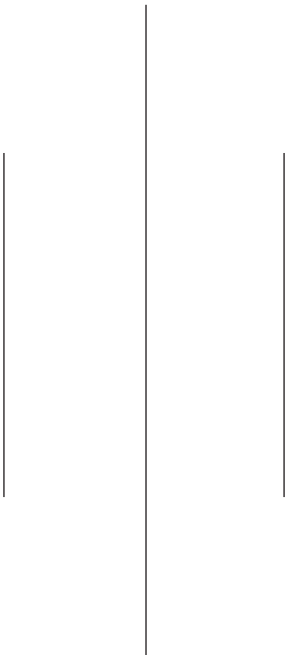
Exploration of factors affecting e-commerce adoption by tourism organisations in Nepal



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Abstract

Tourism is one of the major contributors to the GDP (Gross Domestic Products), and small-medium tourism enterprises (SMTEs) constitute the significant portion of the overall tourism market in Nepal. With the advancement of information and communication technologies (ICT), the successful application of e-commerce tools has become an indispensable facet of the tourism industry. The SMTEs plays a vital role in tourism and adoption of e-commerce practices can bring various benefits to these organisations due to global reach of e-commerce. However, despite its influence in reshaping the structure of this sector, SMTEs in developing countries like Nepal have often lagged to seize the opportunity to reinforce their businesses through e-commerce. While factors affecting e-commerce adoption by SMTEs have been well documented in developed countries, limited attention has been given towards the developing countries like Nepal. As a result, this research aims to address this gap and explore both facilitating and obstructing factors affecting the e-commerce adoption of the Nepalese tourism organisations.

In achieving this objective, a mixed method research design has been employed through semi-structured interviews of seven informants and a survey of one hundred ninety-eight tourism organisations. A conceptual model grounded on the e-readiness model and Technology, Organisational and Environmental model (TOE) has been proposed using statistical and thematic analyses. The factors in the model have been divided into environmental and organisational factors. Additionally, based on the purpose and level of e-commerce use in the organisation, the SMTEs are classified into initial and advanced adopters.

The results obtained show that significant predictors in terms of barriers to e-commerce adoption in Nepal are the absence of adequate infrastructure (environmental factor) and

lack of resources (organisational factor). On the other hand, the findings further identified market forces (environmental factor), awareness, value proposition, and role of the owner or top-level management (organisational factors) as the key motivators.

The identification of barriers to the adoption of the e-commerce aids in devising the strategies, plans, and programs required by the managers, IT/web vendors and policymakers to mitigate those barriers and encourage e-commerce adoption. It also contributes to e-commerce adoption discourse and helps to expand and validate models for the tourism industry. The findings of this research corroborate with most of the earlier studies on e-commerce adoption and contradict with some of the findings related to culture, supporting IT industry and security concerns. Finally, in the context of e-commerce adoption, this study makes a significant contribution to the information system knowledge realm, especially for developing countries.

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I consider this research and report are the output of great support from all the great and kind personalities, faculty members, and organisations.

Thank you very much.

Certificate of Original Authorship

I, Sanjay Lama declare that this thesis, is submitted in fulfilment of the requirements for the award of Master of Science (Research) in Computing Sciences, in the Faculty of Engineering and IT at the University of Technology Sydney. This thesis is wholly my own work unless otherwise reference or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This document has not been submitted for qualifications at any other academic institution.

Signature of Student: Production Note:
Signature removed prior to publication.

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List of Abbreviations

ADSL	Asymmetric digital subscriber line
ATM	Automatic Teller Machine
GDP	Gross Domestic Product
GDS	Global Distribution System
HAN	Hotel Association of Nepal
IBM	International Business Machines Corporation
ICT	Information Communication and Technology
ISP	Internet Service Providers
MOCTA	Ministry of Culture, Tourism and Civil Aviation
NATTA	Nepal Association of Tour & Travel agents
NTB	Nepal Tourism Board
PCA	Principal Components Analysis
PEER	Perceived External E-Readiness
POER	Perceived Organisational E-Readiness
SME	Small and Medium Enterprises
SMTEs	Small and Medium Tourism Enterprises
SPSS	Statistical Package for the Social Sciences
SWIFT	Society for Worldwide Interbank Financial Telecommunication
TAAN	Trekking Agencies' Association of Nepal
TAM	Technology Acceptance Model
TIMS	Trekkers' Information Management System
TOE	Technology organisational environment
TRA	Theory of Reasoned Action
UNESCO	United Nations Educational, Scientific, and Cultural Organisation
UNWTO	United Nations World Tourism Organisation
UTAUT	Unified Theory of Acceptance and use of Technology
UTS	University of Technology, Sydney

CHAPTER 1: Introduction

1.1 Introduction

This chapter introduces the research and lays the foundation for the study. The chapter has been divided into two sections. The first section introduces various terminologies, research problem or gap, followed by research aims and objectives. Consequently, the stakeholders, significance along with justifications to conduct this research have also been presented. The section ends with the methods used to achieve the poised objectives and the scope of the research.

The second section starts with the geographical context of Nepal followed by historical information on ICT use and tourism in Nepal. The ICT use in Nepal, tourism industry, nature and volume of tourism activities have also been presented. The section concludes with the information about various ICT initiatives of the Nepal government and the limitation of the research.

1.1.1 Thesis statement

This research identifies the factors that obstruct or facilitate e-commerce (electronic commerce) adoption by *Small and Medium Tourism Enterprises (**SMTEs**)* in Nepal and proposes a conceptual framework that guides e-commerce adoption.

1.1.2 Definitions of terminologies

E-commerce is defined as conducting all aspects of business activities including marketing, ordering, supply chain management, transactions using tools of information communication and technology (ICT) which is everything beyond voice telephony and fax (Garrett & Skevington 1999). Though some definitions limit e-commerce to the online financial transactions, e-commerce is much broader and also includes non-

financial activities such as information dissemination, exchanging information about product and services (Karanasios 2008).

E-commerce adoption in this research refers to conducting various tourism activities such as communication, marketing, online transactions using ICT tools by tourism organisations through their website or ICT systems. The "adoption" has been used regarding "use of e-commerce" and not limited to first-time use only.

A **conceptual model** represents a mental image of a system, components in it and interaction among those components (Pollack 2005). It helps in the modelling of the problems and aids decision maker to solve the problems, depicting the subjects, circumstances, and the constraints. Ordinarily, conceptual models are textual, pictorial or multi-faced in representation (Onggo 2010).

The term "**infrastructure**" used as a factor in this research refers to the national infrastructure, i.e. the digital infrastructure available in the country such as availability of technological facilities, electricity, law and payment gateways.

The first chapter lays the foundation for the introduction of the thesis and defines the key terms; then it presents the importance of tourism sector in Nepal. The need for the study has been identified along with the scope of the study. The aims and objectives have been presented along with a discussion of methodologies to achieve those objectives. The significance of this study has been established with the various contributions of the research. The information which helps to understand the context of this research has been presented after the depiction of the methods. It also incorporates the motivation to conduct this research and provides different contextual information about the areas of the study: Nepal, IT and tourism industry of Nepal

There are only a few studies conducted on e-commerce adoption in the tourism industry in developing countries. There are even fewer studies in the context of Nepal. This research is unique in different aspects such as scope, objectives, and context.

The table 1.1 below shows that any significant study has not been conducted investigating the e-commerce adoption in the tourism industry of Nepal.

Table 1.1 Studies and keywords

Studies	***e-commerce adoption***	***Tourism Organisation***	***Conceptual model***	***Nepal***
(Al-Weshah & Al-Zubi 2012; Lawrence & Tar 2010)	✓	✗	✗	✗
(Kapurubandara & Lawson 2006; Molla & Licker 2005a; Rowe, Truex & Huynh 2012)	✓	✗	✓	✗
(Maswera, Edwards & Dawson 2009)	✓	✓	✗	✗
(Kshetri 2007)	✓	✗	✓	✓
(Brdesee 2013; Karanasios 2008)	✓	✓	✓	✗
(Shrestha et al. 2015)	✗	✓	✓	✓
This Research	✓	✓	✓	✓

1.1.3 Scenario: Background of the study

Tourism is one of the major contributors to the GDI (Gross Domestic Income) of Nepal. In 2016, income from tourism was USD 518.5 million, and 753,002 tourists visited Nepal (MOCTA 2017). According to WTTC (2015), in 2014, the tourism industry of Nepal provided direct employment to approximately 487,500 people (3.5 percent of total employment). Due to intangible nature, tourism services can be immensely enhanced by using e-commerce (Buhalis & Jun 2011). Despite explorations of many advantages and a plethora of potentials of e-commerce for developing countries, e-commerce adoption in a country like Nepal has been sluggish (Kshetri 2007). Most of the studies about e-

commerce adoption have been conducted in the context of a developed country (Datta 2011; Molla & Licker 2005a). Several researchers (Kapurubandara & Lawson 2006; Karanasios 2008; Zaied 2012) argue that the low e-commerce adoption by tourism organisations in developing countries may have been resulted due to the challenges and lack of motivators.

Researchers agree that there is a dearth of information and studies investigating the e-commerce adoption in particular industry such as tourism industry of developing countries (Karanasios 2008; Shrestha et al. 2015). There are even lesser studies in the context of developing countries like Nepal (Kshetri 2007). The status of knowledge on such research is still in infancy stage. The lack of a model and information to adopt e-commerce has not only deterred the adoption of e-commerce but also affected the Nepal government's vision of digitalising business and plan of creating new programs, policies, and laws related to IT and tourism (Shrestha et al. 2015). So, this research aims to identify factors affecting e-commerce adoption by tourism organisations of Nepal.

The tourism organisations investigated in this research are ***SMTEs.*** As of 2016, there are only one hundred and sixteen star rated hotels (including eight five-star hotels) and twenty-six international airlines operating in Nepal, but there are 2,768 travel agencies, 2,016 trekking agencies, and 960 non-star hotels most of which are small and medium businesses (MOCTA 2017). In this research, SMTEs refer to organisations registered as a tourism company in Nepal with less than 100 employees and with the fixed assets up to 250 million Nepalese rupees (24.3 million USD approximately). The SMTEs include trekking and tour agencies, vacation package booking organisations, expedition providers, small hotels (non-star) that provide services to tourists, airline ticket reservation agents. SMTEs are one of the critical contributors to the economy of many developing countries (Brdesee 2013; Karanasios & Burgess 2008). E-commerce can

benefit smaller and medium enterprises which are limited only to the local market as it provides access to global information and broader market (Ahmad et al. 2015). SMTEs constitute the large portion of overall tourism market of Nepal.

Kshetri (2007) argues that e-commerce has lots of potential for developing countries such as Nepal. The government of Nepal has been seeking for new tools and programs to promote tourism industry of Nepal and working with a vision increasing international tourist arrivals to two million and employing one million people by 2020 (MOCTA 2014). Kshetri (2007) asserts that e-commerce can help in increasing tourist's arrivals, which can act as a tool for social and economic development of developing countries like Nepal. However, he claims that there are barriers to e-commerce adoption in developing countries such as Nepal and the business environment is competitive which are inhibiting the achievement of such goals. In developing countries, the usage of ICT is in the embryonic stage (Datta 2011) and taken as a luxury (Kshetri 2007). So, in the light of these context, benefits, and dearth of studies, research is required to fulfil such knowledge gap through a systematic study. This research aims to fulfil such gaps.

Some researchers and government bodies of Nepal such as Nepal Tourism Board have investigated the use of ICT in the tourism industry of Nepal (Shrestha et al. 2015). However, this is one of the first studies in the context of Nepal at this scale considering the time, scope, and empirical data collection using qualitative and quantitative tools to investigate drivers and barriers for the e-commerce adoption in the tourism industry of Nepal.

1.2 Aims and objectives of the research

The aims of this study have been ascertained based on the gaps identified in this research related to stakeholders such as representatives of Nepal government, tourism organisations, other supporting organisations such as IT companies and the tourists. The need for this study was identified based on discussions with the stakeholders and recommendations from prior research (Kshetri 2007; Shrestha et al. 2015).

The primary aim of this research is to identify the reasons behind the low adoption of e-commerce by tourism organisations of Nepal. SMTEs in developing countries are resource poor. Karanasios (2008) argues that e-commerce can be a major influencer in tourism industry despite the scarcity of resources. The e-commerce adoption by SMTEs has been low despite the large volume of tourism activities and benefits of adoption of electronic commerce in the tourism industry of Nepal. So, this research aims to investigate the causes of such contradictory situation in the tourism sector of Nepal. In addition to unearthing the reasons and creating a model, the study seeks to recommend the actions required to solve the identified problems. Since the e-commerce adoption models will facilitate the e-commerce adoption, this study also seeks to propose such model which will aid tourism organisations to adopt e-commerce in their business.

To sum up, the aims of this research can be summarised and listed as follows:

1) To improve the understandings of the factors affecting e-commerce adoption in developing countries like Nepal.
2) To promote the greater adoption of the e-commerce adoption by identifying the barriers and enablers that affect such adoption.
3) Analyse how the stakeholders can facilitate e-commerce adoption by SMTEs of Nepal.

The primary objective of the research is to identify the factors affecting e-commerce adoption by tourism organisations of Nepal. As there is a dearth of research and information about barriers and drivers of e-commerce adoption in the context of tourism organisations of developing countries such as Nepal (Datta 2011; Kshetri 2007), this study seeks to find out the barriers and enablers to e-commerce adoption.

The research provides recommendations for successful adoption of e-commerce by tourism organisations in Nepal. These recommendations may be useful for the government of Nepal in the formulation of laws and policies related to e-commerce adoption.

Despite the large volume of tourism activities and lack of a recognised model for e-commerce adoption for developing countries, there is a scarcity of conceptual models to analyse and guide the adoption of e-commerce by tourism organisations of developing countries (Kapurubandara & Lawson 2006) like Nepal. So, a theoretical model will act as a *blueprint* for implementation of e-commerce by SMTEs. This model will provide clear implementation guidelines and will aid different stakeholders such as government, tourism organisations, tourists and other related agencies assisting tourism activities.

In sum, the objectives of the research are as follows:

1) To identify the barriers and enablers that affect the e-commerce adoption by SMTEs and confirm them using quantitative and qualitative tools.
2) To create a conceptual model that can be used as a tool for the adoption of e-commerce by tourism organisations of Nepal.
3) To develop the recommendations that can facilitate the e-commerce adoption in the tourism industry of Nepal.

1.3 Research Questions

This research aims to explore factors affecting e-commerce adoption by SMTEs in developing countries such as Nepal. To investigate these factors following research questions have been formulated.

1) **What are the barriers and motivators to e-commerce adoption by SMTEs in Nepal?**

To support this question, following sub-questions are developed:

1.1) What is the status of e-commerce adoption by SMTEs of Nepal?

1.2) How can stakeholders play a role in overcoming the barriers and encouraging SMTEs in Nepal to adopt e-commerce?

Based on identified factors and stakeholders, a conceptual model is created. For the analysis of these research questions, the unit of research is SMTEs of Nepal.

1.4 Significance of the research

The study aims to achieve various objectives involving different stakeholders. Its principal stakeholders are government, tourism organisations, tourists, and other supporting industries. The government of Nepal, SMTEs, and other related organisations will be the beneficiary of the outcomes of the research. Also, the research will contribute to fulfilling an academic gap created by the dearth of information and research studies about e-commerce adoption in the tourism industry of developing countries like Nepal.

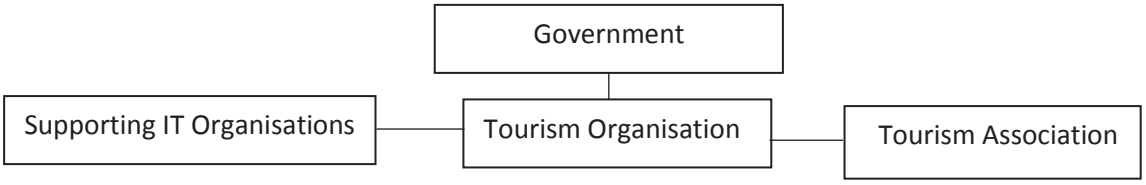

Figure 1.1 Major stakeholders of the research

Figure 1.1 shows the major stakeholders and how they are linked to each other in this research. The tourism organisations pay taxes to government whereas government facilitates the business of travel organisation through government bodies such as Ministry of Culture, Tourism and Civil Aviation and Nepal Tourism Board (Thapa 2004). There are various supporting the government and private organisations such as security forces, IT businesses, Telecommunications and Transport providers helping tourism organisations to conduct their daily business activities. The tourism organisations provide different kinds of services to tourists or end users assisted by various organisations and government bodies (Shrestha et al. 2015).

In the global tourism arena, the tourism processes have become faster, cheaper and more accessible using e-commerce with the introduction of facilities such as searching, online booking and online payments (Buhalis & Jun 2011). Similarly, potential tourists have started reading online reviews and contacting service providers before making the final purchase decisions for hotels, tourist destinations (Gonzalo 2014). Such digitalised facilities have opened potentials to expand the tourism business of Nepal as well (Bhattarai 2011). However, tourism organisations in Nepal still operate based on traditional "bricks and mortar" business model, and e-commerce usage is minimal (Shrestha et al. 2015). Hence, there is a need to examine the e-commerce policies and possibilities, and the role of the government to promote tourism in Nepal. So, to examine such aspects, this research investigated the e-commerce adoption by tourism organisations of Nepal.

After the study, the recommendations for implementation of e-commerce in the tourism industry has been made based on the findings which can be used by the government in IT planning, formulation of laws and policy related to tourism, IT and e-commerce usage in Nepal. It will not only help the government in implementing the various measures to remove the barriers to e-commerce adoption by SMTEs but also provide a vivid picture of the status of IT usage in Nepal, the perception of IT among SMTEs, and the guidelines for SMTEs to adopt e-commerce in their business.

The SMTEs of Nepal face many challenges because of lack of clear policies and initiatives of the government to assist travel business (Bhattarai 2011; Shrestha et al. 2015). So, plans or programs by the government based on the provided recommendations of study could help to extirpate such problems of tourism organisations. The factors identified will inform the stakeholders which area they should focus on regarding e-commerce adoption.

Research studies have found that the tourism industry is also linked to employment, the economy and the overall development of a country (Karanasios 2008; Samimi, Sadeghi & Sadeghi 2011). Any improvements in the tourism sector which would increase the number of tourists or reduce the operational cost can have an economic impact in a country like Nepal, where many people are engaged in the tourism industry (Thapa 2004).

The findings of the research will benefit tourism industry of Nepal and government's initiatives and plans for the overall development of Nepal through tourism (Shrestha et al. 2015; Thapa 2004). Introducing IT and e-commerce in the tourism industry of Nepal can also help in the government's vision such as increasing tourists arrival up to two million and employment in the tourism sector to one million by 2020 as the existing systems can benefit from the use of e-commerce (MOCTA 2014).

Despite having own homogenous context and environment, developing countries share several common features such as low ICT usage, turbulent political and macroeconomic circumstances (Karanasios 2008). The condition and attractions of the tourism industry of Nepal are much like the context of many other similar developing countries. So, findings from this research will not only help the government of Nepal but also the governments of other developing countries which are trying to embrace e-commerce in their tourism industry.

This research contributes to the knowledge body of e-commerce adoption discourse through its array of findings and recommendations amidst the claim that there is a lack of studies investigating e-commerce adoption in the context of developing countries (Ahmad et al. 2015; Kapurubandara & Lawson 2006). It helps in minimising the gaps created due to the dearth of information relating to IT usage in developing countries and use of e-commerce in the tourism industry.

1.5 The research process: Overview of Methodology

This research uses various methods to achieve the objectives. Each objective is unique and different methods have been adopted to fulfil these objectives.

The barriers and motivators to e-commerce adoption have been identified using mixed methods, i.e., qualitative and quantitative. The mixed method has been known to broaden the range of research and make research more comprehensive (Creswell 2013). Data has been collected through interviews and surveys with representatives of tourism associations and SMTEs. The seven representatives of various stakeholders have been interviewed for qualitative analysis. Similarly, one hundred ninety-eight representatives of SMTEs have been surveyed for quantitative analysis.

The figure 1.2 (in following page) shows the methods adopted in this research.

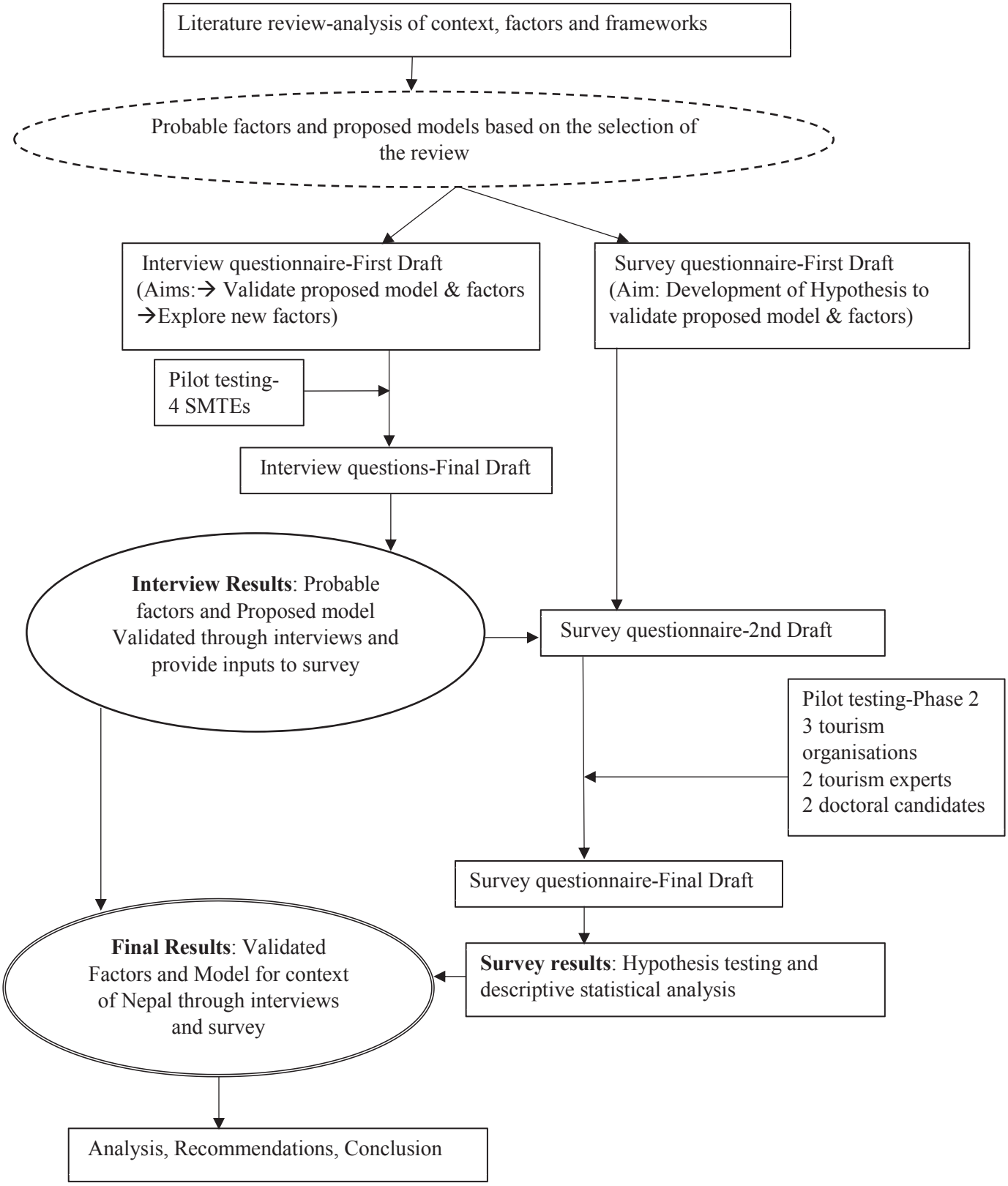

Figure 1.2 Research methods

The first sets of factors are proposed based on a comprehensive study of the literature. Those factors are considered "probable factors" in the context of Nepal as those factors were found to be affecting e-commerce adoption in different developing countries. A first draft of the conceptual model for Nepal was developed based on those probable factors, e-readiness model (Molla & Licker 2005b) and Technology organisational environment (TOE) model (Tornatzky & Fleischer 1990). These frameworks were selected based on suitability analysis in the context of research objectives, context, and industry (presented in Table 3.2).

This research uses mixed method for the validation of the factors. Venkatesh et al. (2013) emphasised to determine the appropriateness of the mixed method for research before using it. They argued that the mixed method is appropriate for any research which aims to extend or corroborate the existing theories. Mixed methods could also help to unearth the new factors when a framework is tested in a context different than where it was created. Since this research aims to confirm the existing factors and find new factors in relation to e-commerce adoption, mixed methods deemed to be appropriate for this research.

When the research objective is to create an understanding of the research issues first, develop factors and then validate such developed factors, the sequential approach is recommended rather than concurrent approach (Venkatesh et al. 2013). In addition, when too many details are not known or there is no strong theoretical foundation regarding the issue or the context, use of qualitative method before the quantitative method is recommended (Bricki & Green 2007). So, this research uses mixed methods with qualitative (semi-structured interviews) first, and then quantitative method (survey) to find the factors that impact e-commerce adoption by SMTEs in Nepal. Similarly, this research also provides various 'meta-inferences' (findings) from mixed methods results.

The triangulation or using multiple methods for data collection and analysis enhance interpretability, reliability and internal validity making results more robust (Creswell & Clark 2011).

The semi-structured interview was chosen as a qualitative tool as it allowed identification and validation of factors through their expression. The objectives of the interviews were to: i) explore and validate the proposed factors and model ii) add new factors which may be relevant in the context of Nepal.

Similarly, the survey was chosen as a quantitative tool to validate the proposed model as it allows statistical testing of the impact and relation in the model. The validated factors were used to create and finalise the conceptual model.

As shown in figure 1.2 (above), the first draft of the questionnaire for semi-structured interviews and surveys were created based on the factors identified from the literature review. After finalising the interview questionnaire through the pilot testing, the interviews were conducted using the finalised questionnaire. The interview data were analysed using thematic analysis. The proposed model was updated based on the analysis and identification of some new factors from interviews. The survey questionnaire was also updated by adding some questions to validate the updated model.

The updated survey questionnaire was pilot tested and finalised after simplifying some question. The finalised questionnaire was distributed to 250 SMTEs of Nepal using a random sampling method to validate the factors and model updated from the interviews and created the final version of the conceptual model. The interviews and surveys were conducted after the ethics approval from the University of Technology, Sydney (UTS).

The hypothesis testing was used to validate the factors and model. The hypotheses have been set up to check the relationship between different factors and e-commerce adoption

by SMTEs. The hypotheses were formulated based on probable factors identified through literature reviews and updated after semi-structured interviews. The hypotheses have been tested using quantitative analysis of survey data.

The software SPSS was utilised for the statistical analysis of the quantitative data. The binary logistic regression method was used to test the hypotheses because of the binary nature of dependent variable/e-commerce adoption. Reliability and validity checks were performed to ensure the consistency and quality of the data.

The conceptual model is validated and updated with only significant factors based on statistical analysis. This model can be utilised as a guide for e-commerce adoption. The creation of the conceptual model to report the results of e-commerce adoption studies has been standard practice. Several prior exploratory studies have constructed a theoretical model as a synthesised picture of findings and results of their studies (Brdesee 2013; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008).

A pictorial method for conceptual map creation which is a combination of text and graphs to create a conceptual model (Onggo 2010). In the method, the different variables are depicted as boxes and relationship between them are shown using lines or arrows. The conceptual model is created in this research based on objectives and includes e-commerce adoption barriers, enablers, different levels of adoption, stakeholders and relationship among those factors.

The arrangement of the chapters in this thesis has been presented in following diagrams:

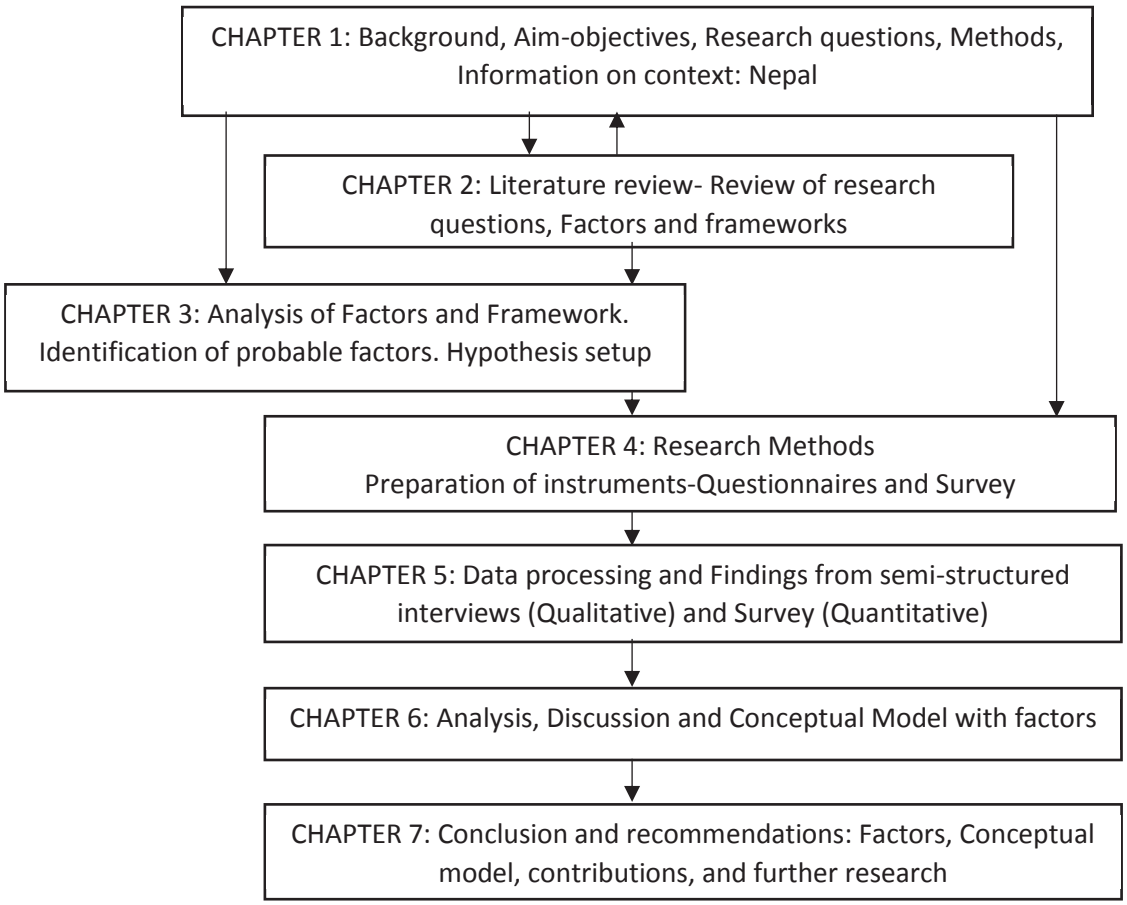

Figure 1.3 Overview of the research process

1.6 Scope of the study

1.6.1 Small and Medium Tourism Enterprises (SMTEs)

The primary focus of the investigation of this research is SMTEs. The advent of the various ICT tools has redefined the whole tourism business processes and instigated the need for business process redesign from traditional to digital process (Buhalis & Law 2008). Many tourism organisations have started using ICT tools for the various purpose. In the 1990s, large GDS (Global Distribution System) dominated the tourism business which primarily provides multi-sectoral reservation, but the current tourism industry comprises of many SMTEs providing a diverse range of services such as information sharing, communication, online transactions, review and rating using e-commerce tools. This shift has been significant for the tourism industry in the developing countries as well.

Though there is no official definition of SMTEs, the Industrial Enterprises Act 2016 of Nepal, classify enterprises with fixed asset of 100 million Nepalese rupees as small enterprise and enterprises with fixed asset between 100 to 250 million Nepalese rupees (24.3 million USD approximately) as medium enterprise and enterprises with asset above 250 million Nepalese rupees as a large enterprise (Department of Industry 2016). However, the Act does not classify enterprises based on a number of employees. So, based on nature of tourism industry in Nepal, the tourism organisations with up to 100 employees and assets of up to 250 million Nepalese rupees (24.3 million USD approximately) were classified were considered as SMTEs.

SMTEs comprise small and medium tourism service providers such as trekking agencies, hotels, vacation package sellers which provides tourism related services. They provide a range of services using their knowledge, skills, and experience of their locality and their business. Such tourism organisations are also a significant source of employment. Since SMTEs play an important role, enhancing their business process can have a significant impact on the overall tourism activities and economy of the country.

In Nepal, to operate as a tourism organisation or the tourism service provider, firstly the organisation should get a certificate from Company Registration Office or the Department of Industry or the Cottage and Small Industry Development Board (CSIDB). Then, the organisation should register at Tourism Industry Division, the government body which looks after the registration of tourism organisations (Sedai 2013).

The number of tourism organisations registered in Tourism Industry Division, Nepal is as on table 1.2 below:

Table 1.2 Tourism organisations as on 2016-2017

Organisation type		Number
Hotels		1,076
Star rated	116	
Non-Star rated	960	
Trekking agencies		2,016
Travel agencies		2,768
Airlines		43
International Airlines	26	
Domestic Airlines	17	

Source: (MOCTA 2017)

These tourism organisations are working as either sole proprietorship, joint, company, public limited or co-operative model (MOCTA 2014). The tourism industry department which maintains the records of the tourism enterprises working in Nepal records hotels as "non-star" and "star" rated hotels (MOCTA 2017).

Though the usage of e-commerce and ICT covers a broad realm, this research includes the adoption of e-commerce by SMTEs. They usually operate independently without direct support and collaboration with multinational chains such as international airlines and hotels. The multinational organisations such as hotel chains, airlines, tour operators working in Nepal are not included in the research as adoption decision of such organisations are directly or indirectly affected by their global or parent companies. Also, the research studies from service provider's perspective only and will not include buyer's (tourists) perspective.

The table 1.2 also shows that SMTEs such as trekking agencies, travel agencies, and small hotels constitute the major portion of the tourism industry in Nepal.

This research will cover:

1) Non-Star rated Hotels
2) Travel and tours organisations
3) Trekking organisations

1.6.2 Type of e-commerce: Business to Consumer (B2C)

There are different types of e-commerce models based on stakeholder's involvement such as Business to Business(B2B), Business to Consumer(B2C), Government to Consumer (G2C) and others.

In this research, we examine the e-commerce adoption by SMTEs. So, it primarily focuses on Business to Consumer (B2C) e-commerce only as the tourism services provided by businesses or organisations is mostly utilised by tourists or consumers rather than business or government.

Based on records of tourists' arrival in Nepal and their purpose of visits, it can be ascertained that B2C tourism comprises the most significant portion of overall tourism services or activities in Nepal (MOCTA 2017).

1.7 Justification of Research

There is a dearth of research studies and models for e-commerce adoption for tourism organisations in Nepal. The adoption models formulated in developed countries or context of some nations may not be directly implemented in another country as each country has their homogenous context such as political situation, geographical boundaries, culture-tradition and nature of the business.

As every country has their own context, the barriers to e-commerce adoption by SMTEs of Nepal can be ascertained only after detail study of local context, capability, and requirement. The models which are not customised to meet local requirements and social values fail to deliver their promises (McBride, 2000). So, the research investigates and formulates the model based on the local context.

There have been some research studies investigating e-commerce adoption in developing countries, but most of the studies have focused on Small and Medium Enterprises (SMEs)

or industries other than tourism. So, there is a need for research on e-commerce adoption in the tourism sector. The factors impacting e-commerce adoption also differs as per industry (Brdesee 2013). Researchers agree that 'one-size-fits-all' model may not be attainable in the deployment of e-commerce (Molla & Licker 2005a). Therefore, this research aims to create a customised model for the tourism industry.

With the advent of new technologies, the tourists have more choices and spend lots of time on pre-purchase activities such as searching, planning and comparing (Buhalis & Law 2008). So, to remain competitive, tourism organisations in developing countries also need to update their business model by introducing e-commerce into their business. Such updates require a model and detail analysis of factors affecting their adoption. Considering these implications and lack of suitable models for countries like Nepal, this research is unique and ventures to address the significant gap and develop more locally sensitive and usable model of e-commerce adoption for tourism.

The findings and recommendations may be transferable to other countries with situation and prospects like tourism industry of Nepal.

1.8 The context of Study: Nepal

1.8.1 The geographical context

Nepal, a developing country investigated in this study, is one of the landlocked countries in South Asia situated between India and China. It has an area of 147,181 square kilometres (56,827 square miles) and is a 94th largest country in the world regarding size (CIA 2016).

Nepal is one of the developing countries with low human development index of 0.58 and ranks 145th in overall index (UNDP 2015). Nepal is a country of rich cultural diversity and home to a large number of floras and faunas. Also, it is famous for its sculptures,

heritages, and places of natural beauty. For these reasons, Nepal is one of the popular tourist destinations.

Figure 1.4 Map of Nepal Source: (Nepal 2016)

1.8.2 ICT in Nepal

The first use of the telecommunication services in Nepal can be traced back to 1913 (Mishra 2014), and the first known use of the computer (mainframe) was in the census in 1972 (Pariyar 2007). Similarly, the first use of a personal computer was in 1985. The Computer Association of Nepal (CAN), a formal association of information technology entrepreneurs and stakeholders was formed in 1992. The use of internet started in 1993 which was started by Royal National Academy of Science and Technology (RONAST) and then adopted by Ministry of Science and Technology which was established in 1996. The ministry formulated the first IT policy of Nepal in 2000 (Pariyar 2007). The table 1.3 below shows the major milestones in the IT industry of Nepal

Table 1.3 History of technology in Nepal

Year	Milestone
1913	Telecommunication services started in Nepal
1972	Introduction of a computer for the census (IBM1401)
1974	Establishment of Electronic Data Processing Centre
1982	First Private Foreign Investment in software development by establishing the company
1985	Start with use of Personal Computers
1990	Liberalization on imports of equipment
1992	Establishment of Computer Association of Nepal
1996	Establishment of the Ministry of Science & Technology
2000	The announcement of the first IT policy, "IT Policy 2000."
2001	Establishment of National Information Technology Centre
2003	Establishment of High-Level Commission for Information Technology(HLCIT) Establishment of IT Park
2004	Telecom Policy 2004
2007	Enactment of Electronics Transaction Act
2010	IT policy revised
2011	High-Level Commission for Information Technology(HLCIT) dissolved
2012	Establishment of Department of Information Technology
2015	IT policy revised

Compiled from various sources: (Pariyar 2007; Shrestha et al. 2015)

According to a report from the International Telecom Union (ITU 2014), Nepal made minor but overall progress in the ICT Development Index with the ranking of 131st in 2013 compared to 134th in 2012. However, it ranks behind most other developing countries and is near the bottom of the global rankings.

ICT program has not been a core priority of the government with a substantial portion of the budget allotted to education, health, and infrastructure development sectors (Ministry of Finance 2017). However, with the recent increase in the use of mobile technology and access to the internet through mobile phones, Nepal has achieved a mobile penetration rate of 130.24 percent in August 2017, up from 87.55 percent (26.06 million users) in 2015 and 71 percent in 2013 (NTA 2015; NTA 2017). Similarly, the internet penetration rate had increased to 61.99 percent (16.22 million subscribers) in 2017 from 38.78 percent with around 10.28 million customers in 2015, but 95.89 percent of those customers access the internet through cellular data or mobiles (NTA 2015; NTA2017). This scenario has opened various opportunities for the use of ICT and e-commerce and has also led to the

discussion of future requirements and possibilities of ICT use for the country. Jagun, Heeks & Whalley (2008) argue that the high use of mobile telephony in most developing countries can narrow the gap between e-commerce adoption by big and small business organisations. There is a significant improvement especially in telecommunication and internet infrastructure with three complete east-west fibre backbone laid in the country and two under construction (Ministry of Information and Communication 2015).

The latest reports and rankings show that Nepal still in an initial stage in the context of technology usage (Ministry of Information and Communication 2015; Schwab 2016). Despite improvements in telecom infrastructure and usage of phones, there is a shortage of coherent strategy that can drive the ICT usage and development in the country.

1.8.3 E-commerce in Nepal

The computers and Internet usage in Nepal started in the early 90's, however, the overall ICT development was sluggish even when the global ICT arena grew significantly during the same period.

The electronic transaction Act 2008 governs the electronic transactions in Nepal (Ministry of Science and Technology 2008). The Act has provisions for recognition of digital documents and digital signatures. The Act also has provision for various authorities such as digital certificate controller, IT tribunal for successful implementation of the law. Even the laws including punishment for wrongdoing, settlement of the disputes, and proper handling of the cases related to the electronic transaction have been included in the Act.

The lack of international payment system and international electronic payment cards (debit and credit cards) are claimed as a reason for the late start and low e-commerce usage in Nepal. Though it has been reported that credit or debits cards were introduced

as early as 1990 by local banks (Pariyar 2007), it is still not widely used, and most of the banks do not issue international Master and Visa card that can be used online internationally. The cards issued by the local banks can be used locally only in the limited number of websites. The local transaction is facilitated by some local payment gateways which can be funded through selective banks and usually works on selected sites on a commission basis (Aryal 2016).

Despite a low availability of e-payment cards, e-commerce can still be adopted in the tourism industry of Nepal as the customers for tourism services are from the developed country, and usually, they possess either international debit or credit card(s).

There are some local payment gateways operated by some private companies, mostly linked with few national banks but credit card payment and international third parties payment processors such as Paypal and others are not available in Nepal. Such condition has crippled the adoption of e-commerce, but in recent years the use of e-commerce is gradually increasing with the rise of e-commerce use among the younger population in urban areas (Khan 2015).

The government has forwarded a master plan for the implementation of ICT in education, governance, and transparency. Some of the programs have already been implemented such as e-education, e-tender, electronic form submission for governmental services such as passports (Department of Information Technology 2017).

The e-commerce is being utilised by some big star hotels for bookings, and by many small tour operators for communications as the consumers of the tourism business are mostly from developed countries where the use of e-commerce is common. This research also focuses on how to provide more facilities to such customers/tourists by adopting e-commerce in the tourism industry of Nepal.

1.8.4 History of tourism in Nepal

Nepal was under the autocratic rule of Rana for 104 years (1846 -1951) which kept foreigners out of the country. It has been indicated that Nepal was open for outsiders only after 1950 (KU 2011). In one of the famous visits (in the 1950s), Sir Edmund Hillary of New Zealand and Tensing Norgay Sherpa scaled Mount Everest, the highest peak in the world in the year 1953 (Jenkins 2002).

The tourism infrastructure was primitive in the 1950s and is reported that a hotel called "Royal Hotel" was built in Nepal by a Russian citizen, Boris Lissanevitch, in 1955 for accommodation (Shrestha et al. 2015). As the bureaucracy was also in embryonic stage due to lack of development and political unrest, Nepal started keeping records of tourists entering Nepal only in 1962 (NTB 2001).

Table 1.4 Summary of history of tourism in Nepal

Year	Event
1950	Open for outsiders only after 1950
1953	Sir Edmund Hillary and Tensing Norgay Sherpa scaled Mount Everest
1955	First hotel, "Royal Hotel" built by a Russian citizen, Boris Lissanevitch,
1962	Record keeping started (tourists entering Nepal was 6,000)
1966 to 1970	Growth rate of tourist influx 266%
1970 to 1974	Growth rate of tourist influx 95%
1990	Around two dozen registered tourism service providers
1996	The Civil war in Nepal. Tourist arrival declined.
1998	Visit Nepal Year.
2007	Truce with Maoists.
2013	797,616 tourists arrivals.
2015	7.8 Richter scale Earthquake. Many tourism sites affected. Number of Tourists decline (538,970. -32%). Recovery started
2017	Tourism arrival increasing (940,218, +24.8%)
Proposed 2020	Tourist arrivals to two million and employment to one million.

Compiled from various sources: (MOCTA 2014; Prasain 2018; Sedai 2013)

The growth rate of influx of tourists was around 266% between 1966 to 1970 and around 95 percent between 1970 to 1974 (MOCTA 2001). The revenue from tourism in Nepal has increased from US$ 35.2 million in 1979 to US$ 168.1 million in 1999 (NTB 2001).

Despite popularity and potential of tourism in the 1960s and 70s, the tourism policy of Nepal was only formulated after two decades in 1990 when the country was going through an era of political change. It is believed that different activities such as travel, trekking, and rafting started at that time. Some records show that there were only around two dozens of tourism service providers in 1990 (Nepal Government 2007).

