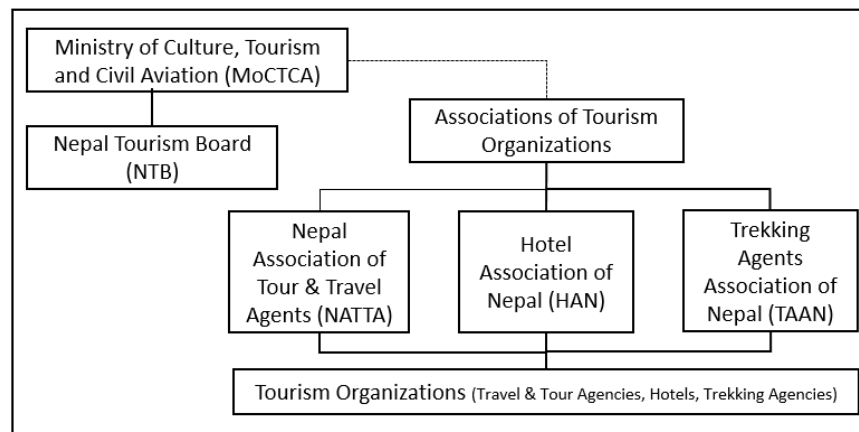


Figure 1. Nepal tourism governance structure

3. Research Methodology

This research uses both qualitative and quantitative methods by conducting interviews and surveys with the representatives from tourism associations and SMTEs in Nepal. For the qualitative segment, semi-structured interviews were used to collect data. A survey instrument was used for the quantitative part followed by statistical analysis to model the framework for e-tourism adoption in Nepal. According to Creswell & Clark (2011), the triangulation of multiple methods for data collection and analysis provides greater interpretability, reliability and internal validity to the result.

The respondents for the semi-structured interviews were selected through purposive sampling technique. This non-probability sampling method provides better convenience to the researcher in terms of selecting the informants according to their knowledge and experience (Tongco 2007). Seven informants took part in the interview process including three ICT representatives from tourism associations, two personnel from tourism organizations, one government representative from Ministry of Culture, Tourism and Civil Aviation (MoCTCA) and an online tourism content promoter from a semi-government organization. The primary objectives of the interviews were to validate the proposed factors (Figure 2) and explore other factors (Table 3) that were derived from the thematic analysis of interview data.

Majority of the factors found from the thematic analysis were consistent with the compiled factors from literature review (Table 1). Two new sub-themes were added: Resistance to Change and Awareness of Social Media. These two sub-themes were classified under the existing factors (Table 3) (i.e., Socio-cultural factors and Awareness) and questions related to these two themes were added to the survey instrument.

For the quantitative part, 250 SMTEs were invited to take part in the survey wherein 198 SMTEs participated, resulting almost 80% response rate. The sample was selected using a simple random sampling method that provide greater probability for all the respondents to be selected (Creswell & Clark 2011). The SMTEs consists of 98 tour and travel agencies, 72 trekking agencies and 28 small hotels.

A five-point Likert scale was used in the survey questionnaire where the highest scale 5 represented 'strongly agree', and the lowest scale 1 represented 'strongly disagree'. Hypotheses were formulated to validate the adoption factors and to test the relationship between different factors and e-tourism adoption by SMTEs. A binary logistic regression method was used to test the hypotheses because of the dual nature of dependent variables. To ensure consistency and quality of the collected data, reliability and validity checks were conducted.

4. Theoretical Perspectives of e-Tourism Adoption

In building the theoretical foundation for this study, widely accepted technology adoption theories were reviewed. These includes Theory of Reasoned Action (TRA) (Ajzen & Fishbein 1980), Technology Acceptance Model (TAM) (Davis 1989), Technology, Organization and Environment (TOE) model (Tornatzky et al. 1990), TAM 2 (Venkatesh & Davis 2000), Unified Theory of Acceptance and use of Technology (UTAUT) (Venkatesh et al. 2003) and e-Readiness model (Molla & Licker 2005).