As revenue from tourism increased, the government created Nepal Tourism Board (NTB) through a legal Act in parliament in a public-private partnership for promotion and diversification of tourism products and enhancement of tourism service quality (NTB 2001). Since then, NTB has been responsible body for promotion and marketing of tourism of Nepal to the international arena.

In the period between 1996 and 2006, Nepal was hit by the civil war, after local Maoist party waged against the government with political demands. The war had an adverse impact on tourism. Amidst crisis, the government tried to promote the tourism industry and increase the number of visitors by celebrating the year 1998 as 'Visit Nepal 1998'. The government organised around 49 national seminars and 29 international conferences for the promotion of that campaign (Shrestha et al. 2015).

The number of tourism fell as the war intensified, and it was not limited to the remote areas but had also spread to some urban areas. Bhattarai, Conway & Shrestha (2005) claimed that numbers of visitors in 2002 fell to a level that of 1990. The tourism sector was negatively impacted by internal political instability and Maoist civil war with many countries including the USA issuing cautionary level of travel advisory (Thapa 2004). Tourism accounted for 4 percent of GDP and tourism arrival growth rate was in negative in 2001 (NTB 2001; Thapa 2004). However, after a truce between the government and Maoist in 2007, the tourism activities and visitor arrival sprung, and the number of travel service providers was estimated to be around 2,000 in 2007 (Nepal Government 2007).

Table 1.5 Tourism organisations registered in tourism industry division 2003-2014

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Travel Agency	788	877	948	1,026	1,167	1,320	1,496	1,739	1,936	2,116	2,336	2,567
Trekking Agency	645	705	740	793	872	977	1,096	1,240	1,378	1,524	1,665	1,860
Rafting Agency								10	33	40	56	61
Tourist Guide	2,071	2,149	2,202	2,271	2,343	2,458	2,548	2,661	2,835	2,935	3,102	3,355
Trekking Guide	3,457	3,930	4,395	4,663	5,098	5,356	5,987	6,747	7,303	8,163	9,076	10,213
River Guide								24	44	58	115	144
Tourist Vehicle										23	38	57
Tourist Police						52	52	50	53	60	227	227
Paragliding Co.									16	21	21	37
Ultralight Co.									1	3	3	37
Skydiving									2	2	2	4
Domestic Airlines									17	15	15	17
International									29	28	29	26
Domestic Airport									54	54	54	29

Source: (MOCTA 2015)

Tourism has been one of the primary sources of foreign currencies, employment creation, and tax revenues for the government since then. The revenue from tourism industry has also increased from US$ 168.1 million in 1999 (Thapa 2004) to US$ 518.5 million in the year 2016.

1.8.4.1 Hotel Industry in Nepal

The first hotel established in Nepal is considered to be a hotel called “Royal Hotel” which was built by a Russian citizen, Boris Lissanevitch, in 1955 (Shrestha et al. 2015). With the tourists starting to arrive in Nepal, the accommodation was necessary for those tourists. There were 956 hotels registered in Nepal till 2014 with tourism industry division, the body under Ministry of Culture, Tourism & Civil Aviation, Nepal responsible for registering the tourism organisations. The number has increased to 1,076 as shown in Table 1.2.

The development of the hotel industry can be shown in the following table:

Table 1.6 History of Hotel industry in Nepal

Date	Activities
1955	First hotel "Royal Hotel" built by a Russian citizen, Boris Lissanevitch
1959	Establishment of Hotel Snow View
1962-66	Tourism activities expanded to Pokhara and Lumbini
1967	Hotel Association of Nepal(HAN) established
1971	Classification of hotel
1972	Tourism Master Plan-Hotel Management & Tourism Training Centre (HMTTC) established
1973	Wildlife Conservation Act enacted
1977	Ministry of Tourism established
1978	Tourism Act enacted
1981	Bar and Tour Guide Regulation
2009	Tourism Policy 2009
2010	Homestay operating procedure 2010 issued
Proposed 2020	Tourist arrivals to two million and employment to one million

Compiled from various sources: (MOCTA 2014; Sedai 2013)

Hotels in Nepal has been classified as Star hotels (1 star to 5-star hotels), Tourist standard hotel (TSH) or tourist class hotel (TCH), Lodge, Resorts and Homestay (Sedai 2013).

1.8.4.2 Travel and trekking agencies in Nepal

Tour and Travel companies in Nepal provides various kinds of services such as the arrangement of vacation and tour packages, booking tickets for customers, booking a hotel and making other arrangements for tourists. There were around 2,112 travel agencies registered with tourism industry division of Nepal government in 2013 (Sedai 2013). Nepal Association of Tour & Travel agents (NATTA), established in 1966, has around 750 members registered with the association (NATTA 2016).

Nepal is home to many world famous trekking routes including trekking routes around Everest, the highest peak in the world. There are eight peaks out of 10 tallest peaks of the world. So, trekking and mountaineering have been one of the major tourist attractions, and it was the third highest reasons for visiting Nepal (MOCTA 2015).

Local trekking agencies usually manage the trekking activities in Nepal. There are various kinds of fees and permission required in addition to information about local circumstance,

the arrangement of accommodation and gears for the trekking. So, the trekking agencies provide these kinds of services for tourists. As of 2014, there are 1860 trekking agencies registered in the tourism industry division of the government of Nepal (MOCTA 2015).

Trekking Agencies' Association of Nepal (TAAN), established in the year 1979, has around 1,100 General Members (TAAN 2016). TAAN with association with Nepal Tourism Board (NTB), also manages a digital information system called Trekkers' Information Management System (TIMS) for the safety and security of the trekkers and to control illegal trekking operations. The trekker's details such as dates of the trip, the itinerary, trekking area, trekking routes, handling agencies, duration, and contact number are recorded in the system, and cards are issued to trekkers. The recorded information helps in urgent situations such as rescue operation if required (TIMS 2016). The use of TIMS also shows the ICT and e-commerce usage among tourism organisations.

1.8.4.3 Nature and status of Tourism in Nepal

Nepal is one of the major tourist attractions in the world with eight out the ten highest mountains, including Mount Everest. It is one of best places to visit because of its natural, cultural, religious, and social resources and attracts tourists from all over the world. According to MOCTA (2013), 797,616 tourists visited Nepal (75 percent by Air) in 2013, and the number one reason provided for their visits was for Holiday/Pleasure.

Tourism has been one of the major backbones of the economy of Nepal. The revenue in 2013 from tourism was the US $429.216 million. Similarly, in 2014, it directly employed 487,500 people (3.5% of total employment). The total direct contribution of tourism to the country's Gross Domestic Product (GDP) was 83.7 billion Nepalese rupees (approximately 815.238 million USD), which was 4.3 percent of the total GDP (WTTC 2015). In 2016, the number has increased and, the total contribution of tourism to GDP

was 85.7 billion Nepalese rupees (WTTC 2017) . A large percentage of business and religious tourists were from India but are confined within capital Kathmandu (Bhandari 2010). Similarly, Nepal receives many religious tourists from a few other countries that practice Buddhism.

Nepal is recovering from a decade-long civil war which decimated the development of the economy and tourism in the country. The political situation has not been fully stable due to volatile transitional phase. Such situation has negatively impacted tourism in Nepal and tourism industry has not been able to flourish as it must cope with various problems.

Tourists have complained about poor management of tourism areas, lack of computer use, inventories and lack of a plan for the development of tourist areas (Shrestha et al. 2015). However, tourism is one of the major industries, and many attempts have been made to expand, enhance, and develop the industry. One of the highest tourist arrivals in Nepal was in the year 2013 with 797, 616 tourists arriving through various modes of transportations (MOCTA 2015). The number fell to 538,970 after the 7.8 Richter scale earthquake hit Nepal in the year 2015 and many of the tourism activities and mountain expeditions were ceased. However, the number bounced back to 753,002 arrivals in the year 2016 and to record high 940,218 in the year 2017 (MOCTA 2017; Prasain 2018). The government is working with a vision of increasing annual tourists arrival up to 2 million and employment in the tourism industry to 1 million by 2020 (MOCTA 2014). So, introducing innovative technologies such as e-commerce may also benefit from such plans and programs of the government.

Buhalis & Law (2008) argue that because of the nature of the tourism industry, it is one of the most suitable industries which can hugely benefit from the adoption of IT (Information Technology) and e-commerce. However, the adoption of e-commerce in the

tourist industries of less developed countries like Nepal is affected by numerous different factors and faces many different challenges (Shrestha et al. 2015).

The table 1.7 below shows the different vital information about the arrivals of tourists in Nepal in the year 2015-2016. This table depicts the nature of tourism industry of Nepal and provides information about motivations of tourists to visit Nepal from different parts of the world. Though this research does not investigate from the perspective of the tourists, this table provides the indications about nature and volume of businesses.

Table 1.7 Tourism in Nepal for administrative calendar 2015-2016

Indicators	2015	2016	Change (%)
Tourist Arrival by:			
Air	407412	572563	41
Land	131558	180439	37
Total	538970	753002	40
Average Length of Stay	13.16	13.40	2
By Gender			
Male	289158	399091	38
Female	249813	353911	42
By Age groups:			
0-15 years	19614	29825	52
16-30 years	123444	154960	26
31-45 years	157416	218479	39
46-60 years	129614	199139	54
61+ years	74518	130627	75
Not Specified	34365	19972	-42
Top Five Country of Nationality:			
Rank 1	India	India	
Rank 2	China	China	
Rank 3	Sri Lanka	Srilanka	
Rank 4	The USA	USA	
Rank 5	Thailand	UK	
Purpose of Visit:			
Holiday/Pleasure	386065	489452	27
Pilgrimage	14996	82830	18
Trekking & Mountaineering	9162	66490	15
Official	21479	21310	0
Business	20876	24322	1
Conference/Conv.	9038	12801	
Others	77354	55797	

Source:(MOCTA 2017)

1.8.4.4 Tourism and employment in Nepal

Tourism is one the critical sectors and one of the major contributors to the economy of Nepal. It not only helps in earning currency directly but also employs a large number of workforce. In the year 2013, around 178,000 people are found the be employed in the tourism industry of Nepal according to a survey conducted by Ministry of Culture, Tourism & Civil Aviation of Nepal (Sedai 2013). These data are collected from the tourism organisations registered with the tourism industry division of Nepal government, and the actual number may be even higher, there may be different small domestic tourism business operating taking permission from local authorities only or some even without for registration. It is found that many tourism businesses operating in remote trekking destinations do not register their business due to lack of knowledge or complexity related to registration. This problem is even compounded by the inadequate supervision and monitoring mechanism to check the operation of such organisations (Sedai 2013).The actual number of tourist organisations may be even higher. The WTTC (2015) reported that the tourism industry of Nepal provided direct employment to approximately 487,500 in the year 2014 (WTTC 2015). With these possibilities, the tourism remains one of the significant contributors to the economy of Nepal and creating various direct and indirect employment.

1.8.5 IT adoption and government of Nepal

1.8.5.1 Nepal IT law and regulatory

The formulation of necessary legislation and regulations are one of the essential components for the successful implementation of electronic commerce(Kapurubandara & Lawson 2006). The lack of legislation and policies related to technology can hinder the adoption of electronic commerce (Hunaiti et al. 2009; Shemi 2013). The e-commerce

tools such as digital signatures, encryption, privacy, e-payments and online dispute settlement require legal provisions before and after they used.

As the technology was adopted much late in Nepal compared to other developed countries, the laws regarding in IT and e-commerce in Nepal is still in developing stage. National Communication Policy, 1992 is one of the first known policies forwarded by the government of Nepal for implementation of various IT plans and liberalisation of telecommunication industry (Ministry of Information and Communication 2015). The policy was improved in 1997, and the policy provided a framework for the regulation of services and telecommunication sector.

The telecom policy which governs policies and laws related to telecommunication was introduced in 1999. The Electronic Transaction and Digital Signature Act (ETADSA), 2000 was formulated with the view of facilitating the e-commerce transaction. Despite the introduction of such activities in 2000, the usage of e-commerce did not expand because of various problems.

The government created the IT Policy 2000 (Ministry of Science and Technology 2000) with the objective of making ICT more accessible to the public and create a knowledge-based society and industries. It was a government initiative to use IT as a tool for development and growth (Ministry of Information and Communication 2015).

The High-Level Commission for Information Technology (HLCIT) was set up in 2003 with the prime minister as chairperson with the view of providing necessary policies and strategies related to IT. However, it was dissolved in 2011 by the government of Nepal. Similarly, Telecom policy of 2004 was formulated a regulatory and legal framework with the objectives of providing affordable telecommunication services to people of Nepal.

The act also included provision for providing telecom services to people in rural areas and using telecommunication to uplift the economic condition of the people.

The electronic transaction Act 2008 (Ministry of Science and Technology 2008) enacted by the government of Nepal with the motive of paving ways the electronic business removing the lacks of laws for the online transactions. The legal recognition of electronic documents, digital signature, and online transactions were established. It also formulated the provision for different authorities such as IT tribunal, Controller of Certification Authority & Certification, Authorities for digital certificates along with dispute settlement mechanism.

Mishra (2014) argues that the use of ICT in Nepal faces various kinds of problems such as technical problems, inadequate education among citizen, cultural issues, political issues, institutional, lack of human resource and financial challenges.

1.8.5.2 Government IT initiatives and programs

The government has started different initiatives to implement or adopt tools of information technology in various sectors with the various objectives.

The ICT in Education Master Plan 2013-2017 was formulated and commenced in 2013 by the ministry of education, Nepal government with the support of United Nations Educational, Scientific, and Cultural Organisation (UNESCO). The master plan aimed to use tools of ICT as assisting tools to achieve the goals of education. It also tried to improve classroom delivery using ICT tools and to enhance effectiveness and efficiency of overall education governance and management. The master plan covers four pillars of ICT in education, i.e., teaching-learning materials, infrastructure, connectivity and the human resource. The major components of the ICT in education ICT infrastructure including internet connectivity, human resources, content development and system

enhancement have also been included in the master plan. This initiative shows that government is trying to use ICT and its tools in the different sectors. It also indicates not only the growing usage of ICT in Nepal but also the production of ICT literate human resources integrating ICT in the education.

An e-governance Master Plan (e-GMP) was prepared and proposed by the government in 2010 with the objectives of good governance and socio-economic development of the country using e-governance. Transparency, accountability, poverty alleviation, reduction in corruption, informed citizen and better government service delivery were some of the objectives of the Master Plan (Bhattarai 2010). The second stage of the e-GMP programme has been prepared for a period of 2015-2019 with the vision of using ICT for the good governance (e-GMP 2014). The programme aims to improve the efficiency of government bodies using ICT, provide services to citizens and business, information sharing among government bodies and promote local ICT industry amidst the growth of new technologies such as cloud computing, IOT, big data, and mobile computing.

In addition to these plans, most of the ministries of Nepal have a website and have started using various computer systems to manage the task, data storage, and service delivery. Many manual tasks such as issuing of passports, procurement processes are being digitalised. Electronic-tendering has been introduced for procurement process in different governmental organisations as an effort to increase transparency and to ease the overall process.

These initiatives of the government of Nepal show the efforts of the government to encourage IT usage and vision of using IT for the development of the country. However, as in most developing countries, the increasing usage IT is still not on the top priority of the government as the primary plans and programs are focused on essential infrastructure building and other issues related to fundamental necessities such as education. The lack

of preparedness or readiness, infrastructures such as connectivity and lack of adequate interest from the government have also affected the initiatives of IT use in Nepal (Bhattarai 2016).

The adoption of technology is affected by social and political factors related to government (Brdesee 2013; Kshetri 2007). Also, the cultural and organisational structures of Nepal are different from western countries, the model created in another context cannot be directly implemented in Nepal. So, the government should ease the adoption of technology process through proper planning. The government can play a role of the catalyst by creating individual plans to mitigate it by prioritising the IT industry.

1.9 Limitations of the study

There are some constraints related to time and resources. The current study surveys tourism organisations only based on the objectives of the research.

There are various kinds of tourism service providers such as hotels, airlines, travel agents, cruise service providers. The organisations such as airlines and star-rated hotels working under the ownership of multinational chains are excluded, and only SMTEs are covered in this research as SMTEs play a vital role in the composition of industry and a contribution to the economy.

As this research aims to investigate e-commerce adoption by SMTEs in Nepal, the third-party platform such as Booking.com and Expedia.com sites have not been included in this study. There are only a few hotels listed (out of all registered hotels in Nepal) with such sites; the majority of them are star rated hotels in the capital city. Tour and travel agencies in Nepal using such third-party platforms are negligible. This study investigates e-commerce adoption by all types of SMTEs. The list of registered tourism organisation with the government and associations shows no clear indications of registration of such

big global platforms as a tourism service provider in Nepal. For these reasons, the third-party platforms have not been included in this research.

This research identifies the direct relationship between influential factors with e-commerce adoption in Nepal. The research has been validated in the context of Nepal. Further cross-cultural studies can be conducted to port the findings of this research to other developing countries with similar socio-political-economic conditions. This research is one of the earliest attempts to investigate the factors of e-commerce adoption in Nepal and makes various useful contributions.

1.10 Summary of Chapter

This first chapter has presented the overall background of the research providing with a definition of terminologies and information about current state of tourism and e-commerce adoption in Nepal. The knowledge gap and need for the research have also been presented. Based on the gaps identified, the objectives of this research to explore the status of e-commerce usage by SMTEs, determine factors affecting e-commerce adoption and create a conceptual model, have been ascertained. The research significance along with the benefits to stakeholders corroborates the need for this study. The qualitative and quantitative methods that are used to achieve the objectives have been discussed along with the process, and the reasons for adopting those methods. Additionally, the scope of the research has also been discussed.

The context of study: The current e-commerce use in the tourism industry of Nepal, has been presented in the second section. Moreover, to help understand the overall situation in Nepal, brief geographical information, and status of ICT, history of the tourism in Nepal, have been presented. It has been identified that the progress of the ICT use in Nepal has been slow although the computers were introduced almost five decades ago. However, the recent surge in the internet and mobile penetration rate shows that there are

new potentials for ICT use in different sectors. The historical information on tourism in Nepal shows the progress, volume, and nature of tourism industry. The statistical data about tourism arrivals and tourism organisations indicates that Nepal has been one of the famous tourist destinations. The intertwined relationship between tourism and economy also magnifies the need for this research.

Similarly, the discussion on the status of ICT laws and regulatory framework in Nepal provides a base for this study. The chapter also discusses some of the initiatives by the government related to use of ICT and formulation of ICT plans and policies. However, the overall implementation and effect of such programs and policies have been minimal.

To sum up, the chapter provides a background depicting the current scenario, sets aims and objectives based on research problems, identifies the significance along with methods to achieve the goals. The scope and discussion of the various sectors of Nepal help to understand the context of the study with the foundation for the literature review.

CHAPTER 2: Literature review

2.1 Introduction

This chapter reviews the analysis and findings from previous studies on e-commerce adoption. It presents a current scenario of e-commerce adoption discourse and provides the foundation for this study.

E-commerce adoption process in developing countries has been lethargic, but most studies investigating e-commerce adoption have been in the developed or advanced context (Datta 2011). The few studies which were conducted in developing countries are primarily focused on Small and Medium Enterprises (SMEs). As a result, this research builds on knowledge and findings from previous research on e-commerce adoption by SMEs for both developed and developing countries. This review helps not only in depicting the vivid picture and current state of e-commerce adoption discussion but also provides the probable factors and analysis of various e-commerce adoption frameworks.

This chapter has been divided into different sections. The first section starts with background on the context of the study, introducing different vital terminologies based on relevance and scope of this research. The second part explores significant factors of e-commerce adoption identified by previous studies and analyses those factors. Some of the previous e-commerce models and frameworks have also been listed and summarised in brief. The final part concludes with a summary of significant findings from the reviews.

2.2 ICT in developing countries

Generally, e-commerce adoption is directly related to usage of ICT. Developing Countries (DCs) have low ICT utilisation rate as they face various kinds of challenges. Several reasons have been associated with such challenges. In many DCs, usage of ICT is taken as a luxury (Kshetri 2007) and in the embryonic stage (Datta 2011). Though IT

is now extensively used in developed countries, its use in developing countries is still considerably lagging (Karanasios & Burgess 2008).

Different indexes of the ICT usage such as ICT development index, e-readiness index, digital divide show the low penetrations of ICT in developing countries (ITU 2014). E-readiness is one of the most critical determinants of e-commerce adoption theory (Karanasios 2008; Molla & Licker 2005b).

Moreover, digital divide refers to unequal access to ICT tools or gap in ICT knowledge and acquisition between countries, regions or even different groups within the area (Tigre & O'Connor 2002). It also has an impact on country's ICT environment and ability to embrace technology and e-commerce. Karanasios (2008) have argued that reasons for such digital divide in developing countries are level of wealth or income, lack of ICT infrastructure, the level of education, computer illiteracy, and other cultural barriers. The analysis of e-readiness and the digital divide is essential as they affect e-commerce adoption indirectly. Such analysis also aids to understand some of the causes behind the different phenomenon such as unequal IT development and usage, poor infrastructure prevalent in developing countries which affect the e-commerce adoptions.

2.3 E-commerce and developing countries

Kshetri (2007) and Datta (2011) have shown that the use of e-commerce has lots of potential benefits for developing countries. The authors suggested that e-commerce can be a tool for social and economic development in developing countries. E-commerce helps in business operations, increases productivity, efficiency, and helps business to connect with others (Buhalis & Jun 2011; Karanasios 2008). The other potential benefits are a broader geographical reach, faster speed, increased productivity, shared information, innovation, reduced cost and competitive advantage (Shemi 2013). Hence, many developing countries are seeking to embrace various e-commerce tools to

materialise these promises (Kabanda & Brown 2010; Kapurubandara & Lawson 2006). However, the DCs face many challenges such as infrastructural problems, lack of resources, security issues to utilise such promises. Although the Small and Medium Enterprises in some developing countries are using e-commerce, most of them are limited to the initial or entry-level use of e-commerce (Molla & Licker 2005a).

E-commerce can provide many benefits to organisations in the developing countries, and research/previous studies showed that it could be used as a tool to explore global market (Kapurubandara & Lawson 2006; Kshetri 2007; Uzoka & Seleka 2006). For instance, Kshetri (2007) found that e-commerce can be useful in expanding the market and source of foreign currencies. Kapurubandara & Lawson (2006) acknowledged Ksherti's claim through the findings from research in Sri Lanka. It has been predicted that e-commerce activities will be one of the primary sources of foreign currencies in developing countries, and will also be a significant indicator of national development (Uzoka & Seleka 2006).

In addition to these benefits, some other studies have found that there are several indirect benefits of e-commerce. Hunaiti et al. (2009) stated that e-commerce could even minimise traffic accidents and air pollution reducing numbers of vehicles on the roads as consumers will be shopping online. However, such claims need to be verified by analysing the frequencies of transportation used for shipping or delivery activities.

Kshetri (2007) have shown that all e-commerce models may not be suitable for developing countries and found that mix models are more appropriate in developing countries such as Nepal. He also presented how even small business (thamel.com) from a country such as Nepal with a low internet penetration rate at that time was able to use e-commerce to become an award-winning multi-million model targeting the expatriates. Kartiwi & MacGregor (2007) also asserted that the suitability of the product for e-commerce should be accessed for successful operation. Some studies have shown that

tourism-related products and services are suitable for e-commerce or tourism and e-commerce are natural partners in developing countries (Buhalis 1998; Karanasios 2008). However, some other researchers have expressed their concerns regarding the usage of e-commerce in developing countries. Such concerns range from taxation problems, increased competition from the global market and threats to financial security and privacy (Uzoka & Seleka 2006). Nevertheless, the literature review shows that there are several advantages of the e-commerce adoption in developing countries compared to some problems which may be solved with proper strategic plans and regulations.

2.4 Tourism and developing countries

Tourism has been one of the biggest exports of many developing countries (Samimi, Sadeghi & Sadeghi 2011) and is considered as one of the principal pillars of the economy of such countries. Tourism not only acts as a source of foreign currencies, employment generation, and development of infrastructure but also works as a catalyst for the economic development in developing countries (Kshetri 2007; Samimi, Sadeghi & Sadeghi 2011).

According to United Nations World Tourism Organisation (UNWTO), the growth rate of international tourist arrival in developing countries was 6.5 percent whereas the overall worldwide growth rate was 4.1 percent only for the period between 1990 and 2005. This figure indicates the large volume of tourism-related activities in developing countries. Similarly, UNWTO, in its report for 2005 revealed that tourism is contributing from 3 percent to 10 percent of overall GDP of many developing countries (UNWTO 2005). The UNWTO reported that, in the year 2011, forty-six percent of international arrivals were in developing countries, which indicates the massive potential for overall tourism and economic activities. Tourism is one of the major exports in more than eighty percent of developing countries (primary export in one-third of them). Similarly, among forty-eight

least developed countries, twenty countries have tourism as either first or second source of export earnings (UNWTO 2010). This information shows that tourism is a crucial part of the economy of developing countries and carries enormous potential for development of these economies.

Despite many benefits of tourism for developing countries, tourism faces various challenges (Shrestha et al. 2015). Some studies have also linked tourism in developing countries to an adverse or negative impact on local society with the social-cultural-environmental pollution and draining of resources/local heritages (Huybers 2007; Jenkins 2015).

2.5 Tourism and e-commerce

Since the early stages of the internet, some researchers claimed that tourism has the potential to become one of the highly demanded e-commerce products (Buhalis 1998; Turban et al. 2008). Tourism services are usually intangible and perishable. Because of the nature of services, the tourism industry is one of the most suitable industries for the use of e-commerce (Karanasios & Burgess 2008). Accommodation booking and travel searching have been one of the most frequent activities performed on the internet. With the advent of Web 2.0 and review/ranking sites such as TripAdvisor (Tripadvisor.com 2016), tourists spend lots of time researching before their final decision.

The usage of e-commerce in the tourism industry is changing the overall tourism phenomenon, such as booking and searching for a ticket and related information. Activities such as inquiry, booking, confirmation of tickets require lots of communication. Such communications should be timely, accurate, secure and cost-effective. E-commerce in tourism is enabling the natural comparison, getting real-time prices and making processes transparent (Buhalis & Jun 2011). Some examples of online booking services are booking.com, hotels.com, expedia.com.

Gonzalo (2014) found that 27 percent of hoteliers communicate with customers before their arrival. With the growing popularity of websites such as tripadvisor.com, people are interested in expressing their views and reading other's experiences and opinions on the internet. TripAdvisor already has around 170 million reviews, with over 280 million unique visitors every month, which shows the extensive utilisation of e-commerce in tourism (Gonzalo 2014).

The use of e-commerce merges business management and technology (Akama & Kieti 2007). In the digitally connected world, adopting tools of e-commerce have been essential to well position and to be successful in any business (Buhalis & Jun 2011). The use of e-commerce provides a tool for tourism operators to enhance their business operations and better position them in the industry.

The use of ICT in tourism started in 1980's for computer reservation systems and networks of such system called Global Distribution System (GDS). However, the systems were limited based on locations (Buhalis & Licata 2002). In 1990, utilisation of the internet revolutionised the tourism industry. The tourism booking and processes become much quicker and efficient by using the internet (Buhalis & Jun 2011).

In developing countries, ICT and e-commerce can be a useful tool for linking consumers with the service providers (UNWTO 2010). Contrary to the perception that most organisations in developing countries are weak in resources and slow in adopting IT, the concept of online travel agencies are being implemented even in many developing countries despite having a low internet penetration (Akama & Kieti 2007). The adoption has also been also possible for tourism services as customers are usually from other countries where IT usage or penetration is much higher.

ICT and e-commerce also reduce cost by directly connecting the buyer/tourists with the primary service providers without the need for the intermediaries. Akama & Kieti (2007) assert that the use of e-commerce in tourism also helps to cut out "overseas revenue leakage" by cutting down the layers of marketing and sales affiliates overseas.

2.6 ICT, E-commerce and Tourism industry of Nepal

On their research on e-commerce in Nepal, Press et al. (2000) identified the tourism industry candidate for vertical portal or e-commerce. While most of the registered Nepalese tourism organisations have websites with the information about offered services and packages, only a few have implemented online transaction features. Although some organisations have provided payment facilities through third-party payment gateways like Paypal, however, due to the absence of international payment gateways in Nepal, the funds are usually first sent to the third-party person or organisations outside the country. Currently, e-commerce tools are being used for information sharing, communication and quoting.

Shrestha et al. (2015) have pointed out that the tourism industry of Nepal has not been able to utilise the opportunities provided by ICT. The findings and benefits from many previous studies indicate there are adequate justifications to lobby for the use of e-commerce in the tourism industry of Nepal and other DCs (Shrestha et al. 2015). ICT and e-commerce tools can be the excellent support for the tourism industry and can integrate various stakeholders together and benefit both service providers and customers.

2.7 Factors affecting e-commerce in developed countries

The most of the early research on e-commerce adoption have been conducted in the context of developed countries (Datta 2011) and have identified the factors that influence e-commerce adoption in such countries. Though this research aims to find factors that affect e-commerce adoption in developing countries, the discussion of factors from

developed countries provides foundation ground for investigation in the developing countries. Moreover, the factors identified in these research may also help in exploring the possible factors in developing countries.

Most of the previous studies have investigated Small and Medium Enterprises (SMEs) but not exclusively in the tourism industry. During the dot-com bubble (DeLong & Magin 2006), most of the SMEs in developed countries embraced and the researchers investigated factors affecting e-commerce adoption with the aim of analysing the prospects, advantages, and disadvantages of ICT and e-commerce. So, many studies were conducted to investigate the factors in early 2000.

Lawrence (2001) stated that the insufficient knowledge and human skills are the primary barriers and factors such as high cost, financial resources, inadequate system, resistance to change and preference to manual methods are the other obstacles. Similarly, other researchers such as Chen & McQueen (2008) and Chong & Pervan (2007) found that the pressure from stakeholders such as competitors was a significant factor. Chen & McQueen (2008) found that factors such as motivation for better consumer relationship management along with expansion to the customer base encourage e-commerce adoption.

The findings from the research in UK and Australia identified a shortage of human skills and inadequate knowledge about technology as key barriers to e-commerce adoption (Simpson & Docherty 2004). However, Simpson & Docherty (2004) have argued that for SMEs, internal pressure from friends, the family is a prominent motivation to adopt e-commerce than external pressure. Nevertheless, they further suggested that the cost is not a significant factor inhibiting e-commerce adoption.

Grandon & Pearson (2004) divided factors affecting e-commerce into various categories: organisational readiness, external pressure (dependency on other for using e-commerce,

competition, industry, government, social factors), perceived ease of use, and perceived usefulness through research in the USA. They added that operational support, managerial productivity, and strategic decision making influence the e-commerce adoption decision.

Dwivedi, Papazafeiropoulo & Scupola (2009) compared two developed countries (Australia and Denmark) and found that shortage of skills and resources are affecting the e-commerce adoption decision, and the factor such as commitment of the top management has a significant impact on adoption decision.

This section reviewed factors affecting e-commerce adoption identified in the light of previous literature. The research in developed countries also provide a valuable contribution and point to investigate factors affecting e-commerce adoption in Nepal.

Summary of research and factors for developed countries:

Table 2.1 Summary of research and factors for developed countries

Research	Factors	Remarks
(Grandon & Pearson 2004)	**Factors**: organisational readiness, external pressure, perceived ease of use, and perceived usefulness.	100 American SMEs surveyed
(Wymer & Regan 2013)	16 factors identified that affects e-commerce adoption. Security, Priority, Capital, Cost, Value, Innovativeness, Need, Competitive Pressure, EC Technology, Technology, Availability, Supplier Readiness, Reliability, Models, Prior Experience, Executive Experience, Employee Reduction.	Surveyed 290 U.S. SMEs
(Chen & McQueen 2008)	14 case studies. **Motivator:** Owner's knowledge, increasing business performance and promotion, External pressure, enhancing supply chain coordination, risk-taking. **Barriers:** Owner's attitude, Trust issues, lack of internet penetration, Lack of skilled, talented	Small Chinese firms in New Zealand.

	workers, cost, Technical issues; Business partners not ready, low return on investment.	
(Chong & Pervan 2007)	**Factors Identified**: perceived relative advantage, trial-ability, observability, a variety of information sources, communication amount, competitive pressure, and non-trading institutional influences, significantly influence the extent of EC deployment by SMEs. Factors divided as an internal organisation, innovation, communication and external industry, national. Also, found communication factors are more vital than other influencing factors and government support necessary in the initial stage of adoption.	Sample of 115 small businesses in Australia
(Simpson & Docherty 2004)	**Major Barriers:** manager unwillingness, lack of awareness, lack of qualified employees, an industry not ready, lack of technical skills-time-trust, executive's poor understanding, government failure to support **Motivators**: Greater opportunities, perceived benefits, improved communication, low entry costs, enhance customer relation, increased sale, external pressure, pressure from family. The cost was not seen as an inhibitor to adopting e-commerce.	Based in the UK Exploratory research based on literature review and few in-depth interviews.
(Dwivedi, Papazafeiropoulo & Scupola 2009)	Qualitative research based on TOE **Factors:** customer pressure and access and quality of ICT consulting services influential in both countries, Employees' IS knowledge and attitudes and resource constraints (lack of resources-barrier), CEO characteristics and top management support also important Australian SMEs-government motivators, Danish government role, found non-significant.	Factors affecting business-to-business e-commerce adoption and implementation (Denmark and Australia)

2.8 Reviewing e-commerce adoption factors in developing countries

2.8.1 The Factor affecting e-commerce adoption

There have been few studies investigating e-commerce adoption in developing countries. Most of such then have focused on SMEs (Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Shemi 2013; Zaied 2012) rather than specific to the tourism industry. SMTEs are a kind of SMEs categorised based on the size and nature of the business. As this study aims to explore the factors affecting e-commerce adoption in the tourism industry, previous research in SMEs of other developing countries can provide valuable information to study the possible factors. So, in this section, we investigate factors identified in earlier studies.

The review of the literature showed that many factors affect e-commerce adoption in developing countries. Some factors were specific to a region or country which demonstrate that the heterogeneous environment exists in developing countries. Such situation indicates that though many problems may be similar in developing countries, there are different factors which may be unique to specific countries or the environment (Kapurubandara & Lawson 2006).

The further analysis suggested that those factors are primarily related to either infrastructure, awareness, benefits, resources in the organisations, socio-cultural-political factors, top management, security issues, and market. Molla & Licker (2005a) have stated that these factors are related to five imperatives, each of which focuses on either i) innovation or ii) the organisation or iii) the environment or iv) the mangers or v) interactionism (interaction among the above factors). However, many other classifications have also been proposed by various other researchers as well (Kapurubandara & Lawson 2006; Kshetri 2007).

As the developing countries constantly face the absence of a proper e-commerce infrastructure, various researchers (e.g. (Datta 2011; Hunaiti et al. 2009; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Kshetri 2007) have indicated a poor internet connection, telecommunication facilities and a shortage of power supply as a primary infrastructural barriers. In contrasts to developed countries, power supply shortage has been indicated as a one of the influential factors by many researchers as many developing countries suffer from such problem (Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Shemi 2013).

The problems related to inadequate financial infrastructure have also been reported by many studies. The absence of international payment gateway or e-payment cards has been the commonly reported factor (Datta 2011; Kartiwi & MacGregor 2007; Karanasios 2008; Uzoka & Seleka 2006; Kapurubandara and Lawson 2006; Kshetri 2007; Hunaiti, Masa'deh et al. 2009).

Similarly, factors associated with legal infrastructure have also been found to be affecting the adoption as e-commerce (Datta 2011; Kartiwi & MacGregor 2007; Uzoka & Seleka 2006). Additionally, researchers (e.g. (Kshetri 2007; Uzoka and Seleka 2006; Hunaiti, Masa'deh et al. 2009) also argued that the shipping services are either unreliable or expensive in developing countries. These trends indicate about the lack of infrastructure in the developing countries, and such deficiencies have created various problems which have affected the e-commerce adoption.

Similarly, the lack of resources such as human expertise and lack of technical skills were found to be affecting e-commerce adoption in many developing countries. Though Simpson & Docherty (2004), in their research in the UK, found the cost of acquiring the resources, not an influencing factor, most researchers investigating e-commerce adoption

in developing countries have found cost to be one of the significant factors (Datta 2011; Karanasios & Burgess 2008; Kartiwi & MacGregor 2007; Uzoka & Seleka 2006).

As organisations are usually constrained by the various resources (Ghobakhloo & SH 2011), factors related availability of resources were found to be affecting the adoption. The shortage of human skills or technical knowledge were also found to be a factor which affects the adoption (Kapurubandara & Lawson 2006; Kartiwi & MacGregor 2007; Lawrence 2001; Simpson & Docherty 2004; Zaied 2012). Similarly, the lack of technological resources such as internet, software, and hardware was also affecting the adoption (Ahmad et al. 2015; Kapurubandara & Lawson 2006; Molla & Licker 2005a).

The factors related to cultural, political situation and society have also been reported in the prior research. With the illustrations of various aspects related to culture, it has been argued that the culture impacts e-commerce adoption (Datta 2011; Kapurubandara & Lawson 2006; Kshetri 2007; Zaied 2012). The cultural aspect such as language is more frequently mentioned as a factor affecting e-commerce adoption (Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Kshetri 2007).

The government has a significant role in e-commerce adoption by organisations. Several factors related to the government and its readiness were found in various research investigating e-commerce adoption (Kapurubandara & Lawson 2006; Karanasios 2008). As the government in developing countries are usually volatile and turbulent (Kapurubandara & Lawson 2006; Karanasios 2008), it has been found that the actions of the government affect the e-commerce adoption. Inappropriate policies, lack of government support and laws regarding e-commerce have been found to be the key barriers. Similarly, it has also been suggested that volatile political situation in many developing countries has affected the e-commerce adoption (Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006). The researchers claim that the incentives from the

government encourage e-commerce adoption, but the government of very few countries has provided incentives to adopt e-commerce Al-Weshah & Al-Zubi, 2012; Hunaiti et al., 2009; Karanasios, 2008; Shemi, 2013).

The issues related to security and privacy have also been mentioned as factors that affect e-commerce adoption. Primarily, it has been argued that factors related to security and trust play a vital role in the use of e-commerce as it involves virtual process without direct face to face interaction (Kapurubandara & Lawson 2006; Kshetri 2007; Lawrence & Tar 2010; Shemi 2013; Zaied 2012). So, buyers and sellers are concerned about such issues. Similarly, the privacy concerns were also found to be inhibiting e-commerce adoption in many developing countries (Bella, Giustolisi & Riccobene 2011; Shemi 2013).

The various attributes of the market also affect the e-commerce-adoption. Molla & Licker (2005a) argue that the market forces such as readiness of partners and size of the market affect the adoption. Similarly, other researchers argue that the level of competition in the market, their use of e-commerce and pressure from the competitors also affect the e-commerce adoption (Chen & McQueen 2008; Chong & Pervan 2007; Simpson & Docherty 2004).

The perceived benefits, (i.e., the belief that e-commerce will bring various benefits to organisations) were found to be encouraging the e-commerce adoption and reported as a motivator in many studies (Grandon & Pearson 2004; Kapurubandara & Lawson 2006; Shemi 2013). Similarly, the relative advantage (i.e., the belief that use of e-commerce will be better or provide higher benefits than existing system) is another important factor which impacts the adoption (Ahmad et al. 2015; Brdesee 2013; Dwivedi, Papazafeiropoulo & Scupola 2009; Grandon & Pearson 2004). The above studies show that such factors related to the value addition to the existing system are impacting the e-commerce adoption in many developing countries.

In addition to benefits, the awareness about such benefits and various aspects of the e-commerce is another most reported factors. Various studies have found that awareness of the benefits of the e-commerce has encouraged the implementation of e-commerce in many developing countries (Ghobakhloo & SH 2011; Kapurubandara & Lawson 2006; Kshetri 2007).

The awareness has been also linked with the support from top-management or characteristic of the owners. Many researchers have found that the support of the owner or top management for the adoption of e-commerce is essential and plays a significant role (Ghobakhloo & SH 2011; Kapurubandara & Lawson 2006; Kshetri 2007). Similarly, the characteristics and knowledge of owners are also found to be affecting e-commerce adoption (Brdesee 2013; Kapurubandara & Lawson 2006). Some studies have also reported some other factors such as product not suitable for e-commerce (Al-Weshah & Al-Zubi, 2012; Kartiwi & MacGregor, 2007).

The organisations were found to be using various motivators or strategies to cope with the barriers to e-commerce adoption. For example, to mitigate the problem of lack of resources, some organisations in Ecuador were found to be hiring friends and using third-party portal sites and hosting servers to solve some technical problems. Likewise, cash on delivery option is used as an alternative in some developing countries where payment gateways and credit cards are not available. Also, the local products were sold to expatriates to address the issue of low internet penetration in place such as Nepal (Kshetri 2007). Moreover, services such as web hosting, payment processing, some other business functions were outsourced to other countries to reduce the cost and cope with problems (Karanasios & Burgess 2008). Some research also recommended increasing computer education in elementary school level to increase the e-readiness which eventually can help in e-commerce adoption (Uzoka & Seleka 2006).

As many factors were found to be common in many developing countries, there is a possibility that these factors may be affecting the e-commerce in context of Nepal as well. The review of barriers and motivators discussed above provides a foundation base for investigating the factors affecting e-commerce adoption in Nepal. These factors have been examined for the suitability in the following chapters.

Table 2.2 The studies and factors: based on the time period

Duration	Research	Major Factors
2001-2009	Simpson & Docherty 2004, Molla & Licker (2005a), Uzoka & Seleka 2006, Kapurubandara & Lawson 2006), Kshetri 2007 , Kartiwi & MacGregor 2007, Chong & Pervan 2007; Karanasios & Burgess 2008, Hunaiti et al. 2009, Papazafeiropoulo & Scupola 2009,	Cost, infrastructure of country (poor internet connection, telecommunication facilities), financial infrastructure, payment gateway, legal infrastructure, unreliable and expensive shipping services, lack of technical skills, human resource, lack of technological resources, readiness of the government, government incentives, security and trust ,pressure from competitors, perceived benefit, relative advantage ,awareness, top management characteristics, unsuitability of the product, low internet penetration
2010 +	Lawrence & Tar 2010, Kabanda & Brown 2010, Datta 2011, Bella, Giustolisi & Riccobene 2011, Ghobakhloo & SH 2011, Zaied 2012, Al-Weshah & Al-Zubi 2012, Shemi 2013, Brdesee 2013, Ahmad et al. 2015; Ahmad et al. 2015.	Infrastructure of the country, payment gateway, legal infrastructure, lack of human resources, lack of technological resources, incentives from government, security and trust, privacy concerns, value proposition, relative advantage, awareness, the role of top management

Table 2.2 shows the studies conducted to investigate e-commerce adoption and affecting factors during 2000-2009 and after 2010. The factors between two periods shown in the table are found to be similar. However, other factors such as security, trust, value

proposition, the role of top management are also found in studies after 2010. Those factors have been further divided into various categories in section 2.8.2 below.

2.8.2 Categorization of factors in developing countries

Some researchers have categorised e-commerce adoption factors identified in their research based on scope and nature. Kshetri (2007) summarised the significant barriers by categorising them as economic, socio-political and cognitive barriers. Similarly, Datta (2011) grouped the factors into three significant determinants i) performance expectancy: belief that electronic commerce adoption will lead to potential development ii) economic usefulness: belief that it will be economically fruitful and iii) help in strategic development. He also stated that the adoption is controlled by three variables: level of privatisation of ICT, Gross Domestic Product (GDP), and Gross National Product (GNP). Kapurubandara & Lawson (2006) categorised the factors as internal factors: to be solved by organisation and external factors: to be addressed by government and other external stakeholders.

Table 2.3 Classification of factors based on review

Research	Classification
Kshetri (2007)	Economic, socio-political and cognitive barriers
Datta (2011)	Performance expectancy, economic usefulness, help in the strategic development
Kapurubandara & Lawson (2006)	Internal and external
Molla and Licker (2005)	Perceived Environmental, Perceived organisational

2.8.3 Stages of organisation for e-commerce adoption

Several studies have reported that e-commerce adoption occurs in incremental stages. Some researchers (Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006) argue that an organisation would be in a particular stage of e-commerce adoption. They have

also stated that the factors would have a different effect on e-commerce adoption based on the stage.

Daniel, Wilson & Myers (2002) reported the four stages of organisations for e-commerce adoption. Organisation with:

i) Website and e-commerce services being developed

ii) email to communicate with suppliers and customers

iii) informational website and are in the process of adding online ordering

iv) website with online ordering capabilities.

The study also showed that adoption of e-commerce is an incremental process.

Similarly, Al-Weshah & Al-Zubi (2012) has forwarded three stages of e-commerce adoption as i) email exchange, ii) information exchange, and iii) web presence. Molla & Licker (2005a) classified two stages of the adoption as initial adoption and institutionalisation. Later on, they extended and presented six phases of e-commerce adoption for the organisation in developing countries as follows (Molla & Licker 2005b).

i) No e-commerce: Have not considered using e-commerce

ii) Connected e-commerce: connected but limited to email, no website

iii) Static e-commerce: connected and static website, necessary information

iv) Interactive e-commerce: website with interactive features

v) Transactive e-commerce: Interactive with transaction facilities

vi) Integrated e-commerce: more mature stage of adoption with even transaction features

The first three stages indicate either no adoption or entry-level adoption whereas following three stages indicate a higher degree of e-commerce adoption.

Kapurubandara & Lawson (2006) presented more large stages called it “e-SME roadmap” for e-commerce adoption providing internal and external stages. The internal e-commerce adoption stages include i) manual, ii) competent individual, iii) efficient team and finally iv) efficient organisation. The external stages include i) no website ii) basic website iii) interactive site iv) e-commerce site. This model is different from earlier models as it includes the subset of barriers and drivers in each stage of adoption. Thus such divisions assist in identifying the barriers and motivators of the stage to progress to the next stage of e-commerce adoption.

These studies and the understanding of stages of e-commerce adoption are essential as the adoption is an incremental process, and the drivers and barriers may have different effects based on stages.

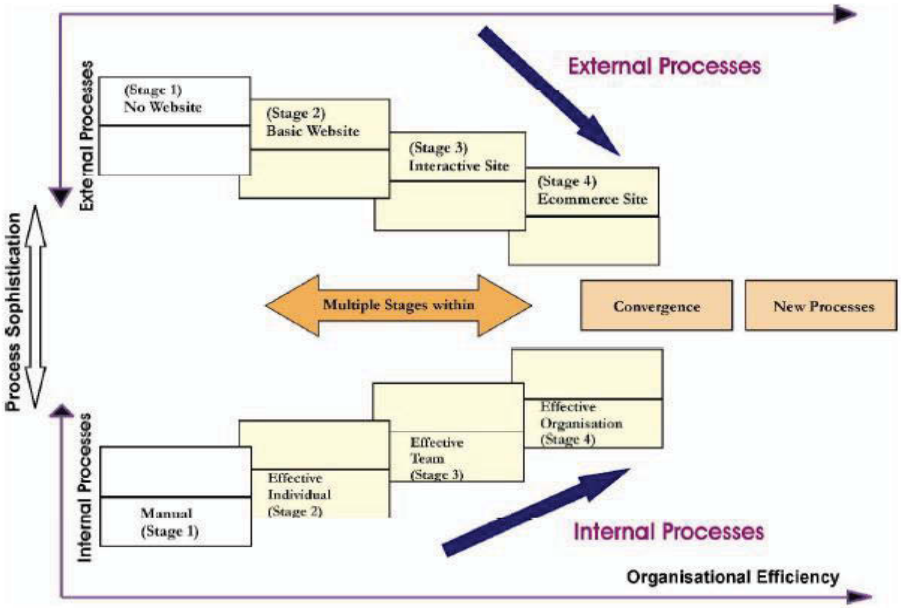

Figure 2.1 E-commerce adoption internal and external stages

Source: (Kapurubandara & Lawson 2006)

2.9 Factors affecting IT adoption in Nepal

Few studies have investigated e-commerce and ICT adoption in the context of Nepal ICT (Kshetri 2007; Shrestha et al. 2015). Some of the previous studies which were focused on ICT use in Nepal have stated few factors affecting IT adoption in Nepal.

Some studies have identified unreliable power supply and prolonged power cuts as one of the significant barriers to implementing tools of ICT (Kshetri 2007; Shrestha et al. 2015).

Bhattarai (2011) using quantitative analysis only presented four barriers in his study: electricity and communication problems, lack of top management support, lack of IT structure, and government policies and three drivers inspiring the adoption: entry to the new market, instant service delivery, and the global service coverage.

Pariyar (2007) identified the challenges related to e-readiness for the implementation of the e-governance in Nepal: low political commitment, poor technology usage culture, communication problem among ministries, lack of e-literacy, and lack of human resources. However, his research lacks the empirical studies to validate the claims.

2.10 The probable factors and studies

Several factors which affect e-commerce adoption in developed and developing countries have been identified from the literature review and summarised in table 2.4 below. The factors have been listed based on the frequency of occurrence in different studies (during the literature review). The order has no significance and has not been considered while examining each factor for the suitability (for the probable factors) in the next chapter.

Table 2.4 Listing of factors for developing countries

Factors	Research
Lack of payment gateway or credit card problems	(Datta 2011; Karanasios 2008; Kartiwi & MacGregor 2007; Uzoka & Seleka 2006; Kapurubandara and

	Lawson 2006; Kshetri 2007; Hunaiti, Masa'deh et al. 2009)
Lack of technical skills and knowledge	(Kapurubandara & Lawson 2006; Kartiwi & MacGregor 2007; Lawrence 2001; Simpson & Docherty 2004; Zaied 2012)
Lack of legal infrastructure	(Hunaiti et al. 2009; Kapurubandara & Lawson 2006; Kartiwi & MacGregor 2007; Shemi 2013; Zaied 2012).
Inadequate infrastructure (telecommunication, financial, transportation)	(Datta 2011; Hunaiti et al. 2009; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Kshetri 2007)
Electricity	(Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Shemi 2013).
Cultural barriers	(Datta 2011; Kapurubandara & Lawson 2006; Kshetri 2007; Zaied 2012)
Low bank account and credit card penetration	(Kapurubandara & Lawson 2006; Kshetri 2007; Zaied 2012)
Security concern and trust	(Kshetri 2007; Lawrence & Tar 2010; Shemi 2013; Zaied 2012)
Cost of resource to implement ecommerce	(Datta 2011; Karanasios & Burgess 2008; Kartiwi & MacGregor 2007; Uzoka & Seleka 2006)
Lack of Human skills and resources	(Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Kartiwi & MacGregor 2007)
Incentives from government	(Al-Weshah & Al-Zubi 2012; Hunaiti et al. 2009; Karanasios 2008; Shemi 2013)
Relative advantage	(Ahmad et al. 2015; Brdesee 2013; Dwivedi, Papazafeiropoulo & Scupola 2009; Grandon & Pearson 2004)
Owner Support	(Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006; Karanasios 2008; Shemi 2013)
Poor Internet connectivity	(Datta 2011; Hunaiti et al. 2009; Kshetri 2007)
Language Barrier	(Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Kshetri 2007)
Technological resources	(Ahmad et al. 2015; Kapurubandara & Lawson 2006; Molla & Licker 2005a)
Lack of Government policies, support, and laws	(Hunaiti et al. 2009; Kapurubandara & Lawson 2006; Zaied 2012)

Expensive and unreliable shipping service	(Kshetri 2007; Uzoka and Seleka 2006; Hunaiti, Masa'deh et al. 2009)
Supporting IT industry	(Brdesee 2013; Kabanda & Brown 2010; Molla & Licker 2005a)
Awareness about e-commerce	(Ghobakhloo & SH 2011; Kapurubandara & Lawson 2006; Kshetri 2007)
Perceived benefits	(Grandon & Pearson 2004; Kapurubandara & Lawson 2006; Shemi 2013).
Pressure from competitors	(Chen & McQueen 2008; Chong & Pervan 2007; Simpson & Docherty 2004)
E-commerce Not suitable (poor product match for e-commerce)	(Al-Weshah & Al-Zubi 2012; Kartiwi & MacGregor 2007)
Political Situation	(Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006)
Privacy concerns	(Bella, Giustolisi & Riccobene 2011; Shemi 2013)
Owner characteristics	(Brdesee 2013; Kapurubandara & Lawson 2006)
Market readiness and size	(Molla & Licker 2005a)

2.11 Theoretical frameworks in e-commerce adoption

The adoption of e-commerce in developing countries lacks sound framework or model (Lawrence & Tar 2010). Many of earlier frameworks about adoption are related to IT or innovation. However, many of these frameworks have been used or adopted to investigate the e-commerce adoption in various countries and context (Brdesee 2013; Lin & Lin 2008; Molla & Licker 2005a; Oliveira & Martins 2010; Zhu, Kraemer & Xu 2003).

There are only a few frameworks for the adoption of e-commerce in developing countries. However, various researchers have extensively studied the adoption of technology and propounded various frameworks. Since the e-commerce adoption is also a technological phenomenon, this research starts with the review of those frameworks.

Some of the popular adoption frameworks are:

- Theory of Reasoned Action - TRA (Ajzen & Fishbein 1980)

- Technology Acceptance Model - TAM (Davis 1989)
- Technology-Organisation-Environment - TOE (Tornatzky & Fleischer 1990)
- Technology Acceptance Model TAM-2 (Venkatesh & Davis 2000)
- Unified Theory of Acceptance and use of Technology (Venkatesh et al. 2003)
- E-readiness Model (Molla & Licker 2005a)

The analysis and discussion of the frameworks help in understanding the barriers and enablers formulating an e-commerce adoption. It also helps to identify the relationship between different factors and e-commerce adoption and provide useful information for further investigation in the context of the tourism industry and Nepal. These frameworks and models were created through a systematic study and provide useful information for the study of e-commerce adoption. Each framework has proposed various constructs and variables for the technology adoption. The suitability of such constructs and variables of the framework in the context of this research has been analysed in next chapter. Each framework has been discussed in detail below:

2.11.1 Theory of reasoned action

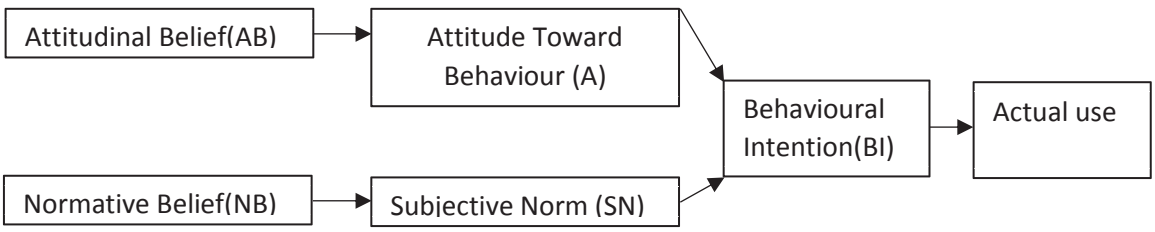

Figure 2.2 Theory of Reasoned Action Source: (Ajzen & Fishbein 1980)

Theory of Reasoned Action (Ajzen & Fishbein 1980) is one of the widely-used models to predict people's behavioural intentions. This theory of individual's technology adoption states that primary factor of adoption decision is individual's attitude or behavioural intention. As shown in figure 2.2 above, the model argues that the actual use

or adoption is based on the behavioural intention of the individual. Such intention is collectively shaped by person's attitude towards behaviour, i.e., negative or positive feeling about the proposed system and by subjective norms, i.e., which is a social pressure either to demonstrate or not to show a particular kind of behaviour.

It was extended from the Theory of Planned Behaviour (TPB) by adding perceived control of behavioural achievement as the third factor in addition to attitude and subjective norms; that determines behavioural intention or behaviour (Ajzen 1985). Later, through a comparative study of the theory of reasoned action and theory of planned behaviour, it was found that perceived behavioural control has a motivational impact on behavioural intentions and significantly enhance the prediction of behaviour and behaviour intentions (Madden, Ellen & Ajzen 1992).

2.11.2 Technology Acceptance Model (TAM)

TAM was devised in 1989 by Davis to test user's technology adoption decisions. It was developed from Theory of Reasoned Action (Fishbein & Ajzen 1975) which was based on user's behavioural intention. Initially, it was developed under contract with IBM (International Business Machines) Corporation to check to access the market potential for PC-based applications to facilitate the development of new product.

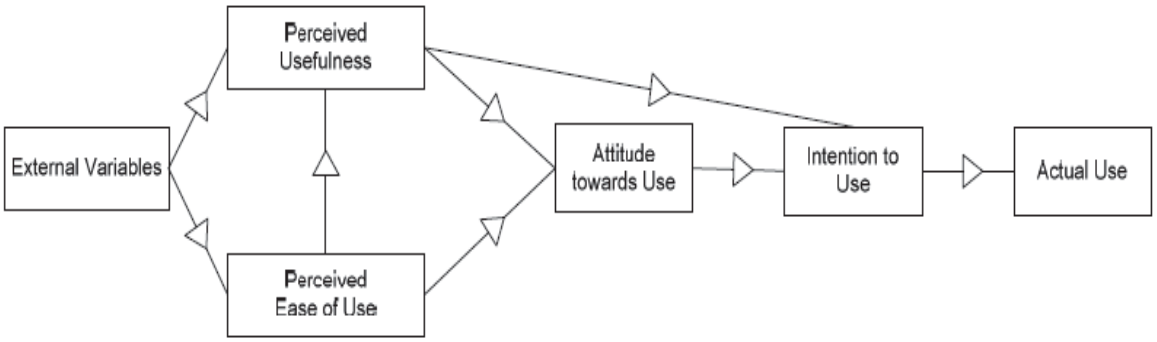

Figure 2.3 Technology Acceptance Model (TAM) Source: (Davis 1989)

The TAM model consisted of perceived usefulness and perceived ease of use.

Perceived usefulness refers to the degree to which user feels that using a particular system; the user would get benefits.

Perceived ease of use refers to the extent to which users feel that system would be simple and easy to use without any complexity.

As shown in figure 2.3 above this model also looks at how external variables impact on adoption intentions and attitudes. The model shows that an individual has some degree of control on Perceived ease of use and Perceived usefulness.

TAM has been widely used for investigating the factors of technology adoption in many countries (Grandon & Pearson 2004; Lee 2009; Zheng et al. 2005). Chau & Hu (2002) found that perceived ease of use is positively correlated with behaviour intention and user's attitude. Lee (2009) used TAM to study about customers' intention to use online banking analysing the risk and perceived benefits. He found that the security, privacy and financial risk have an adverse impact on adoption whereas attitude, perceived benefit and usefulness have a positive influence on the adoption of online banking.

TAM is one of the famous frameworks to examine the IT adoption behaviour, and it has been extended and re-examined by many researchers to solve some of its limitations. Similarly, TAM-2 (Venkatesh & Davis 2000) was developed based on TAM whereas UTAUT (Venkatesh et al. 2003) was developed combining the TAM with other models.

TAM has been questioned for missing out cultural and social influences (Taylor & Todd 1995). The question is also relevant as cultural and social influences are found to be playing an essential role in understanding e-commerce adoption in developing countries. Similarly, Zheng et al. (2005) through their findings argue that perceived usefulness is found to be poorly correlated with actual use in IT adoption in clinical care. They found

that though clinicians' belief that use of technology would enhance performance, they were reluctant to use and resist the adoption.

2.11.3 Technology-Organisation-Environment (TOE)

he Technology-Organisation-Environment (TOE) framework created by (Tornatzky & Fleischer 1990) argue that three contexts influence adoption of an innovation: technological context, organisational context, and environmental context (Tornatzky & Fleischer 1990).

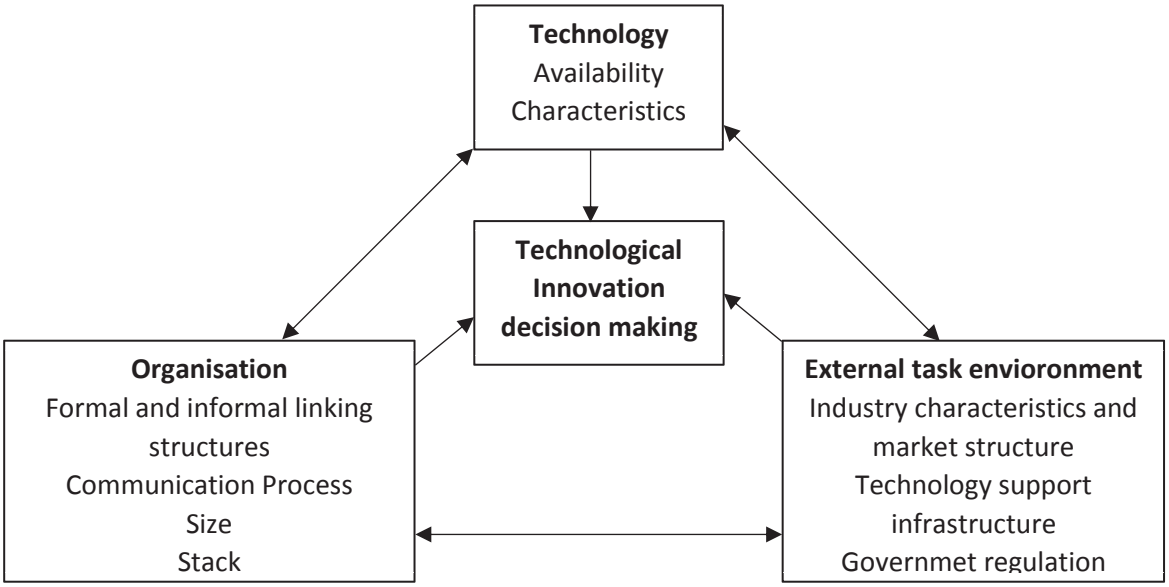

Figure 2.4 TOE Framework Source: (Tornatzky & Fleischer 1990)

The other adoption frameworks such as TAM and UTAUT are primarily focused on individual-level factors affecting technology adoption whereas TOE presents the factors in an organisational level, so it has been used by many researchers to investigate the factors affecting e-commerce adoption (Oliveira & Martins 2010).

Technological context is related to technologies in the organisation. These factors in this context are related to technological innovation, and they may be internal or external.

Organisational context is related to the internal environment of the organisation. It includes measures such as scope, size, and managerial structure.

Environmental context is related to the external environment of the organisation. It includes firms dealing with industry, competitors of the organisation and the other stakeholders such as government.

Many researchers have used TOE as a base and combined with other frameworks or factors to create a suitable model for their research context. Rowe, Truex & Huynh (2012) used the macro level variables of TOE: Technology, Organisation, and Environment but added other variables to the existing model. Similarly, Ahmad et al. (2015) model combined TOE with the other factors to create a model with eight independent variables. Ghobakhloo, Arias-Aranda & Benitez-Amado (2011) used TOE as a base framework and investigated how these factors influence e-commerce adoption decision for initial e-commerce adoption and post-e-commerce adoption.

TOE is consistent with Rogers' (1983) Theory of innovation diffusion in organisations. Theory of innovation diffusion has three factors: i.) leader characteristics (leader's attitude toward change), ii.) internal characteristics of the organisation (centralisation, complexity, formalisation, interconnectedness, organisational slack, and size), and iii) external characteristics of the organisation (system openness) (Zhu, Kraemer & Xu 2003).

Zhu, Kraemer & Xu (2003) created a conceptual model for e-business investigating six factors based on the TOE model. The study was based on a survey of 3,100 businesses and 7,500 consumers in eight European countries. Based on TOE framework, they found several factors (technology competence, firm scope and size, consumer readiness, competitive pressure and lack of trading partner readiness). Later, Zhu et al. (2006) combined four contextual factors (technology competence, organisation size, competitive

pressure and partner readiness) from TOE framework with four innovation factors (relative advantage, compatibility, cost, and security concern) of Diffusion of Innovation Theory (Rogers 1995). The study investigates the determinants of post-adoption stages of innovation diffusion for e-business using a dataset of 1,415 organisations across six European countries. The compatibility was found to be the most influential driver for e-business use whereas other drivers include technology competence, partner readiness, and competitive pressure. Security concern was one of the most significant barriers to e-business usage.

Lin & Lin (2008) investigated 163 executives of large Taiwanese organisations to study the determinants of e-business diffusion based on TOE framework. The findings of the research showed that technological context (IS infrastructure and IS expertise), expected benefits of e-business and competitive pressure influence adoption decision. The organisational compatibility and trading partner readiness were found to be not influencing the e-business diffusion.

Oliveira & Martins (2010) investigated factors affecting e-business adoption by firms in Europe in telecommunication and tourism industry using TOE framework. The extensive cross-sectional research was conducted collecting data from 2,459 organisations across 27 European countries. The research found that perceived benefits, technology readiness, competitive pressure, and trading partner collaboration were influencing e-commerce adoption in both industries.

All these investigations show that TOE may be used as a base for investigating the factors affecting e-commerce. The framework has yielded beneficial and useful results for a different context. However, necessary adjustments, addition, and modification may be done to accommodate the additional variables based on the context of the research. TOE

provides a useful base for investigating e-business adoption (Lin & Lin 2008; Zhu et al. 2006).

2.11.4 Technology Acceptance Model (TAM)-2

Venkatesh & Davis (2000) extended TAM and created TAM-2. TAM2 extended original TAM, explaining perceived usefulness and usage intention in context of social influence and cognitive instrumentation process. The social influence processes consisted of voluntariness, subjective norm, and image. The cognitive instrumental processes included job relevance, output quality, result demonstrability, and perceived usefulness (Venkatesh & Davis 2000).

Straub, Keil & Brenner (1997) tested TAM using Hofstede's dimensions across multiple cultures through a study in three countries: The USA, Switzerland, and Japan, and found out that TAM only was not able to adequately predict user acceptance because of cross-cultural influence in a country like Japan. Hofstede's model includes cultural dimensions such as Power Distance Index (PDI), Individualism (IDV), Masculinity (MAS), Uncertainty Avoidance Index (UAI) and Long-Term Orientation (LTO) (Hofstede 1980; Hofstede et al. 1990). These factors were found to be playing important roles in addition to perceived usefulness and perceived ease of use of original TAM.

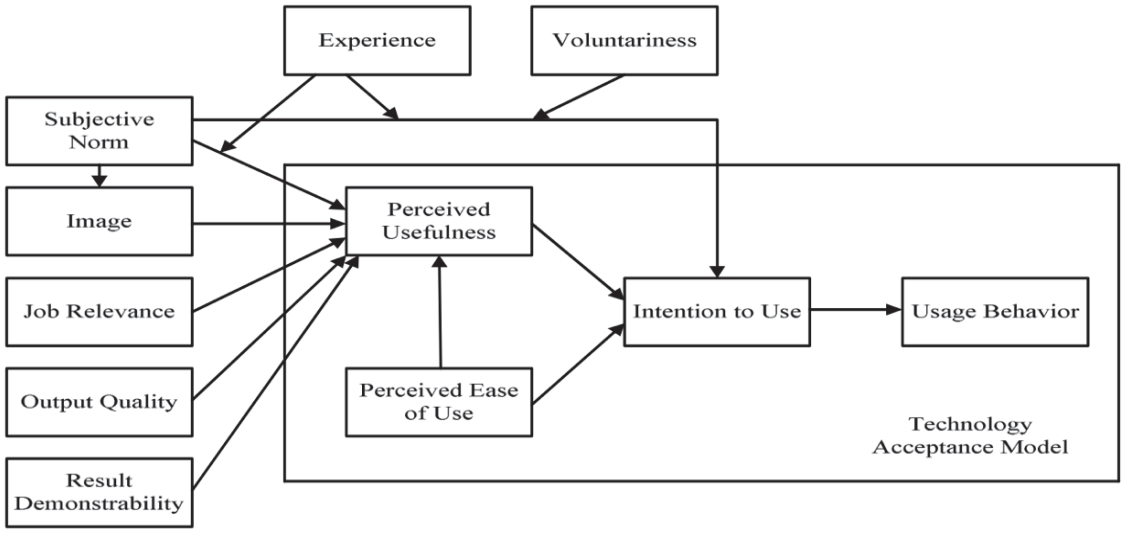

Figure 2.5 TAM 2 Source: (Venkatesh & Davis 2000)

So subsequently TAM-2 was developed. TAM2 includes more variables however it included limited items with small sample size, and was based on a longitudinal study.

2.11.5 Unified Theory of Acceptance and use of Technology(UTAUT)

Venkatesh et al. (2003) reviewed eight existing adoption models (The Theory of Reasoned Action, Technology Acceptance Model, The Theory of Planned Behaviour, Personal computer utilisation model, Combination TAM and Theory of Planned Behaviour, Innovation Diffusion Theory, and Social Cognitive Theory, and motivational model), and formulated the UTAUT.

The four constructs found which have an impact on the adoption are:

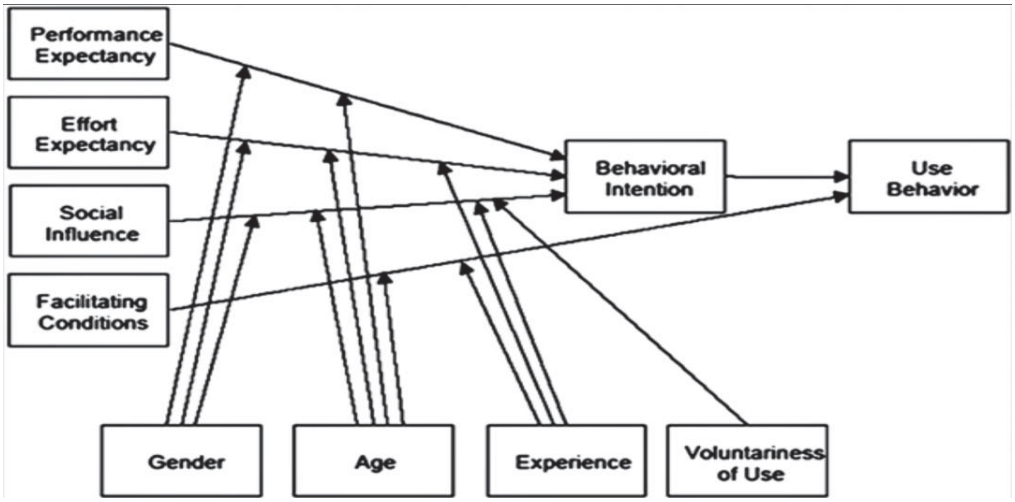

Figure 2.6 Unified Theory of Acceptance and use of Technology

Source:(Venkatesh et al. 2003)

Performance expectancy (the belief that proposed system will yield better performance and increased productivity)

Effort expectancy (how easy or difficult is its use)

Social influence, (how other social values, beliefs will impact the use of proposed system) and,

Facilitating condition, (an overall environment with organisational and technical infrastructure)

Venkatesh et al. (2003) also argue that each of these constructs is affected by personal traits such as gender, age, experience, and voluntariness

The findings of the research have been validated through a longitudinal study of SMEs of South Africa. Wang & Yang (2005) extended UTAUT in the context of online share trading by applying personality traits within the UTAUT model. The extended model was formulated based on the research with 240 participants. Using the hypothesis testing, the model found two outcomes i) personality traits affect the intention of adopting online trading and ii) personality traits and the internet experience moderates the adoption of online trading.

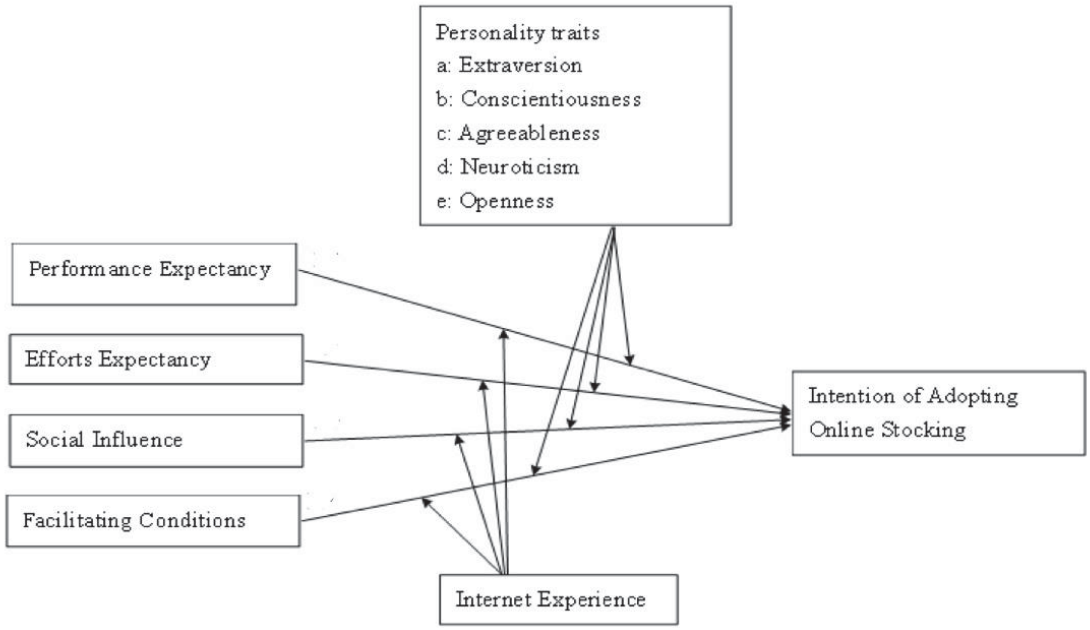

Figure 2.7 Extension of UTAUT with personality traits Source:(Wang & Yang 2005)

As UTAUT does not include cultural factors, a research was conducted to determine the effect of culture on the construct of UTAUT through a comparative study of mp3 usage and internet banking in USA and Korea (Im, Hong & Kang 2011). The research analysed

the user perspective and found that the user with lower power distance and individualistic in culture are more likely to decide about adopting the technology independently. It also found that though the actual use is affected by facilitating conditions and behavioural intention, performance expectancy on behavioural intention was not different in USA and Korea.

Since this research investigates the context of tourism organisations, the constructs of UTAUT may not be directly applicable as the model focuses on the individual. However, some variables of UTAUT may provide a starting point to explore the factors affecting e-commerce adoption.

2.11.6 e-readiness model

An e-readiness model examining the e-commerce adoption was created by (Molla & Licker 2005a) by surveying 150 organisations in South Africa.

The model is based on two essential components:

i) Perceived Organisational E-readiness (POER), and

ii) Perceived External E-readiness (PEER)

The various factors as presented in the diagram below affect the POER and PEER which eventually affect the e-commerce adoption decision.

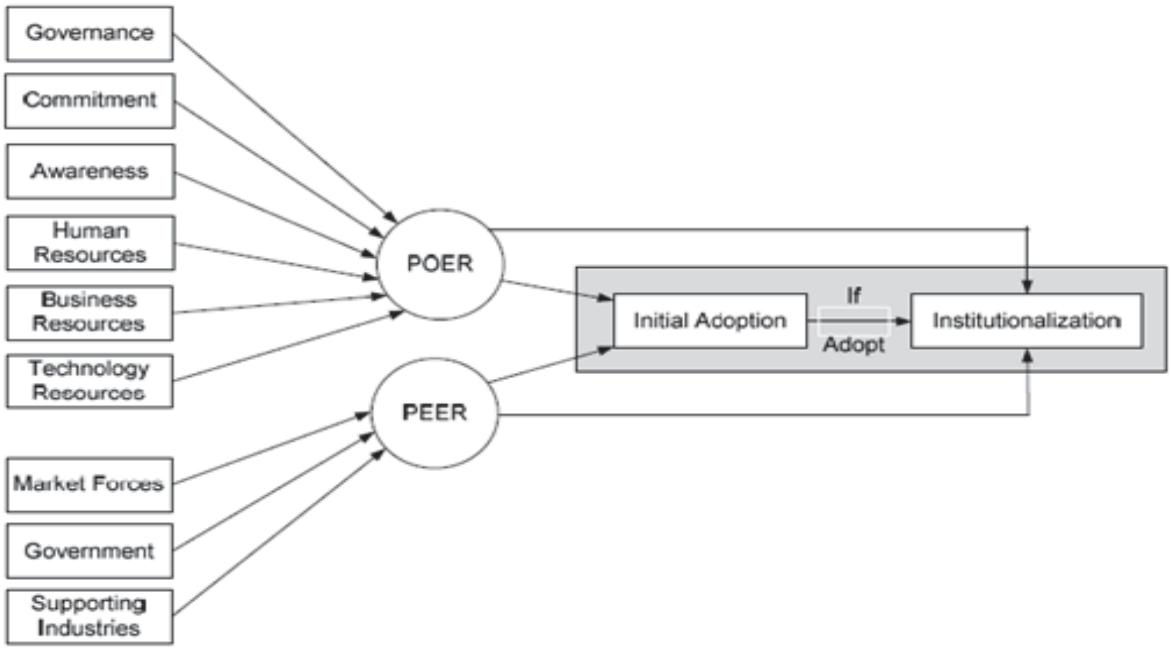

Figure 2.8 E-readiness e-commerce model source: (Molla & Licker 2005b)

The e-readiness model argued that the e-commerce adoption has two phases, i.e., initial adoption and institutionalisation.

Tan, Tyler & Manica (2007) found that B2B e-commerce adoption in China was more linked with perceived organisational readiness and socio-cultural factors. They found that this model is quite comprehensive and relevant to developing countries. However, they also argue that absence of individual factors and inability to capture education background of employees are some of the limitations of this model.

The table 2.5 summarises all the components and variables of all the frameworks examined in the literature review.

Table 2.5 Summary of the major adoption frameworks

Theory	**By**	**Factors and Variables**
Theory of Reasoned Action	(Fishbein & Ajzen 1975)	Variables: Attitude Toward Behaviour and Subjective Norm
TAM	(Davis 1989)	Variables: Perceived Usefulness & Perceived Ease of Use

TOE model	(Tornatzky & Fleischer 1990)	**Environment**: Industry characteristics and market, Technology support infrastructure, Government regulation **Organisation**: Formal and informal linking, structure, Communication processes, Size, Slack Technology: Availability, Characteristics
Technology Adoption Model 2	(Venkatesh & Davis 2000)	**Social influence processes**: voluntariness, subjective norm, and image. **Cognitive instrumental processes:** job relevance, output quality, result demonstrability, perceived usefulness Moderators: Experience & Voluntariness
UTAUT	(Venkatesh et al. 2003)	Variables: Performance expectancy, effort expectancy, social influence, and Facilitating Conditions. Moderators: Experience & Voluntariness, gender, age
E-readiness Model	(Molla & Licker 2005a)	Variables: **Perceived organisational e-readiness** (Governance, Commitment, Awareness, Human Resources, Business Resources, Technology Resources). **Perceived Environmental e-readiness** (Market forces, government, supporting industries)

2.12 Summary of the Chapter

This section vividly depicts the status and discourse of e-commerce adoption in developing countries by delving into previous studies and synthesising factors with a critical interpretation relevant to the current study. Various adoption frameworks have also been reviewed. The analysis provided a probable set of factors that affect e-commerce adoption by tourism organisations.

The review in this section sets up a bed stone for the further discussion. The review of the use of e-commerce in the tourism industry of developing countries shows that ICT and e-commerce adoption have many opportunities and benefits for developing countries. However, it also indicates that such opportunities and benefits have not been fully

utilising. The analysis of the use of ICT in the tourism industry of Nepal shows that there is a minimal use and most of the operation is based on the traditional way using non-e-commerce mechanism especially the payment for the tourism services.

The review of factors affecting e-commerce adoption in developing countries identified many factors inhibiting or motivating factors. The analysis showed that those factors are primarily related to infrastructure (technological, payment gateways, laws), awareness, benefits, resources in the organisations (human, technological, cost), socio-cultural(language), the context of the country (politics, government role), top management, security issues and tourism market. Some of the factors were found to be common in several studies or countries whereas some were related to only some countries. These factors helped to identify the probable factors along with possible categorisation of the factors.

Six adoption frameworks related to technology and e-commerce adoption have been discussed in detail by analysing constructs in each framework. As this research aims to develop a conceptual model for e-commerce adoption by SMTEs in Nepal, the suitability of each of the constructs and variables in the context of this study is examined in the next chapter. These frameworks provide valuable inputs for the formulation of a model for SMTEs of Nepal.

In summary, this chapter delved into literature on the issue of e-commerce adoption in developing countries and demystified the various factors and framework related to e-commerce adoption.

CHAPTER 3 Development of conceptual model and hypotheses

3.1 Introduction

This chapter examines various factors and frameworks discussed in the previous chapter and investigates their applicability to study the factors affecting e-commerce adoption by SMTEs of Nepal. Each factor and framework are examined based on a suitable match between research objectives and context of the tourism industry. The following table presents the critical analysis of previous available adoption models and frameworks.

The available frameworks are analysed in the first part, followed by the analysis of the suitability of each framework. The probable categories for the factors are created based on the analysis. After the identification of probable categories, all the probable factors identified from the literature review are categorised. The new categories are created on if needed based on the analysis from the literature review. In the final part of the chapter, each probable factors and variables (items) have been defined. The hypotheses are formulated to test the identified likely factors.

3.2 Current Research and the available frameworks

This research aims to investigate e-commerce adoption in the tourism industry and create a conceptual model. Most of the previous frameworks are based on analysis of SMEs. Some of the frameworks are based on analysis at individual level whereas this study aims to investigate e-commerce adoption at an organisation level. The following frameworks have been extensively discussed in chapter 2.

Table 3.1 Frameworks Analysed

Theory of Reasoned Action	TAM
TOE model	Technology Adoption Model 2
UTAUT	E-readiness Model

However, each framework may not be suitable based on the scope and objective of this research. So, suitability of each framework has been assessed in section 3.3 below.

3.3 Suitability analysis of the frameworks

Each framework has been thoroughly examined, and table 3.1 shows the components of the frameworks. These frameworks can provide valuable inputs for this research by identifying factors and variables for further examining the e-commerce adoption in the context of Nepal. However, such suitability of each framework is examined before it is selected for the further examination.

Based on the objective of this research, following criteria have been created to check the suitability of each framework:

i) Either the framework was primarily created for the organisation or individual.
ii) Relevance in context of developing country like Nepal
iii) Relevance for technology adoption

Since this research aims to find the factors for the tourism organisations, the frameworks focusing the organisations were considered for the further processing.

The suitability analysis has been discussed below:

Table 3.2 Suitability analysis of frameworks

Model	Suitability of the model for this research	Suitable?
TRA (Ajzen & Fishbein 1980)	This model is more suitable to predict human behaviour at the individual level rather than organisation level. It was not customised for technology adoptions study.	i) Organisation Focus-No ii) Developing Country-No iii)Technology Adoption-No **Result:** ***Not Selected***
TAM (Davis 1989)	It is found to be more suitable for individual-level technology adoption investigation. It has	i) Organisation Focus-No ii) Developing Country-No

	been created as a general technology acceptance theory. This research tries to investigate e-commerce adoption at the organisations level.	iii)Technology Adoption-Yes **Result:** ***Not Selected***
TOE (Tornatzky & Fleischer 1990)	It is one of the earliest models investigating innovation adoption at the organisation level. TOE has been extensively used to investigate in various context and countries. Since this research investigates e-commerce adoption by tourism organisation, some of the constructs of the TOE will be investigated based on findings from the literature review.	i) Organisation Focus-Yes ii) Developing Country-No iii)Technology Adoption-Yes **Result:** ***Selected***
TAM 2 (Venkatesh & Davis 2000)	TAM 2 attempted to address some of the criticism of TAM by adding some variables. However, in the context of this research TAM-2 has similar problems like TAM and is more suitable for individual-level technology adoption studies.	i) Organisation Focus-No ii) Developing Country-No iii)Technology Adoption-Yes **Result:** ***Not Selected***
UTAUT (Venkatesh et al. 2003)	As UTAUT model is comprehensive as it combines eight theoretical frameworks, the framework addresses many criticisms of earlier models. However, the design is guided more by adoption study at the individual level. So, this model has not been selected as this research aims to investigate the e-commerce adoption at the organisational level.	i) Organisation Focus-No ii) Developing Country-No iii)Technology Adoption-Yes **Result:** ***Not Selected***
E-readiness model (Molla & Licker 2005a)	This model analysed factors based on perceived organisation e-readiness and perceived environmental e-readiness. The analysis was done in the context of developing country, and it relies on the internal and external environment.	i) Organisation Focus-Yes ii) Developing Country-Yes iii)Technology Adoption-Yes **Result:** ***Selected***

	As Nepal is in the embryonic stage of IT and e-commerce adoption, the e-readiness model may be a suitable model to explore the factors affecting e-commerce adoption in Nepal.	

So, the suitability analysis has shown that TOE (Tornatzky & Fleischer 1990) and e-readiness model (Molla & Licker 2005a) are deemed to be most suitable based on our criteria. So, those models have been selected.

3.4 The Analysis of the factors

After the analysis of the frameworks, the factors identified from the literature review have been examined for suitability in the context of this research. The probable factors are included as a foundation for further investigation of factors affecting e-commerce adoption by SMTEs of Nepal.

The factors in table 2.4 are analysed to derive the probable factors in the context of Nepal. A list of the probable factors is prepared as an initial draft of the factors based on the suitability of them.

The determination of the suitability is not possible without the proper investigation. So, a method is proposed to filter all the factors (Table 2.4) based on three possible results: i) selected for the further investigation ii) selected and merged with similar factors or categorised or iii) not selected.

Following criteria are set up as selection criteria for the inclusion or exclusion of the factors identified from the literature reviews.

i) Suitability or applicability of the factors for the tourism industry as investigated in the literature review

ii) Relevance in context of developing country like Nepal

iii) Possibility to merge the factors with the similar meaning

The factors which could not be either included or removed conclusively were retained in the list for the further investigation.

The processing of the factors based on the suitability criteria for the selection of the probable factors is presented in table 3.3 (below). The decision is based on suitability criteria and the details about the factors from the literature review. The "Included" indicates that it has been included only for the further investigation as probable factors.

Table 3.3 Inclusion or exclusion of the factors

Factors	Decision	Remarks
Lack of payment gateway or credit card problems	Included	Included as a part of the financial infrastructure
Lack of technical skills and knowledge	Included	Relevant for developing countries and adoption theory.
Lack of legal infrastructure	Included	Included as various studies have reported it in the context of the developing countries.
Inadequate infrastructure (telecommunication, financial, transportation)	Included	It is found relevant in the context of developing country. The factors such as lack of telecommunication, financial infrastructure, lack of credit card penetration have been categorised under infrastructure.
Electricity	Included	Usually, there are long power cuts in Nepal. So, the investigation of impact cuts may help to yield various findings on the research topic.
Cultural barriers	Included	Probable in context of Nepal. Categorized into socio-cultural factors.
Low bank account and e-payment card penetration	Included	Included as pre-analysis shows that there is lack of payment gateway in Nepal as well.
Security concern and trust	Included	Relevant for developing countries and adoption theory.
Cost of resource to implement e-commerce	Included	The cost indicated as factors in many developing countries

Lack of Human skills and resources	Included	Merged into technical knowledge.
Incentives from government	Included	Included as the pre-exploration shows the absence of such incentives.
Relative advantage	Included	Found to have an impact on e-commerce adoption in various developing countries.
Owner Support	Included	Included for further investigation.
Poor Internet connectivity	Included	Suitable for developing country
Language Barrier	Included	Included as a Cultural Factor
Technological resources	Included	It is included as reviews show that lack of resources constraints organisations in developing countries.
Lack of Government policies, support, and laws	Included	Found relevant by many studies for developing countries
Expensive and unreliable shipping service	Not Included.	Not directly applicable to tourism services or products
Supporting IT industry	Included	As supporting IT industry is a critical part of e-commerce adoption.
Awareness about e-commerce	Included	it is reported as a factor in many developing countries.
Perceived benefits	Included	The literature review shows that many organisations implements e-commerce motivated by benefits
Pressure from competitors	Included	Reported as factors in various context as a factor that motivates adoption.
E-commerce Not suitable (poor product match for e-commerce)	Not included	Based on literature review as tourism is found to be a suitable product for e-commerce.
Political Situation	Included	Nepal has gone through a decade-long civil war, and political situation has been volatile, so investigation of the effect of the political situation may be helpful.
Privacy concerns	Included	Relevant for developing context and tourism products.
Owner characteristics	Included	It has been reported that it affects e-commerce adoption by many researchers through an investigation in various developing countries. So, included for

		further investigation in the context of SMTEs of Nepal.
Market readiness and size	Included	The literature review shows that Nepal has a tourist industry with large tourist arrivals. So, the impact needs to be investigated.