To establish a framework for e-tourism adoption for Nepal, each theory and its components were examined for its relevance. Evaluation criteria for fit of these well-established theories were based on three key parameters: (a) Unit of analysis: individual (I) or organisation (O); (b) prior studies in the context of developing countries; and (c) focus on technology. Table 2 below presents the comparative evaluation of technology adoption theories for e-tourism in developing countries.

Table 2: Comparative evaluation of technology adoption theories for e-tourism in developing countries

Theoretical Framework	Review	Evaluation		
		Unit of Analysis	Context of Developing Countries	Technology Focus
TRA (Ajzen & Fishbein, 1980)	studies human behaviour at the individual level rather than organisation level.	I	×	×
TAM (Davis, 1989); TAM 2 (Venkatesh & Davis, 2000)	relevant for individual-level technology adoption	I	×	✓
TOE (Tornatzky and Fleischer, 1990)	studies innovation adoption on the organisation level.	O	×	✓
UTAUT (Venkatesh et al., 2003)	technology adoption study at the individual level.	I	×	✓
E-readiness model (Molla & Licker, 2005)	studies perceived organisation e-readiness and environmental e-readiness.	O	✓	✓

Table 2 illustrates that TOE (Tornatzky & Fleischer 1990) and e-readiness model (Molla & Licker, 2005) are most relevant to the purpose of this study since the unit of analysis is organisation. In addition, among these two theories, the e-readiness model has also been previously studied in the context of developing countries. The TOE emphasizes three key factors that influence technology adoption within a business: technology, organization and environment. On the other hand, the e-readiness model focuses on perceived external e-readiness (PEER) and perceived organizational e-readiness (POER) towards technology adoption. Seven themes have been proposed from these two theories: market forces, supporting industries, contextual factors, infrastructure, awareness, resources and owner/top management support. As presented in Figure 2, these themes are classified under environmental/external and organisational/internal categories.

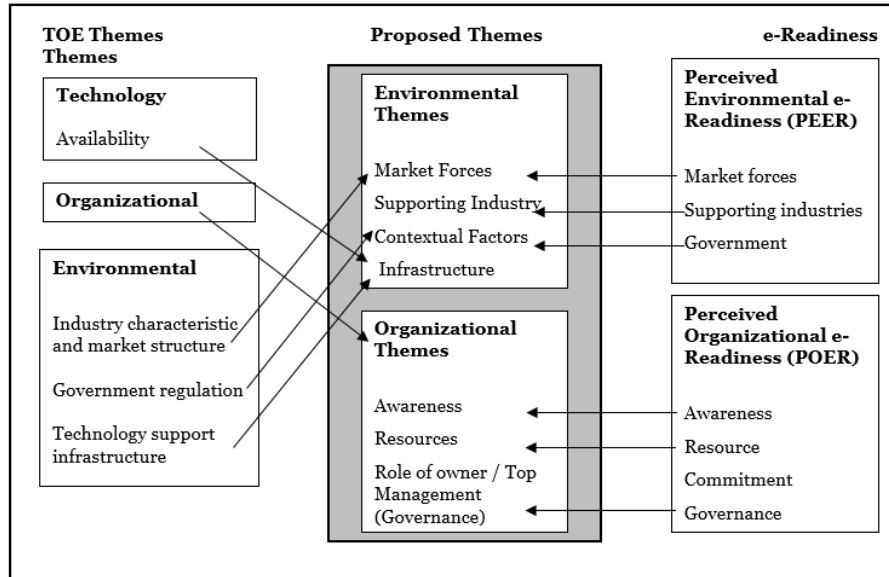


Figure 2. Derivation of preliminary e-tourism adoption themes from the literature

The proposed themes identified in Figure 2 were used to identify relevant factors for e-tourism adoption explored from literature review. The probable factors identified from the literature review in Table 1 are adapted with relevant themes from Figure 2 and organised in Table 3 below.