Some of the factors have been not included in the further processing based on suitability analysis. However, such factors can be re-introduced if such factors are deemed important and indicated as a factor by the informants during data collection. The exclusion helps to create a list of filtered probable factors for the validation based on literature review and objectives of the research.

3.5 Classification of the Factors

The various selected probable factors have been presented in the above table (Table 3.3). The factor may be unique or give similar meanings representing the same factor. Similarly, some of the selected factors could be included within a broader factor or construct, rather than a unique factor. Therefore, these factors are examined for the possible classification.

The major components and their classification of the selected frameworks (TOE and e-readiness model) are used as foundations to create the initial categories. These components are used as they have been already extensively tested in previous studies which are in the context of this research. Based on the selected frameworks, the factors are classified into environmental or external and organisational or internal categories (as present in those frameworks).

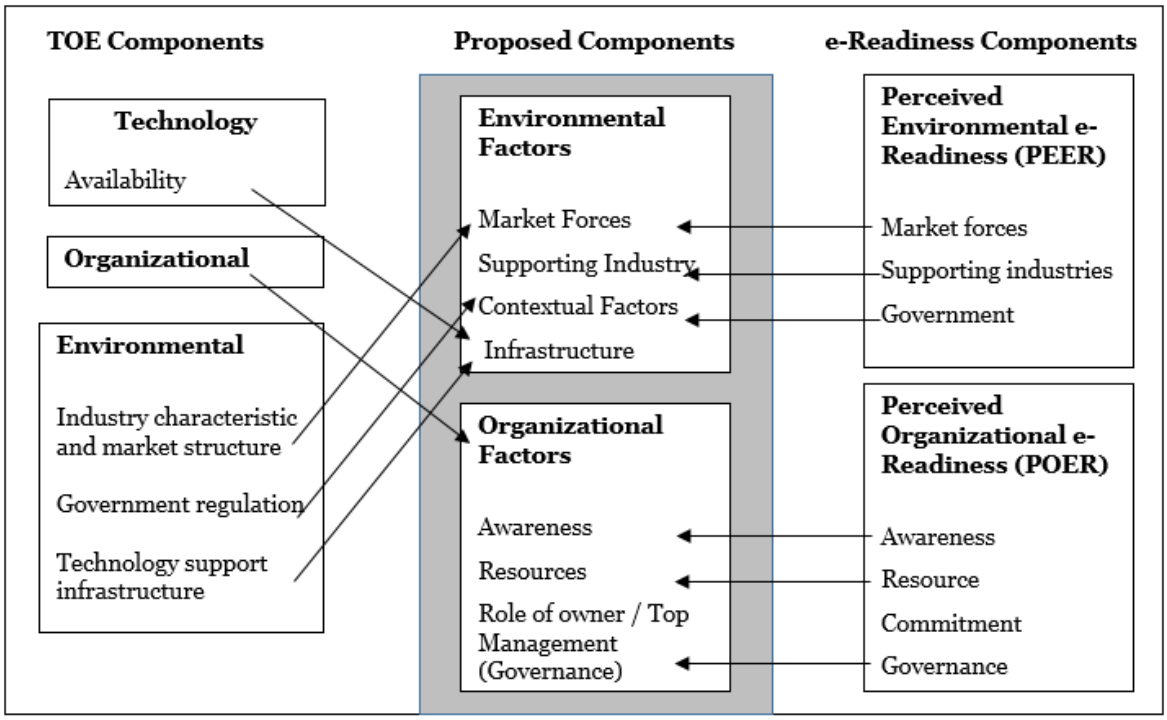

Figure 3.1 Proposed Constructs

Based on the components and categories of TOE and e-readiness model, the following list of refined categories (figure 3.1) is proposed to classify the factors. If the components from both TOE and e-readiness models have similar meaning, they are merged as a single category. The similarity of those components is determined based on information from literature reviews.

Similarly, as the research aims to investigate factors affecting e-commerce adoption by an organisation or from the organisation's perspective, each category was examined either a category is internal or external to organisation's boundary. The two broad groups were derived combining classification of factors in TOE and e-readiness model. The groups have been presented below:

i) Organisational Factors: These factors are internal to organisation boundary.

ii) Environmental Factors: These factors are external to organisation boundary.

Based on the processing the first draft of the likely factors was prepared for the further processing.

Table 3.4 Proposed categories and grouping of the categories

Environmental	Organisational
Infrastructure	Awareness
Market Forces	Resources
Supporting industries	Organisation Commitment and Governance
Contextual factors	

The probable factors identified in table 3.3 was classified under the appropriate categories (table 3.4) based on the information available from the literature review on those factors.

Table 3.5: Categories and factors in each category

Infrastructure	Poor Internet connectivity; Inadequate infrastructure (telecommunication, financial,transportation); Electricity; Lack of legal infrastructure, Low bank account and credit card penetration, Lack of payment gateway or credit card problems
Supporting industries	Supporting IT industry
Contextual factors	Lack of Government policies; support and laws; Government initiatives; Political Situation; Incentives from government
Market Forces	Market readiness and size, Pressure from competitors
Awareness	Awareness about e-commerce
Resources	Lack of technical skills and knowledge, Cost of resource to implement e-commerce, Technological resources, Lack of Human skills and resources
Organisation commitment and governance	Owner Support, Owner characteristics
Factors which did not fit into any categories listed above.	Cultural barriers; Language Barrier; Perceived benefits, Relative advantage; Security concern and trust; Privacy

Some of the selected probable factors from table 3.3 did not fit any of the categories from table 3.4 which were primarily derived from the TOE and e-readiness modal. This shows the shows the inadequacy of constructs in TOE and e-readiness model to accommodate or discuss the issues related to culture, value proposition and security. So, such factors were further examined for the patterns. Based on the examination, following pattern was observed:

- Cultural barriers; Language Barrier;
- Perceived benefits, Relative advantage;
- Security concern and trust; Privacy concerns

Based on the analysis, the six factors which did not fit into any of the categories were divided into three new groups as above. Kshetri (2007) included the factors related to language and culture into one category called cognitive factors. Similarly, Kapurubandara & Lawson (2006) used term "social-cultural" to include factors related to culture. So, as the two items (cultural and language barrier) are related to the culture, they are put into the same category, and a new category called "socio-cultural" factors is adapted.

Similarly, both perceived benefits and relative advantage are related to the value that the adoption of e-commerce can add to the organisations (Kabanda & Brown 2010). The perceived benefit is one of the components of the TAM as well. The variable "perceived benefits" has been used from the organisational perspective from the organisational perspective rather than individual perspective. Similarly, various studies (Dwivedi, Papazafeiropoulo & Scupola 2009; Rowe, Truex & Huynh 2012; Scupola 2003) investigated e-commerce adoption and examined relative advantage or value proposition factors with TOE model. Since both factors are related to value addition, they are categorised into a new category and termed as a "Value proposition."

Similarly, since both factors "Security concern and trust" and "Privacy concerns" are related to security based on the literature review on e-commerce adoption, a broader category called "Security concern" is created to include both the factors. The new categories were also grouped into either environmental or organisational based on either they are internal or external to the organisational boundary.

The new categories and the factors are presented in table 3.6 below:

Table 3.6 Additional proposed categories and grouping

Socio-cultural	Cultural barriers; Language Barrier	Environmental
Value Proposition	Perceived benefits; Relative advantage	Organisational
Security Concern	Security concern and trust; Privacy concerns	Organisational

So, combining the tables above (table 3.5 and 3.6), the updated list of probable factors classified under possible categories has been compiled and presented below:

Table 3.7 Updated list: proposed factors including the added categories

Environmental Factors	
Infrastructure	Poor Internet connectivity; Inadequate infrastructure (telecommunication, financial, transportation); Electricity; Lack of legal infrastructure, Low bank account and credit card penetration, Lack of payment gateway or credit card problems
Market Forces	Market readiness/size, Pressure from competitors
Supporting industries	Supporting IT industry
Contextual factor	Lack of Government policies; support and laws; Government initiatives; Political Situation; Incentives from government
Socio-cultural	Cultural barriers; Language Barrier
Organisational Factors	
Awareness	Awareness about e-commerce
Resources	Lack of technical skills and knowledge, Cost of resource to implement e-commerce, Technological resources, Lack of Human skills and resources
Owner and top management role	Owner Support, Owner characteristics
Value Proposition	Perceived benefits; Relative advantage
Security Concern	Security concern and trust; Privacy concerns

The category “organisation commitment and governance” was renamed to “owner’s or top management role” for the greater clarity as this research investigates the research questions from the organisation’s perspective.

These factors may not include an exclusive list of all the factors and are just probable factors to proceed with the investigation. The excluded factors or other factors can be introduced if it is deemed important after the analysis of the qualitative data collection, i.e., interviews with the stakeholders.

3.6 The proposed model and factors

The detail study and analysis of the factors identified in the earlier studies helped to establish and identify an initial set of proposed factors affecting e-commerce adoption of Nepal. This analysis provides not only detail information about each factor but also provide a starting point for identifications of proposed factors in the context of Nepal.

3.6.1 Constructs and Variables

The proposed factors identified in table 3.3 has been presented as constructs and variables in the following table. Each category identified in table 3.4 has been termed as constructs which consist of similar items identified from the literature review. Each item within those constructs is called variables. Each construct and variables have been arranged and defined in detail in the following table.

Table 3.8 Variable Definitions of constructs

Factors	Definition & Variables
3.6.1.1 Environmental Factors	
Infrastructure	
Electricity	Availability of electricity in the country
Financial	Condition and readiness of financial institutions for the adoption of e-commerce
Technological	The situation of the country regarding technical resources such as the status of the internet, digital divide, e-readiness
Legal framework	National status of the country regarding laws relating to e-commerce
Market Forces	
Market readiness/size	The degree to which market and organisations partners such as customers are ready for e-commerce adoption
Pressure from competitors	Pressure to adopt e-commerce because of competitors adopting e-commerce or similar technologies
Supporting IT Industry	
Support and readiness of IT industry	Readiness and capability of IT organisations linked with SMTEs regarding e-commerce and technology
Socio-cultural factors	
Language	The language used for technology and lack of knowledge about it.
Culture	The culture of the country such as tradition, ways of doing things
Contextual Factors	
Situation of country	The political situation of the country and its effect on e-commerce adoption
Plan and policies	Plans and policies of government relating to technology and e-commerce
Incentives from government	Incentives and motivation provided by the government for adoption e-commerce

3.6.1.2 Organisational Factors	
Awareness	
Awareness about use and benefits	The awareness of various features that e-commerce offers for the organisations and its benefits.
Resources	
Skill & Human resource	Human skills and other skills to implement e-commerce.
Cost of resource	Initial and operational required for e-commerce.
Technological resources	Technological resources in the organisation to adopt e-commerce such as hardware and software
Security	
Lack of trust	Confidence that using e-commerce is safe and trustworthy
Privacy	Concern about the privacy and data misuse
Value proposition	
Perceived benefits	Expected benefits of using e-commerce in the organisation.
Relative Advantage	Innovation is perceived as better than the idea that it supersedes.
Role of the owner or top Management	
Owner support	The degree of owner's commitment and encouragement to use e-commerce
Characteristics	Owner's information and knowledge about e-commerce

3.7 Analysis of constructs and variables, Hypothesis formulation

3.7.1 Environmental Factors

Environmental factors are external to the boundary of the organisation. Various environmental factors affecting e-commerce adoption have been identified in different research studies.

3.7.1.1 Infrastructure

3.7.1.1.1 Electricity and Power cuts

Electricity supply is a lifeline for the electronic equipment such as laptops, computers which are the backbone of ICT and e-commerce. Studies in several countries have shown

that unreliable power supply has been one of the inhibiting factors that affect e-commerce adoption decision (Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008).

Karanasios & Burgess (2008) found that some villages in Ecuador do not have access to a reliable power supply which impacted the e-commerce adoption. The circumstances like this in many developing countries have hampered e-commerce adoption all over the country especially in rural areas (Shemi 2013). Kabanda & Brown (2010) found that online transactions were affected by frequent power cuts. They also argued that infrastructural problems such as electricity cuts are beyond the control of organisations.

Like many other developing countries, Nepal faces severe power cuts daily in the lack of adequate power supply (KathmanduPost 2013). Some of earlier research investigating the ICT usage in Nepal have identified unreliable power supply and prolonged power cuts as one of the barriers to implementing tools of ICT (Kshetri 2007; Shrestha et al. 2015).

Many organisations in developing countries are using alternatives sources such as fuel, solar to generate electricity for their organisation (Kabanda & Brown 2010). Also, UPS, inverters, and batteries are also being used as a temporary (Karanasios 2008). However, generating electricity locally using fuel such as diesel by organisations is costly (Apulu 2012). Tourism organisations require frequent communication. So, the reliable power supply is essential for the smooth operation of business using e-commerce.

3.7.1.1.2 Lack of financial infrastructure

The financial institutions of the country such as banks should be able to facilitate the e-commerce adoption. The financial problems such as lack of payment system or local bank's inability to process the domestic and international financial transactions have been identified as a barrier to adopting e-commerce (Kapurubandara & Lawson 2006).

Providing services in tourism industry require carrying out financial transactions from all around the world. So, the lack of financial infrastructure to perform such activities not only makes the service delivery process difficult but slow, lengthy and cumbersome.

Many prior studies have found that unavailability of the payment facilities acts as a barrier (Kapurubandara & Lawson 2006; Kshetri 2007). The low penetration of e-payment cards is another problem impeding e-commerce adoption in developing countries (Kshetri 2007; Uzoka & Seleka 2006).

In the context of the tourism industry in developing countries, though most tourists may be from developed countries and may have no problem with paying for the services electronically. The lack of such facilities among local service providers makes it difficult for tourism organisations. For example, in the case of Nepal, the tourism organisations cannot withdraw or transfer the money paid through online using payment processor like PayPal, to their local bank account. Usually, such unavailability means more time, more transactions commissions and less control over transaction which is discouraging entrepreneurs to adopt e-commerce in the context of developing countries.

3.7.1.1.3 Technological infrastructure

The technical infrastructure available in the country also affects the e-commerce adoption (Kabanda & Brown 2010; Kapurubandara & Lawson 2006). The infrastructure such as the internet and telecommunication facilities available in countries constitutes the technical infrastructure of the country.

Telecommunication and internet services are the backbones of e-commerce. Lack of telecommunication facilities such as poor internet connectivity, lack of fixed telephone lines for end-user dial-up internet , lack of reliable communication, and services from Internet Service Providers (ISPs) affects e-commerce adoption (Kapurubandara &

Lawson 2006). Karanasios & Burgess (2008) reported that, in Ecuador, many tourism business owners usually travel for many hours just to make a telephone call. In many developing countries, the internet and computer penetration rates are low, and lack of telecommunication facilities is found to be acting as a barrier (Hunaiti et al. 2009; Kshetri 2007; Shemi 2013).

Many developing countries have low ICT index, e-readiness, and turbulent environment (Karanasios & Burgess 2008) which are linked with the poor technical infrastructure in such countries.

Similarly, the lack of technological infrastructure is also linked to the digital divide. Due to the digital divide and income disparities within the country, the availability of quality of technological infrastructure may not be same for all citizens in developing country (Datta 2011).

3.7.1.1.4 Legal Framework

Laws regarding the use of ICT and e-commerce is another crucial requirement for successful deployment of e-commerce. Unclear legal policies, lack of legal infrastructure and laws regarding e-commerce have been acting as a barrier in developing countries (Hunaiti et al. 2009; Kapurubandara & Lawson 2006; Shemi 2013; Zaied 2012). Similarly, lack of a legal standard to adopt e-commerce is also discouraging e-commerce adoption (Kartiwi & MacGregor 2007; Zaied 2012).

In Nepal, Electronic Transaction and Digital Signature Act (ETADSA), 2000 was introduced in the year 2000 and fully enacted in 2008 (Ministry of Science and Technology 2008). However, according to e-GMP (2014), the Act lacks features such as electronic payment gateway provision and IT Security Guidelines. Moreover, there is also

the absence of audit agency to ensure government organisations are following the prescribed in the regulatory framework.

To sum up, the studies which found the infrastructure as a factor affecting e-commerce adoption has been presented in the next table:

Table 3.9 Summary of infrastructure factor

Studies	Remarks
(Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008).	Unreliable power supply affects e-commerce adoption.
(Kshetri 2007; Shrestha et al. 2015).	Nepal is also suffering from lack of electricity which has affected ICT use.
(Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Kshetri 2007)	Unavailability of payment gateway acting as a barrier.
(Kshetri 2007; Uzoka & Seleka 2006).	Low e-payment card penetration in developing countries affecting e-commerce adoption.
(Kabanda & Brown 2010; Kapurubandara & Lawson 2006).	Unreliable telecommunication and internet causing a problem for adoption
(Hunaiti et al. 2009; Kshetri 2007; Shemi 2013).	Lack of telecommunication facilities a barrier.
(Hunaiti et al. 2009; Kapurubandara & Lawson 2006; Shemi 2013; Zaied 2012).	Lack of laws affecting e-commerce adoption.
(eGMP 2014).	There are many weaknesses in the implementation of Electronic Transaction Act (2008) of Nepal.

Based on the discussion and findings from literature review, following hypothesis has been set up to test the influence of infrastructure on adoption of e-commerce by SMTEs

H1: Lack of infrastructure has negatively influenced the adoption of e-commerce by SMTEs of Nepal

3.7.1.2 Market Forces

The various attributes of the market readiness such as size and readiness of suppliers, partners impact the e-commerce adoption. The market should be ready and conducive to adopt e-commerce. If the organisation perceives market forces ready for the adoption of the e-commerce, the organisation may adopt the e-commerce (Molla & Licker 2005a).

3.7.1.2.1 Market readiness and size

Market readiness refers to the degree to which market and organisations are ready for e-commerce adoption. Molla & Licker (2005a) argue that the market forces such as readiness of partners affect the adoption. Similarly, many researchers have found the size of the market also affects the e-commerce adoption (Ahmad & Agrawal 2012; El-Nawawy & Ismail 1999). The tourism industry of Nepal receives a large number of tourist every year (MOCTA 2017). The impact of market forces on e-commerce adoption is yet to be investigated in the context of Nepal.

3.7.1.2.2 Pressure from competitor

Though the benefits of the implementing e-commerce motivate many organisations, many studies have found that the pressure from competitors also motivates the organisation to adopt e-commerce. This factor is found to be common in various developed countries such as Australia, UK, and New Zealand (Chen & McQueen 2008; Chong & Pervan 2007; Simpson & Docherty 2004). Hitt & Brynjolfsson (1997) argue that organisation with the highest level of competition is more motivated to adopt e-commerce

.

Table 3.10 Summary of market factors

Studies	Remarks
(Ahmad & Agrawal 2012; El-Nawawy & Ismail 1999; Molla & Licker 2005a)	The market size and forces affect e-commerce adoption.
(Chen & McQueen 2008; Chong & Pervan 2007; Hitt & Brynjolfsson 1997; Simpson & Docherty 2004)	There is pressure from competitors, and that affects adoption.

The competitor's adoption or non-adoption of e-commerce can also impact e-commerce adoption of an organisation (Kapurubandara & Lawson 2006). The impact of the pressure from competitors has not also been examined in many developing countries.

As many studies show that various market forces or attributes impact e-commerce adoption, a hypothesis is set up to test the impact.

H2: The market forces for the tourism industry of Nepal have positively influenced the e-commerce adoption by SMTEs of Nepal.

3.7.1.3 Supporting IT industry

Various studies have found that readiness of supporting industries affects e-commerce adoption (Brdesee 2013; Kabanda & Brown 2010; Molla & Licker 2005a). The readiness of supporting industries to support, facilitate and their ability to provide services is crucial for e-commerce adoption. E-commerce implementation requires coordination with IT organisations. Kabanda & Brown (2010) found that the organisations perceiving high availability of e-commerce support were associated with e-commerce adoption.

IT industry provides tourism organisations with the required software and other necessary systems. Brdesee (2013) found that the executives were concerned with the quality of ICT industry available to the tourism organisations in Saudi Arabia. Ghobakhloo, Arias-Aranda & Benitez-Amado (2011) found that the organisations which have better support

from the IT vendors have adopted the e-commerce more intensely in context of Iranian SMEs. The availability of ICT consultants and experts who can guide e-commerce adoption also help tourism organisations.

Table 3.11 Summary of supporting IT industry

Studies	Remarks
(Ghobakhloo, Arias-Aranda & Benitez-Amado 2011)	Better support from the IT vendor results in higher e-commerce adoption
Kabanda and Brown (2010)	The perception that there is the high availability of IT support encourages e-commerce.
Brdesee (2013)	Concerned with the quality of IT support that is available.

Based on the findings, following hypothesis has been set to test the impact of supporting IT industry:

H3: The services from the supporting IT industries have negatively influenced the adoption of e-commerce by SMTEs of Nepal.

3.7.1.4 Socio-cultural factors

The socio-cultural factor also plays a role in e-commerce adoption decision. Each society is characterised by own values and norms which makes it unique. Some societies are characterised by the norms such as the desire for face to face interaction, language, and other cultural practices (Kapurubandara & Lawson 2006; Kshetri 2007).

3.7.1.4.1 Language

Many studies have also identified the language as a barrier to e-commerce adoption (Kapurubandara & Lawson 2006; Karanasios & Burgess 2008). Many people have difficulty accessing the information online because it is not in their local language or in

the language they can understand (Lawrence & Tar 2010). Kshetri (2007) presents language-related factors as a cognitive factor that affects e-commerce adoption in Nepal.

As English is one of the predominant languages in the online arena, lack of understanding of the language has also affected e-commerce adoption in developing countries (Lawrence & Tar 2010). Karanasios & Burgess (2008) found that, in Ecuador, the lack of computer skills was compounded by the lack of working knowledge of English language among tourism business operators. Also, many business owners considered themselves 'too old' to learn a new language.

3.7.1.4.2 Culture

The cultural factors, how people in a society feel or reacts about adoption also affects adoption decision (Datta 2011). There are various studies which have found that e-commerce adoption is affected by the culture (Chong et al. 2009; Saffu, Walker & Hinson 2008; Thatcher, Foster & Zhu 2006). A culture of a place or country may be different from the culture of other place or the country which may have an impact on e-commerce adoption. For example, Chong et al. (2009) argue that the culture of China is different from many western countries and they found that e-commerce adoption in the textile industry is affected by the culture in China. Thatcher, Foster & Zhu (2006) also found that national culture has impacted the e-commerce adoption in Taiwan. In a culture of some developing countries, use of ICT is still considered as a luxury item (Kshetri 2007). Some studies also use term national culture to indicate the aspects related to culture that affects e-commerce adoption (Brdesee 2013). Chong et al. (2009) found that culture of trust among businesses influenced e-commerce adoption decision. Kshetri (2007) argues that socio-cultural factors are often tough to overcome. Nepal is a country which is diverse and rich in culture (Shrestha et al. 2015). So, the impact of the culture on e-commerce needs to be tested.

Table 3.12 Summary of social-culture factors

Studies	Remarks
(Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Kshetri 2007).	Language impacts e-commerce adoption.
(Karanasios & Burgess 2008)	Lack of computer skills compounded because of lack of language.
(Chong et al. 2009; Saffu, Walker & Hinson 2008; Thatcher, Foster & Zhu 2006)	National culture impacts e-commerce adoption.

Following hypothesis has been set to test the effect of the socio-cultural aspects:

H4: Socio-cultural factors have negatively influenced the adoption of e-commerce by SMTEs of Nepal

3.7.1.5 Contextual factors

The contextual factor includes the various aspects related to the specific context or circumstances. In this research, the conditions related to the context of this research (i.e., Nepal) such as government plans, policies, political situation and incentives provided by the government have been discussed.

3.7.1.5.1 Government plans and policies

The government is responsible for not only formulating the legal frameworks required for e-commerce but also creating the infrastructure for tourism and e-commerce adoption. The readiness of government is essential. Shemi (2013) identified the government's role as business partner and policy regulator.

The good government initiatives encourage the e-commerce adoption (Hunaiti et al. 2009; Karanasios 2008) whereas lack of plans, visions and laws acts as a barrier to

adoption (Kapurubandara & Lawson 2006; Zaied 2012). Pradhan (2002) investigated the role of the government in technology adoption in Nepal and found that government's role to be a "barrier" rather than working as a catalyst.

3.7.1.5.2 Political situation of the country

Political instability is also an essential factor affecting e-commerce adoption. The political situation in many developing countries is turbulent and unstable (Karanasios 2008; Lawrence 2001) which affects their plan and policies.

Though political instability does not affect adoption directly, political instability is linked with poor infrastructural development and government not being able to prioritise industries such as IT which eventually affects e-commerce adoption(Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006).

Nepal has been politically unstable after a decade-long civil war (1996-2006) started by local Maoist party (Thapa 2004) and another nine years of the transitional period between 2006-2015 to create a new constitution of the country with two constituency assembly elections. The tourism industry of Nepal was adversely affected by the civil war (Thapa 2004). Though constitution has been finally drafted and published in 2015, the political situation has been volatile. The continually changing government and ministers have resulted in frequently changing priorities and policies.

3.7.1.5.3 Government incentives

The government in some countries have provided incentives to use ICT acting as a motivator (Al-Weshah & Al-Zubi 2012; Karanasios 2008). However, in many other countries, the government's support has been inadequate which is acting as a barrier (Hunaiti et al. 2009; Kapurubandara & Lawson 2006; Kshetri 2007). In some countries such as Malaysia, tourism businesses are encouraged by government providing incentives

to adopt e-commerce in their business (Karanasios 2008). Similarly, Hunaiti et al. (2009) argue that government can launch campaign and plans to inform organisations about e-commerce policies, success stories, and opportunities and obstacles. Cameron & Quinn (2005) argue creating favourable condition for e-commerce adoption by providing training and increasing telecom services will be beneficial for the organisations.

Table 3.13 Summary of contextual factors

Studies	Remarks
(Hunaiti et al. 2009; Karanasios 2008)	Good plan, policies from the government encourage e-commerce adoption
(Kapurubandara & Lawson 2006; Zaied 2012)	Lack of plans, visions, and laws acts as a barrier to adoption
(Pradhan 2002)	Government's role found to be a "barrier" in context of technology adoption in Nepal.
(Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006).	Unstable political situation impacts ecommerce adoption.
(Al-Weshah & Al-Zubi 2012; Karanasios 2008)	Found presence of some incentives from the government which was encouraging e-commerce adoption.
(Hunaiti et al. 2009; Kapurubandara & Lawson 2006; Kshetri 2007)	Found lack of government support to adopt e-commerce in their research context which impacted adoption negatively.
(Ghobakhloo, Arias-Aranda & Benitez-Amado 2011)	Found that lack of support from government hinders e-commerce adoption (based on a survey on 268 Iranian SMEs).
Cameron & Quinn (2005)	Support from government encourage ecommerce adoption.

Based on the findings, following hypothesis has been set up to test the impact of contextual factors on e-commerce adoption.

H5: The contextual factors have discouraged the adoption of e-commerce by SMTEs of Nepal.

3.7.2 Organisational Factors

Organisational factors are internal to organisation's boundary. They are directly available and connected with the use of internal resources in the organisations.

3.7.2.1 Awareness

Awareness refers to knowledge, information, and know-how to something. In this research, awareness refers to organisation owner's knowledge and information about e-commerce and its potential benefits and usage. According to Molla & Licker (2005a) "awareness" refers to "representation of the perception of e-commerce elements in the environment; comprehension of their meaning through an understanding of e-commerce technologies, business models, requirements, benefits and threats and projection of the future trends of e-commerce and its impact."

3.7.2.1.1 Awareness of use and benefits of e-commerce

Several studies have found awareness of e-commerce and its use and benefits as one of the essential factors affecting e-commerce adoption (Darch & Lucas 2002; Ghobakhloo & SH 2011; Hunaiti et al. 2009; Karanasios & Burgess 2008; Kshetri 2007; Molla & Licker 2005a; Zaied 2012).

The lack of awareness about ICT and e-commerce affects the awareness negatively whereas awareness about the e-commerce and ICT use positively impacts e-commerce adoption (Karanasios & Burgess 2008).

Hunaiti et al. (2009) argue that lack of awareness and not understanding the value of e-commerce have negatively impacted e-commerce adoption decision. Molla & Licker (2005b) argue that the reason for the lack of awareness about e-commerce in developing countries is due to the low diffusion of ICT tools. However, Kabanda & Brown (2010) argue that high awareness among organisations about the e-commerce may not necessarily indicate or guarantee high e-commerce adoption.

Some studies identifying awareness as a factor are shown in the table 3.14 below:

Table 3.14 Studies identifying awareness factors

Studies	Remarks
(Molla & Licker 2005a)	One of the organisational e-readiness factor.
(Kshetri 2007)	Cognitive factor. Lack of awareness has hindered e-commerce adoption.
(Kapurubandara & Lawson 2006)	Internal Factor. Lack of awareness is a barrier. Training and educating managers/owners may help in overcoming this barrier.
(Ghobakhloo & SH 2011)	Research findings support that "Lack of EC awareness will be negatively related to the likelihood of EC adoption."

As awareness has been found to be one of the common factors influencing e-commerce in many developing countries, the relationship between awareness and e-commerce adoption by SMTEs of Nepal is tested through the following hypothesis.

H6: Awareness of e-commerce has positively influenced the adoption of e-commerce by SMTEs of Nepal.

3.7.2.2 Resources

Resources in the context of this research refer to different kinds of requirements in the organisation for the adoption of e-commerce. These resources include human resources, resources related to cost, technological resources, and other business resources.

3.7.2.2.1 Human resources

The adoption of e-commerce requires different technical and non-technical skills such as creating websites, uploading contents, and maintaining digital correspondence. However, in developing countries, lack of skills is one of the most common factors found in many studies investigating the e-commerce adoption factors (Kabanda & Brown 2010;

Kapurubandara & Lawson 2006; Kartiwi & MacGregor 2007; Zaied 2012). The lack of skills in computers which is important for e-commerce has also been identified as a factor (Apulu 2012).

Chong & Pervan (2007) argue that it is not only prevalent in developing countries but also common in developed countries. Some have complained about not having enough in-house human resources to implement the e-commerce.

3.7.2.2.2 Cost of the resources

The implementation of e-commerce requires a certain amount of capital and cost. The cost is not only limited to capital costs such as setup cost and cost to acquire required resources but also include other operational and ongoing expenses such as training cost, design, development, hosting, maintenance and updating cost. As the organisations in developing countries have various problems and budgetary constraints, the cost factor is found to be one of the significant factors.

Many studies in developing country have found cost as one of the most critical factors (Datta 2011; Karanasios & Burgess 2008; Kartiwi & MacGregor 2007; Shrestha et al. 2015; Uzoka & Seleka 2006; Zaied 2012). Some organisations have complained that cost for a skilled technical person to set up and maintain the e-commerce system is too high (Karanasios & Burgess 2008) whereas others indicated complained about the high cost for quality internet connection (Kapurubandara & Lawson 2006).

However, the results in the developed countries are inconsistent in regards to cost being an influential factor in e-commerce adoption decision. Chong & Pervan (2007) argue that cost is a factor, but Simpson & Docherty (2004) claims that the cost is not an influential factor.

3.7.2.2.3 Technological resources

The organisation requires different kinds of technological resources such as a computer, the internet and other hardware and software to implement e-commerce. The availability of such resources in the organisation affects the e-commerce adoption (Ahmad et al. 2015; Kapurubandara & Lawson 2006; Molla & Licker 2005a). The organisation should be different resources for the adoption of e-commerce such as internet, website, and computer systems. Lack of these resources in the organisation can hinder e-commerce adoption. Kapurubandara & Lawson (2006) found that lack of resources related to technology to implement e-commerce acts as a barrier. Molla & Licker (2005a) argue that availability of technological resources has a significant influence on the e-commerce adoption by the organisations that have just started using e-commerce.

Some studies identifying the resource as the factor are presented below:

Table 3.15 Studies identifying lack of resources as a factor

Studies	Remarks
(Kapurubandara & Lawson 2006)	Lack of skills, one of the important barriers.
(Al-Weshah & Al-Zubi 2012)	Lack of skills among significant barriers to the adoption of IT in Jordanian Banks.
(Datta 2011; Karanasios & Burgess 2008; Kartiwi & MacGregor 2007; Shrestha et al. 2015; Uzoka & Seleka 2006; Zaied 2012).	Cost of resources as one of the critical factors.
(Ahmad et al. 2015; Kapurubandara & Lawson 2006; Molla & Licker 2005a)	Lack of technological resources such as the internet, hardware, software in the organisation affects e-commerce adoption.

Based on the analysis of the following hypothesis has been set up to investigate the influence of resources in SMTEs on e-commerce adoption.

H7: The lack of resources in SMTEs of Nepal has negatively influenced the adoption of e-commerce by SMTEs of Nepal

3.7.2.3 Security concerns

The security concern is one of the most cited factors affecting e-commerce adoption in developing countries.

3.7.2.3.1 The Lack of trust

Due to intangible nature of internet operations, people are fearful of being victim to internet frauds. Trust and confidence are found to be essential for e-commerce (Lawrence & Tar 2010). The fear of online security issue is not limited to developing countries only, but developed countries also share the same concern (Levy, Powell & Worrall 2005). Buhalis & Jun (2011) assert that in the tourism industry, lack of trust inhibits buying and selling activities. Some buyers and sellers have expressed their concerns about paperless and faceless transactions in the online arena. Pearson & Grandon (2004) found that lack of trust for credit cards transactions is impeding e-commerce adoption among Chilean SMEs. In addition to the lack of trust, many organisations fear online transactions as they have no idea how to deal with uncertainties related to such transactions (Ghobakhloo & SH 2011).

3.7.2.3.2 Privacy concerns

Privacy concern is another critical factor affecting e-commerce usage. Privacy protection is trust that service provider would do the needful to protect the privacy of the users. Privacy issues are linked to the trust and customers should feel confident that their privacy is maintained (Shemi 2013). It is vital that customers information is not misused, or information is not divulged to any unauthorised person or privacy is not violated. Several countries are yet to enact the laws required for e-commerce and absence of such laws and regularity frameworks creates security concerns (Shemi 2013). Bella, Giustolisi & Riccobene (2011) present three important paradigms that were created to address privacy

concerns are: i) trust on the network, ii) need for anonymity, and iii) natural balance between earlier two.

Studies identifying security as a factor have been presented below:

Table 3.16 Studies identifying security as a factor

Studies	Remarks
(Lawrence & Tar 2010)	Lack of trust
Pearson & Grandon (2004)	A study in Chile. Lack of trust to use credit cards online
(Ghobakhloo & SH 2011).	Organisation Fear using online transactions
(Bella, Giustolisi & Riccobene 2011)	Privacy concerns

Based on the analysis of the following hypothesis has been set up to investigate the influence of security in SMTEs on e-commerce adoption.

H8: The digital security concerns among owners of SMTEs in Nepal have discouraged the e-commerce adoption by SMTEs.

3.7.2.4 Perceived benefits/value proposition

3.7.2.4.1 Perceived Benefits

The perceived benefit refers to the expectation that specific benefits will be achieved by practising specific action or behaviour. In this research, it refers to expected advantages for using e-commerce in the organisation. Perceived benefits have been identified by many researchers as factors influencing e-commerce adoption (Grandon & Pearson 2004; Kapurubandara & Lawson 2006). In developing countries, organisations wish to be assured of the reliability and sound qualities of technology before they use it (Shemi 2013). "Perceived benefits" is one of the basic constructs identified in Technology Acceptance Model (TAM), which has been investigated by many researchers to understand and explain the factors influencing adoption of technology.

The lack of information of perceived benefits can act as a barrier to e-commerce adoption and organisations would not adopt e-commerce if they feel that they would not get any benefits by adopting e-commerce (Kapurubandara & Lawson 2006). However, Pearson & Grandon (2004) argue that if organisations perceive that e-commerce will increase the managerial productivity and support strategic decisions, then it may be adopted. Abou-Shouk, Megicks & Lim (2013) examined the impact of perceived benefits on e-commerce adoption in Egypt and found that perceive benefits impact the e-commerce adoption positively. The other perceived benefits of e-commerce include various advantages of e-commerce such as increased sales and geographical coverage, reduced cost and quicker service time.

3.7.2.4.2 Relative Advantage

Relative advantage is the degree to which an innovation is perceived as better than the existing idea or system it supersedes (Rogers 2010). Generally, there is a positive relation between e-commerce adoption and relative advantages (Rowe, Truex & Huynh 2012). By using e-commerce, the organisation can reduce the communication time, provide better customer support and increase productivity and efficiency of the organisation. Other relative advantages include an increase in revenue and profits, reduction in costs, and development of new market segments (Ahmad et al. 2015). Various studies have indicated relative advantage as one of the factors influencing e-commerce adoption (Ahmad et al. 2015; Brdesee 2013; Dwivedi, Papazafeiropoulo & Scupola 2009; Grandon & Pearson 2004).

Table 3.17 Studies identifying value proposition as a factor

Studies	Remarks
(Kapurubandara & Lawson 2006)	Perceived benefits motivate e-commerce adoption.
Abou-Shouk, Megicks & Lim (2013) Pearson & Grandon (2004)	If the managers perceive that e-commerce brings benefits, then there is a chance of adoption.
(Rowe, Truex & Huynh 2012)	The positive relation between relative advantage and e-commerce adoption.
(Ahmad et al. 2015; Brdesee 2013; Dwivedi, Papazafeiropoulo & Scupola 2009; Grandon & Pearson 2004).Pearson & Grandon (2004)	Relative advantage factor is affecting e-commerce adoption.

The following hypothesis has been set up to investigate the impact of value proposition on e-commerce adoption by SMTEs of Nepal.

H9: The value proposition has positively influenced the adoption of e-commerce by SMTEs of Nepal

3.7.2.5 Role of owner or top-management

The owner's commitment and attributes are found to be another factor affecting e-commerce adoption (Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Shemi 2013). The organisation may have a single owner or a group of people as the owners, i.e., the top management. In this research, the owner refers to the single owner or chief executive or manager looking after the organisation or the top management of the organisation.

3.7.2.5.1 **Owners' commitment**

Manager's or owner's commitment is one of the most important factors affecting e-commerce adoption found in many studies. Several studies have indicated that manager's knowledge of e-commerce and commitment to adopt e-commerce have a considerable

bearing on adoption decision (Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Shemi 2013). Karanasios & Burgess (2008) found that technology adoption is related to owner's perspectives towards technology or innovation. Similarly, lack of support from top management impedes adoption of e-commerce (Kabanda & Brown 2010).

3.7.2.5.2 **Owner's or top management's characteristics**

E-commerce adoption decision is affected not only by owner's commitment but also by their characteristics such as knowledge and expertise about technology (Brdesee 2013). Owner's eagerness to implement e-commerce can act as a driver whereas lack of ICT knowledge and fear or reluctance to adopt new technology act as a barrier (Kapurubandara & Lawson 2006).

The risks related to the uncertainty of benefits and lack of awareness about benefits are also discouraging adoption of electronic commerce (Kapurubandara & Lawson 2006). It was also found in studies in developed countries (Chen & McQueen 2008; Dwivedi, Papazafeiropoulo & Scupola 2009).

Table 3.18 Studies identifying owner/top management as a factor

Studies	Remarks
Karanasios & Burgess (2008)	Owner's perspectives towards technology or innovation important factor.
(Brdesee 2013).	In addition to manager's perspective, the characteristic or knowledge of manager about e-commerce also an important factor.
(Kapurubandara & Lawson 2006)	Lack of support affects e-commerce adoption
(Chen & McQueen 2008; Dwivedi, Papazafeiropoulo & Scupola 2009).	Also found as a factor affecting e-commerce adoption in research on developed countries.

Following hypothesis has been set up to test the influence of owner's role on e-commerce adoption by SMTEs of Nepal.

H10: Owner's or top management's role has positively influenced the adoption of e-commerce by SMTEs of Nepal.

3.8 Proposed investigation framework

The model for the investigation of the factors affecting e-commerce adoption has been formulated based on analysis of each factor and their possibility of influencing the e-commerce adoption decision by SMTEs of Nepal. The base for the investigation has been presented in the figure below.

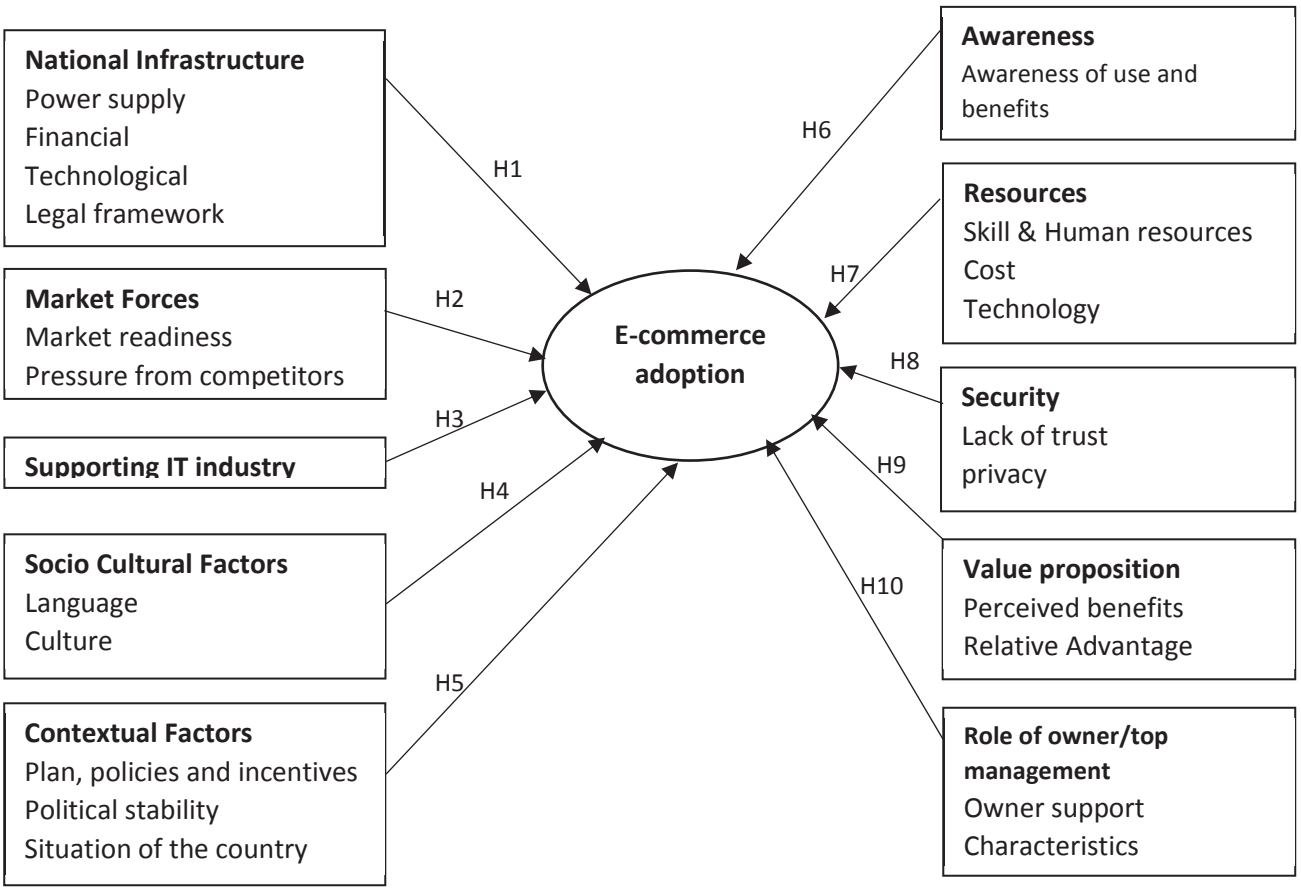

Figure 3.2 Proposed conceptual model

3.9 Listing of the hypotheses

The list of all the hypotheses used to investigate the effect of factors on e-commerce adoption has been presented below:

Table 3.19 List of hypotheses

3.9.1 Environmental factors hypotheses		
H1	Lack of infrastructure has negatively influenced the adoption of e-commerce by SMTEs of Nepal.	Infrastructure
H2	The market forces for the tourism industry of Nepal have positively influenced the e-commerce adoption by SMTEs of Nepal.	Market forces
H3	The services from the supporting IT industries have negatively influenced the adoption of e-commerce by SMTEs of Nepal.	Supporting industries
H4	Socio-cultural factors have negatively influenced the adoption of e-commerce by SMTEs of Nepal	Socio-cultural factors
H5	The contextual factors have discouraged the adoption of e-commerce by SMTEs of Nepal	Contextual factors

3.9.2 Organisational factors hypotheses		
H6	Awareness of e-commerce has positively influenced the adoption of e-commerce by SMTEs of Nepal	Awareness
H7	The lack of resources in SMTEs of Nepal has negatively influenced the adoption of e-commerce by SMTEs of Nepal	Resources
H8	The digital security concerns among owners of SMTEs in Nepal have discouraged the e-commerce adoption by SMTEs	Security
H9	The value proposition has positively influenced the adoption of e-commerce by SMTEs of Nepal	Value proposition
H10	Owner's or top management's role has positively influenced the adoption of e-commerce by SMTEs of Nepal	Owner's role

3.10 Summary of the chapter

This chapter analyses the factors and various framework to establish the probable factors and suitable framework for the e-commerce adoption by SMTEs of Nepal. Each

framework has been analysed for suitability based on objectives of this research, and two frameworks (TOE and e-readiness model) are selected for the further analysis. The factors identified in literature review are also examined for the suitability, and most of the factors are forwarded for the further examination as probable factors. Seven categories are derived from E-readiness model, and the factors are also divided into most suitable categories based on information from the literature review. New categories are proposed for the factors which are not included in any of the available categories. Three new categories have been added resulting into ten categories in total. So, the ten categories along with factors(items) in each of the category are explained in detail. Those factors have been used for the creation of instruments to test the effect of each factor on e-commerce adoption.

A hypothesis has been set for each category to test the impact of a factor on e-commerce adoption, resulting in ten hypotheses. Each hypothesis and factors related to the hypotheses have been discussed in detail analysing the information from the literature review and implication in context of this research. The factors and hypothesis have been used as a base for further investigation using various quantitative and quantitative tools. This chapter lays the foundation to start an investigation. The next chapter list and explains the various quantitative and quantitative tools used in this research.

CHAPTER 4: Research Methodology

4.1 Introduction

This chapter presents an overview of research paradigm, methodologies and various tools used to fulfil the objectives of this research. Different research strategies, tools, and their suitability in the context of this research have been discussed. The study starts with an investigation of underlying assumptions, selection of methods and rationale for selection of such methods. The methods and tools used are closely aligned with research questions and objectives of this research.

4.2 Research Philosophy

There are various ways to conceptualise and collect the data to solve the problem. The research model provides a skeleton for the research process. Undertaking research involves three steps i) selecting appropriate assumptions, ii) selecting a methodology and iii) selecting set methods to collect and analyse the data (Sarantakos 2012). There are different ways of viewing the world or the approach to solve any issues which are also known as a paradigm. According to Guba & Lincoln (1994) paradigm are 'set of basic beliefs about the nature of the 'world' and the individual's place in it and the range of possible relationships to that world and its parts,' or it is "a basic set of beliefs that guide actions." The most popular paradigms adopted in research are positivism, post-positivism, critical theory, and constructivism. Each approach has their own viewpoint relating to ontological, epistemological and methodological questions in research (Guba & Lincoln 1994). Generally, a researcher selects a paradigm considered suitable for the research. However, some even use a combination of different paradigms.

Ontology: The ontology describes the study of nature, what is known and what constitutes the social reality (Crotty 1998). Grix (2002) argues that ontology is the first

point of the research and epistemology and mythology follows. Crotty (1998) have suggested that realism and objectivism clarify the ontology.

Epistemology: Epistemology refers to nature, theories, methods, and assumptions about the knowledge and possible ways of gaining the knowledge (Grix 2002). It is related to issues of what we can know and how (King & Kimble 2004). An epistemology helps the researcher to analyse their works with other researchers and also helps in confirming the credibility of their work (Heeks & Bailur 2007).

Orlikowski & Baroudi (1991), later suggested three types of an approach based on underlying research epistemology: positivist, interpretive, and critical.

4.2.1 Positivist Paradigm

Positivists assume that the characteristic such as attitudes, satisfaction, beliefs, and behaviours can be explained in measurable terms and they are independent of the researchers (Kapurubandara & Lawson 2006). They assume the investigation can be methodically modelled, quantified and statistically tested and verified. Positivist paradigm is commonly related to quantitative research, collection, and analysis of numerical data with deductive reasoning (Bryman & Bell 2015). According to Creswell (2013), the positivist paradigm has also been termed as empirical science, and post-positivism.

Positivist research allows checking association between the variables. Orlikowski & Baroudi (1991) argued that the positivist study helps to increase the predictive understanding of the process and to test a theory. The relation is investigated with structured instrumentation. It assumes that there is evidence of regular postposition, a variable that can be quantified, the hypothesis can be set to test, and inference can be drawn out about the process. Positivist works on reductionist as it collaborates with the

principle of reducing into smaller test sets such as variables with a hypothesis and research questions (Creswell 2013).

4.2.2 Interpretive Paradigm

Interpretive paradigm is usually associated with qualitative measures (Karanasios 2008). They are more aligned with inductive reasoning, i.e., that start with an instance and conclude with more generalised form (Karanasios 2008).

Interpretive researchers try to understand the phenomena through meanings the people provide or assign to those process and argue that reality can be accessed through social constructs such as language, consciousness and shared meanings (Klein & Myers 1999). Interpretive researchers are interested in finding out the reasons behind actions and also understand the context of information (Kapurubandara & Lawson 2006). Interpretive design covers broader than positivism including data sources such as social norms, observations, and media (Myers 2013).

Interpretive paradigm has been criticised because of the pre-skills required by the researchers to carry out the research. It is also criticised for not addressing the current structural conflicts within society and organisation and neglecting historical change (Shemi 2013).

4.2.3 The Critical Paradigm

The researchers following critical paradigm assume that the social reality is historically constituted and people create and recreate by varying social and economic settings (Alvesson & Willmott 1992).It helps in reduction of unwarranted hostility which increases chances of realising the human potential (Klein & Myers 1999).

Mingers (2001) argues that both positivist and interpretive paradigm are considered suitable for Information system research. Moreover, combining different methods from different paradigms can provide more abundant and reliable results.

4.2.4 Pragmatism Paradigm

As there are different worldviews as shown in figure 4.1, there are various versions of classification of paradigms. Many researchers have classified them as positivist, interpretivist and critical whereas Creswell (2013) has presented different paradigms and their features using following the table (Table 4.1).

The following table and diagram show the Creswell (2009) version of research framework, how research can be conducted and how different concepts are linked.

Table 4.1 Paradigm Highlights

Characteristic	Definition	Research Approach
Positivism Determinism Reductionism Empirical observation Theory verification	Positivism recognises objectivity is essential incompetent inquiry	Uses quantitative measures for data collection and statistical analysis to study the behaviour
Constructivism Understanding Multiple meanings Social and historical construction Theory generation	Constructivism, also known as naturalism or interpretivism, assumes that individual's construct subjective understandings of the Environment. This worldview also considers research context such as historical and cultural setting.	Uses a qualitative research an approach such as interview and observation. In interviews, flexibility is key to data the collection thus questions are open-ended to allow subjectivity. The analysis is inductive, as the meaning is derived from data.
Pragmatism Consequences of actions Problem centred Pluralistic Real world oriented	Unlike positivism, pragmatism arises from actions, consequences and situations. The problem is the focus for deriving knowledge.	Uses mixed methods data collection and analysis

Source: (Creswell 2009)

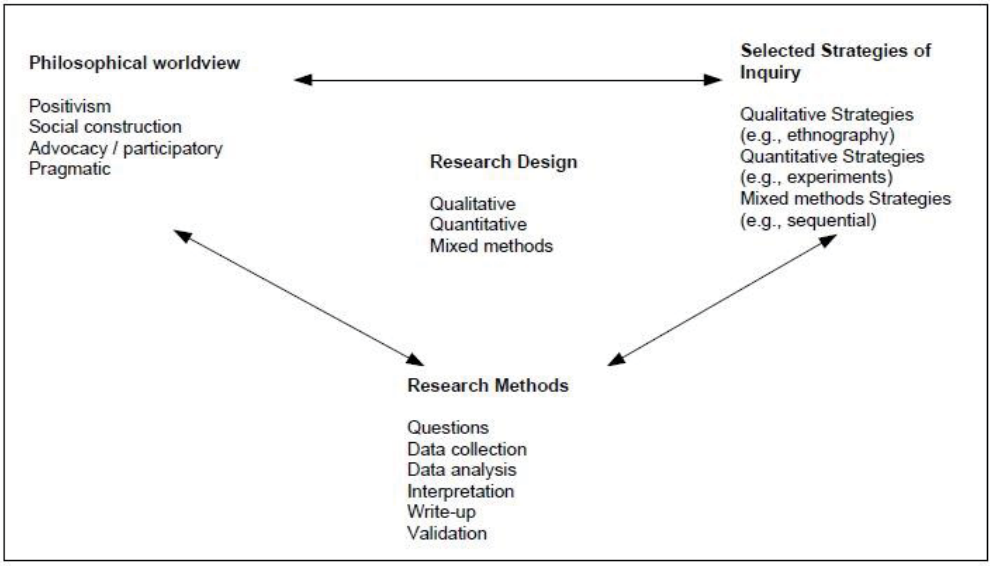

Figure 4.1 Different worldviews Source: (Creswell 2009)

Based on table 4.1 about the different worldviews, this research follows the pragmatism view. According to the Creswell (2013), pragmatism is more practical and linked with the actions, problem-centric and follows a mixed methods approach. With pragmatism approach, research can focus on research problem rather than methods. The researchers do not have to limit them to a particular worldview and can choose the best methods that solve their core purpose (Creswell 2013). This research aims to solve the research problems by findings the barriers and drivers affecting e-commerce adoption by SMTEs of Nepal and a model for e-commerce adoption through a mixed method, i.e., qualitative and quantitative methods.

4.3 Research methodology

The methods used in research is defined by the underlying paradigm adopted for the research. The tools of various methodologies provide practical ways of collecting data. As this study uses both positivist and interpretive approach, it uses both quantitative and qualitative methodologies for the data collection. According to Creswell (2009), quantitative research is a "means for testing objective theories by examining the

relationship between variables, " whereas qualitative research is a "means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem."

This research examines the existing frameworks related to e-commerce adoption and attempt to explore the relationship between e-commerce adoption and various factors. The overall differences between using quantitative or qualitative method for the research are shown in the following the table.

Table 4.2 Difference between quantitative and quantitative research

Characteristic	**Quantitative Research**	**Qualitative Research**
Type of data	Phenomena are described Numerically	Phenomena are described in a narrative fashion
Analysis	Descriptive and Inferential Statistics	Identification of major themes
Scope of inquiry	Specific questions or Hypotheses	Broad, thematic concerns
Primary advantage	Large sample, statistical validity, accurately reflects the population	Rich, in-depth, narrative description of the sample
Primary disadvantage	A superficial understanding of participants' thoughts and feeling	Small sample, not generalizable to the population at large

Source:(VanderStoep & Johnson 2008)

Using both qualitative and quantitative method tools in the research has several advantages. The plurality of the investigation methodology has been adopted following a mixed paradigm in this research as such approach provide richer information and are found to be more reliable. The 'triangulation' which is combining various methodologies increases validity and reliability of the study (Mingers 2001). It also helps in broadening the research and providing better results (Creswell 2013).

The research design may either follow the inductive or deductive reasoning. The deductive reasoning starts with some theory and adopts some quantitative tools to test the data following a top-down approach where inductive reasoning begins with the observations, analysis and other forms of data collections and eventually forming some conclusions or theory following a bottom-up approach. This research will adopt deductive

reasoning analysing the various available literature and e-commerce theories and enhance them and test them using mixed methodology tools to formulate a model for e-commerce adoption by SMTEs of Nepal.

4.3.1 Research Instruments

4.3.1.1 Literature reviews and document analysis

The first set of the data for this research was collected from the secondary source through review of literature of different studies on e-commerce adoption. This allowed to understand the research problem, gaps, status of the investigation of e-commerce adoption and provided some probable factors affecting e-commerce adoption in developing countries like Nepal. So, the data collected from literature worked as a foundation for the further investigation.

As a part of literature reviews, various documents, journal articles, legal Acts, and reports from the government and other organisations were studied to access the status of IT, e-commerce laws and government initiatives about ICT and e-commerce adoption.

4.3.1.2 Qualitative method

Initially, the qualitative data collection is carried which helped to understand the environment and unearth various determinants of e-commerce adoption by SMTEs of Nepal. Such information helped to understand the initial scenario of the industry and provided various useful information for further exploration as there has not been many research and secondary data published about the use of e-commerce in tourism in Nepal. (Bricki & Green 2007) suggested that in situations where details are unknown, it is often better to start with qualitative methods (such as interviews, and focus groups).

4.3.1.2.1 Selection of qualitative data instrument: Semi-structured interview

There should be a close match between a selection of research instrument and research problem (VanderStoep & Johnson 2008). There are various qualitative techniques such as narrative research, phenomenology, grounded theory, ethnographies, case study (Creswell 2013). Since there are very few previous studies investigating e-commerce adoption in Nepal, qualitative data collection instruments help to explore the initial factors. Semi-structured interview with open-ended questions was chosen as a primary tool for qualitative data collection. The interview helps in understanding perception, interpretation, and views of the subject. They are also time efficient and allows in-depth discussion of the issues (Carey 2012).

The semi-structured face to face interviews is conducted with the key informants of the tourism industry of Nepal to investigate and explore different factors of e-commerce adoption.

In most of the previous studies investigating e-commerce adoption in various countries, the interview has been used widely in most of the research (Kapurubandara & Lawson 2006; Karanasios 2008; Kshetri 2007; Shemi 2013).

4.3.1.2.2 Rationale behind the selection of semi-structured interviews

In a semi-structured interview, the interviewer starts with some questions and improvise or adapt per flow of interview to get the responses about core issues being investigated. There are only a few studies investigating e-commerce adoption in Nepal and tourism industry, to start the investigation, the interviews are more suitable than numerical analysis to understand the scenario and explore the factors communicating with stakeholders.

Semi-structured interviews allow greater interaction and explorations. They are flexible and allow adaptations of questions according to requirements, doubts and for more precise responses (Sekaran 2006). Semi-structured interviews even allow entering into comprehensive discussion with further questions if new ideas emerge related to research (Creswell 2013). In the context of this research, such process may help to explore the new factors affecting e-commerce adoption from the informants.

The qualitative tools used in this research help to understand the perception of representatives of stakeholders about e-commerce adoption, why it is being adopted or not adopted by SMTEs of Nepal and what can be done to enhance the e-commerce adoption by SMTEs of Nepal.

4.3.1.2.3 Selection of informants for interviews

Interviews help to get first-hand information from the representatives of stakeholders who can provide various information about the factors affecting e-commerce. Also, interview questions inquire about various factors and actions stakeholders should perform to implement the adoption of e-commerce in the tourism industry of Nepal.

Since this research aims to investigate about the enablers that can motivate e-commerce adoption and roles the government can play for the smooth implementation of e-commerce, such interviews of the representatives would help to unearth various information regarding the issue.

4.3.1.3 Quantitative Method

Generally, quantitative method tools investigate the relationship between independent and dependent variables using techniques such as structural equation modelling, hierarchical linear modelling, and logistic regression (Creswell 2013). The survey is one

the most popular instruments of quantitative data collection and has been adopted in this research.

4.3.1.3.1 Selection of quantitative instrument: Survey

The survey provides a numeric description of trends, attitudes, or views about a population through a study of the sample of that population (Creswell 2013). The survey has been used as primary quantitative data collection tool to investigate the factors of e-commerce adoption. Owners/managers of a 198 SMTEs are surveyed. The survey starts with the general background of the organisations to explore the current situation of e-commerce adoption in the industry.

4.3.1.3.2 Rationale behind the surveys

The survey has been chosen tool as an instrument in this research to validate the factors affecting e-commerce adoption. The survey can also verify the probable factors found through a review of the literature, using the numerical analysis. Collecting data using questionnaire with a sample of the diverse population allows comparison and verification of variables among respondents of the survey.

4.3.1.3.3 Selection of Organisations for survey

The SMTEs of Nepal have been selected for the Survey. The sample is randomly selected from SMTEs (trekking, travel and tours and non-star hotels, i.e., scope of this research) from the list of tourism organisations. The details about the SMTEs are obtained from various tourism associations and publications.

4.4 Formulation of instruments

4.4.1 Interview questions

The interview questions are prepared based on the factors and theme identified in the literature review. The major objective of the interview questions is to refine the factors and include the new factors not identified through literature review. The questions are directly related to the identified factors.

4.4.2 Survey Questionnaire

The questionnaire is used to explore the status of e-commerce adoption and verify the factors affecting e-commerce by SMTEs of Nepal. There is no strict guideline to prepare a "perfect" questionnaire. The questionnaire is guided by research objectives, layout, included categories, and types of questions (Saunders 2011). The questionnaire starts with a collection of background information of the SMTEs which provides information about the status of e-commerce adoption. The probable factors identified from the literature review and refined after semi-structured interviews are used as a base to create the questionnaire. The survey instrument is created as there are no prior survey instruments which included all the factors we needed to test. The review of the literature showed that there are no well-known and tested survey instrument which could be used in the context of e-commerce adoption in tourism organisations. Since, this research derives many constructs/variables from TOE and e-readiness model, the questionnaire of those models was consulted while preparing the instrument for this research.

The findings from the questionnaire are used to validate the factors and test the hypotheses. The relationship between various factors and e-commerce adoption by SMTEs is examined.

The questions on factors are based on Likert scale ranging from 1-5 (5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = strongly disagree). As this research adopts components from the previous framework such as TOE, e-readiness e-commerce adoption model, some of the suitable questions were adapted from previous research.

4.5 Summary of the chapter

The methodologies used in this research is presented in this chapter. The chapter starts with the brief introduction of various research philosophies. The discussion of the philosophies enables the understanding of different viewpoint for considering a problem and choose a best possible method based on requirement and context. The positivist, interpretive, critical and pragmatism paradigms have been discussed briefly analysing the various proposition on each paradigm.

In the following section, the qualitative and quantitative tools used in this research has been summarised. The semi-structured interviews and survey have been used an investigations instruments for this research. The rationale behind the selection of tools and participants of data collection process has also been presented. The investigation starts with semi-structured interviews, as lots of information in the context of Nepal are unknown. The survey has been used to validate the factors among the large sample. The formulation of the research instruments, i.e., survey and semi-structured interviews have also been discussed. Finally, ethical considerations of the research also have been discussed.

To sum up, this chapter has presented different world viewpoints for looking into a problem and lists various methods to solve those problems along with the rationale for using such methods. The chapter provides the foundation for the actual data collection and analysis of the data to solve the research problem.

CHAPTER 5 Data Analysis

5.1 Introduction

This chapter presents the summary of the research methodology: how the data were collected and analysed. The collected data have been interpreted based on research questions. The chapter has been organised into three sections. i.e., analysis and results of i) qualitative data collected using semi-structured interviews ii) quantitative data collected using survey iii) hypotheses testing. The analysis of qualitative data (section one), information about the pilot testing, survey instruments, the procedures involved in the selection of interviewee participants and actual interview process have also been presented. The qualitative data are analysed using thematic analysis. In the second section, the quantitative data are analysed using various statistical tools, and various results and findings have been derived. In the final section, the results of the hypothesis have been presented using a binary regression tool. The summary has been provided at the end of each section.

5.2 Research Methods adopted

The research has adopted the mixed method, i.e., qualitative and quantitative to explore the factors. Firstly, semi-structured interviews were conducted with the key-informants, i.e., representative of major stakeholders to explore and investigate into proposed factors and model. A set of questions were formulated for the semi-structured to interview to explore more about the proposed model. A survey instrument has been created based on literature review and feedback from the semi-structured interviews. The survey instrument is used to validate the proposed factors and model collecting data through SMTEs.

5.2.1 Pilot testing of instruments

The pilot testing was conducted in two phases: firstly to test questionnaire of the semi-structured interviews and then to test the draft of the questionnaire of the survey.

In the first phase, the proposed draft questions for semi-structured interviews along with research questions were sent to the four SMTEs in Nepal (two trekking organisations, a tour organisation, and a hotel). They were asked to provide feedback on the interview questionnaire and asked for their comments based on their experience. They were asked if any additional questions were required for the interviews based on its objectives. They were also asked to suggest possible respondents or organisations for the interviews. The feedback was collected from them within a month.

Based on the feedback, some questions were added, and some questions were updated. Three out of the four SMTEs which were pilot tested suggested that the representatives from tourism associations would be ideal candidates. They stated that tourism associations represent many SMTEs and have knowledge and experience regarding the issue being investigated. Also, one SMTEs also suggested that owners of the SMTEs should also be interviewed, so that voice of the SMTEs is considered. The questions for the semi-structured interviews were finalised based on the feedback from the first phase of pilot testing. The semi-structured interview questionnaire is provided in *Appendix A*

The first phase was completed by preparing the draft for the questionnaire for the survey based on feedback from the first phase of the pilot testing and the proposed variables identified from the literature review.

In the second phase, the pilot testing was done for the draft of the survey questionnaire. The questionnaire was distributed to three tourism organisations, two tourism experts, and two doctorate candidates to comment on various aspects and suitability of the survey

instruments. Each respondent examined the survey form and provided comments where they feel it was necessary.

Based on the data collected and feedback from this phase, some of the questions were updated. Some of the variables were removed as they measured the same variable. They also suggested to divide questionnaire into different sections and to add definition section which defines the primary terms being investigated. Some of the technical terms were replaced with the more common words.

The second phase of the pilot testing was completed by preparing the final survey questionnaire.

5.2.2 The finalisation of the survey instrument

The survey questionnaire was finalised based on feedback from the pilot testing. The questionnaire related to proposed factors were updated. The survey was prepared with 25 questions, divided into two major sections and ten sub-sections. Likert scale with scales from 1 to 5 (1 = Strongly Disagree to 5 = Strongly Agree) was used for each question in the survey. Some minor changes were made to survey questions based on feedback from the ethics committee for the clarification.

The survey questionnaire consisted of the following two sections: the first section of the survey collected information about the organisations and their e-commerce usage. It included information such as organisation details, use of the internet, the purpose of IT usage and about current use of e-commerce in their business. The second section of the survey consists of questions about the proposed factors identified. The questions asked respondents (i.e., representatives from SMTEs) to rate their response on the scale (1 to 5) based on their experience on those proposed factors.

The final survey questionnaire is provided in A*ppendix B*

5.3 Qualitative Data Collection

5.3.1 Selection of the interviewee

Based on the suggestion from the first phase of pilot testing and literature review, three major associations, one semi-government body, two tourism organisations, a related stakeholder from the government were selected for the interview.

The respondents were selected through purposive or judgemental sampling technique. Purposive sampling is a type of non-probability sampling and informant selection tool, through which informants are chosen non-randomly based on the qualities the informant possesses such as knowledge or experience (Tongco 2007). The knowledge and experience in the tourism industry were prerequisites for the selection of the informants. Based on these prerequisites, various informants were selected which has been listed in table 5.1 along with their experience in tourism industry. Three different tourism associations with a large number of members (tourism organisations) incorporating knowledge and extensive history or experience in the tourism industry of Nepal, were selected for the interview. These associations were related to three sectors of tourism, i.e., travel and tours, trekking and hotels. Nepal Association of Tour & Travel agents (NATTA), Hotel Association of Nepal (HAN) and Trekking Agencies' Association of Nepal (TAAN) were selected. NATTA, HAN, and TAAN have 750, 300 and 1100 member organisations respectively.

Also, Nepal Tourism Board (NTB), a semi-government organisation working for the promotion of the tourism in Nepal, was selected as many investigated factors are related to the government and its policies. Furthermore, two SMTEs (one hotel and one tour/trekking) were selected. A high official ranking personnel from the government (ministry) was also interviewed.

5.3.2 Pre-interview process

The potential parties for interviews were contacted by email and telephone to inquire about their interest and availability to participate in the research. A 'participant information sheet' with the details about the research and its objectives, was provided.

Most of the key informants responded within few weeks with their interest to participate in the research. Follow up calls were made who did not respond within a week. The researcher could obtain initial consent to participate from all the contacted potential respondent except one (owner of SMTE). The alternative organisation was contacted which replied with the positive response within two days. After the initial consent, the researcher travelled to Nepal from Australia and conducted the semi-structured interviews with them.

5.3.3 The interview process

The proposed interviewees were contacted by phone, and the personal visit was made where possible. Different appointment dates were scheduled based on the availability of the proposed interviewee. The participant information and formal consent sheets along with the interview questions were emailed before the interview. The respective association or organisations selected the person to be interviewed representing the association or organisation based on the position and knowledge about IT and e-commerce. The formal consent form was signed on the interview day before the start of the interview.

The audio of the interviews was recorded. The interviewee could talk at length, and the interviewer took note of the issues stressed by the interviewee. The interviews were conducted inside their office (inside the business premises). The respondents were very helpful in providing the information. Subsequent phone calls were made if there were any

confusions regarding the issues discussed during the interview. The interviews were summarised within 24 hours of the interview using word processors.

5.3.4 Ethical consideration in the data collection

Since this research involves the collection of the data from human, the required ethical approval was obtained from UTS Human Research Ethics Committee (HREC) before data collection. The survey data is anonymous, and no identifying data have been disclosed. The consent was acquired before each interview.

The ethical issues such as addressing all the possible concerns related to privacy and anonymity were considered during data collection process. The interview informants were well informed about the process and how the data and identity privacy would be maintained, before the start of each interview. The informants were provided with "participant information sheet," and written consent was taken from each of them before interviewing. As the research maintains the anonymity, each informant answered and expressed freely. Similarly, the survey respondents were also provided with those documents and informed them about the privacy and anonymity maintained in the research. The delegates only delivered and collected survey questionnaires and were not involved in survey completion. They were trained about the information handling and privacy. If there were any confusion and further questions from survey respondents, the delegates were instructed to connect the respondents with the principal researcher over the phone.

Walsham (2006) asserts that there are ethical tensions and issues in interpretive studies in information systems. In this research, the researchers have concerned about i) anonymity: the real name and positions of the informants were not disclosed ii) many organisations were reluctant to discuss political issues. When employees or managers of the organisation are interviewed rather than the owner, they are cautious about causing

the internal conflicts or divulging bad news about the organisation. So, while reporting such things, Walsham (2006) cautioned about discussing such issues in workshop or presentation rather than in written report if needed. Such precautions were considered during the research data collection and analysis.

5.4 Qualitative Data processing

5.4.1 Preparation of the data for the processing.

Seven interviews were conducted to investigate the research questions over six weeks' time. All the interviews were conducted in English. The audio files of the recorded interviews were transcribed using Microsoft word and "VLC media player" by the principal researcher.

5.4.2 The coding of respondents

The codes were used for the participants to maintain the anonymity of the participants. The seven participants of the research were coded using the alphanumeric code, i.e., P1, P2, P3, P4, P5, P6, P7. This kind of coding allows presenting the information provided by the respondents without divulging their identity.

5.4.3 The Participants detail

In total, seven interviews were conducted. Some brief details of the participants are shown in table 5.1.

Table 5.1 List of interview participants

Code	Participant	Industry Sector	Experience
P1	TAAN	Trekking	More than 25 years
P2	NATTA	Travel and Tours	More than 15 years
P3	HAN	Hotel	More than 35 years
P4	NTB	Promotion	More than ten years
P5	Representative from Government	Governance	More than five years
P6	Owner-Tourism organisation	Tour + Hotel	More than 15 years
P7	Manager- Tourism Organisation	Trekking + Tours	More than ten years

The table 5.1 above shows that most of the participants are experienced in their area which indicates that they have adequate knowledge in the tourism industry. All the participants were male. The two SMTEs interviewed (P6 and P7) have their website. All the participants have a university degree or higher. All the informants reported knowing the IT and e-commerce.

5.4.4 Data reduction

The Data reduction technique was used to process the qualitative data. This technique includes selection, simplifying, focusing and transforming the data into fields notes or transcriptions (Shemi 2013). The transcribed data was processed by using NVivo software for interview data.

5.5 Data processing: interviews

5.5.1 Identification of the themes

The semi-structured interviews conducted in this research have two objectives i) validated the factors identified from the literature review in the context of Nepal ii) identify the additional probable factors (which would be validated through a survey).

So, based on these objectives, since the interviews try to explore and validate the probable factors, the questions about each factor was included. The follow-up questions were added based on information provided by the respondents during the pilot testing.

As there were questions related to each factor and they represent a distinct concept, a theme was created for each factor as the starting point. The transcribed interview was read in detail by the researchers and quotes were inserted to the most favourable node. The additional themes or nodes were created based on new and noteworthy information related to research if it could not be inserted to any of the theme related to identified factors.

5.5.2 Thematic analysis

The thematic analysis was chosen as a process to analyse the qualitative data collected through semi-structured interviews. Thematic analysis possesses an ability to report participant's viewpoints, experience and sense of the issues while considering how events, realities, experience, and meaning of such events has emerged (Braun & Clarke 2006).

The interviews were transcribed using Microsoft Word. The interviews were read for interesting findings based on research questions. Following process was adopted to identify the themes from the analysis.

Table 5.2 Phases of thematic analysis

Phase	Task	Description
1	Familiarizing yourself with your data:	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2	Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3	Searching for the themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4	Reviewing themes:	Checking if the themes work on the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5	Defining and naming themes:	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
6	Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back to the analysis of the research question and literature, producing a scholarly report of the analysis

Source: (Braun & Clarke 2006)

Since, the interviews aim to validate the factors in addition to exploring new factors, some steps were added to process listed above to identify the theme and sub-themes. The process has been summarized below:

- Create node (theme) for each factor to be validated identified from the literature review
- Read and re-read the interview transcript (extract) to familiarise,
- Search for the pattern (to find related theme/node or sub-theme)
- Classify the extract, if possible, into any of the related node/theme or sub-theme
- If the extract could not be put into any of the available theme or sub-theme then, create a new sub-theme under the related theme/node based on the literature review
- If sub-theme could not be created (does not fit) in any of the available themes, then create a new theme
- Substantiate the newly created theme/node or sub-theme by scanning the interviews for the evidence (or classifying the relevant extracts into themes and sub-themes).

(Repeat step ii to vii until reading or processing of all transcripts is complete)

So the analysis started with following themes and sub-themes based on probable factors from the literature review and research question.

- Status of ICT in the tourism industry
    - Current IT usage in the tourism industry
- Factors and items
    - Problems related to Infrastructure
    - Market Forces
    - Supporting IT industry
    - Culture
    - Contextual factors
    - Awareness
    - Resources
    - Security issues
    - Value proposition
    - Role of the owner or top management

The initial node creation was necessary to guide the discussion based on research objectives or questions. Since the questions of semi-structured interviews were also

related to factors (but not limited to), such creation of node not only helped to validate the factors classifying related supporting ideas under one theme idea but also helped to detect the new factors or themes.

After the processing, some new sub-themes were added which has been shown below. The new sub-themes that are added but which were not explored in literature review have been highlighted. Such new sub-themes are classified under related nodes based on information from literature review or prior studies.

- Status of ICT in the tourism industry
    - Current IT usage in the tourism industry
    - Current Process in the tourism business
    - Prospect of e-commerce use by SMTEs
    - The necessity of e-commerce for SMTEs
- Factors and variables
    - Problem related to Infrastructure
        - The power supply
        - Payment gateway
        - Internet and bandwidth
        - Lack of laws
    - Market Forces
    - Supporting IT industry
        - Collective effort: Collaboration to solve the problem
        - Lack of standardisation
    - Socio-cultural factors
        - Culture
        - Language
        - **Resistance to change**
    - Contextual factors
        - Political instability
        - Government and adoption of e-commerce
        - Plans and policies

- Awareness
  - Awareness of use and benefits
  - **Awareness of social media**
- Resources
  - Cost of resources
  - Availability of Human resource
- Security issues
- Value proposition
- Support from Top management

5.5.3 Thematic Discussion

The detailed analysis based on themes and sub-themes identified have been discussed below. The theme identified not only helped to explore research questions but also provided various findings of the research issues.

5.5.3.1 Status of ICT in the tourism industry

As the first objective of the research is to explore the status of e-commerce usage by SMTEs of Nepal, the interviews consisted of various questions about the current usage of ICT in the tourism industry of Nepal. Those questions helped to unearth the various details about the status of ICT in the tourism industry of Nepal.

- **Current IT usage in the tourism industry**

Most of the interviewees reported that the usage of ICT is promising. It was mentioned that most of the tourism organisations have a website which indicates the usage of e-tourism in Nepal.

> *"everyone needs to come under the roof of IT. That is why if we talk, almost 95 percent of our members they are engaged in IT and e-commerce…. the rate of (not having a website) is something 0.5 even less than 1% … "[P1]*

However, P2 was sceptic about the claim of wide use of ICT and asserted that, though

the majority have a website, most of the websites are limited to the basic form of e-commerce and has been used for informational purpose only:

> *"most of them, 99% of them have a website...Just for information. Very few have online shopping on their website. As of now, the website has been understood in Nepal market as just as a banner of their product, nothing beyond that. "*

P3 who represents the hotel industry argues that it is hard to survive without the use of e-commerce in the industry.

> *"Most of the hotels are using the hotel software these days. Without the software, we cannot survive any longer……..."*

He argues that the scenario of ICT in Nepal is changing which is enhancing the prospects of e-commerce usage in tourism organisations

> *"One thing in Nepal I have realised is that e-commerce, networking, software, smartphones, awareness is so high here(Nepal). Sometimes we go to a very remote place in Nepal I saw the villagers, young people are also using mobile. They are carrying cattle, sacks full of corn, rice and using mobile."*

However, despite many positive developments, P3 claims that the conditions are still below the international standards:

> *"If we really compare with the global standard, we are much lower that's for sure…. At this stage, we cannot really compare with the international standard. "*

This shows that most of the tourism organisations in Nepal are practising some form of IT and e-commerce. However, most of them are using it for information purpose only.

- **Current Process in the tourism business**

The current process, how the tourism organisations of Nepal are conducting their business is equally important to understand the context and level of the operation of SMTEs. P2 summaries the overall process as:

> *"they(SMTEs) are communicating, showcasing itineraries on their website or other communication channel or through email….. the small agents who are getting customers doing the administrative type of marketing, writing email,*

letters and the rest are doing agent to agent.....because of this, importance of e-commerce is high."

He adds as manual processes are being followed, and the use of e-commerce can be beneficial to supersede those processes.

P5 asserts that change is taking place referring the change in nature of websites created by tourism organisations.

"In earlier days, we use to have static websites, but with the development of the IT, dynamic-interactive sites are being created."

- **Prospect of e-commerce use by SMTEs**

Most of the participants reported that use of e-commerce in tourism could play a huge role in the context of Nepal. They argue that the use of e-commerce in tourism has lots of potential for SMTEs. P1 forwards his argument as:

"we can see the beautiful days for e-commerce in tourism…….once they use e-commerce, the future heralds them with huge possibilities that's why I think that's(e-commerce) a big issue(useful)."

P3 believes that the usage of e-commerce in tourism will increase with the new international giant hotel chains scheduled to enter the Nepalese tourism market soon. He argues the organisations would not be able to operate without it.

"In the next 3 to 4 years, we are going to have the Marriott, Sheraton, Aloft, Hilton. As a result, I would say almost all of them will use the software and e-commerce."

P5 brings a distinctive perspective into the discussion and claims that e-commerce can be a useful tool to explore the tourism opportunities amidst a decline in physical tourism activities such as trekking activities in many areas caused by the modernisation and development of roadways in some trekking routes.

"With the development of roads and transportation, the trekking areas (on foot) are declining. So, the transportation has affected the tourism sector of Nepal. But what e-commerce can do in that area we can explore."

This shows that participants are optimistic about the prospects of e-commerce for SMTEs.

- **The necessity to use e-commerce for SMTEs**

In addition to benefits, the participants agreed that use of the e-commerce in tourism is a necessity. P1 claims that organisations need to use e-commerce to adapt to the global change:

> *"… tourist arrive due to the personal linkage. …but now because of implementation of ICT and e-commerce in the world, most of the trekking and tour agencies have started adopting IT."*

P3 asserts that it is mandatory for some tourism organisations to adopt e-commerce rather than a choice.

> *"If you are with the international chain (hotels, ticketing through GDS) , they recommend it (e-commerce)."*

5.5.3.2 The discussion on the factors

The interview transcripts were processed, and various patterns were examined by referring to identified probable factors through literature review. The list of probable factors was updated based on the discussion during the interviews.

The probable factors are discussed in detail:

- **Lack of electricity**

The scarcity of the electricity in Nepal was reported to be one of the problems affecting various industries. However, in recent times, there has been a drastic change in the availability of electricity and power-cut has come from eighteen hours to virtually none (scheduled).

So, most of the informants in the interviews reported that they were managing using alternative sources, and the power-cut has caused some problems for the adoption of e-

commerce in their business, but the scenario has changed for now. They also listed out several examples and scenarios they had to face because of lack of electricity.

> *"even in the days when we had the power shortage, most of the business ……. who must depend on booking system online, reservation system, we have to manage the power back up by solar inverters or by UPS "[P2]*

Some participant share horrible stories and problems related to lack of electricity

> *"we had to print out the document after typing, we need to wait for hours for hours when there will be power….. even we had to go for a handwritten application …. if there were lack of correspondence (due to lack of electricity) with the guest (customer) sometimes, the guest would have already switched to other company during that time, such horrible stories I can tell you." [P1]*
>
> *"Power cut used to be a problem. We were not able to respond email on time or even print any documents." [P6]*

- **Payment gateway.**

Most of the informants reported that the lack of payment gateway had deterred SMTEs from offering online payment services through their website or IT systems.

> *"if you talk about some big companies they might have adopted that (online payment) but if you talk about small companies…..they could not do that, and they conduct such activities (financial transactions) after the arrival of their guest in Nepal"[P1]*
>
> *"As on now, we don't have a payment gateway, and we cannot receive online payment through the local system. If anyone wishes to pay, we have to make different arrangement through foreign banks and opening account overseas; it is not suitable and comfortable for each organisation because we are a small business." [P2]*

P3, who represents the hotel industry agrees that online payment is yet to be fully implemented. He claims that installing online payment for the website is very expensive based on his inquiry with the banks.

> *"Most of the hotels accept credit cards these days (but manually through Point of Sale), even small restaurants are now accepting. But online payment is not there.....Gateway is not there."*

"I was talking to Himalayan Bank. It is very expensive to install that (online payment) software."

Though some of the companies have offered the online payment facilities, usually they are operating by setting up a bank account in some other third country (other than Nepal) which adds various kinds of complications.

Some informants add that the availability of the payment gateway will not only help to get more customers but also solve various kinds of problems.

"in ticketing and tours segment, now if any customers wish to pay, they have pay through the bank… everything is depended on manual or in a phone call; the customers cannot confirm his order through the system(online)…." [P2]

An informant claims that there is demand for the online payment facilities as customers (international tourists) usually ask them to provide online transaction features.

"That is one of the biggest problems. Guests want to pay us online, but we are not able to offer that service." [P6]

- **The current payment process**

The informants summarised the current payment system which lacks the online payment processing. The current payment model consists of transferring or depositing money into banks manually which take longer of times and requires additional fees.

"Normally invoice is raised for the quotation and sent …… then I receive the payment in the bank manually (using SWIFT codes taking lots of days). or in some cases, the team or group leader comes and pays by cash." [P2]

"for hotels, we ask the customers how they want to pay. Then what we do basically is, we swipe tourist's credit card then the credit card number is immediately conveyed to the bank. Bank approves it…. the bank tells us that we may or may not accept it…. The bank responds in half an hour. It's a 24-hour service, but it is not fully online" [P3]

This processes and activities show that the there is a lack of online payment processing.

- **The need for Online Payment gateway**

Most of the informants agree that lack of payment gateway has affected their capability of adoption of e-commerce to offer online transactions through their website and they argue that there is need for online payment gateway.

> *"But sooner or later they have to do it (implement payment gateway) …. if it were there it would have been much easier and faster" [P3]*
>
> *"They(tourists) understand we are a developing country, but we need to implement it soon to expand our business and market" [P5]*
>
> *"now they (tourists) are transferring it to the local banks here, and fees for the transfer is quite high. So, if there were online payment facilities, it would have cut the cost" [P6]*

This shows that lack of payment gateway has been one of the factors which have affected the e-commerce adoption decision and process.

- **Technical infrastructure: Internet and bandwidth**

The informants reported that internet services in Nepal has improved and have not been a significant problem for the adoption of the e-commerce.

With most of the tourism organisations concentrated in the city areas where various types of internet services are available, most of the interviewee expressed that lack of internet availability has not been a problem for adoption e-commerce. However, they expressed the concern over quality, reliability, and bandwidth of the internet available.

> *"Before it(internet) was very poor, but now there are few fibre optics based ISP companies …."[P2]*
>
> *"When we had dial-up internet, we use to have a problem with uploading and downloading, but now the ISPs are providing high-speed internet. So, as for now, I don't feel that internet speed is a big problem. "[P5]*

Some agree that quality of the internet has improved, but it is still not satisfactory.

> *"A lot of hotels face internet being slow. Perhaps there are a lot of interruptions or the bandwidth problem……many international customers mention the same…." [P3]*

Some expressed that the lack of stable high-speed internet is deterring the dissemination of multimedia information.

> *"especially organisations which are outside cities, if they need to upload heavy files sometimes or they need to look at the videos of some trekking area and others, maybe there may be problem with the bandwidth." [P1]*

> *"the bandwidth is sometimes a problem for example when we post a lot of pictures, lots of videos in the YouTube and it doesn't run smoothly." [p4]*

These extracts indicate that though the availability of the internet has not been a problem for the adoption of e-commerce, the adoption of a higher level of e-commerce including the use of multimedia contents has suffered due to lack of high speed and reliable internet services.

- **The inadequacy of the laws**

Most of the informants reported that they do not have much knowledge or information about the legal issues or the legal aspects related to e-commerce adoption in the tourism industry.

> *"if something happens tomorrow, who will be responsible? there are no rules of punishment or security or control because of that also we have been bit late (to adopt e-commerce) in this part ……." [P2]*

Some argued that the current laws are not enough and lack of required laws has created confusion or uncertainty.

> *"Perhaps laws are not adequate." [P3]*

Some reported that they have heard about the cyber law (electronic transaction Act) of Nepal, but they were not sure about the content or different provision in the laws.

> *"I don't remember the dates exactly, but I have heard that the cyber laws have been implemented by the government." [P2]*

P6 made a new claim that there should be copyright laws prohibiting tourism organisations copying the contents and images from other company's website. He argues

that such actions discourage tourism organisation to put their packages information online.

> *"I think there is lack of laws for copyright of the content of our websites. I can see many websites are copying the content and images of other companies to create their own packages which really discourages the company. We request them to remove those, but they do nothing. So, there should be laws to stop it."*

- **Tourism Market Forces**

The informants were asked about the current size of the tourism industry and its impact on the adoption of e-commerce.

Some informants stated that though market size is encouraging most of the informants expressed uncertainty about whether the current adoption of e-commerce is affected by the size of the market. They claim that e-commerce can help to achieve those potentials of the market.

> *"regarding market size, we need to expand it …., it is not enough, and we need to adopt latest technologies and follow more secure tools and means in IT" [p1]*

P2 argues that market size and readiness of the Nepalese tourism industry is enticing for the adoption of newer technologies such as e-commerce.

> *"we have more than 20 airlines operating here(Nepal), 6-7 domestic airlines, most of them are in almost 85% occupancy, that means business is there, but the habit of payment is by cash…. there are opportunities, but sellers or agent are not up to date on the e-facilities and ....."*
>
> *"Of course, there is a lot of scope for the volume of tourists……. if we had more tourists, then we would have more money and surplus money to buy e-commerce or software……"*

P6 argues that market size can be further expanded by utilising e-commerce using direct online booking.

> *"The current market of the Nepalese tourism is based on own networks and recommendation. But market size is quite good and has good potentials. I see around 70-80% occupancy in most of the hotels in this season. So, if we can use e-commerce to bring tourist directly from the website, it will help a lot."*

- **Supporting IT Industry**

The informants reported that most of the owners of SMTEs lack the technical skills required for the adoption of e-commerce and such tasks are outsourced to IT companies.

Most participants reported that SMTEs are dependent on the third-party service providers to support their IT activities. Some of the organisations who were maintaining their website and IT system, also need some support from IT industry to create the system.