Table 3: Themes and factors for e-tourism adoption in Nepal

Theme	Factor	Description
Market Forces	Market readiness and size	Degree to which market is ready for e-tourism adoption.
	Pressure from competitors	Pressure to adopt e-tourism because of competitors adopting similar technologies.
Supporting Industry	Supporting IT industry	Readiness, capability and status of IT organisations to implement
Contextual Factors	Condition of country	Political situation of country and its effect on e-tourism adoption.
	Plan and policies	Plans and policies of government relating to technology.
	Incentives from government	Incentives and motivation provided by government for the adoption.
Infrastructure	Electricity	Availability of electricity in the country.
	Financial	Condition and readiness of financial institutions for e-tourism adoption.
	Technological framework	Technology maturity of country regarding technical resources such as status of internet, digital divide, e-readiness.
	Legal framework	National status of country regarding laws relating to e-tourism.
Awareness	Awareness about e-tourism	Owner’s knowledge and information about e-tourism and its benefits and usage.

Resources	Skill & Human resource	Leveraging skills and competencies of human resources as required for e-tourism
	Cost of resource	Initial and operational resources required for e-tourism.
	Technological	Technology resources such as hardware, networks and information systems.
Role of Owner/Top management	Owner support	The degree of owner's commitment and encouragement to adopt e-tourism.
	Owner's characteristics	Owner's confidence on e-tourism
Other factors (not included in Fig 2)	Culture	Culture, including tradition, ways of doing things.
	Language	The language used for technology and lack of knowledge about it
	Perceived benefits	Expected benefits of using e-tourism.
	Relative advantage	Degree of perception as better than existing
	Lack of trust	Confidence that e-tourism is safe and trustworthy.
	Privacy concerns	Concern about privacy and data misuse from e-tourism

In addition to the seven proposed themes presented in the theoretical frameworks, the highlighted rows in Table 3 lists additional factors that did not fit any of the existing categories from Figure 2. Nevertheless, the informants emphasised these issues to be significant in the context of Nepal. Table 4 below summarises content analysis from the interviews as positive or negative perceptions.

Table 4: Summary of factors inferred from semi-structured interviews

Factor	Result	Perception
Infrastructure	Lack of infrastructure (electricity, Internet, payment gateway etc.) for the adoption.	Negative
Market Forces	Encouraging for adoption and expansion as competition grow.	Positive
Supporting IT Industry	Poor quality of service from IT vendors although they are competent.	Inconclusive
Socio-cultural factors	No direct link with culture and language (as most of the operators are fluent in English).	Neutral
Government	Government commitment is not satisfactory and voiced that government should facilitate adoption by providing required infrastructure including laws, and plans.	Negative
Condition of country	Political situation of the country has affected but not so much directly in the e-tourism adoption.	Mixed
Laws and policies	Not aware of the laws and policies on e-tourism as they consider to be only information disseminator however have raised the concerns around protection of online transactions and copyright issues.	Neutral
Awareness	Quite aware of the adoption as they use websites but not technical details.	Positive
Social Media awareness	Have been used mainly marketing purposes but need further investigation.	Positive
Resources	Lack of both human and technological resources.	Negative
Security concerns	Unfamiliar with security-related issues but insurance as a protection has been discussed.	Inconclusive
Value proposition	Optimistic on how ICT brings benefits to the industry.	Positive
Role of Owner or top management	Owners' supportive role has been discussed as one of the key factors for adoption.	Positive

The factors from Table 3 and 4 were analysed and checked for similarities. Consequently, in order to accommodate their unique features, new themes were created in the light of extant literature. For instance, Kshetri (2007) suggested that factors related to language and culture falls under cognitive themes whereas Kapurubandara and Lawson (2006) recommended that culture belongs to the ‘socio-cultural’ aspects. As a result, a new theme named ‘socio-cultural factors’ was created which includes both cultural and language barriers. Kabanda and Brown (2010) stated that perceived benefits and relative advantage refers to the value gained by organisations from e-commerce adoption. Other studies (e.g. Dwivedi et al. 2009; Rowe et al. 2012; Scupola 2003) also confirmed that e-commerce adoption directly related to value proposition factors with the TOE model. Therefore, a new theme named “value proposition” is created as both relative advantage and perceived benefits are related to value addition. Finally, a broader theme called “security concern” is created to include the remaining factors “security concern and trust” and “privacy concerns” as these are directly related to information security (Kshetri, 2007).