> *"In big trekking companies, they do have a separate web department so they will have technicians. But for small organisations, the entrepreneurs themselves should do it so they should have some knowledge about it." [P5]*

However, most of the informants were not satisfied with the quality of the services provided by the IT companies. Though informants agree that there are enough human resources they are not satisfied with the reliability and consistency of their services.

> *"we have not found that most of them (IT companies) are effective, each vendor is in a learning process. No-one is able to give you a complete solution that we seek on time…. we cannot say we are completely satisfied." [P2]*
>
> *"I would say their (Nepalese IT companies) software is about 25 percent of the international software in terms of features." [P3]*

Some of the informants were moderately satisfied with the level of technical skills however they also had concerns about the reliability of the services.

> *"Personally, I'm satisfied with them however the policies and their sustainability and reliability are the big questions." [p1]*
>
> *"If somebody is selling the product, he must be able to convince the customers what benefits he/she will get out of the product, that has not happened in our case. IT companies are not able to do that. "[P2]*

- **Collective effort: Collaboration to solve problems**

The informants representing tourism associations argue that the association can play a role in creating software or e-commerce tools which can be used as a platform by all SMTEs to implement e-commerce. They argue such effort will reduce the cost, enhance

the effort, help to bring standardisation and encourage the adoption of e-commerce by tourism organisations.

> *"we can develop system at our own cost and we can sell it out or distribute it to our members so that development cost will be divided in to number of multiple people and ultimately agent can get the service at nominal cost, because if we develop a software, maybe I have spent minimum $5,000 or $10,000, but if that will be divided among 300 members that might be nominal fee for each member....."[P2]*

- **Lack of standardisation**

Some informants complained about the lack of standardisation and legal accountability of the IT service providers.

> *"There should be standardisation and criteria to open IT companies. Many unskilled people are also opening IT companies, and they claim to be expert and take the job, but they are not able to provide timely and quality service." [P7]*

Similarly, there were concerned regarding the technical security standard offered by various IT companies.

> *"the software used by banks are certified by the different level of audits or authorities but we develop our own software using IT companies, we are not sure about its security…. Similarly, there is the huge difference in cost and software can be from $300 to $5000, the company which charges $300 will also say I am (it is) also fully secured … so do we believe?" [P2]*

This shows that SMTEs believe that lack of standardisation in IT services has been a problem.

- **Socio-cultural factors**
  - **Culture**

Most of the informants reported that the aspects of the culture had not affected the e-commerce adoption decision.

> *"I don't think there is anything in our culture that is stopping e-commerce adoption in tourism, and tourism is a global phenomenon." (p6)*

Some claim that the culture of Nepal has been welcoming for the use of newer technologies.

> *"it is motivating. People like to experience new technology. As of now, people are using smartphones everywhere here in Nepal."*

However, some argue that we need to change our mindset of relying too much on non-electronic documents and start doing business in innovative ways.

> *"when we go to international travel fairs, now we don't use posters, brochure nothing just only maps and posters using website and tablets but still this is not well accepted in our country right now, most like to have all their paper brochures spread out on their desk and showcase them, so that's why that mindset has to be changed."*

- **Language**

The informants reported that the knowledge of English language is quite good among the tourism workers and entrepreneurs. They reported that there might be some issues relating to making website available in different languages. However, they claim that language has not deterred them from adoption of the e-commerce.

> *"most of the people who are in this business can speak English because English is not bad among Nepalese. They could be weak in terms of languages such as Chinese, French or Japanese or any other languages but they can speak English comprehensively, which is mostly used online."*

> *"we don't find everyone those who come here speaking English. sometimes they are Japanese, Chinese people of middle east they can't speak other languages that's why if you look at most of the websites, our contents or our products they are limited in English, so we also need to translate them into other languages." [P1]*

> *"I do not think language is a much problem, that is something we can adjust even after adoption of the e-commerce" [P6]*

Some informants reported that they prefer emails than talking through the phone.

> *"we prefer writing email and answering than talking directly through phone as we feel sometimes they(tourist) speak too fast and hard to understand our customers on phone" [P6]*

Most of the informants reported that language had not been a problem as most of the operators are competent in the English language, which is one of the predominant languages used online.

- **Resistance to Change**

Some of the informants argued that in some organisations new technologies such as e-commerce or use of e-commerce to replace the existing process has not been possible due to the resistance of employee for such change or organisation fearing of opposition from the employee.

> *"In some organisations like hotels with many workers, some people fear that they will have to go through learning and training process again, if new technology is used, so some resist to use of new technology like e-commerce." [P7]*
>
> *"you know, people feel more comfortable what they have been doing, and they fear they will lose the job because of the technology." [P6]*

Similarly, P4 also indicated that there are many "old-timers" in the government and policy management who do not know much about ICT, innovation such as e-commerce and its usage. So, their mindset is also affecting on a formulation of plans and policies that encourage e-commerce adoption.

> *"Many of us are IT-friendly, but at the same time, many in government are still old-timers. Especially in bureaucracy, many are old timers, and they prefer to use the old system and do not readily adopt new technologies and policies to use new technology. They are not into it, and it is making processes slow."*

- **The situation in the country**

Some informants argued that, despite the prolonged political instability, informants claim that political situation of Nepal has not directly affected the adoption of e-commerce by tourism organisations.

> *"The political situation has not really hampered. Even if it has, it has been very little." [P3]*

"it (political situation) may have affected the business but not in the adoption of e-commerce" [P2]

However, other informants were cautious and claimed that it might be too early to comment how political situation has affected the e-commerce adoption since Nepal has not experienced any stable government for a long time.

"it is needless to comment since the government has been in transition from last 20 years and unless and until we have firm government better not to comment on this part." [P2]

Overall, all the participants argue that despite some volatility, the political situation of Nepal has not directly affected the e-commerce adoption decision.

- **The plans and policies**

The informants reported about the various aspects of the government related to the adoption of e-commerce.

  - **The role of the government**

Most of the informants criticised the role of the government for the lack of incentives, programs and plans to promote e-commerce adoption and effort to solve the problems related to e-commerce adoption.

Some informant claims that government is least bother about the issues related to e-commerce adoption.

"If you talk about the issue of the tourism industry (in Nepal) and if you look at the global perspectives, the government's role is neither satisfactory nor unsatisfactory……...lacks the groundwork….."

P3 agrees adds that the government is just concerned with the tax income.

"The government is least bothered about what and how we do the business but whatever we do the business we have to pay the tax, that has been government stand…."

The informants claimed that the private sector has been more proactive than the government in various tasks related to e-commerce adoption. The informants were found to be unhappy with the sluggishness of the government.

> *"the private sector has been faster than the government …… if you look at the implementation aspects government is quite lacking and sluggish."*
>
> *"I don't feel that government has taken that much interest in tourism sector….. the effort from the private sector is ok, but I have not seen a similar effort from the government sector."*

P6 claims that it is too early to comment on government's role because of lack of stable government:

> *"We have not found that the government have even started thinking about the issues related to e-commerce adoption in tourism, there are many problems they can solve. But we have not seen much effort from the government."*

Most of the informants other than P4 (semi-governmental organisation) complained about the government not being able to do enough for the adoption of the e-commerce.

- **What government needs to do**

All the informants urged that government needs to do more in various aspects of tourism and e-commerce adoption. The informants claim that the actions of the government are inadequate and more efforts by the government are required to induce the e-commerce adoption by tourism organisations.

> *"government must do something (to encourage e-commerce adoption)"*

Some informants claim that the government needs to work on plan and policies for the efficient operation of the tourism industry.

> *"government has already prioritised the tourism industry as one of the main backbones of development in Nepal after hydropower and agriculture …… that is why the government needs to come up with plans and policies (regarding e-commerce use)." [P1]*

Similarly, other participants urged for the improvement in infrastructure and expansion of the market to expand the overall tourism business.

> "*The government should do more from their side such as developing the tourism sites, explore potential tourism areas and bring it to market." [*P5]

Some participants also argued that government should provide various kind of incentives to tourism organisations to encourage e-commerce adoption

> *"Government should understand the importance of (giving)incentives to adopt e-commerce. That would really help… Then only you can flourish in the business, be it tourism or other business. " [P3]*

Many participants believe that government needs to introduce awareness programs and enhancement training such as seminars, and training to enhance the awareness about the e-commerce adoption.

> "*the stakeholder, tour operators who do the day-to-day business, they should be also well-versed in use of e-commerce, the capacity enhancement programs of the tour operators are needed.*" [p4]

Most of the informants assert that private-public partnership is required to mitigate the issues related to the adoption of e-commerce.

> *"Unless government gives authority or paves the way for the easy access and policies to adopt IT, it is not possible only on the part of the private sector. So, still many policies need to be sanctioned and approved" [p1]*

- **Awareness**

All the informants asserted that most of the tourism organisations of Nepal are aware of the e-commerce in tourism, usages and its benefits to the business. However, their collective voice was: though they are aware, they have insufficient technical knowledge. Most of the SMTEs have created a website as they are aware, but have not been able to add advanced features of e-commerce such as online transactions.

> *"…. to tap the benefits (of e-commerce) and its positive vibes, they have started adopting e-business in tourism…… they might not know every ins and outs and details, but they really appreciate to use IT" [P1]*

The other informant agrees that organisations are using it because of awareness about the benefits:

> *"Most of them are aware. Otherwise, (without it) they cannot be competitive. They know the benefits."*

P3 and P5 agree that tourism organisations have limited knowledge, but P5 added that their knowledge horizon and online activities are expanding with the advent of technologies such as social media.

> *"they (SMTEs) are aware, but if you talk about all (all SMTEs) then some may have very limited knowledge about it, but now they are more onto online, but (with the rise of) Facebook and Instagram, now, many are also showcasing their company highlights and everything (in social media)."*

P6 argues that awareness about the e-commerce and IT should be also introduced at the school level curriculum.

> *"if we want to see somebody using IT and e-commerce in his or her business, we should include such things in school level curriculum and start making them aware from school level; then such people will use IT in their life."*

The informants indicated that awareness of e-commerce has positively impacted the use of e-commerce among tourism organisations of Nepal.

- **Resources**

The adoption of e-commerce requires various kind of resources. The informants expressed views related to resources for the adoption of e-commerce.

The discussion about the resources has been presented as **sub-themes** based on types of resources.

- **Cost of resources**

Most of the participants argued that the cost of the resources for the adoption of e-commerce is not a significant inhibitor if they can get quality service as they are aware of the benefits.

P1 claims that most SMTEs already have required resources and they can manage the cost considering the benefits.

> *"it doesn't take plenty of money for using e-commerce if you look at the perspective of our growth of the business ……. They (most of them) already have computers; they have laptops as they correspond through emails, social sites with their clients."*

But P3 claims that there are lots of cost options to adopt e-commerce, and if the first option is expensive, they still have alternatives to choose from.

> *"They can wait for the best or go for second best or third best (e-commerce system). I have even seen some hotels using local companies to create software."*

P5 agrees that there are options but claims that for a small business it is hard to find an excellent system to adopt e-commerce

> *"yes, tourism systems with various e-commerce features are available in various packages. But still, it is difficult for the normal trekking agencies to get very good one."*

The analysis shows that there are mixed responses about the impact of cost on e-commerce adoption by SMTEs.

- **Availability of human resources**

The respondents claimed that SMTEs whose owners have IT knowledge are managing IT services in their organisations whereas for many SMTEs are outsourcing the e-commerce task to the external IT companies and experts.

"Most of the tourism organisations outsourcing to create software and systems required to adopt e-commerce, however, many owners of the small business are managing their sites updating the contents themselves."

P5 argues that human resources problem is inhibiting the e-commerce adoption.

"As of now, the tour operators in Nepal, there are individually owned and family companies. If the person or owner is not aware of the e-business, you need a qualified technician who can support you. So that is also the part of hesitancy to go to e-business."

This indicates that SMTEs rely on IT companies and consultants for the technical support required to adopt e-commerce. The lack of technical human resource in organisations is negatively impacting the e-commerce adoption.

- **Security Issues**

The informants expressed their unfamiliarity with the technical issues related to the security in the adoption of e-commerce.

Some informants reported that they did not face many security problems. The reasons for that maybe they have not adopted advanced features evolving security issues in e-commerce in their business.

"We haven't had that much a problem really in my career. I have faced one or two cases otherwise smooth…. We have the basic policy and basic guidelines how to." [P3]

"I have heard that there is cybercrime law in Nepal. But I have not studied it. I am not much aware of what kind of provisions of reward and punishment is in the law." [P5]

Informants expressed unawareness about the problems and reported that the tourism organisations are concerned about the security issues.

"there are a group of people they draw the money using ATM illegally in huge amount …...they manage to transfer money from one account to another. It was on the news." [P2]

"there are issues related to technical securities online, IT companies should do needful to solve those problems" [P6]

P1 who is also a student of law along with a representative of the tourism association, argues that there is lack of proper preparation about digital security.

> *"security is also a part of our fringy law and regulations because you talk about Nepalese law, every other day we get to hear about different crimes because we have adopted IT so rapidly that we forgot to prepare for the same." [P1]*

P2 argues that as a part of online security there should be the provision for the insurance which could help to encourage adoption of e-commerce reducing uncertainties related to security.

> *"when we start the online business, it has to be covered by the insurance. It has not happened here (in Nepal). So, without that if I make a sale and if something goes wrong in the system, may be due to the security reason, anything might happen. So there is an issue(problem)."*

Some participants reported that they should upload their legal documents (registration numbers and full details) on their website to create a sense of trust with their customers.

> *"we put all our legal documents so that tourists can rely on us and know about us. E-commerce has also been used for this purpose."*

- **Value Proposition**

All the participants asserted that SMTEs perceive there are various benefits of e-commerce for their business however they have not been able to implement all the features due to various reasons.

P1 states some of the perceived benefits of using e-commerce in tourism:

> *"Adopting IT, they get to advertise their products in the international market and so that they can get more visitors or guests from the different part of the world." [P4]*

P2 complements this claim.

> *"...now a day's people do not give that much priority to writing long emails. If customers ask, can you give me the description of ABC products? normally we would say, please visit my website, or this is a link." [P2]*

P3 claims it has also saved the cost and made the process faster, systematic:

> *"…You don't have to work, just use your fingers. Everything is there. If you have a proper system, you can save so much time and money. You can do filing or whatever you want in the system."*

This indicates that the stakeholders believe the use of e-commerce can help to save cost, make tourism process faster, and more efficient.

- **Role of the owner or the top management**

Most of the informants agree that the top management has been supportive of the adoption of e-commerce as the top management is aware of the benefits of e-commerce use in their business.

> *"top management has also given us the mandate that we need to go digitally in coming up days" [P4]*
>
> *"top management is quite supportive as they know the benefits of the use of the e-commerce in their business" [P6]*

Some argue that the level of e-commerce and IT understanding among owners has also impacted the adoption of e-commerce.

> *"We have observed that the owners who know about IT, have websites, maintain their own websites and try out different features." [P6]*
>
> *"providing various online facilities needs cost and technical resources, the understanding of such facilities by top management is really important" [P7]*

This indicates that the understanding of top management has impacted the e-commerce adoption and the top management tourism organisations in Nepal have been supportive of the adoption of e-commerce.

- **Awareness of social media**

The informants reported the prospects related to social media and possible impact of social media on e-commerce adoption by the tourism industry. Many informants reported that use of social media had added newer dimension to their effort to use e-commerce in their business.

> *"we are now more focused on social media or the online activities..... we need to consolidate our effort in the digital tourism marketing. The social media has emerged as a very powerful tool for marketing, and it costs less than the traditional promotional activities" [P4]*
>
> *"social media has played a very good role. Even I have got many customers and inquiries from social media. Social media has definitely encouraged us to use IT and e-commerce" [P6]*

An informant added that social media has not only helped them to increase international tourists but also helped to get local domestic tourists since there are many Nepalese people in social media such as Facebook (InternetWorldStats 2017).

> *"We post videos and photos of new tourism packages, people visiting different places in our Facebook pages and that attracts other people to visit that place or call us to arrange packages for the tour. So, that is really increasing the use of social media" (p5).*

5.5.4 Summary of the Qualitative Analysis

Based on the discussion and processing of all the interviews, a table has been compiled summarising the significant information and highlights reported by the informants.

Table 5.3 Summary of qualitative analysis

Topic	Findings	Remarks
Status of ICT	• Prospects of ICT use in tourism are promising. • Most organisations limited to use of ICT for informational purpose. • Tourism organisations are encouraged by the benefits of the e-commerce. • Use of e-commerce can play a considerable role and optimistic that the e-commerce use in tourism will increase in future.	Overall positive
E-commerce in Current Tourism Process	• Most organisations without online payment systems and transactions are through the traditional banking system. • Online payment using intermediaries from overseas • Overall process is slow	Not satisfactory
Summary of Factors		
Factors	**Effect**	**Remarks**
Infrastructure	• The informants reported that there is lack of various infrastructure required for the adoption of the e-commerce which has affected e-commerce adoption negatively. **Electricity** • It was a problem but have been resolved to some extent. • Lack of electricity causes various problems. • Most tourism organisations are using an alternative source to support their e-commerce use **Internet** • The availability is not a problem, but the quality is a problem. • Used for the information purpose (general use). • Quality has improved. However, bandwidth is still a problem for multimedia content and not reliable. **Payment Gateway** • Lack of payment gateways. • Current payment using local banks or cash payment. • Even hotels not able to implement a full online payment system • Government and the central bank should help in the implementation of payment gateway.	Negative
Market Forces	• Encouraging to adopt e-commerce. • There are opportunities for expansion; e-commerce can as a tool to expand the market. • Encouraged by the competitor's e-commerce use.	Positive

Supporting IT Industry	• Most tourism organisations not satisfied with the quality of service provided by the IT companies • Many feel that IT companies are competent enough, but some argue that created applications are not up to the international level. • Tourism associations argue that creating common software will reduce cost and enhance efficiency • Lack of quality e-commerce services.	Inconclusive
Socio-cultural factors	• Culture has not directly affected e-commerce adoption. • Language not a problem as most of the operators are fluent in the English language. • Further validation of the effect of culture on e-commerce needed.	Neutral
Government	• The government has an important role to play to encourage e-commerce adoption. • Informants argue that the overall government commitment is not satisfactory. • Lack of incentives and programs to encourage e-commerce adoption from the government. • Private sector is more proactive in the use of e-commerce. • The government should facilitate adoption by providing required infrastructure including laws, and plans.	Negative
Condition of country	• Respondents divided over the effect of the political situation • Most argue the situation of the country has affected their business but not directly e-commerce adoption • Too early to assess the impact as there is lack of stable government or politics is still volatile.	Mixed
Laws and policies	• Most informants are not aware of the e-commerce laws. • Argues as most organisations are evolved only in information dissemination, the lack of laws not reported by many informants as a factor. • Laws required to protect online transactions and copyright of website contents.	Neutral
Awareness	• Most tourism organisations are aware of e-commerce adoption. • They may not be aware of all the technical details but awareness about the benefits. • Argues high number of SMTEs have a website due to awareness about e-commerce • Awareness about ICT should be started from school level	Positive

Social Media awareness	• Newer dimension and widely used in Nepal. So, it has excellent potential for the use of e-commerce in tourism. • Especially useful for marketing and promotion. • Needs further investigation	Positive
Resources	• Lack of resources a problem • Overall technical cost of resource expensive but the cost of resources, not a big problem if quality service is a problem. **Human Resource:** • Skilled Human resources are scarce, so services outsourced to the third party service providers.	Negative
Security concerns	• There is unfamiliarity about security-related issues in e-commerce use in tourism. • Reason for unfamiliarity may be the only use of the website for the information purpose. • Some argue there should be provisions for insurance to protect online transactions. • Concerned by the rising number of ATM frauds.	Inconclusive
Value proposition	• Though all the benefits have not utilised by organisations, they are aware and optimistic that e-commerce brings various benefits to their business. • Benefits have eased tourism process and motivated adoption.	Positive
Role of Owner or top management	• Owner supportive of the use of e-commerce in tourism as they are aware of benefits • Owners of many tourism organisations maintain or update their websites themselves (individual effort). • Eager to use e-commerce tools.	Positive

5.5.5 Changes After the Qualitative Analysis

The findings from the interviews were found to be consistent with the formulation of various instruments, assumption, and assertions made based on literature review. Most of the probable factors identified from the literature were verified, and the results were as expected. However, some changes were made to survey instrument adding some questions as some extra variables or the probable factors were identified from the interviews. However, no changes were made to the hypotheses or the research

methodology as they were found to be sufficient to accommodate the variables and factors explored based on research objectives.

5.5.5.1 Change to the survey questions

Most of the reported factors and impacts are found to be consistent with the probable factors compiled from the literature review. However, some additional factors are also suggested by many interviewees.

Based on the analysis of the interviews, two additional variables which are suggested by the informants are added to the survey questions to examine the effect of such variables on e-commerce adoption by SMTEs of Nepal. Each country has their own homogenous circumstances, and some new factors may have been present due to the circumstances. The two questions on the suggested factors were added to the survey questionnaire so to examine and validate through the broader sample population.

The question of the impact of the social media on e-commerce adoption was introduced to awareness section of the survey. Social media has provided new ways to communicate and interact with consumers (Hajli 2014). Very few research on investigating the factors affecting e-commerce adoption have reported about the social media as a factor. However, there are some studies which studied the impact of social media on e-commerce usage (Hajli 2013; Hajli 2014; Kwahk & Ge 2012). Kwahk & Ge (2012) found that social media interaction and commitment affect informational social influence which in turn affects e-commerce adoption. Hajli (2013) terms e-commerce in social media as "social commerce" and argues that the social commerce encourages interaction with customers. In recent years, the number of social media users in Nepal has increased rapidly (InternetWorldStats 2017) and the interview participants also mentioned the possible impacts of social media on adoption. So, a question has been formulated to investigate if tourism organisations are aware of the use of e-commerce for their tourism business.

Similarly, a question is added to investigate the resistance to the change by an employee for the use of technology is also added. Some of the earlier studies investigating e-commerce have also mentioned that the resistance to the change also impacts e-commerce adoption (Lawrence 2001; Zaied 2012). Pradhan (2002) argues that government strategies need to address the strong resistance which the organisations face for the use of ICT in Nepal. Pradhan (2002) and Mishra (2014) presents resistance to change as a cultural issue. Some interview informants mentioned that in some organisations the e-commerce adoption is affected as the employees do not welcome change and many employees resist change due to fear such as losing a job, and need of the training. So, a question has been added to investigate if there is any resistance from employees to adopt e-commerce by SMTEs.

The final survey instrument was prepared. It has been presented in *Appendix B*.

In addition, most of the informants during the interview mentioned about the effect of the earthquake on the tourism industry of Nepal because a 7.8 magnitude earthquake hit Nepal on 25th April 2015. Beirman (2003) argues that a tourism destination requires a high preparation to restore the marketability of the tourism destination in the event of the crisis caused by a major disaster such as an earthquake. The tourism industry of Nepal is still going through the phase of rebuilding after the earthquake (AP 2017; ABC 2016).

There are some studies investigating health and geographical conditions after the earthquake of 2015 however, the role of ICT or e-commerce to restore tourism industry has not been extensively investigated. Some studies have also investigated the role of social media (Ketter 2016) and the inclusion of electronic media and social media in recovery strategies (Beirman 2016). The need for the study investigating the role of ICT or e-commerce in recovery process was mentioned during interviews, however, as this research aims to investigate the factor affecting e-commerce adoption, the investigation

of the impact of the earthquake is beyond the scope of this research. Separate research has to be conducted and suggested to investigate this issue.

After the finalisation of the qualitative analysis, a final survey instrument was prepared, and quantitative analysis began by conducting an extensive survey with SMTEs.

5.6 Quantitative Data Analysis

5.6.1 Survey Data

The survey was conducted after the finalisation of the survey instrument. The objective of the survey is to validate the factors and find out the relationship between the factors and the e-commerce adoption. The investigation through the survey amongst the sizeable sample of the SMTEs helps to validate the factors. The results and findings from quantitative survey help to finalise the proposed model of e-commerce adoption by SMTEs.

5.6.2 Selection of the respondents for the survey

As the research investigates the e-commerce adoption by the SMTEs, such organisations have been surveyed in the research. According to the data recorded by the government body, tourism industry division of Nepal, there are around 6,000 registered tourism businesses (table 1.2 and table 1.5). However, the representatives of the tourism associations argue that the actual numbers of the SMTEs operating may be lower. A company which provides both trekking and travel services, need to register twice as a separate entity for each operation because of the legal requirement of the government (though an organisation may be providing both trekking and tours/travel services from the same office or one premise). So, based on those number a sample of 250 SMTEs was

randomly selected from the list provided by the major associations of Nepal: NATTA, HAN, and TAAN.

5.6.3 Collection of Survey data

The randomly selected SMTEs were contacted using their contact phone numbers available on the website of the SMTEs or the tourism associations. The organisations which inquired about the research before their participation decision were sent "Research information Sheet" prepared by the researchers that summarise the details about the research in a question-answer format.

After the verbal consent, the questionnaire was distributed to the SMTEs either via email or through delegates. Four delegates acted as a local delivery person helping to distribute and collect the survey questionnaires from geographically dispersed locations. The consent form and participant information sheet which summarises the details about the research, objectives and the privacy/ethical practices maintained in the research were provided in addition to the questionnaire. The principal researchers conducted three different information and training sessions for the delegates providing details about the research, objectives, questionnaire, ethical practices and privacy obligations to be maintained during the questionnaire distribution and collection processes.

Most of the organisations completed the written consent form and the survey questionnaire when delegate visited them. In few cases, some SMTEs requested to collect the survey questionnaire later because of reasons such as when the responsible person or owner was not available, need more time to complete the survey, they were very busy during that time. In such cases, the completed survey was collected after few days or emailed back to the researcher after few follow-up phone calls. For the SMTEs situated outside the capital city, emails or local delegates were used.

After five months, two hundred four responses to the survey questionnaire were collected. The response rate was 81.6% (204 out of 250) as the data were also collected through local delegates who followed up and visited the premises of the respondents to collect the survey questionnaire.

5.6.4 Data Screening

The initial check found that some of the survey responses were not complete. Two SMTEs left most of the questions (all the questions in a section) unanswered. So, they are removed. Similarly, four respondents did not complete many questions. Such responses were also not recorded. Altogether six responses were not included. The remaining 198 responses were entered in the Microsoft Excel from the survey, before transferring to SPSS application.

The dataset was checked in the Excel for the incompleteness using 'count' function for each column. It revealed that five respondents left a small number of the questions unanswered (less than three questions). The blank fields for those respondents were substituted by the mean score of that column.

5.6.5 Survey Respondent Profile

The respondents of the survey are trekking, travel-tours and hotel organisations of Nepal. The profile analysis of the respondents is presented below:

- **Types of SMTEs**

Table 5.4 (below) shows the number of participants based on types of tourism business.

Table 5.4: participants based on tourism business type

Main Sector	Number	Percent
Trekking	72	36
Tour and Travel	98	50
Hotel	28	14
	198	100

As mentioned earlier, some of the SMTEs, provide both trekking and travel services under one roof, such organisations are asked to indicate their primary business, i.e., trekking or travel. The proportion of the organisations contacted for the survey was approximately determined by the proportion of types of tourism organisations exist in the tourism industry of Nepal (travel organisations highest, then trekking and hotel respectively) as shown in table 1.2.

- **Gender of the respondents**

The respondents of the survey representing the SMTEs are predominately male.

Table 5.5 participation by gender

Respondent	Percent
Male	86
Female	14

- **Position of the respondents**

Only one representative from each organisation completed the survey. The owner or the manager completed the survey for most of the organisations, however, where it was not possible, the survey was completed by representatives who hold other positions in the organisations. In most cases, owners completed the survey as shown in table 5.6.

Table 5.6 Participation by position

Position	Frequency	Percent
Owner	104	52.5
Manager	52	26.3
Others	42	21.2

- **IT knowledge of the respondents**

Since research is related to e-commerce usage, it is necessary to access the understanding and level of IT usage by the respondents. The question was formulated with five options (none, little, moderate, good and expert) to rate their IT knowledge. Figure 5.2 shows the results for the level of IT knowledge among respondents.

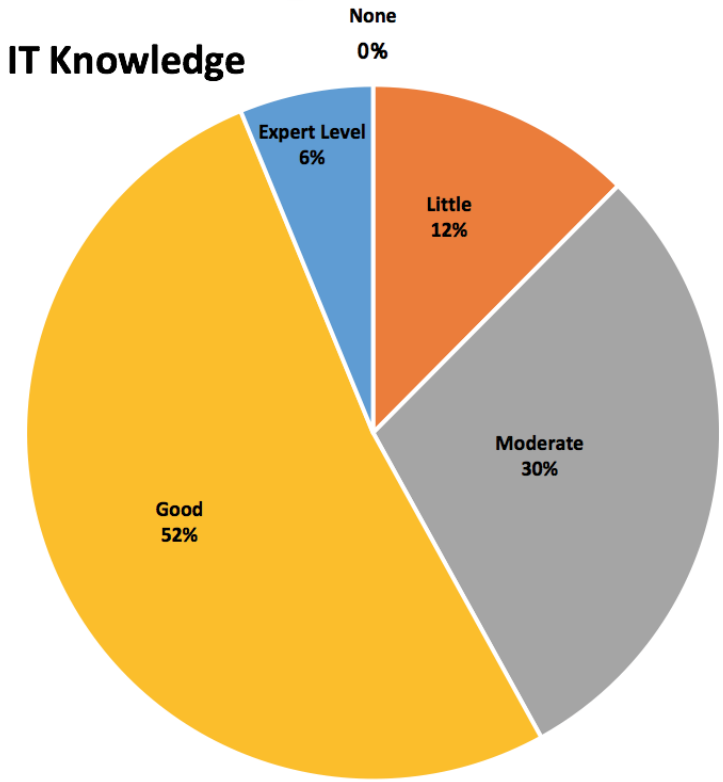

Figure 5.1 Participants IT knowledge

Most of the respondents have good level IT knowledge.

- **Total number of IT staffs**

The total number of IT staffs indicates the IT usage in the company. Since there is a possibility that the SMTEs is not using any IT services, the lowest response option provided was zero (no staff). Since many owners of the SMTEs maintain their websites themselves, the option of "self-maintained" was also provided.

The result has been presented below:

Most respondents reported that their organisation has either 0 (self-managed or use the third party) or 1 staff to look after IT in their business.

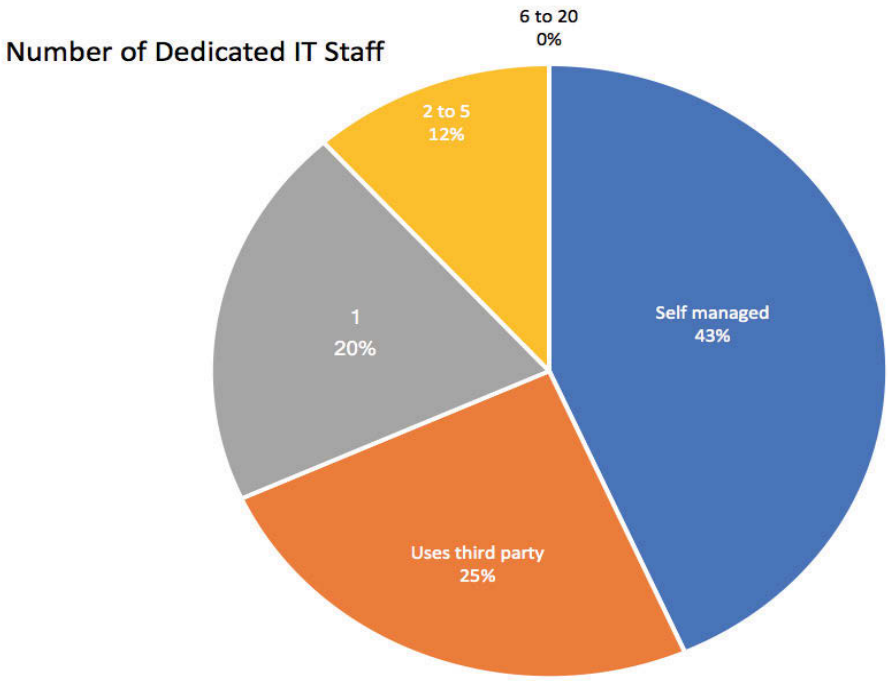

Figure 5.2 IT staffs in participating SMTEs

- **Internet Availability and Types**

The respondents were asked to indicate the kind of internet access they have in their organisation. This question helps to measure the penetration of different types of internet technologies among tourism organisations. Figure 5.3 shows the result.

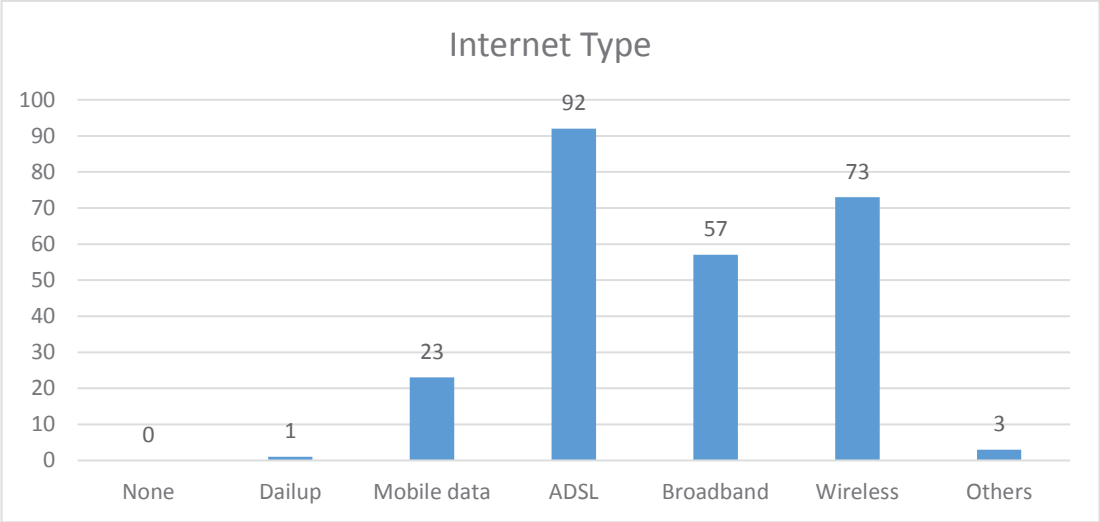

Figure 5.3 Type of internet in participating SMTEs

All the organisations surveyed access to the internet through either one or more medium. Most of the organisations were found to have access to the internet through ADSL connection followed by the wireless and then broadband connection which is encouraging for the adoption of e-commerce. Some organisations were also using mobile data for the internet access.

All the responding SMTEs have internet access. Such results may be supported by the nature and need of tourism sector which requires communicating with different stakeholders for their business using the internet.

- **Purpose of the internet**

The respondents were inquired about the purpose of the use of internet in their organisation. The purpose of the internet usage helped to understand the trend of IT usage in the tourism company. However, the usage was not limited to use of the internet for tourism purpose but different kinds of activities online.

Figure 5.4 shows the purpose of use of the internet.

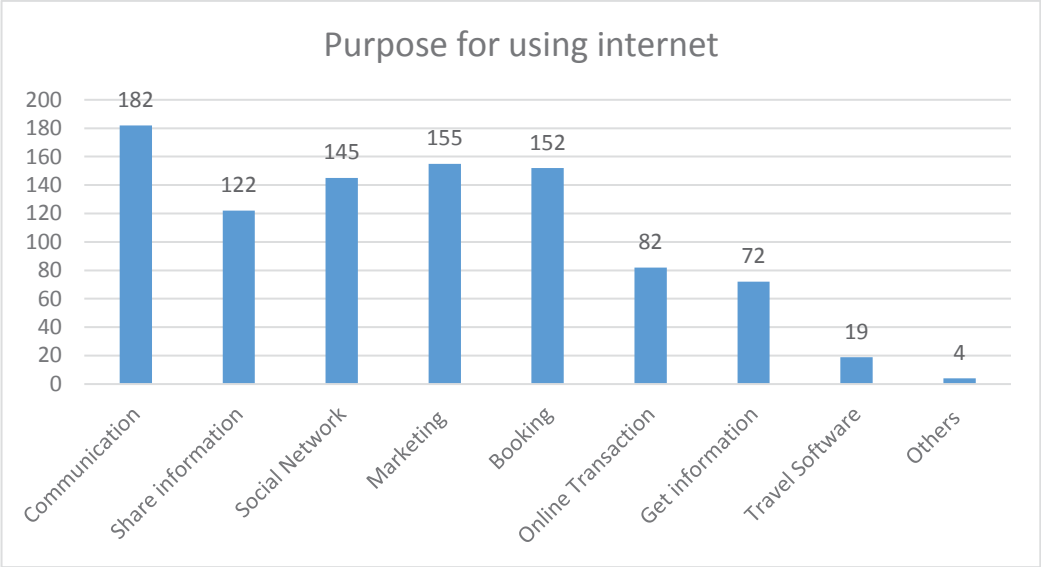

Figure 5.4 Participant SMTEs purpose of internet use

The internet was mostly used for email and communication purpose followed by marketing. Many tourism organisations reported that they also use internet for online booking. Some organisations even reported using internet for buying/selling.

- **E-commerce or ICT system usage**

The respondents were asked to select one of the options shown in table 5.7 below, to show the status of their ICT use in their tourism business (connection with ICT system or use of the e-commerce). Table 5.7 shows the level of e-commerce usage.

Table 5.7 Level of e-commerce adoption

Frequency	Number	Percent
Not connected at all (no internet, no email or no use of e-commerce tools)	0	0
Connected but just use internet/email only (no website or ICT system)	14	7.1
Connected-have Web or ICT system-informational purpose only	120	60.6
Connected-have Web or ICT system-interaction/communication purpose (including online customer support, use interactive features in system)	39	19.7
Connected-have Web or ICT system-Transactional purpose	25	12.6
Total	198	100.0

The purpose of the e-commerce or ICT use helped to explore the status and level of e-commerce adoption. The questions consisted of five categories as shown in the table 5.7 above. None of the organisations reported that they were entirely not connected with the e-commerce or ICT. Though fourteen organisations out of one ninety-eight surveyed were found to be not having any website, however, they reported that they use email or other ICT tools for their business. The majority (one hundred twenty) was using e-commerce to share information.

- **Intention to adopt the online transaction**

The intention to adopt online transaction was examined for the organisations which have not offered any online payment system or facilities in their website of ICT system already. This question helps to find the intention of the organisations whether they would adopt online transaction in the future.

Among the organisations which were not already offering the online transaction, 97.6 percent of the organisation reported that they plan to implement online payment processing in future. The high percentage of tourism organisations are willing to implement online transaction which provides a positive sign for the adoption of e-commerce.

5.6.6 Analysis of probable factors

The second part of the questionnaire examines the relationship of probable factors with e-commerce adoption using a Likert scale (1-5). The five-point Likert scale is used in this study. The highest scale 5 represented 'Strongly agree,' followed by 4 'Agree', 3 'Neutral,' 2 'Disagree' and 1 'Strongly disagree' respectively.

Before processing and analysing the data for the findings, various kinds of tests should be conducted to ensure normality, reliability, and validity of the data. The following statistical tests were carried out on the data collected.

5.6.6.1 Normality test

The test of the normality is conducted on the data to ensure that data represents the target population and confirm that the data are usable (Hair et al. 2006). Usually, the data may have excessively high or low-value items, which may affect the overall results. Commonly measures such as Kurtosis, Skewness and standard errors in those measures can be used to examine the normality of the data (Hair et al. 2006).

The Kurtosis measures the top and the bottom of distribution and finds the relationship between the bottom and its most occurring values. Similarly, Skewness shows the orientation of the distribution either the data are concentrated at the right, left or centre. The data skewed towards the right is called negative, and data skewed towards left is called positive.

Table 5.8 shows the kurtosis and skewness of each question in the questionnaire:

Table 5.8 Skewness and kurtosis analysis

Variables	Skewness	Kurtosis
INF1_PowerSupply	-0.770	-0.137
INF2_PaymentGateway	-0.620	-0.422
INF3_TelcomFacilities	-0.431	-0.774
INF4_Laws	-0.597	-0.526
MKT1_MarketSize	-1.172	1.123
MKT2_Competitors	-1.281	1.291
SPT1_ITVendorCompetency	-0.925	0.511
SPT2_LackofITSupport	-0.263	-0.792
SPT3_LackofStandard	0.228	-0.498

SCF1_Language	0.176	-1.224
SCF2_Culture	-0.029	-1.196
SCF3_EmployeeResistance	0.070	-1.098
CXT1_GovernmentCommitment	-0.985	0.310
CXT2_LackofIncentives	-0.705	-0.527
CXT3_SituationofCountry	0.010	-0.753
AWR1_InternetUse	-1.365	2.140
AWR2_EcomBenefits	-1.097	0.759
AWR3_CompetitorEcom	-1.139	1.162
AWR4_SocialMediaUse	-1.360	1.930
RSC1_EnoughResources	-0.288	-1.044
RSC2_HumanResources	-0.329	-1.001
RSC3_HighcostofResources	-0.402	-0.711
RSC4_HardwareInternet	-0.250	-1.01
SEC1_CyberCrime	-0.488	-0.836
SEC2_LackOfTrust	-0.242	-0.953
SEC3_DataMisuse	-0.291	-0.86
SEC4_Privacy	-0.077	-1.067
VAL1_BelieveAdvantage	-1.083	1.575
VAL2_RelativeAdvantage	-0.498	-0.313
OWR1_Support	-1.017	0.482
OWR2_OwnerCharacteristics	-0.992	0.796

Lewis-Beck, Bryman & Liao (2003) argued that the value of skewness and Kurtosis should be between the cut off value of +2 to -2 for the data to be normal. However, Hair et al. (2006) assert that boundary of -3 to +3 can also be considered for the normality of the data. In the table, only one value marginally does not fall within the boundary of -2 to +2 however it falls within the boundary or -3 to +3. So, the data set is normal.

5.6.6.2 Reliability Test

Reliability is used to ensure that data are accurate, i.e., the measures reflect the true score for the items being examined in the research. Usually, the Cronbach's alpha is used to access the internal consistency of the variables or measurement in the construct (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, Boudreau & Gefen 2004). The table 5.9 the reliability of the various constructs and variables inside each construct.

Table 5.9 Reliability Analysis

Construct	Variable	Cronbach's Alpha
Infrastructure	Electricity Financial Technical Legal framework	0.759
Market forces	Market readiness Pressure from competitors	0.722
Supporting IT industry	Incompetency Lack of support Lack of standard	0.721
Socio-cultural factors	Status of Technology Language	0.788
Contextual factors	Political stability Plan and policies Incentives from government The context of the country	0.718
Awareness	Awareness of benefits Awareness of social media	0.851
Resources	Skill & Human resources Cost of resources Technological	0.842
Security & Trust	Lack of trust Privacy	0.787
Value Proposition	Perceived benefits Relative Advantage	0.760
Owner or top Management	Owner support Background and knowledge	0.723

The table shows that the Cronbach alpha of the various factors in this research ranges from 0.718 to 0.852. All the scores are above 0.70 which shows that data in the research is reliable and provides a good level of internal consistency.

5.6.6.3 Content validity

The content validity checks whether the survey instrument and the constructs are sufficiently measured (Straub, Boudreau & Gefen 2004) or do variables measure the content they aimed to measure (Creswell 2009). Various tasks were adopted to ensure the content validity of this research. Firstly, the probable factors are identified based on the literature review. The probable factors were derived and adjusted with the prior e-commerce frameworks (Molla & Licker 2005b; Tornatzky & Fleischer 1990) which are also validated by the various previous studies. Secondly, the questionnaire for both semi-structured interviews and survey were validated by pilot testing. The interviews questions were revised for the clarity, and the survey questionnaire was updated by removing some questions and simplifying the wording of some questions to make them precise and enhance readability. Such review also ensured that items needed to measure intended constructs are included and measured appropriately. These steps help to improve the content validity of scores in the instrument (Creswell 2009).

5.6.6.4 Construct validity

According to Creswell (2013), construct validity is used to ensure "whether the items measure hypothetical constructs/concepts or not" and "occurs when investigators use adequate definitions and measures of variables." It also includes convergent, and discriminant validity which ensures that the measure is similar in itself, but it is different

from the other measures (Molla & Licker 2005a). The constructs allow making various inferences about the dependent variables.