4.1. Hypotheses

The proposed ten themes are grouped under environmental and organisational factors and further divided into sub-factors that are directly relevant to each theme. Based on these themes, 10 hypotheses were formulated in order to test the influence on e-tourism adoption. These hypotheses are listed below:

H1: Lack of national infrastructure negatively influences the adoption of e-tourism

Previous studies (e.g. Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Kshetri 2007; Shrestha et al. 2015) have highlighted that infrastructural issues such as unreliable supply of power is a key concern related to e-tourism adoption. Additionally, slow and inadequate telecommunication and internet technologies followed by low penetration of e-payment cards also contributes to lower adoption of e-commerce. Furthermore, the need for appropriate laws and policies has also been identified as a major requirement for e-commerce adoption (Dhami 2015; Hunaiti et al. 2009; Shemi 2013; Zaid 2012).

H2: Market forces for tourism industry has a positive influence on e-tourism

It has been highlighted in the past literature that the market size and potential play an influential role in adopting new ICT tools (Ahmad & Agrawal 2012; El-Nawawy & Ismail 1999; Molla & Licker 2005). Likewise, competitors’ pressure also motivates organisations to constantly adapt and implement new technologies (Chen & McQueen 2008; Chong & Pervan 2007; Hitt & Brynjolfsson 1997; Simpson & Docherty 2004).

H3: Supporting industries negatively influence the adoption of e-tourism

Kabanda & Brown (2010) stated that it is crucial for the supporting industries to have appropriate readiness in order to facilitate e-commerce adoption as they are required to have proper coordination with IT companies. Therefore, adequate support from the IT vendors can result in higher e-commerce adoption (Ghobakhloo et al. 2011).

H4: Socio-cultural factors negatively influence the adoption of e-tourism

Participants identified culture as a key factor for ICT adoption and it has also been suggested in the prior studies (e.g. Chong et al. 2009; Saffu et al. 2008; Thatcher et al. 2006) that different types of cultural norms and values in different countries and regions significantly influences how e-commerce is being adopted. As a result, it is important to test this relationship due to the diverse and rich nature of Nepal’s culture (Shrestha et al. 2015).

H5: Country-specific contextual factors discourage SMTEs to adopt e-tourism

Country-specific contextual factors such as government support and incentive are crucial for e-commerce adoption as they encourage people and organisation to introduce new ICT initiatives such as payment gateways and other technology driven facilities (Al-Weshah & Al-Zubi 2012; Karanasios & Burgess 2008; Cameron & Quinn 2005). The turbulent political situation of a country, lack of government support and incentives (Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006) therefore, might deter e-commerce adoption and requires further investigation.

H6: Awareness of e-commerce has positively influenced the adoption of e-tourism

Awareness has been highlighted by the participants as key factor for e-commerce adoption. It also concurs with previous studies (e.g. Hunaiti et al. 2009; Karanasios & Burgess 2008; Kshetri 2007; Molla & Licker 2005; Zaid 2012) that identified awareness as one of the common factors that influences e-commerce adoption.

H7: Lack of resources negatively influences the adoption of e-tourism

Human resources, technological resources, financial resources and other business resources are fundamental for any ICT project. For instance, Kapurubandara and Lawson (2006) and Al-Weshah and Al-Zubi (2012) suggested that insufficient skill is a major barrier towards e-commerce adoption. Also, among others, cost of resources is found to be a key factor in e-commerce adoption (Datta 2011; Karanasios & Burgess 2008; Kartiwi & MacGregor 2007; Shrestha et al. 2015; Uzoka & Seleka 2006; Zaied 2012).

H8: Digital security concerns discourages e-tourism adoption

According to Lawrence & Tar (2010), the intangible nature of Internet operations often makes people fearful of being exposed to security issues such as internet frauds. As a result, establishment of trust and confidence is imperative for e-commerce to work. Buhalis & Jun (2011) also expressed that lack of trust might inhibit people to make any transaction. Thus, digital security concern needs to be tested to evaluate the nature of trust and confidence among owners of SMTEs.

H9: Value proposition is positively related to the adoption of e-tourism

Perceived benefit is defined as the expected benefits that can achieved through practising specific action or behaviour. According to Pearson and Grandon (2004), if an organisation perceive that e-commerce adoption can increase the managerial productivity as well as support its strategic decisions, then it may be adopted. Similarly, Rogers (2010) stated that relative advantage is concerned with the degree of which an innovation perceived as better than existing system an organization possess. Prior studies (e.g. Ahmad et al. 2015; Brdese 2013; Dwivedi et al. 2009; Grandon & Pearson 2004) also suggested that relative advantage is a key factor for e-commerce adoption.

H10: Owner’s support has positively influenced the adoption of e-tourism

Finally, top management support has also been identified in the previous literature as a significant factor that contributes to e-commerce adoption. It has been suggested that the owners’ and managers’ knowledge of e-commerce followed by commitment to adopt new technologies do have a considerable impact on the adoption decision (Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Shemi 2013).

Based on the proposed hypotheses, we present our research model in Figure 3.

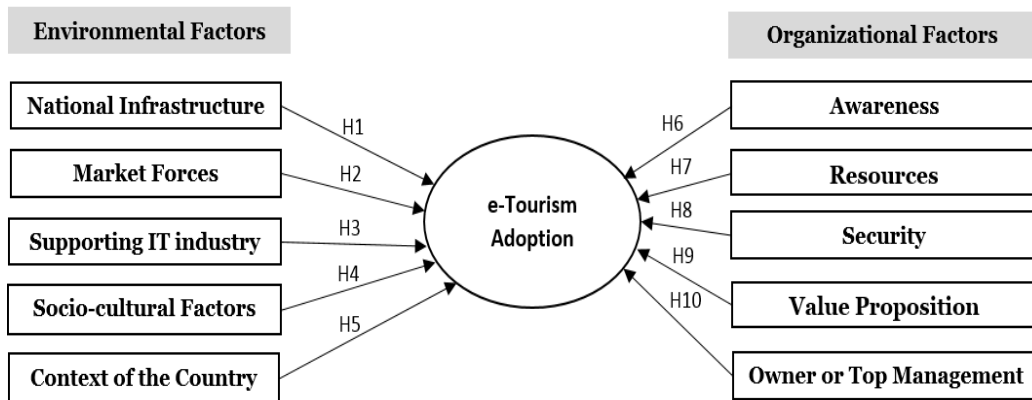


Figure 3. Research model on e-tourism adoption for developing countries

5. Analysis of Results

5.1. Reliability Analysis

The Cronbach’s alpha is typically used to assess internal consistency of the factors in the research model (Hair et al. 2006). The Cronbach alpha of greater than 0.60 is acceptable and reliable for exploratory research, and greater than 0.70 is recommended for the confirmatory research (Straub et al. 2004). The table below shows the reliability of the survey data.

Table 5. Results from Reliability Test of Survey Data

Environmental Factors	Cronbach α	Organizational Factors	Cronbach α
National Infrastructure	0.759	Awareness	0.851
Market Forces	0.722	Resources	0.842
Supporting IT Industry	0.721	Security & Trust	0.787
Socio-cultural Factors	0.788	Value Proposition	0.760
Context of the Country	0.718	Owner or Top Management	0.723

5.2. Principal Component Analysis

Principal Component Analysis (PCA) is a multivariate statistical technique that analyses the data set with inter-correlated quantitative variables. PCA aims to extract new variables called principal components (linear combinations of the original variables) based on the pattern of similarity among various observed items (Abdi & Williams 2010; Jolliffe & Cadima 2016). The PCA has been conducted to statistically confirm and validate the factors and items grouping and combine correlated items. Using the PCA, ten constructs and variables within those constructs were confirmed. Two variables introduced after the semi-structured interviews are shown in **bold** (SCF3_EmpResistance and AWR4_SocialMediaUse) in the table below.