In this research, as the initial constructs have been identified through literature reviews and further modified through interviews to examine if those constructs identified indeed represents the factors that explain the effects on the e-commerce adoption by SMTEs and validate the survey instrument, construct validity of the proposed constructs in the model has been measured. The constructs are identified to conceptualise the factors affecting e-commerce adoption by SMTEs.

The Principal Component Analysis (PCA) has been used to analyse the validity of the survey instrument used for this survey. Many researchers investigating e-commerce adoption have advocated and used factors analysis to establish the construct analysis (Brdesee 2013; Ghobakhloo & SH 2011). Molla & Licker (2005a) also used this technique in the research investigating e-commerce adoption in developing countries.

5.6.6.4.1 Principal Component Analysis

Principal Component Analysis (PCA) is a multivariate statistical technique that analyses the data set with the several inter-correlated quantitative variables. PCA aims to extract some 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). Usually, the Principal Component Analysis involves extraction, interpretation, rotation, and selection of the factors.

It is also used for data reduction, i.e., reduce the complex data or large numbers of variables into more manageable numbers or lower dimension of factors which helps to understand the phenomenon by revealing the information which may be hidden (Shlens 2014). It helps to extract most crucial information, reduce the dataset by retaining only

relevant information, simplify the dataset description, and analyse the structure of variables and items (Abdi & Williams 2010). Usually, it is done based on calculating the score and determining the higher order variables by solving an eigenvalue/eigenvector problem of the covariance or correlation matrix (Jolliffe & Cadima 2016).

In this research, various items and probable factors affecting e-commerce adoption have been obtained from the literature review. Those items have been updated through semi-structured interviews. Finally, a survey has been conducted on probable factors.

The PCA has been conducted to:

1) Statistically, confirm and validate the factors item grouping
2) Combine co-related items and create new constructs if needed

The effect of those factors on e-commerce adoption will be examined through hypothesis testing.

- **Results from the PCA**

The factor analysis feature of the SPSS has been used for the PCA. The factors or the components extraction has been conducted using following factor extraction rules:

1) A minimum eigenvalue of 1 as cut off value to consider it as a new component
2) Loading only significant loading removing items with factor loading less than 0.3 on all factors
3) Removing the items with the cross factors loading

The principal component analysis has been used as a method for factor analysis in SPSS. Similarly, the items need rotation.

The results of the PCA have been presented in the table 5.10 below:

Table 5.10 Results of PCA

Rotated Component Matrix										
	1	2	3	4	5	6	7	8	9	10
INF1_PowerSupply				0.746						
INF2_PaymentGateway				0.771						
INF3_TelcomFacilities				0.673						
INF4_Laws				0.814						
MKT1_Size										0.853
MKT2_Competitors										0.871
SPT1_ITVendorCompetent							0.799			
SPT2_ITSupport							0.863			
SPT3_SoftwareLack							0.723			
SCF1_Language					0.782					
SCF2_Culture					0.779					
SCF3_EmpResistance					0.821					
CXT1_GovtCommitment						0.826				
CXT2_Incentives						0.782				
CXT3_PoliticalSituation						0.757				
AWR1_InternetUse	0.795									
AWR2_EcomBenefits	0.857									
AWR3_CompetitorEcom	0.826									
AWR4_SocialMediaUse	0.815									
RSC1_EnoughResources		0.868								
RSC2_ITStaffs		0.862								
RSC3_Highcost		0.697								
RSC4_HardwareInternet		0.727								
SEC1_CyberCrime			0.701							
SEC2_LackOfTrust			0.790							
SEC3_DataMisuse			0.753							
SEC4_Privacy			0.736							
VAL1_BelieveAvantage									0.892	
VAL2_RelativeAdvantage									0.889	
OWR1_Support								0.839		
OWR2_BenefitKnowledge								0.879		

Rotation in factor analysis is a mathematical procedure that rotates the factor axis to produce results which are more interpretable by making the loading patterns clearer and more pronounced to identify. The purpose of rotation is to create a simple structure which is easy to interpret (Abdi & Williams 2010).

There are two main types of rotation methods: orthogonal and oblique (Abdi & Williams 2010; Brown 2009). The orthogonal rotation assumes that the factors are not highly correlated with each other whereas oblique assumes that the factors are highly correlated (Brown 2009). Some researchers (Brown 2009; Tabachnick & Fidell 2007) suggest creating factor correlation matrix and examining the values over ±0.32 among components to test the high correlation.

In this research, the rotated solution has been obtained using Varimax method, an orthogonal rotation method to simplify the structure. Varimax simplifies the rotation as the resultant variables are associated with small or only one component, or each component includes an only small number of variables (Abdi & Williams 2010). The components obtained using orthogonal rotation are independent and uncorrelated (MacGregor & Vrazalic 2008).

As a factor extraction rule, to extract the significant loading only, a cutoff value of 0.3 used. The coefficient values below 0.3 in the factor loading was suppressed, and only factors greater than 0.3 are considered. There is not any definite rule for the cut off value and depends on others factors as well. However, researchers argue that value above 0.30 can be considered as significant (Brown 2009).

Table 5.11 (below) shows the classification of the factors based on the results of the Principal Component Analysis (table 5.10).

Using the PCA, ten factors and various items within those factors were derived. The following table shows each factor and item in each factor.

Table 5.11 Factors from PCA

Factor1	**Factor 2**	**Factor 3**	**Factor 4**
Power Supply problems Payment Gateway Telecommunication Facilities Laws	Market size-readiness Pressure from Competitor	Competence of IT vendor Support from IT Firm Lack of software standard	Language Culture Resistance from Employee
Factor 5	**Factor 6**	**Factor 7**	**Factor8**
Commitment from government Incentives to use e-commerce The situation of the country	Internet use knowledge Information about e-commerce benefits Competitors e-commerce use Information about social media use	Lack of resources IT Staffs High cost of resources Hardware-Internet	Lack of Trust Cyber Crime Data misuse Privacy
Factor 9	**Factor 10**		
Perceived Benefits Relative Advantage	Owner's Support Owner's Knowledge		

5.7 Descriptive Analysis

5.7.1 Dependent variable: adoption of e-commerce

In this research, the adoption of the e-commerce is defined and determined based on purpose and level of e-commerce use in the organisation. Based on the use of it, the SMTEs are broadly classified into two level of adoption: Initial adopters and Advanced adopters. In the tourism industry, organisations use many types of ICT tools including emails for communicating with potential customers. The results of the survey also support this claim as there were no SMTEs without internet access among the SMTEs that responded to survey. All the organisations were found to be connected to e-commerce in some ways, and it was very hard to indicate the organisations are entirely not connected to e-commerce at all. Tourism organisations are found to be using various tools of ICT

and e-commerce in their business in some ways. So, it would not be logical to classify organisations in the tourism industry as total "non-adopter of e-commerce." So, the tourism organisations were divided into initial adopters and advanced adopters. These levels of adoption are also consistent with the many earlier studies investigating e-commerce adoption (Ghobakhloo & SH 2011; Molla & Licker 2005b) which divided organisation's e-commerce adoption as initial adoption and institutionalisation of adoption.

1) **Initial adopters:** These are the organisations which may or may not have a website but use e-commerce or ICT system such as booking system or just emails. Their primary purpose of e-commerce use is to provide information or marketing. The level of adoption among these adopter ranges from very low (just connected to the internet and using it to access information) to low-initial (full-fledged ICT system or website used to provide information).

2) **Advanced adopters:** These organisations have their own website and use other ICT systems. They use their website for the interactive and transactional purpose in their tourism business. These enterprises use e-commerce for various purposes beyond just showing their information through their system (beyond using e-commerce for online brochure) by implementing various advanced features such as online customer support, online interactive features, booking with online transactions. They usually interact with their customers through their website and allow them to book and pay for the tourism services online. In this category, organisations use various advanced features such as online transaction, reviews, and online interaction.

Table 5.12 Classification of the Adoption

Frequency	Percent	Types of Adopters
Connected but just use internet/email only (no website or ICT system)	7.1	Initial adopters
Connected-have Web or ICT system-informational purpose only	60.6	
Connected-have Web or ICT system-interaction/communication purpose (including online customer support, rating, review, use interactive features in system)	19.7	Advanced adopters
Connected-have Web or ICT system-Transactional purpose	12.6	
Total	100.0	

The analysis of the data has been presented below:

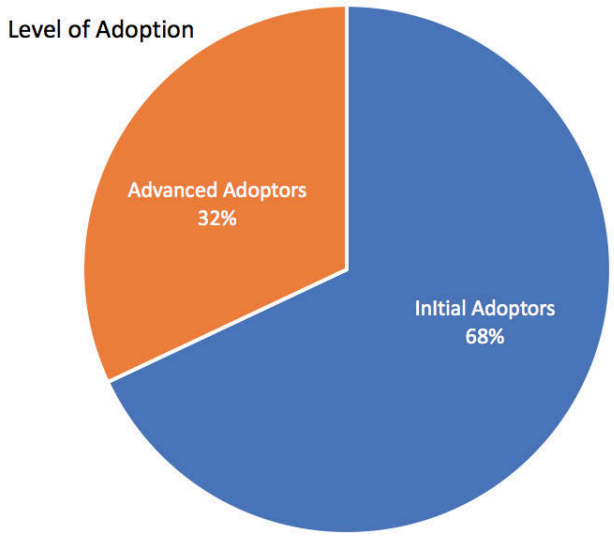

Figure 5.5 Classification of adoption

The data showed that sixty-eight percent of the organisations are "initial adopters" of e-commerce. Similarly, thirty-two percent of the organisation reported being the "Advanced adopters" of e-commerce in the tourism industry.

The dependent variable "e-commerce adoption" has been created in SPSS for the analysis. The variable was coded as 0 for 'initial adopters' and 1 for 'advanced adopters.' The representation of e-commerce adoption as a dichotomous variable has been used in various prior studies (Chong et al. 2009; Molla & Licker 2005a; Rowe, Truex & Huynh 2012).

5.7.2 Environmental factors

The results of the various environmental factors have been presented below. The "agree %" column on each variable has been calculated based on percentage after adding the number of "strongly agree" and "agree" responses. The percentage indicates the level of agreement with the survey assertion. The micro-level analysis has also been shown in figure (for example Figure 5.6) following the table in each section.

- **Infrastructure**

The statistical analysis showed that the overall mean scores of the infrastructure construct range from 3.47 to 3.59 which is above neutral (i.e., agree and strongly agree) which indicates that the respondents agree on the statement in the questionnaire. The overall standard deviation (SD) ranges from 1.07 to 1.13.

Table 5.13 Statistical scores: Lack of infrastructure

Indicators	**Initial Adopter**		**Advanced Adopters**		**Overall**		
	n=134		n=64		n=198		
	Mean	SD	Mean	SD	Mean	SD	Agree %
Power Supply Problem	3.62	1.08	3.38	1.19	3.54	1.12	63
Payment Gateway Problem	3.69	1.01	3.38	1.18	3.59	1.07	64
Lack of Telecom Facilities	3.53	1.12	2.91	1.14	3.33	1.16	54
Lack of Laws	3.69	1.11	3.02	1.05	3.47	1.13	60

The micro-level analysis for each variable has been presented:

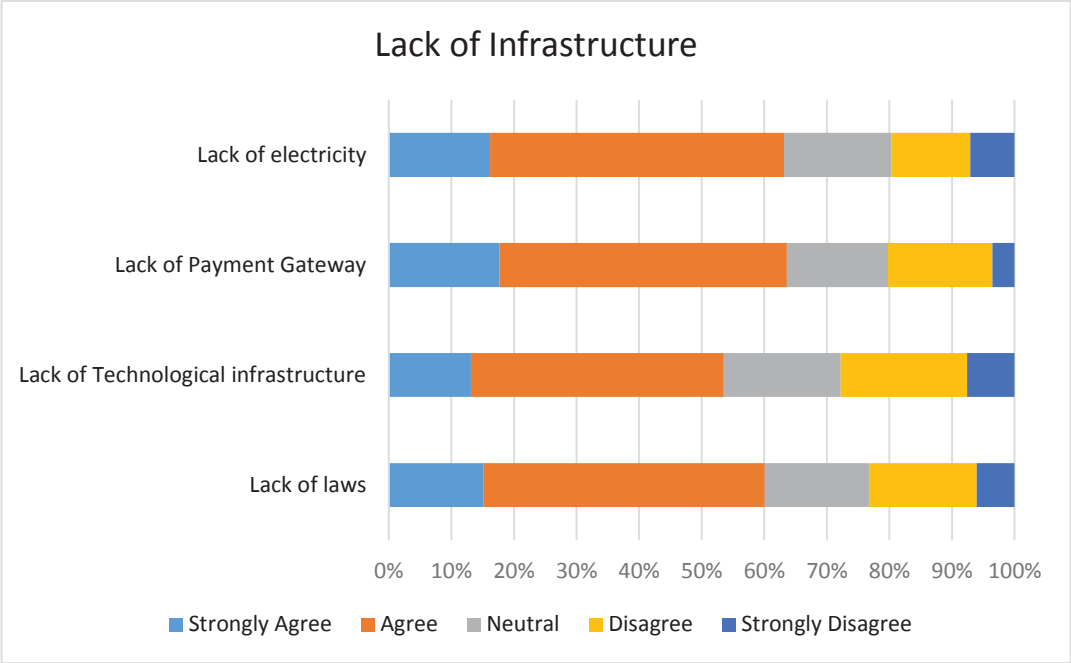

Figure 5.6 Detail analysis of lack of infrastructure

The analysis overall mean among score is 3.54 and majority of SMTES (around sixty-three percent) agree that that power supply has been a problem. The mean score of 3.62 and 3.38 among initial adopters and advanced adopters respectively which shows that all organisations agree with the statement that lack of power supply has been a problem.

Similarly, the analysis shows a majority of the SMTEs (sixty-four percent as shown in figure 5.6) agree that the lack of payment gateway has been a problem. The mean is highest for an initial adopter 3.69, and the overall mean 3.59 which shows that most of the organisation agree that there is lack of payment gateway and it has created a problem.

The respondents agree that lack of telecom facilities has been a problem which is indicated by the overall mean of 3.33 and around fifty-four percent agreeing that it has been a problem (figure 5.6). The initial adopters express the problem with a mean of 3.53. Finally, the respondents also agree that lack of laws has been a problem for the adoption

of e-commerce adoption with the overall mean of 3.47 and sixty percent of the SMTEs agreeing that it has been a problem.

The data shows that SMTEs agree with infrastructure has been a problem for the adoption of e-commerce.

- **Market forces**

The analysis shows that the mean scores for the "market forces" range from 3.78 to 4.22 which is above neutral (i.e., agree and strongly agree). It suggests that the respondents agree with the assertion in the questionnaire.

Table 5.14 Statistical scores: Market

Indicators	**Initial Adopter**		**Advanced Adopters**		**Overall**		
	n=134		n=64		n=198		
	Mean	SD	Mean	SD	Mean	SD	Agree %
Suitable market size	3.78	1.03	4.22	0.95	3.92	1.02	79
Pressure from competitor	3.83	1.12	4.06	0.91	3.90	1.06	81

The level-wise analysis indicates that majority of SMTEs (seventy-nine percent) agree that market size is encouraging for e-commerce adoption with the mean of 3.78, 4.22 among initial adopters and advanced adopters.

Similarly, the eighty-one percent of the SMTEs also agree that there is a pressure from competitor's actions to use e-commerce. The overall mean is 3.90 and the mean for the initial adopter and the advanced adopter is 3.83 and 4.06 respectively.

The detailed analysis of each variable has been presented in the following graph:

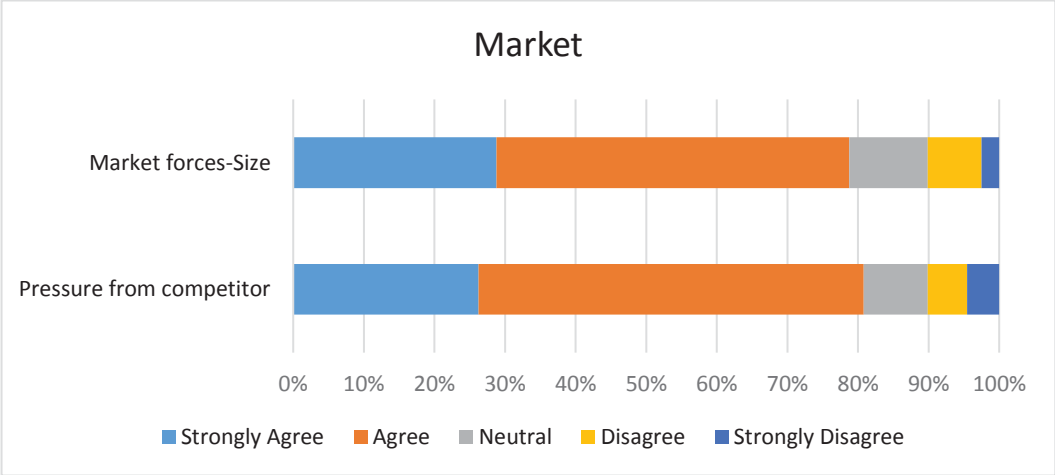

Figure 5.7 Detail analysis of market

- **Supporting IT industry**

The overall mean scores for the "supporting IT industries" construct range from 2.61 to 4.04 which indicates the mixed feeling of the respondents about the statement in the survey. The overall standard deviation ranges from 0.95 to 1.12.

Table 5.15 Statistical scores: Supporting IT industry

Indicators	**Initial Adopter**		**Advanced Adopters**		**Overall**		
	n=134		n=64		n=198		
	Mean	SD	Mean	SD	Mean	SD	Agree %
Vendors are not competent	3.95	0.97	4.22	0.91	4.04	0.95	76
Lack of IT support	3.29	1.12	3.69	1.09	3.42	1.12	51
Lack of software standard	2.59	1.04	2.64	0.93	2.61	1.01	19

The results show that most of the seventy-six percent of the SMTEs agree that IT vendors have not been competent to help them in their e-commerce initiatives. The mean score is higher among advance adaptors. Similarly, around fifty-one percent of the SMTEs agree that there is a lack of support from IT vendors for e-commerce adoption.

However, the SMTEs did not agree (with only nineteen percent agreeing) that there is a problem of lack of software standard and it has affected the e-commerce adoption. Both initial and advanced adopters did not agree that there is a lack of a standard.

The micro-level analysis for each variable has been presented in following graphs

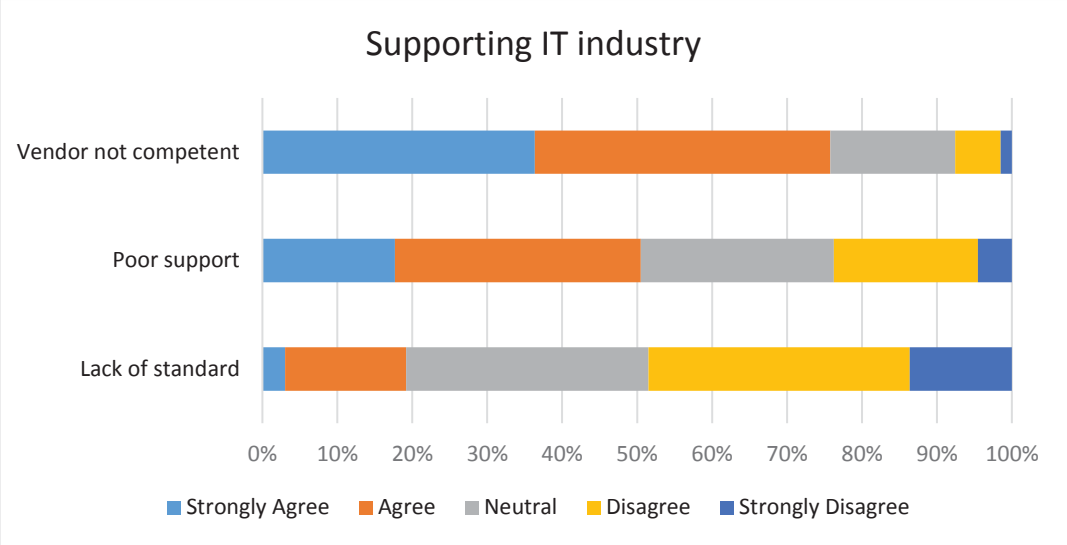

Figure 5.8 Detail analysis of Supporting IT industry

- **Socio-cultural factors**

The overall mean score of each item for the socio-cultural issues ranges from 2.96 to 3.09 which is around neutral indicating that the respondents are indecisive on the statement in the questionnaire. The overall standard deviation ranges from 1.23 to 1.31.

Table 5.16 Statistical scores: Lack of socio-cultural factors

Indicators	Initial Adopter		Advanced Adopters		Overall		
	n=134		n=64		n=198		
	Mean	SD	Mean	SD	Mean	SD	Agree %
Language problem	3.07	1.31	2.75	1.30	2.96	1.31	39
Problem from culture	3.16	1.24	2.95	1.23	3.09	1.23	45
Resistance from employee	3.13	1.30	2.73	1.09	3.01	1.24	39

The analysis of the various level of e-commerce adoption shows that the mean score for

the assertion that language has been a problem for the adoption of e-commerce is just below neutral score (3). Only thirty-nine percent SMTEs agree that language has been a problem. The mean is relatively low at 3.07 and 2.75 for initial adopters and advanced adopters respectively.

The similar pattern was also observed for the cultural issues as only forty-five percent of the SMTEs agree that it has deterred the adoption of e-commerce. The overall means is 3.09 (slightly above neutral), and means are 3.16 and 2.95 for initial and advanced adopters respectively.

The respondents do not feel that there is any resistance from the employee for the adoption of e-commerce (only thirty-nine percent agreeing there is any such resistance). The low mean of 3.01 for tourism organisations at the various level of e-commerce adoption indicates the indecisiveness of the SMTEs.

The detailed analysis for each variable has been presented in following graphs

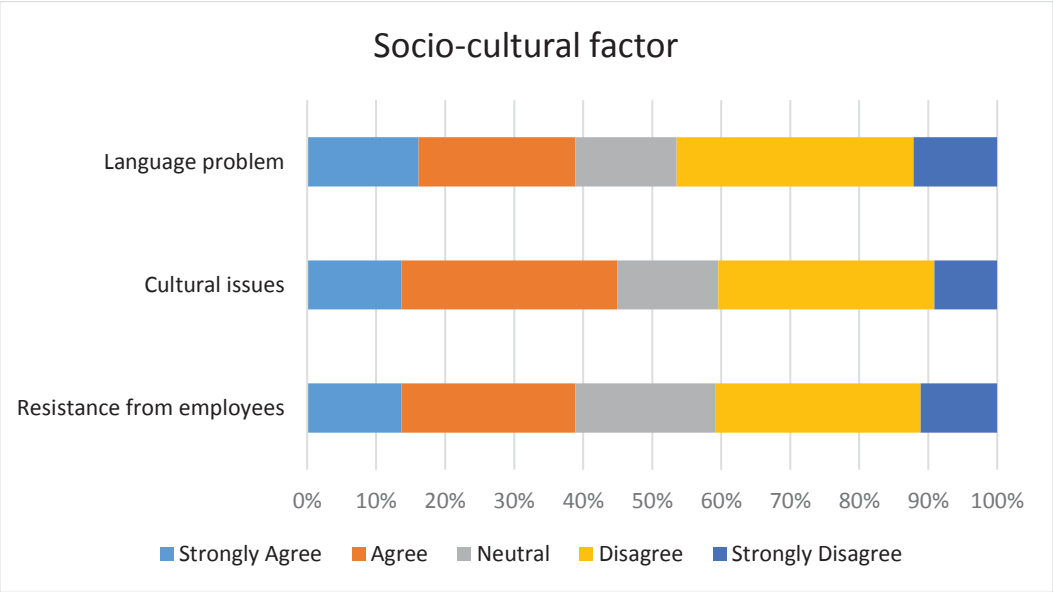

Figure 5.9 Detail analysis of socio-cultural factors

- **Contextual factors**

The overall mean values for the two variables of the contextual factors are 3.67 and 3.71(agree) which indicates that the respondents agree with the statement in the questionnaire. However, the mean score for the condition of the country is 2.87 just around neutral. The overall standard deviation ranges from 1.11 to 1.23.

Table 5.17 Statistical scores: Contextual factors

Indicators	Initial Adopter		Advanced Adopters		Overall		
	n=134		n=64		n=198		
	Mean	SD	Mean	SD	Mean	SD	Agree %
Condition of the country	3.03	1.15	2.53	1.09	2.87	1.16	30
Lack of plans-policies	3.78	1.01	3.44	1.30	3.67	1.11	71
Lack of Incentives	3.85	1.15	3.42	1.36	3.71	1.23	64

The analysis for each variable has been presented in following graphs:

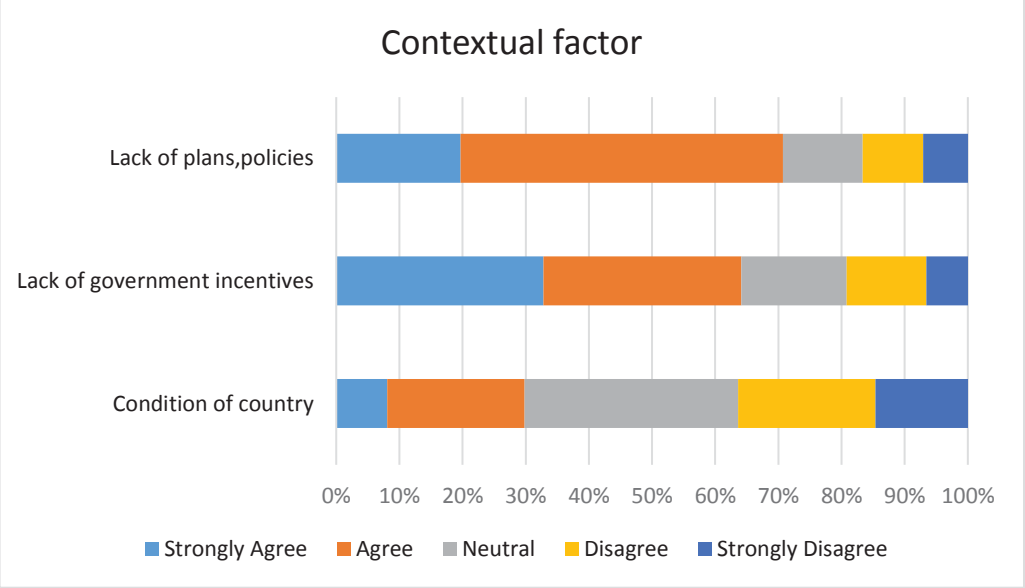

Figure 5.10 Detail analysis of contextual factors

The analysis shows that majority of the SMTEs (around seventy-one percent) agree that there is lack of plans, policies, and government commitment. The overall mean is 3.67.

Similarly, sixty-four percent of the SMTEs agree that there is lack of government incentives which has affected the commerce adoption.

However, only thirty percent of the SMTEs agreed that the condition of the country had affected the e-commerce adoption. The mean is below neutral (2.87).

5.7.3 Organisational Factors

The research identified and investigated the effect of five organisations factors on e-commerce adoption. The analysis has been presented in following tables.

- **Awareness**

The table shows that overall mean score for the variable items of the awareness range from 3.84 to 4.05 which is above neutral (i.e., agree and strongly agree) which indicates that the respondents agree on the statement on items related to awareness in the questionnaire. The percent of SMTEs agreeing is also high ranging from 76 to 83. The overall standard deviation ranges from 0.95 to 1.02.

Table 5.18 Statistical scores: Awareness

Indicators	Initial Adopter		Advanced Adopters		Overall		
	n=134		n=64		n=198		
	Mean	SD	Mean	SD	Mean	SD	Agree %
Awareness-internet use	3.89	0.86	4.20	1.07	3.99	0.95	83
Awareness of benefits	3.80	0.99	4.16	1.05	3.91	1.02	79
Awareness of competitor's e-commerce use	3.74	1.06	4.03	0.85	3.83	1.01	76
Awareness of social media use	4.01	0.92	4.14	1.08	4.05	0.97	83

The analysis for each variable has been presented in following graphs

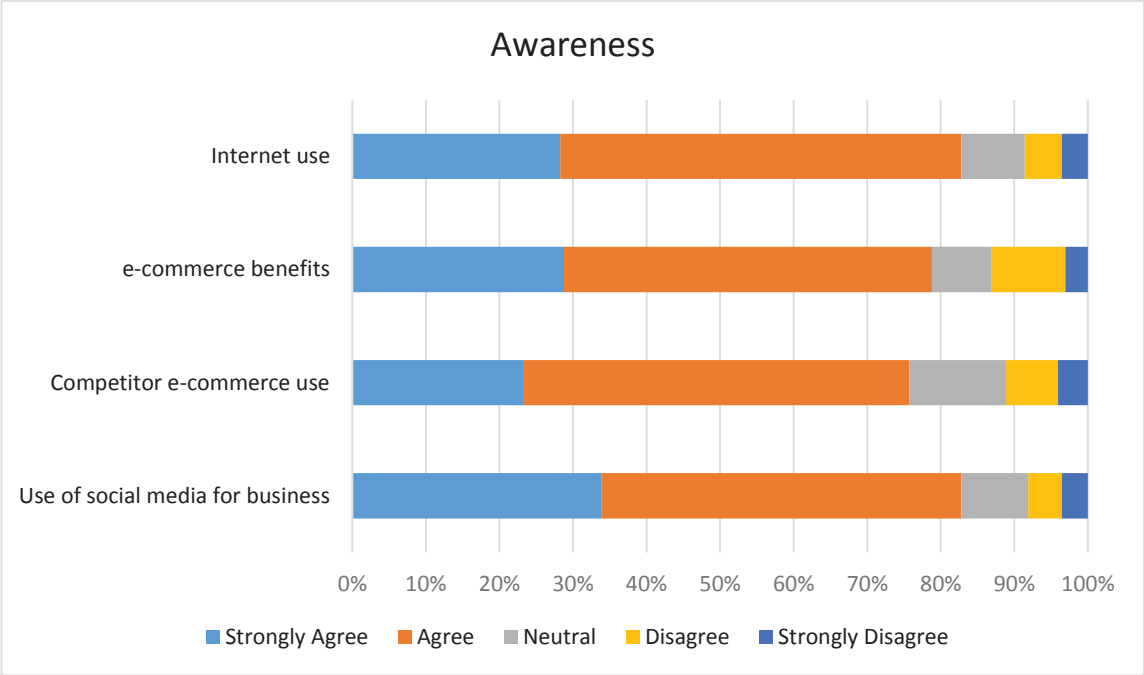

Figure 5.11 Detail analysis of awareness

Figure 5.11 shows for all most of the SMTEs more than seventy-five percent agree that awareness has impacted e-commerce adoption.

- **Resources**

The mean values for the resources range from 3.15 to 3.46 which is above neutral which indicates that the respondents agree with the statement in the questionnaire.

Table 5.19 Statistical scores: Lack of resources

Indicators	**Initial Adopter**		**Advanced Adopters**		**Overall**		
	n=134		**n=64**		**n=198**		
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Agree %**
Lack of Human resources	3.48	1.15	2.89	1.22	3.29	1.20	53
Lack of IT/Technical skills	3.52	1.10	2.78	1.23	3.28	1.20	54
High cost of resources	3.68	1.07	3.02	1.15	3.46	1.14	55
Lack of hardware-internet	3.33	1.14	2.77	1.14	3.15	1.16	48

The detailed analysis for each variable has been presented in following graphs

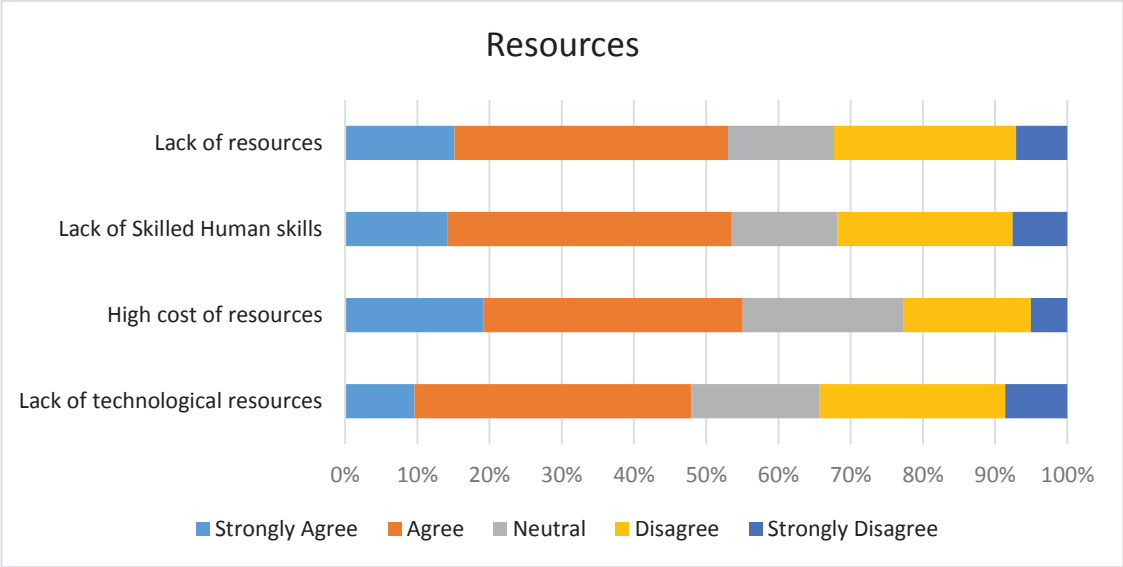

Figure 5.12 Detail analysis of lack of resources

The figure 5.12 shows that most of the SMTEs agree with the issues related to human skills, technical skills and the high cost of resources with almost more than fifty percent agreeing that the cost has affected the e-commerce adoption, however, the percentage is slightly low for the lack of technological resources, which is forty-eight percent. But overall mean shows the lack of technological resources has affected the adoption.

- **Security Concerns**

The analysis shows that overall mean score of the variables of the security construct range from 3.16 to 3.28 which is little above neutral (i.e., agree). This indicates that the respondents moderately agree with the statement in the questionnaire. The overall standard deviation ranges from 1.12 to 1.18.

Table 5.20 Statistical scores: Contextual factors

Indicators	Initial Adopter n=134		Advanced Adopters n=64		Overall n=198		
	Mean	SD	Mean	SD	Mean	SD	Agree %
Problems related to Cybercrime	3.34	1.11	3.00	1.17	3.23	1.14	54
Lack of trust	3.30	1.15	2.97	1.20	3.19	1.15	47
Problems related to data misuse	3.31	1.10	3.22	1.16	3.28	1.12	51
Privacy problem	3.26	1.17	2.95	1.20	3.16	1.18	45

The analysis for each variable has been presented in following graphs

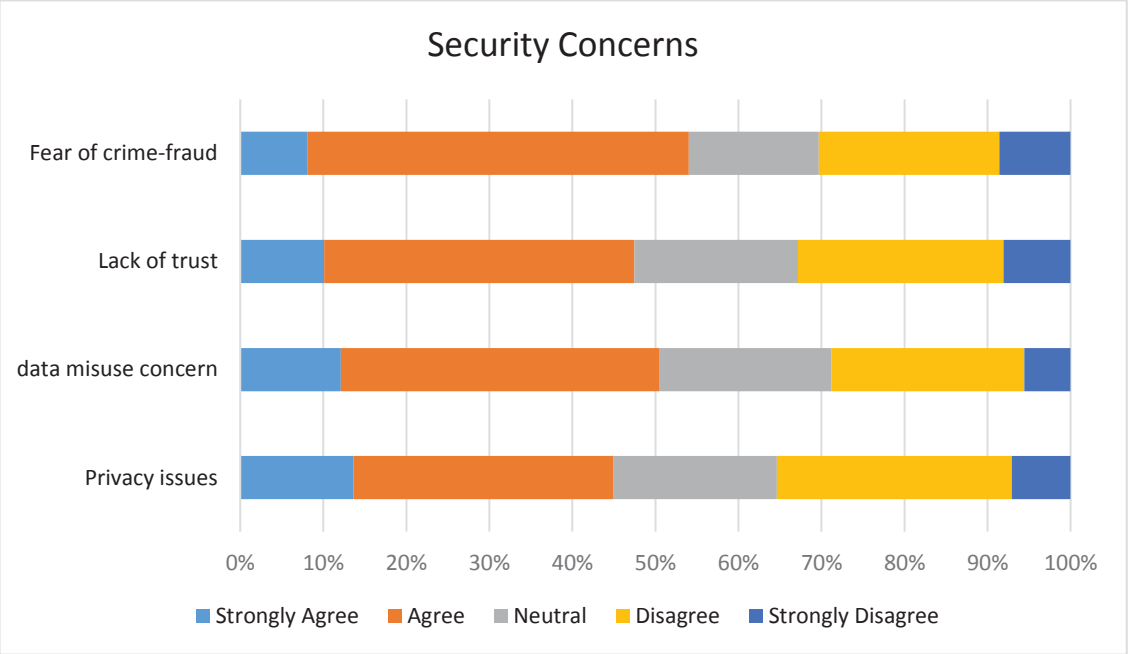

Figure 5.13 Detail analysis of security concern

The figure 5.13 shows that SMTEs are neutral or undecided for most of the issues related to security concerns with only around half of SMTEs agreeing with the issues.

- **Value Proposition**

The overall mean scores for all variables of the value proposition construct is 3.96 and 3.35 respectively which is above neutral (i.e., agree and strongly agree) which indicates that the respondents agree on the statement in the questionnaire.

Table 5.21 Statistical scores: Value proposition

Indicators	**Initial Adopter**		**Advanced Adopters**		**Overall**		
	n=134		**n=64**		**n=198**		
	Mean	SD	Mean	SD	Mean	SD	Agree %
Perceived benefits	3.80	0.92	4.30	0.58	3.96	0.86	81
Relative Advantage	3.20	1.12	3.67	0.91	3.35	1.08	52

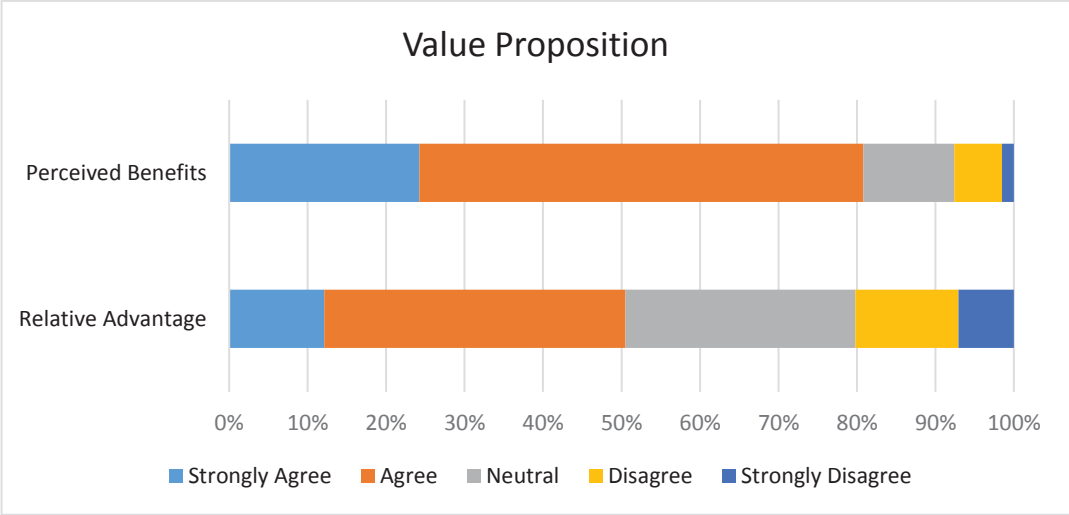

Figure 5.14 Detail analysis of value proposition

The analysis for each variable presented below shows that most of the SMTEs (almost eighty-one percent) believe that perceived benefits have affected the adoption whereas the percentage is relatively lower for the relative advantage affecting the adoption. However, the majority of the SMTEs feels that perceived relative advantage has affected e-commerce adoption.

- **The owner or top management**

The mean values for the two items of the owner characteristics construct are 3.71 and 3.85 respectively which indicates the agreement of respondent about the statement in the questionnaire.

Table 5.22 Statistical scores: Top management or owners

Indicators	Initial Adopter		Advanced Adopters		Overall		
	n=134		n=64		n=198		
	Mean	SD	Mean	SD	Mean	SD	Agree %
Role of owner or top management	3.63	1.11	3.86	0.91	3.71	1.05	73
Owners' characteristics	3.84	0.94	3.88	0.95	3.85	0.94	77

The detailed analysis for each variable has been presented in following graphs

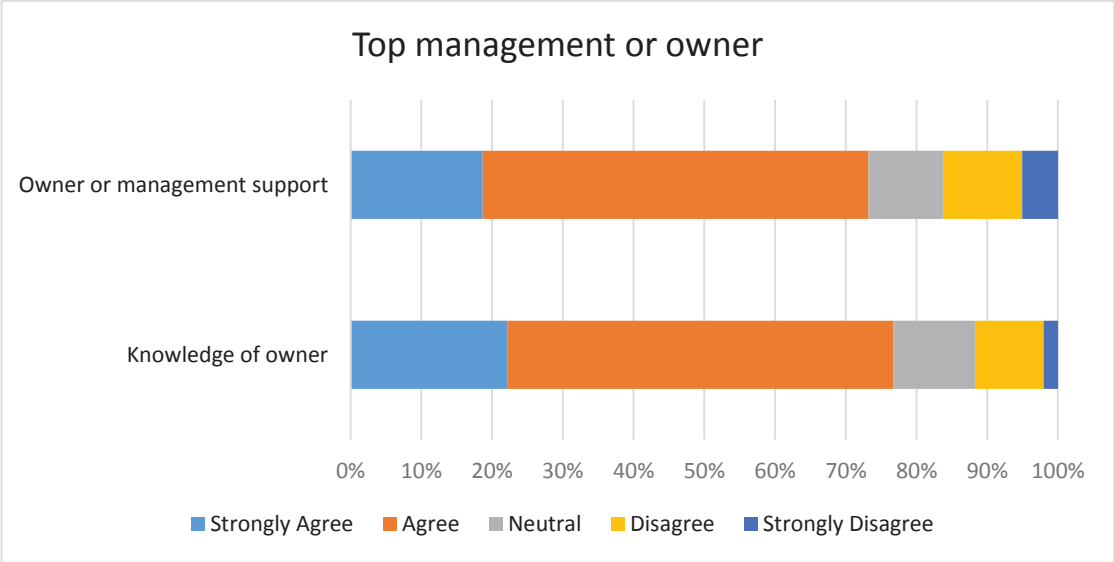

Figure 5.15 Details of top management or owner's role

The percentage chart in figure 5.15 shows that most of the SMTEs (more than seventy percent for both) agree there is support from the top management and knowledge of the owner have affected the e-commerce adoption.

5.8 Hypothesis testing and effect of each factor

The above factors identified from this research are independent variables, and the adoption of e-commerce is the dependent variable. Since the dependent variable is binary, we use binary regression to investigate the relation between the independent and dependent variable. The hypothesis set for the research which investigates the effect of various factors on e-commerce has been examined in the following section. The result of binary regression for the proposed model is presented below.

Table 5.23 Hosmer and Lemeshow test

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	13.917	8	.084

The value of 0.084 which is non-significant (higher than 0.05), so we reject the default null hypothesis used by "Hosmer and Lemeshow" test that "model is not significant" and conclude that **this model is significant** overall.

Table 5.24 Cox & Snell R Square and Nagelkerke R Square (variance)

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	163.355	.352	.491

The Cox & Snell R Square and Nagelkerke R Square show that the independent variables in the model explain between 35 percent and 49 percent of the variance in the e-commerce adoption (dependent variable).

Table 5.25 Classification table

Observed			Predicted		
			E-commerce Adoption		Percentage Correct
			0	1	
Step1	Ecommerce Adoption	0	122	12	91.0
		1	19	45	70.3
				Overall Percentage	84.3

The table shows that percentage accuracy is 84.3 percent which indicates that using this model when we predict the adoption of e-commerce, the model is 84.3% accurate. (Out of 134 initial adopters our model was or would be able to predict correctly about their adoption 122 respondents SMTEs. Similarly, out of 64 advanced adopters, 45 were or could be predicted correctly). The overall accuracy is 84.3 percent.