Table 6: Validation of proposed factors using PCA

Principal Component Analysis										
Rotated Component Matrix	1	2	3	4	5	6	7	8	9	10
C1: INF1_PowerSupply				0.746						
C1: INF2_PaymentGateway				0.771						
C1: INF3_TelcomFacilities				0.673						
C1: INF4_Laws				0.814						
C2: MKT1_Size										0.853
C2: MKT2_Competers										0.871
C3: SPT1_ITVendorCompetent							0.799			
C3: SPT2_ITSupport							0.863			
C3: SPT3_SoftwareLack							0.723			
C4: SCF1_Language					0.782					
C4: SCF2_Culture					0.779					
C4: SCF3_OwnerResistance					0.821					
C5: CXT1_GovtCommitment						0.826				
C5: CXT2_Incentives						0.782				
C5: CXT3_PoliticalSituation						0.757				
C6: AWR1_InternetUse	0.795									
C6: AWR2_EcomBenefits	0.857									
C6: AWR3_CompeterEcom	0.826									
C6: AWR4_SocialMediaUse	0.815									
C7: RSC1_EnoughResources		0.868								
C7: RSC2_ITStaffs		0.862								
C7: RSC3_Highcost		0.697								
C7: RSC4_HardwareInternet		0.727								
C8: SEC1_CyberCrime			0.701							
C8: SEC2_LackOfTrust			0.790							
C8: SEC3_DataMisuse			0.753							
C8: SEC4_Privacy			0.736							
C9: VAL1_BelieveAvantage									0.892	
C9: VAL2_CompitativeAdvanta									0.889	
C10: OWR1_Support								0.839		
C10: OWR2_BenefitKnowledge								0.879		

5.3. Results from Hypothesis Testing

The factors explored in this study are independent variables, and the adoption of e-tourism is the dependent variable. Binary regression has been used to investigate the relation between the independent and dependent variables. The hypotheses which investigate the effect of various factors on e-tourism has been examined.

The significance value ($p < 0.05$) indicates that the factors are significant in the model. After the analysis, three environmental factors (lack of infrastructure, market size and lack of support from the government from the context of the country) and four organizational factors (awareness, lack of resources, value proposition and top management support) were found to be significant in e-tourism adoption by SMTEs of Nepal. The two environmental factors (supporting IT industry and socio-cultural factors), as well as one organizational factor (security concern), were found to be non-significant.

The result of binary regression for the proposed model is presented in Table 7.

Table 7: Binary regression results

Factor	β	S.E.	Wald	df	Sig.(p value)	Exp(B)	Result
Lack of National Infrastructure	-.486	.236	4.243	1	.039 (<0.05)	.615	Supported
Market	.651	.255	6.525	1	.011 (<0.05)	1.918	Supported
Supporting IT Industry	.411	.251	2.674	1	.102 (>0.05)	1.509	Not Supported
Socio-cultural	.029	.221	.017	1	.896 (>0.05)	1.029	Not Supported
Context of the Country	-.436	.201	4.711	1	.030 (<0.05)	.646	Supported
Awareness	.525	.259	4.118	1	.042 (<0.05)	1.691	Supported
Lack of Resources	-.997	.269	13.765	1	.000 (<0.05)	.369	Supported
Security Concerns	-.102	.257	.158	1	.691 (>0.05)	.903	Not Supported
Value Proposition	.889	.283	9.890	1	.002 (<0.05)	2.433	Supported
Owner or Top management	1.117	.318	12.351	1	.000 (<0.05)	3.055	Supported

The results show that infrastructural issues including lack of electricity, technological resources, financial infrastructure and laws negatively influence the adoption decision. Similarly, contextual factors such as lack of government policies and incentives, the condition of the country are also found to be affecting the adoption negatively. The awareness of the e-tourism and social media as well as market forces are found to be encouraging the e-tourism adoption. Perceived benefits under value proposition category is also found to be encouraging adoption decisions. The findings further revealed that the owner or top management support is also significant. Finally, insufficient resources in organizations is found to be negatively linked with e-commerce adoption. Other factors including the influence of supporting IT industry, socio-cultural issues and security concerns were not supported.

6. e-Commerce Adoption Framework

Based on the results from tested hypotheses, an e-tourism adoption framework for Nepal is proposed. The statistically significant factors are presented as motivators and barriers for e-tourism adoption.

In Figure 4, motivators for e-tourism adoption are presented at the right-hand side highlighted in green. The barriers to e-tourism adoption are represented in orange at the left-hand side. The model demonstrates that primary barriers to e-tourism adoption in Nepal is related to external factors (i.e. lack of infrastructure, contextual factors) and organizational factors (i.e. lack of resources). On the other hand, key motivators from external environmental perspective include market forces followed by awareness, value proposition and top management role from organizational perspective.

A streamlined e-tourism adoption in Nepal can be facilitated by leveraging the motivators and minimising the impact of barriers. These processes are illustrated in the framework using two levels: initial and advanced adoption levels. SMTEs can transition across these two levels. While the barriers can inhibit tourism organizations to move from initial to advanced levels, the motivators can assist in adopting advanced level of e-tourism.

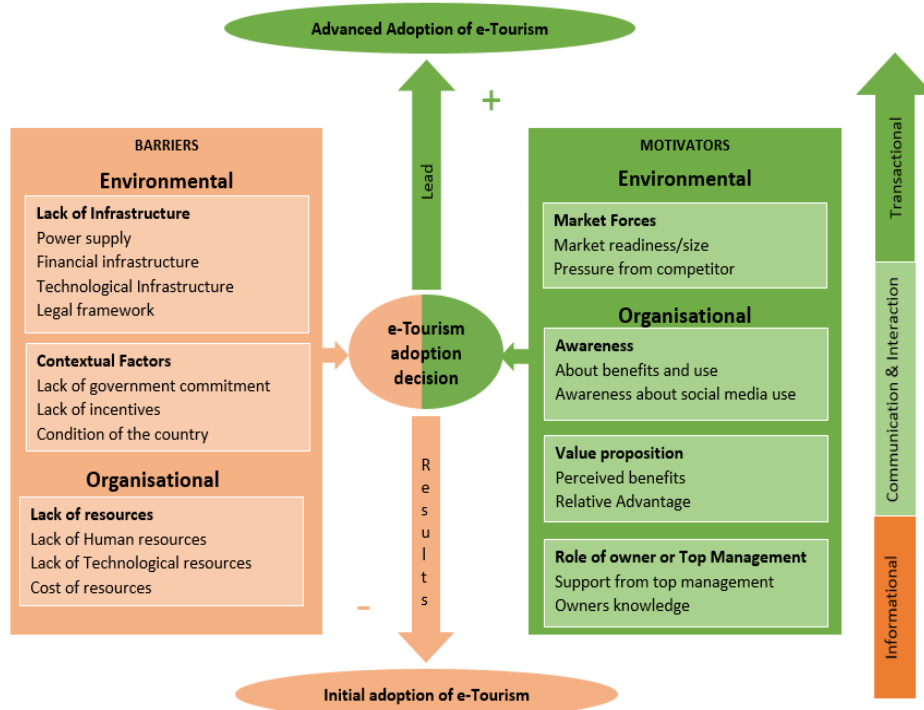


Figure 4. e-tourism adoption framework for Nepal

In addition, the transition from initial to advanced level of e-tourism adoption is characterised by three stages of e-tourism maturity: informational; communication and interaction; and transactional. At the informational stage, e-tourism is adopted at a primitive level (e.g. website for displaying static information only) and the barriers at this stage is highly prominent. As the maturity elevates to communication and interaction stage, a two-way communication between the SMTEs and the tourist can be enhanced. The use of dynamic website/mobile apps with search and contact feature followed by social media support are key features accessible at this stage. The highest maturity is recognised as transactional e-tourism stage where SMTEs streamline their operations and take part in the entire customer journey - from initial search to bookings to post service delivery activities such as feedbacks and complaints handling. The motivators at this stage is highly effective with little or no existence of the barriers.

This framework offers a pathway for Nepalese SMTEs to follow towards improving their tourism services through e-tourism adoption. While most of the service providers currently operate at the initial adoption level, the journey towards reaching the advanced adoption level can be mapped utilising this framework. In addition, policy makers and tourism practitioners can use this framework to understand the effects of e-tourism motivators and barriers in order to achieve a higher maturity.

7. Implications to Practice & Policy

The framework presented in this study (Figure 4) highlights the key barriers and motivators for e-tourism adoption by SMTEs in Nepal. The levels of adoption, e-tourism maturity stages and adoption factors presented in the framework can provide significant implications to practice and policy. The framework can be utilised by the concerned stakeholder in mitigating the identified barriers and taking advantage of the motivators. As it shows SMTEs' transition from an initial level to the advanced level of adoption, it offers broad implications for different level of stakeholders.

Firstly, SMTEs can identify their existing level of adoption (initial or advanced) based on the framework. Understanding their current level of adoption will provide greater understanding in regards to the nature of e-tourism development plans required for the future. In addition, by identifying the key motivators and barriers, SMTEs can determine whether these factors are internal or external to the organisation and act accordingly. This can provide maximum benefits of adopting e-tourism and mitigate risks associated with it.

Secondly, government and relevant policy making bodies also can be benefitted with this framework as it highlights the positive and negative effects derived from the e-tourism related factors. As a result, it will allow law enforcement offices or judicial bodies to construct relevant legislations in accordance with the identified factors, as well as maturity levels. Governmental bodies can direct their limited resources based on specific issues (e.g. security concern) or the levels of adoption.

In addition, the tourism associations can assist its member SMTEs in a transparent manner based on their maturity stages. The associations can priorities their efforts according to the identification of barriers at each level to provide relevant support. For example, in order to address information security concerns for early adopter SMTEs, the association can arrange awareness program to minimise this barrier. Similarly, by identifying the areas where the relevant association can help, the framework can also be used to foster collaboration with the government and other stakeholders.

Furthermore, IT companies of Nepal can take advantage of this framework as it assists in meeting relevant e-tourism requirements in Nepal. IT companies can focus on specific technical areas to assist e-tourism initiatives. The understanding of the barriers and motivators will enable them to provide better support towards achieving adequate e-tourism adoption and enhance the quality of their services.

Finally, international tourism service providers such as airlines or hotel chains can use this framework to understand the current e-tourism landscape of Nepal. Likewise, individual tourists can use this framework to assess various e-tourism services and make informed decision regarding service qualities in the tourism industry of developing countries, such as the case presented for Nepal.

8. Conclusion

The primary objective of this research was to develop and propose an e-tourism adoption framework for a highly promising tourism destination of Nepal. The validated research model offers the opportunity for SMTEs in Nepal to identify key barriers and motivators of e-tourism adoption in effectively addressing the challenges associated with it. Using a mixed method approach, data were collected by undertaking interviews with key informants and surveys among many SMTEs. According to the results, key factors that influences e-commerce adoption by SMTEs in Nepal includes inadequate national infrastructure, size of the market, support from the government, awareness, insufficient resources, value proposition and support from top management. The proposed model highlights these factors from either environmental or organizational perspectives.

While both tourism and e-commerce adoption has been extensively researched in the academic domain, this study offers a unique insight in the context of Nepal as few studies highlighted the significance of e-tourism adoption in developing countries. Additionally, the validated model provides a pathway for the policy makers, as well as SMTEs, to efficiently address the issues related to e-tourism adoption in the country and act accordingly. The identification of initial and advanced adopters in the model benefits SMTEs in utilising their resources to minimise the barriers and take advantage of the motivators. Nevertheless, genuine intervention from the government in regard to incentives, resource capabilities and national infrastructure is still fundamental for e-tourism to effectively adopt and most importantly, enable e-tourism towards maximum utility for developing countries.

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