Table 5.26 The results of the binary regression

Variables in the Equation

	Factor	B	S.E.	Wald	Sig.	Exp(B)
Step 1a	Lack of Infrastructure	-.486	.236	4.243	0.039	.615
	Market forces	.651	.255	6.525	0.011	1.918
	Supporting IT Industry	.411	.251	2.674	0.102	1.509
	Socio-cultural	.029	.221	.017	0.896	1.029
	Contextual factors	-.436	.201	4.711	0.030	.646
	Awareness	.525	.259	4.118	0.042	1.691
	Lack of Resources	-.997	.269	13.765	0.000	.369
	Security concerns	-.102	.257	.158	0.691	.903
	Value Proposition	.889	.283	9.890	0.002	2.433
	Role of owner or top management	1.117	.318	12.351	0.000	3.055
	Constant	-8.053	2.679	9.037	0.003	.000

The significance value ($p<0.05$) indicates that the factors are significant in the model. So, lack of infrastructure, market forces, contextual factors, awareness, lack of resources, value proposition and owner's role are found to be significant.

5.8.1 Results of hypotheses testing

The results of the hypotheses testing have been presented below based on Table 5.26:

H1: Lack of infrastructure has negatively influenced the adoption of e-commerce by SMTEs of Nepal.

The binary regression shows that p-value for the infrastructure factor is 0.039 which is less than 0.05 and the beta coefficient is negative 0.486. So, the research hypothesis has

been supported, and we conclude that lack of infrastructure has negatively influenced the adoption of e-commerce. The first factor which effects e-commerce adoption has been ascertained. Since this factor is negatively correlated, it has been termed as "barrier" for e-commerce adoption. The hypothesis is accepted.

H2: The market forces for the tourism industry of Nepal has positively influenced the e-commerce adoption by SMTEs of Nepal.

The table shows that p-value for the market forces is 0.011 which is less than 0.05 and the beta coefficient is also positive. So, there is the significant positive influence of the market on e-commerce adoption. So, the hypothesis has been accepted.

H3: The services from the supporting IT industries have negatively influenced the adoption of e-commerce by SMTEs of Nepal.

The table shows that p-value for the hypothesis investing negative relation of supporting IT industry with e-commerce adoption is 0.102 which is higher than 0.05. So, the research hypothesis is rejected, and we could not conclude that services from the supporting IT industry have negatively influenced the adoption of e-commerce by SMTEs of Nepal. This hypothesis is not accepted.

H4: Socio-cultural factors have negatively influenced the adoption of e-commerce by SMTEs of Nepal.

The p-value for the relationship between socio-cultural factors and adoption of e-commerce is 0.896 which is higher than 0.05, so the research hypothesis is not supported, and we conclude there is not enough evidence to show that socio-cultural factors are negatively influencing the adoption of e-commerce by SMTEs of Nepal.

H5: The contextual factors have discouraged the adoption of e-commerce by SMTEs of Nepal.

The investigation of the relationship between the situation of country and e-commerce adoption shows that p-value is 0.030 which is less than 0.05, so the hypothesis is supported, and we conclude that the contextual factor of the country has discouraged the adoption of e-commerce by SMTEs.

H6: Awareness of e-commerce has positively influenced the adoption of e-commerce by SMTEs of Nepal.

The p-value for investigation on lack of awareness is 0.042 which is less than 0.05, so the research hypothesis is supported, and we conclude that the awareness of e-commerce is positively influencing the adoption of e-commerce by SMTEs of Nepal.

H7: The lack of resources in SMTEs of Nepal has negatively influenced the adoption of e-commerce by SMTEs of Nepal.

The table shows that p-value for the market forces is 0.000 which is less than 0.05 and the beta coefficient is negative 1.05, so the research hypothesis that the lack of resources in SMTEs of Nepal is negatively influencing the adoption of e-commerce by SMTEs of Nepal is supported. The hypothesis is accepted.

H8: The digital security concerns among owners of SMTEs in Nepal has discouraged the e-commerce adoption by SMTEs

The analysis shows that the p-value is 0.691 which is higher than 0.05 so the research hypothesis is NOT supported and there is not enough evidence to accept that the digital security concerns among owners of SMTEs in Nepal have discouraged the e-commerce adoption by SMTEs. The hypothesis is rejected.

H9: *The value proposition has positively influenced the adoption of e-commerce by SMTEs of Nepal*

The hypothesis is accepted as the p-value for the relationship between perceived benefits, and e-commerce adoption is 0.002 which is less than 0.05, so the research hypothesis is supported, and we conclude that the value proposition has positively influenced the adoption of e-commerce by SMTEs of Nepal.

H10: Owner's or top management's role has positively influenced the adoption of e-commerce by SMTEs of Nepal

The table shows that p-value for the Owner or top management is 0.000 which is less than 0.05 so the research hypothesis is supported and we conclude that Owner or top management has positively influenced the adoption of e-commerce by SMTEs of Nepal. The Hypothesis is supported.

Final results of Hypothesis testing have been presented below:

Table 5.27 Results of hypotheses testing

	Hypotheses	**Results**	**Verdict**
Environmental			
H1	Lack of infrastructure has negatively influenced the adoption of e-commerce by SMTEs of Nepal	β = -0.486 p=0.039<0.05	Supported
H2	The market forces for the tourism industry of Nepal has positively influenced the e-commerce adoption by SMTEs of Nepal	β = 0.651 p=0.011<0.05	Supported
H3	The services from the supporting IT industries have negatively influenced the adoption of e-commerce by SMTEs of Nepal.	β = 0.411 p=0.102>0.05	Not Supported
H4	Socio-cultural factors have negatively influenced the adoption of e-commerce by SMTEs of Nepal	β = 0.029 p=0.896>0.05	Not supported

H5	The contextual factors have negatively influenced the adoption of e-commerce by SMTEs of Nepal	β = -0.436 p=0.030<0.05	Supported
Organisational			
	Hypotheses	**Result**	**Verdict**
H6	Awareness of e-commerce has positively influenced the adoption of e-commerce by SMTEs of Nepal	β = 0.525 p=0.042<0.05	Supported
H7	The lack of resources has negatively influenced the adoption of e-commerce by SMTEs of Nepal	β = -0.997 p=0.000<0.05	Supported
H8	The digital security concerns among owners of SMTEs in Nepal has discouraged the e-commerce adoption by SMTEs	β = -0.102 p=0.691>0.05	Not Supported
H9	The value proposition has positively influenced the adoption of e-commerce by SMTEs of Nepal	β = 0.889 p=0.002<0.05	Supported
H10	Owner's or top management has positively influenced the adoption of e-commerce by SMTEs of Nepal	β = 1.117 p=0.000<0.05	Supported

5.9 The summary of the findings & results: interviews and survey

The summary of overall findings from interviews and survey based on the level of adoptions is presented below.

*[(The character '**I**' indicates findings from **interviews** and '**S**' indicates the findings from the **survey**).]*

Table 5.28 Summary of the findings of survey and interviews

Factors	Initial Adopters	Advanced Adopters	Overall
Infrastructure	**Overall Negative**		
Electricity	• Electricity causes a delay in communication (I) • They agree that it has affected the e-commerce adoption (S). • The organisations which agree about the problem caused by electricity is higher among initial adopters which indicates the significant impact on initial adoption (S).	• It is a problem but alternative sources are used when needed, and the situation has improved now with fewer power shortages (I) • They also believe that power supply is still a problem (S).	• Lack of power supply has been a problem but argues situation has changed.
Financial	• It discourages to upgrade to the advanced level of adoption (I). • Agreed to be a problem (S) (mean of 3.69/5)	• Reported that it is a problem as they are not able to accept online payment (I). • Agreed that lack of payment gateway has affected e-commerce adoption (S).	• Most SMTEs agree that lack of financial infrastructure has negatively affected e-commerce use.
Technological	• Complained about the availability of reliable internet (I). • The lack of telecom facilities affected the adoption (S).	• Non-availability of high bandwidth internet for multimedia is counterproductive in the business (I). • Telecom facilities do not seem to be affecting the adoption (S)	• The technological facilities have improved. However, reliability and quality remain a concern.

Legal framework	• Not much aware of legal aspects (I). • Agreed that lack of laws has affected the e-commerce use. (S)	• Laws are required to protect online transactions (I). • They are neutral on lack of laws about e-commerce adoption (S).	• SMTEs are unaware of the presence of the laws.
Market Forces	**Positive impact**		
Market size and readiness	• Encouraged by overall tourism market size of Nepal (I). • Agreed that market size encourages adoption.	• Expressed their view that e-commerce helps for the further market expansion (I). • Motivated very much.	• Encourage e-commerce adoption.
Pressure from competitors	• Inspired by the competitors' e-commerce use (I & S).	• International partners and competitors encourage to add new features to their systems (I). • Proportionately, more respondents are inspired to use e-commerce to gain competitive advantage (S)	• Positive impact on the adoption of e-commerce.
Supporting IT Industry	**Inconclusive**		
Quality of task by IT companies	• Generally happy with the services but reliability and quality remain a concern (I). • Supporting IT industry are not competent (S) • Agreed that there is a lack of standard(S).	• Competent but concerned about the quality of services (I & S). • Creating standards and collaborative efforts can reduce cost (I).	• Satisfied with the availability of the services but reliability and quality are concerns.
Socio-cultural factor	**Inconclusive**		
Language problems	• Not really a problem, as most of them are fluent in English (I).	• Offering services in a different language other than English are reported to be a problem (I). • Neutral about the impact (S)	• The impact of language on e-commerce adoption is not clear.

	• The proportion agreeing is higher among initial adopters than among advanced adopter (S). • Not clear result from the impact of language(S).		
Cultural	• Impact on the e-commerce adoption is neutral (I & S).	• Disagreed with the claim that culture is a factor (I). • Disagreement scale is only just below neutral (S).	• Not conclusive to decide about the impact.
Resistance from employee	• Not clear result of the resistance (I). • The survey also shows neutral results (S).	• Disagreed that this factor has impacted e-commerce adoption (I & S).	• Inconclusive with neutral results.
Contextual factors	**Negative**		
Lack of policies and commitment	• Agreed that there is lack of commitment from the government (I & S).	• Agreed as well but the proportion is less compared with initial adopters (I & S).	• Negative impact on the adoption.
Condition of country	• It has some effects but not a primary factor (I). • The result was neutral (S)	• Indirectly affected by the laws and programs (I). • Comparatively, more advanced adaptors disagreed with this factor (S).	• Political problems have some indirect impact on the e-commerce adoption.
Incentives from government	• Agreed that there are no incentives from the government (I & S). • Tax rebates may help (I).	• Complained about the lack of incentives and encouragements from the government (I & S).	• Agreement about the absence of the incentives to encourage the e-commerce adoption.

Awareness	**Positive**		
Awareness of benefits and e-commerce use	• Clearly aware of the use of e-commerce by their competitors (I & S). • Aware of benefits of e-commerce and inspiration (I & S).	• Motivated by competitor's e-commerce use (I & S). • Aware but have not been able to use all features (I). • Comparatively, more advanced adopters agreed about the impactful factor for the adoption (S).	• Aware of the competitor's e-commerce use. Overall encouraging the adoption of e-commerce.
Social media use	• Aware of social media use and its role in encouraging e-commerce adoption (I & S).	• Using social media and support them as a new arena to promote the business. (I) • Aware of the use and encouraged by them. (S)	• Aware and encouraging factor in the tourism sector.
Resources	**Negative**		
Skill & Human resource	• There is lack of human skills (I). • Agreed that there is lack of skills and human resources (S).	• Although there is human skills shortage and it has not directly impacted the adoption (I). • Did not agree that there is lack of resources (S).	• Mixed views but overall results show that there is lack of resources.
Cost of resources	• Cost of resources is usually high (I & S).	• Cost is not a concern if better quality is provided (I). • The result was slightly above neutral (S).	• Overall, the cost has impacted.
Technological resources	• There is a shortage but manageable through available resources (I). • Agree that there is lack of resources (S).	• Not able to utilise various features due to the lack of availability of technology (I). • Did not agree that there is a lack of technological resources (S).	• Impactful
Security	**Indecisive**		
Lack of trust	• Since ICT usually used for information dissemination purpose, trust issues are not discussed much (I).	• They raised the issue of protection and provision of insurance against cybercrimes(I).	• Lack of trust is a concern but not an influential factor

	• Concerned. Above neutral (S).	• Concerned but not a clear reason for the adoption (I & S).	
Privacy and data misuse	• Unaware (I) • Concerned about the data misuse with a high mean score (S).	• Concerned (I). • Agreed with the effect of privacy and data misuse concern on e-commerce adoption (S).	• Not much aware but concerned and indirect impact.
Value proposition	**Positive**		
Perceived benefits	• Lured by potential benefits (I). • Positive impact (S).	• Motivated to enhance the existing tourism process but have not been able to implement all of them (I). • Agreed and comparatively the proportion of is higher than initial adopters (S).	• Encouraging and positive.
Relative Advantage	• Feel that e-commerce will make tourism process cheaper, easier and faster (I). • Agreed (S).	• Motivated (I). • Confirms the claims from the interviews (S).	• Positive.
Role of the owner or top management	**Positive**		
Owner support	• Owners and top management are supportive (I). • Agreed with the interview claims (S).	• The owner and top level usually motivate advanced features (I). • Confirms the support from top management (S).	• Positive.
Background and knowledge	• The owners support e-commerce use (I). • Confirms the claim (S).	• The owner's knowledge about the features and benefits of using e-commerce is useful(I). • Agreed about the effect (S).	• Positive.

5.10 Summary of the chapter

The process and results of the data analysis of interview and survey data are presented in this chapter. The first section presents the processes and results from the interview. The selection of participants and actual interview process have also been explained. The researcher has interviewed the seven participants by visiting Nepal.

The qualitative data has been presented using thematic analysis identifying different themes and sub-themes. Several themes aligned with the factors identified from literature review have been identified. The status of ICT usage and present payment system in the tourism industry have also been investigated. The extracts from the transcript of the interviews are used to back the claim of the participants related to factor and other research questions.

The analysis of the interviews has shown that use of e-commerce by SMTEs is promising. Most of the organisations are found to be aware of the e-commerce adoption. Lack of national infrastructure and lack of resources in organisation and role of the government are reported to be deterrent to e-commerce adoption. Market size, perceived benefits, and owner supported are mentioned as motivators. The interviewees also reported on the role of supporting IT organisations, security concerns, and cultural aspects. The awareness about social media and resistance from employee to adopt e-commerce are added to survey questions.

The quantitative analysis using survey present various results. The descriptive analysis is conducted, and the data are presented with the use of average scores. Different tests are carried out to ensure the normality, reliability, and validity of the data. The Principal Component Analysis has also been conducted. The information which shows the status of e-commerce use by SMTEs are presented in the first part and mean analysis of the question on factors are presented in second part. The results and findings showed that

most of the claims made by the government are uphold, however, many questions yield mixed or inconclusive results.

The binary regression analysis is conducted to test the hypotheses about the effect of factors on e-commerce adoption. The results show that the hypotheses about lack of infrastructure, market forces, contextual factors, awareness, lack of resources, value proposition and owner support are supported, and they are identified as influencing factors. However, the hypotheses related to supporting IT industry, cultural factors and security could not be supported.

In Summary, the chapter presented the thematic analysis of interview data and statistical analysis of the survey data to investigate on research questions. Numerous findings are obtained based on the results which help to answer the research questions.

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CHAPTER 6: Discussion and Conceptual model

6.1 Introduction

This chapter consolidates the findings presented in the previous chapter. In the first part, the factors and the related variables based on the results of the content analysis of interviews (qualitative) and statistical analyses of survey data (quantitative), have been analysed. Each factor has been analysed and discussed in detail. In the second part, a proposed conceptual model of factor affecting e-commerce adoption by SMTEs has been presented with the implications details.

6.2 Research result Analysis

The research revealed various vital statistics about the e-commerce usage in the tourism industry. The main objective of the research was to find the factors of the e-commerce adoption by SMTEs of Nepal. The research found various relevant factors using both qualitative and quantitative tools. So, the research has been able to fulfil the research objectives successfully.

After the analysis, three environmental factors (lack of infrastructure, market size, lack of support from the government) and four organisational factors (awareness, lack of resources, value proposition, top management support) were found to be significant in e-commerce adoption by SMTEs of Nepal. The two environmental factors (supporting IT industry, socio-cultural factor) and one organisational factor (security concern) were found to be non-significant.

The analysis of the each identified factors has been presented below:

6.2.1 The factors affecting e-commerce adoption by SMTEs of Nepal

6.2.1.1 Updated e-commerce adoption model for SMTEs in Nepal

The analysis of the findings from the empirical data has supported seven hypotheses out of ten presented in this study, as presented in Table 5.27. The proposed model is updated from Figure 3.2 (Page 125) and shown in Figure 6.1 below.

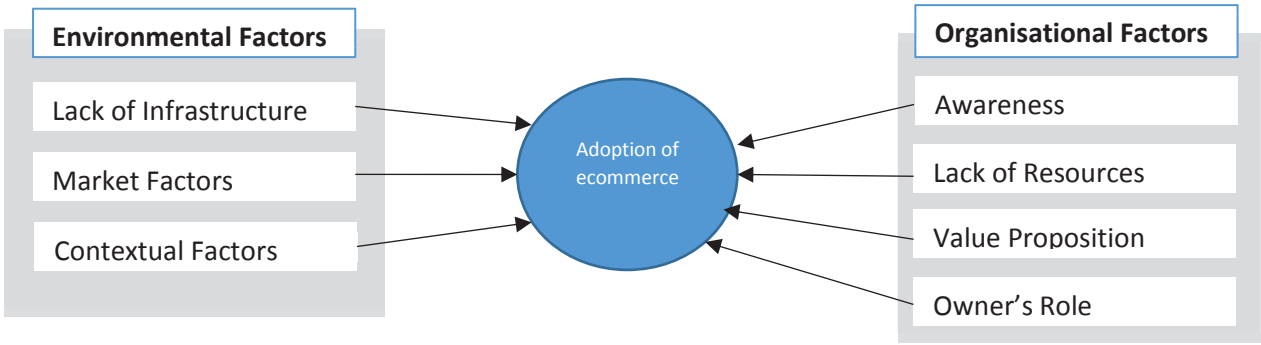

Figure 6.1 Updated conceptual model

6.2.1.2 Classification of the factors

This research explored and identified various barriers and motivators to the e-commerce adoption. Based on the review of the literature, frameworks (TOE and e-readiness model) and the research objectives, the factors were divided into two broad categories either they were internal or external to organisation's boundary.

- Factors related to the external environment of the organisation: *Environmental Factors*
- Factors related to the internal environment of the organisation: *Organisational Factors*

6.2.1.3 Categories of e-commerce adoption

The SMTEs of Nepal has been classified into two categories based on the level of their ICT usage, experience, and purpose they were using e-commerce for in their business.

The analysis of the findings from the interviews and survey shows that there are many SMTEs which are either wholly or partially adopting e-commerce in their business. The information sharing, marketing, communication, interaction, and transaction are a significant part of the tourism business, and use of ICT plays important role. Thus, most of the organisations are adopting the e-commerce in the basic level. Few organisations are using emails only without websites or ICT systems, many have a website but using it for informational purpose only, and others are using various tools for communication, interaction and even for online transactions.

The categorisation of SMTEs in only one basket is not accurate. So, based on the level and purpose of e-commerce usage, SMTEs are divided as follows:

1) Initial Adopters, and

2) Advanced Adopters

6.2.1.4 Analysis of the factors and variables

The identified factors and the variables in each factor are discussed below:

6.2.1.4.1 Environmental factors:

- **Factor: Infrastructure**

Several issues related to infrastructure that affected the adoption of e-commerce were identified in this research.

Based on the interviews, lack of infrastructural factors such as electricity, payment gateway, laws, technological issues including telecommunication services negatively affect the e-commerce adoption.

The results from the quantitative analysis of survey data show that the initial adopters are more concerned about the lack of infrastructure than advanced adopter. However, the

organisations at both levels (initial and advanced adopters) agree that lack of infrastructure has been a problem for the adoption of e-commerce by SMTEs.

The hypothesis test showed that lack of infrastructure is negatively related to the adoption of e-commerce (Table 5.27). The finding is consistent with the other studies conducted in various developing countries (Hunaiti et al. 2009; Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Kshetri 2007).

- **Lack of Electricity**

Nepal has been suffering from the shortage of electricity and used to have a power outage for up to fourteen hours a day (KathmanduPost 2013). However, the power supply has improved from last one year (before the data collection). So, some informants reported that problem-related to the power supply had been minimised, but the others argued that the problem has been minimised only in Urban areas. Most of the organisations agreed that they have a problem related to electricity.

This finding is consistent with studies in other developing countries such as Sri Lanka (Kapurubandara & Lawson 2006) and Tanzania (Kabanda & Brown 2010). It is also consistent with the earlier research in Nepal (Kshetri 2007; Shrestha et al. 2015).

During the power cut period, the SMTEs are using alternative sources of power supply such as solar panel, inverters, and batteries. This practice is found similar to some other developing countries (Kabanda & Brown 2010; Karanasios & Burgess 2008). Using these alternatives require additional resources, but SMTEs usually have financial constraints.

The mean scores related to power supply problem for both initial and advanced adopters were almost similar, 3.62 and 3.38 respectively. It indicates that problem has affected SMTEs at both levels equally as the electricity is the backbone of the e-commerce.

- **Financial infrastructure**

The successful implementation of e-commerce requires financial infrastructure such as payment gateways, credit card processing, and electronic-transaction readiness of financial institutions of the country (Kabanda & Brown 2010; Kapurubandara & Lawson 2006).

The payment gateway was one of the most discussed factors during the interviews. Also, some informants mentioned that they were unable to include online transaction facilities on their website due to the lack of payment gateway. Some informants also reported that the financial institutions of Nepal do not offer international payment facilities.

The quantitative analysis shows that SMTEs are concerned about issues related to the financial infrastructure (mean score of 3.59). This confirms that the lack of financial infrastructure has been a problem.

Similarly, due to the lack of payment gateway, tourism organisations are outsourcing some of their finance-related tasks such as payment for web-hosting, online advertisement, to the other countries using overseas bank accounts. Such actions corroborate the claim made by Kshetri (2007) about using overseas bank accounts for financial transactions. He argued that the financial transaction can be outsourced to the developed world since it is hard to eliminate all the barriers related to e-commerce adoption in developing countries.

This finding is consistent with other studies (Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Shemi 2013), which also found that the lack of payment system or local bank's inability to process the international financial transactions is a barrier. It shows that many developing countries have not been able to deploy the e-commerce because of lack of financial infrastructure.

Some of the banks in Nepal have recently started providing the services of setting up foreign currency accounts through which payments made can be withdrawn using Visa and Master card (HimalayanBank 2017). However, most of the SMTEs are not aware of such facilities. To the knowledge of the researcher, there was no indication that the SMTEs have used those features so far.

The results show that lack of financial infrastructure such as payment gateway is one of the barriers to the adoption of e-commerce by SMTEs.

- **Technological infrastructure**

The interview results showed that technical infrastructure such as internet and telecommunication services exist, but the quality of services is reported to be poor. The adopting of various interactive-multimedia and transactional facilities of e-commerce are affected due to the poor quality of technological infrastructure.

Many previous studies have found that the lack of internet or slow internet affects the e-commerce adoption negatively (Kapurubandara & Lawson 2006). In quantitative analysis, the mean score for the lack of technological infrastructure is 3.33 which shows that there is a problem and it has negatively impacted the e-commerce adoption.

The average score amongst initial adopters (3.53) is higher than mean score amongst advanced adopters. The initial adopters indicated about non-availability of the reliable internet, whereas the advanced adopters complain about not getting quality internet to upload or view audio, video and other multimedia contents. These findings suggest that there is a need for different strategies to encourage e-commerce adoption based on the level of adoption.

- **Legal Infrastructure**

The analysis of interview showed that there is a lack of knowledge and information regarding legal issues. The interview participants claimed that there is a lack of awareness, training, and reliable sources regarding legal issues.

The findings of the survey corroborate that there is lack of awareness regarding the legal provision for the e-commerce adoption. Most of the participants expressed that they are unaware of the provision in the existing electronic transaction Act 2008.

The initial adopters are found more concerned regarding legal issues than advanced adopters. It can be inferred that their concern is guided by the lack of information about the laws. The advanced adopters were neutral regarding the problem created by the lack of laws. Some informants also stressed about the need for copyright laws for content in the website which may help to minimise the content copying.

Overall, the legal framework is lagging, and SMTEs agree that lack of the legal infrastructure is a problem.

- **Market forces**

The analysis of the market forces included two variables: market size and readiness and pressure from the competitors. The hypothesis of the positive impact of market forces on the e-commerce adoption is accepted.

Each variable of the market forces has been discussed in detail below:

- **Market size and readiness**

The market size of tourism industry directly affects the volume of tourism activities. If the tourism market size is small, the return on investment from e-commerce adoption may be meagre which may discourage the adoption.

The informants in the interviews mentioned that market size of the tourism industry is big enough by referring to the number of tourists arriving yearly and the high occupancy rates of hotels. The survey participants also agreed that market size is good and there is potential for the further expansion of the market. It shows that market size has positively affected the e-commerce adoption. The overall mean scores for initial and advanced adopters are relatively high (3.78 and 4.22 respectively).

- **Pressure from competitors**

The interview informants reported that many SMTEs have implemented specific features on their website or upgraded to the advanced level of adoption emulating features available on their competitor's website(s). Many SMTEs start with a static website and gradually upgrade their sites by observing the competitor's e-commerce use. Thus, SMTEs are encouraged by competitors to adopt e-commerce as well as to remain competitive in the market.

Some informants argued that setting up the website is not a difficult task but being found on the internet or search engine by customers is arduous because of fierce competition. Similarly, some participants complained that the trend of online presence encouraged by competitors has led to the increased number of copycat websites.

The survey results corroborate the presence of pressure from competitors. The mean score among advanced adopter is slightly higher (4.06) than that for the initial adopters (3.83). This shows that many SMTEs are encouraged to adopt advanced features from the competitor's e-commerce sites. The above findings show that pressure from competitors is encouraging e-commerce adoption or acting as an influential factor in the context of SMTEs in Nepal. This finding is consistent with the findings from various prior studies (Chen & McQueen 2008; Chong & Pervan 2007; Simpson & Docherty 2004).

The hypothesis that: market forces have positively influenced the e-commerce adoption by SMTEs of Nepal, is accepted. The finding is consistent with the various research (Al-Weshah & Al-Zubi 2012; Dwivedi, Papazafeiropoulo & Scupola 2009; Molla & Licker 2005a).

- **Supporting IT industry**

Most of the tourism organisations do not have in-house technical staff, and they are either self-managed or dependent on the third-party IT service providers or professionals for their technical needs (Table 5.3). Generally, SMTEs need support to set up software or website or ICT systems. Especially the SMTEs which desire to create a transactional website need long-term support from IT companies for the smooth operation.

Most informants complained about the incompetence of the IT service providers, but some argued that the reliability is a concern. Some of them stated that they could hire the third-party IT companies for technical tasks such as search engine optimisation. The participants also mentioned that many supporting IT companies are available, but it is difficult to find a good one. Normally such companies are too extensive for SMTEs. So, the SMTEs have different experiences and reactions to support from IT companies.

The results from the survey also provided a mixed result as SMTEs agreed about the lack of competence among IT service providers, neutral on lack of IT support and disagreed on lack of software standard. The mixed findings from this research are consistent with a prior study done by Brdesee (2013).

The hypothesis (H3), the lack of support from supporting IT industry has negatively affected the e-commerce adoption, was not supported. The possible reason for such finding is, SMTEs in different levels of adoption are utilising or planning to utilise the different set of features in their IT systems. So, SMTEs with the limited use of e-

commerce are satisfied with the availability of the support whereas others that are implementing to use more features expressed that the support is inadequate. Also, the informants also stressed that there is no uniformity regarding price, service standard, the competence of the various IT companies, which have resulted in mixed experience among different SMTEs.

- **Socio-cultural factors**

The three variables: language, cultural issues, and resistance from employees were examined in the socio-cultural factor. The details on the examination of each cultural issue in the research have been presented below:

  - **Language**

The tourism activities involve correspondence with the people from all around the world thus knowledge of various languages is desirable.

The findings from interviews show that Nepalese tourism operators are fluent in English (one of the most used languages in tourism and ICT world). The analysis of the data shows that there is not enough evidence to show that the language has not impacted the use of e-commerce. Most of the websites were available in English. However, some agree that SMTEs may not have the same level of expertise with languages other than English and Nepali such as French, Chinese, and Spanish. The table 1.7 shows that tourists from many countries, whose primary language is not English, visit Nepal every year. So, SMTEs are not able to provide their websites and services in several languages, but they argued that such inability has not deterred the e-commerce adoption as websites are generally made in English.

This finding contrasts with some earlier research that language gap creates a problem for the adoption of e-commerce (Kabanda & Brown 2010; Kshetri 2007). However, since

this research is on tourism industry which generally comprises of English speaking workforce, and English is commonly used for IT operations as well, that may be the reason that language aspects are not a factor which affects e-commerce adoption.

- **Culture**

The interview informants mentioned that they had not experienced any cultural activities or practices that deter or encourage the adoption of e-commerce in the context of Nepal. The results of the survey could not assert that the culture has negatively impacted the e-commerce adoption. Although some informants indicated that Nepalese prefer face-to-face interaction rather than using technologies, the survey findings did not support such claims.

- **Resistance from the employee**

Some interview participants mentioned that employee either resist or do not fully welcome the adoption of new technology such as e-commerce due to fears related to uncertainty and losing a job but, the survey shows that results are not conclusive enough to indicate that there is any resistance from employees to adopt e-commerce.

However, this finding can be considered as an initial investigation. The extensive and specific study focusing only on resistance to change in tourism organisation of Nepal may help to yield more comprehensive findings.

The hypothesis (H4): socio-cultural factor has negatively impacted the adoption of e-commerce by tourism organisation of Nepal, was not supported. As discussed above, the probable reasons for such results could be because of the tourism industry this study was conducted. For example, in the tourism, language was not found to be a barrier and cultural/traditional activities are part of the tourism business.

- **Contextual Factor**

This factor includes variables such as the situation of the country, plans and policies, and incentives from the government. The discussion of the each of the variables and their impact on e-commerce adoption have been discussed below:

  - **The situation of the country**

The findings from interviews suggest that informants are indecisive about the impact of the situation of the country on e-commerce adoption. Some informants argued that despite the volatility, the political situation has not directly impacted the e-commerce adoption decision however the others claim that there is an indirect impact. The condition of the country has resulted in lack of laws, plans, and policies which has eventually impacted the e-commerce adoption.

The survey results corroborate the mixed views from the interviews. The initial adopters agreed about the negative impact, but the advanced adopter did not agree. The disagreement of the advanced adopters contrasts with a similar study in Sri Lanka (Kapurubandara & Lawson 2006). Such contrast can be attributed to the timing of the research study (the length of the period after the cease-fire), stages and level of e-commerce usage in the tourism industry. However, the finding from the initial adopters that is 'the political condition has a negative impact on e-commerce adoption,' is consistent with Kshetri who argued that the socio-political factors play an important role in e-commerce adoption (Kshetri 2007).

  - **Plans and policies**

The operation of the SMTEs is guided by the laws, plans, and policies of the country. Some plan and policies can entice the specific activities whereas lack of them can inhibit various operations.

In this research, most of the informants reported on the lack of support from the government. They were sceptical about the initiatives of the government and complained that there is lack of plans and policies for adoption of e-commerce. Despite low support from the government, most of the SMTEs have a website and using e-commerce at various levels.

The survey results corroborated the interviewee's claim that there is lack of support from the government. The mean score for lack of government commitment for the adoption of e-commerce is similar for both: initial and advanced adopters (3.78 and 3.44 respectively).

This finding supports the earlier studies (Kapurubandara & Lawson 2006; Pradhan 2002).

- **Incentives from government**

The incentives such a rebate in tax, reduction in customs to import ICT products required to adopt e-commerce, subsidies, and allowance for the companies adopting e-commerce has been used in various countries (Al-Weshah & Al-Zubi 2012; Karanasios 2008).

The informants of the interview reported that there is lack of incentives to adopt e-commerce adoption. Most of the informants argue that the government has not considered any incentives. One of the informants, a semi-government organisation, questioned that the SMTEs and associations should be able to give reasons why the government should provide such incentives.

The results of the survey corroborated that there is lack of government incentives and that such shortage has negatively impacted the adoption of e-commerce.

Both initial and advanced adopters agreed that there is a need for incentives from the government. The mean score among initial adopters is higher than that for the advanced

adopter. The finding also indicates that government should introduce a different level of incentives: i) for initial-adopters to proceed to next level of adoption and ii) advanced adopters to implement various additional features that are feasible.

The hypothesis (H5): contextual factors have negatively impacted the e-commerce adoption by SMTEs of Nepal, was supported. These findings are consistent with other previous studies (Kapurubandara & Lawson 2006; Zaied 2012). It also aligns with Pradhan (2002) that the role of government was found to be a barrier than as a catalyst. However, this finding contrasts with the studies in China and Tanzania (Chong et al. 2009; Kabanda & Brown 2010), and they found that government's role is not significant.

The cause of the negative impact of the contextual factor of the country on e-commerce adoption by SMTEs in Nepal could be due to the prolonged political instability, lack of stable government and lack of plan and policies in Nepal.

6.2.1.4.2 Organisational factors

Various organisational factors were identified through interviews and literature reviews. After validating the factors using survey the effect of each factor has been discussed below:

- **Awareness**
    - **Awareness about e-commerce use and benefits**

Many informants reported that they are aware of the e-commerce and its use. Such findings may be attributed to the nature of tourism services and business which requires lots of communication. The interview informants argue that it would be difficult to operate a tourism business without using e-commerce. Though they have not been able to use all the features of e-commerce, most of them have a website which indicates their awareness.

The SMTEs at both levels: initial and advanced adopters strongly agreed that they are aware of the e-commerce usage and such awareness has encouraged them. The mean score (4.20) is relatively higher among advanced adopters than initial adopters (3.89), and it indicates their use of advanced features of e-commerce.

The finding reinforces that awareness about e-commerce encourages e-commerce adoption is consistent with various prior research (Karanasios 2008).

- **Awareness about social media use**

Interview informants claimed that awareness and use of social media had increased the e-commerce use. The social media is being widely used in Nepal in recent years (InternetWorldStats 2017).

The survey results also supported the claim. The mean scores for both initial and advanced adopters are high (above 4). This shows that there is a possibility of the further expansion of tourism marketing, promotion and other activities using social media.

The finding is consistent with other studies about the impact of social media on e-commerce (Hajli 2013; Hajli 2014; Kwahk & Ge 2012).

The hypothesis (H6): awareness of the e-commerce has positively impacted the adoption of e-commerce, was supported. The finding is consistent with previous studies which argue that awareness of e-commerce is positively related to e-commerce adoption (Darch & Lucas 2002; Ghobakhloo & SH 2011; Hunaiti et al. 2009; Karanasios & Burgess 2008; Kshetri 2007; Molla & Licker 2005a; Zaied 2012).

- **Lack of resources**

The investigation of the resources consists of three variables: Skills and human resources, cost of resource and technological resources. The detail discussion of each variable has been presented below:

  - **Lack of human resources**

The analysis of interview showed that there is a lack of skilled and reliable human resources for the adoption of e-commerce. Though some organisations have dedicated IT professionals, the informants mentioned that it is expensive to retain such professionals.

The survey showed that initial adopters agreed that there is a lack of human resources but the advanced adopters did not agree. The level of commitment and investment by organisations to retain or hire such human resources is based on their motivation, which may be the reason for such differences. The overall mean score is higher than neutral (3), and most organisations agreed that there is lack of human skills to adopt e-commerce adoption.

  - **Cost of resources**

The informants reported that cost of the adoption of e-commerce is high which has affected the e-commerce adoption. The survey results show that that cost of the e-commerce has been one of the determinants. This finding is consistent with other studies (Karanasios & Burgess 2008; Simpson & Docherty 2004). However, this contradicts with a study that asserts cost is not a significant factor (Rizk 2006). Shemi (2013) argued that issues related to cost are related to the organisation at the initial level of business. Some organisations argue that they are ready to bear the cost if reliable services are provided.

The detailed analysis shows that most of the initial adopters were concerned about the potentially high cost.

- **Technological resources**

The interview found that there is lack of technological skills in SMTEs to adopt e-commerce adoption. The owner or outsourced third-party vendor handle the task related to ICT. The analysis showed that there is lack of technological resource such as quality and stable internet connection to implement e-commerce which is deterring the e-commerce adoption. The lack of technological resources has also been a problem for upgrading to the next level of adoption.

SMTEs at both levels agree that there is lack of technological resources and it has negatively impacted the e-commerce adoption. The mean score of lack of technological resources for initial adopters (3.52) was slightly higher than that for advanced adopters (3.28). Many advanced adopters have in-house staff to support their e-commerce venture. The hypothesis (H7): there is lack of resources which had negatively impacted the e-commerce adoption by SMTEs, was supported.

- **Security concerns**

The discussion of the security concerns consisted of two variables: lack of trust and privacy issues. Each of the variables has been discussed in detail below:

- **Lack of trust**

Some informants claimed that trust had not been a problem whereas the others argued that the lack of trust among buyers and sellers may be affecting the use of advanced features of e-commerce such as online transactions. Most of the SMTEs are using e-commerce for informative purpose only which might have attributed to such results. The

interview analysis also shows that informants are concerned by the growing number of ATM and credit card frauds in Nepal. They are also nervous about cybercrimes and online frauds.

The results of the survey show that the mean score is higher among initial adopters. However, the overall mean shows that SMTEs are concerned with the trust issues which has affected their confidence to use or rely on e-commerce tools. Such result indicates that there is a need for programs and plans regarding awareness about trust issues among initial adopters to encourage them to upgrade to the higher level of e-commerce adoption.

- **Privacy issues**

Some of the interview participants also mentioned the issues of privacy, and it has been investigated as one of the components in security issues. The investigation about the privacy issues produced mixed results. Some informants argued that privacy and data misuse concerns have discouraged SMTEs to use various advanced features of e-commerce whereas others claimed that though they are concerned, it has not directly impacted the e-commerce adoption.

The survey corroborates the claim, and the overall mean score shows that SMTEs agree that the concern of the data misuse has affected their e-commerce adoption decision. The mean scores are similar for both initial and advanced adopters.

The survey analysis shows a mixed result about the concern regarding privacy. The initial adopters agree that concern about privacy has been a problem whereas advanced adopters did not agree with such claim. The difference may be attributed to the level of e-commerce use, motivation, and awareness among the various level of e-commerce adoption. The mean is relatively low among the advanced adopter. It can be inferred that initial adopter's concern about the security issues may be one of the reasons for their

hesitancy to upgrade to advance level. The advanced adopters did not agree that lack of trust and privacy problem has been a problem to adopt e-commerce.

The hypothesis that security concern has negatively impacted the e-commerce adoption by SMTEs of Nepal could not be supported. Such result may be because of i) lack of awareness about security issues among SMTEs as reported during interview ii) the absence of lots of activities such as online transactions among many SMTEs which are directly linked to security concerns.

- **Value Proposition**

The research investigated two variables of value proposition, i.e., perceived benefits and perceived relative advantage.

  - **Perceived Benefits**

The interview findings show that most of the SMTEs are aware of the benefits of e-commerce and believe that adoption of e-commerce brings benefits to the business. Such perception has encouraged them to adopt the e-commerce. Some participants stated that though SMTEs are not aware of all the features and details of the e-commerce, they are motivated to adopt e-commerce because of the perceived benefits.

The results of the survey also corroborate the claim. The mean score was higher for the advanced adopters (4.30) than the mean score for initial adopters (3.80). This indicates the higher perception of benefits of e-commerce results in a higher level of adoption. These findings are consistent with earlier studies (Abou-Shouk, Megicks & Lim 2013).

- **Relative Advantage**

The interview results show that SMTEs are using e-commerce tools as they believe that the use of such tools would cut the cost, make the process faster, increase efficiencies and ease overall tourism processes.

The survey confirms the claim as the mean score is higher for advanced adopters (3.67) compared to initial adopter (3.20) which indicates that the advanced adopters are implementing various features motivated by such relative advantages.

The positive impact of relative advantage on e-commerce adoption is consistent with many earlier studies (Ahmad et al. 2015; Brdesee 2013; Dwivedi, Papazafeiropoulo & Scupola 2009; Grandon & Pearson 2004).

The overall test of hypothesis about the impact of perceived values on e-commerce shows that value proposition has positively impacted the adoption of e-commerce by SMTEs (i.e., the hypothesis H9 is supported).

- **Role of the owner or top management**

The components of owner's support have been divided into two variables: owner support and owner characteristics. Each variable has been discussed in detail below:

- **The owner or top management support**

The interview participants mentioned that the owners have been supportive of the adoption of e-commerce as the benefits motivate them. In many SMTEs, the owners are supporting the IT tasks required for maintenance of their system or website. The participants claim that this has positively impacted the e-commerce adoption.

The survey analysis also shows that the owners of SMTEs encourage adoption. The results of the survey also reinforce the claim that the owners or the top management

support the adoption of e-commerce. The SMTEs at both levels of adoption agree that support from the owner or top management encourages e-commerce adoption.

- **Characteristics of owners**

The interview findings show that the owners of the tourism organisations are aware of the use of benefits and support for the adoption of e-commerce. The SMTEs whose owners are aware of the e-commerce and its benefits are found to have a higher rate of adoption of e-commerce. This finding shows that the owner's knowledge about e-commerce impacts the adoption of e-commerce in the tourism industry of Nepal.

The survey results corroborate the interview findings. The mean score is slightly higher among advanced adopters which indicates the favourable characteristics of the owner is linked with the implementation of the various advanced features or their higher e-commerce adoption level. The finding is also consistent with several previous studies (Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Shemi 2013).

The hypothesis (H10): the role of owner or top-management positively influences the adoption of e-commerce by SMTEs of Nepal, is supported.

6.3 The proposed conceptual model

Based on the findings and analysis of the results various factors were validated and confirmed. A conceptual model has been prepared based on those factors, variables and their impact on e-commerce adoption.

6.3.1 Objectives of the proposed model

- To identify various barriers and motivators to the adoption of e-commerce
- To find the relationship between the factors and the e-commerce adoption
- To identify factors and areas each stakeholder needs to focus and enhance the adoption of e-commerce.

6.3.2 The conceptual model of e-commerce adoption in Nepal

The conceptual model has been presented in two levels. The model with the top-level factors only is shown in Figure 6.2, and the extended model with variables with each top-level factor is shown in Figure 6.3. The variables are classified as barriers and motivators in the extended model (based on results from table 5.27).

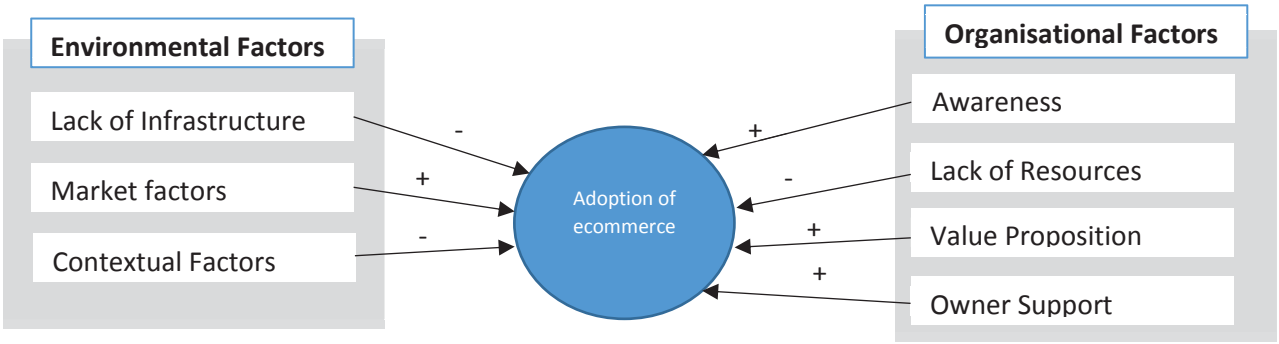

Figure 6.2 Factors affecting e-commerce adoption: Proposed model

The plus sign (+) in the figure represented that the factor has a positive impact on e-commerce adoption and acts as a motivator whereas negative sign (-) represents barriers that have a negative impact on adoption. The model also depicts that increasing motivators and decreasing barriers lead to the advanced adoption of e-commerce among SMTEs.

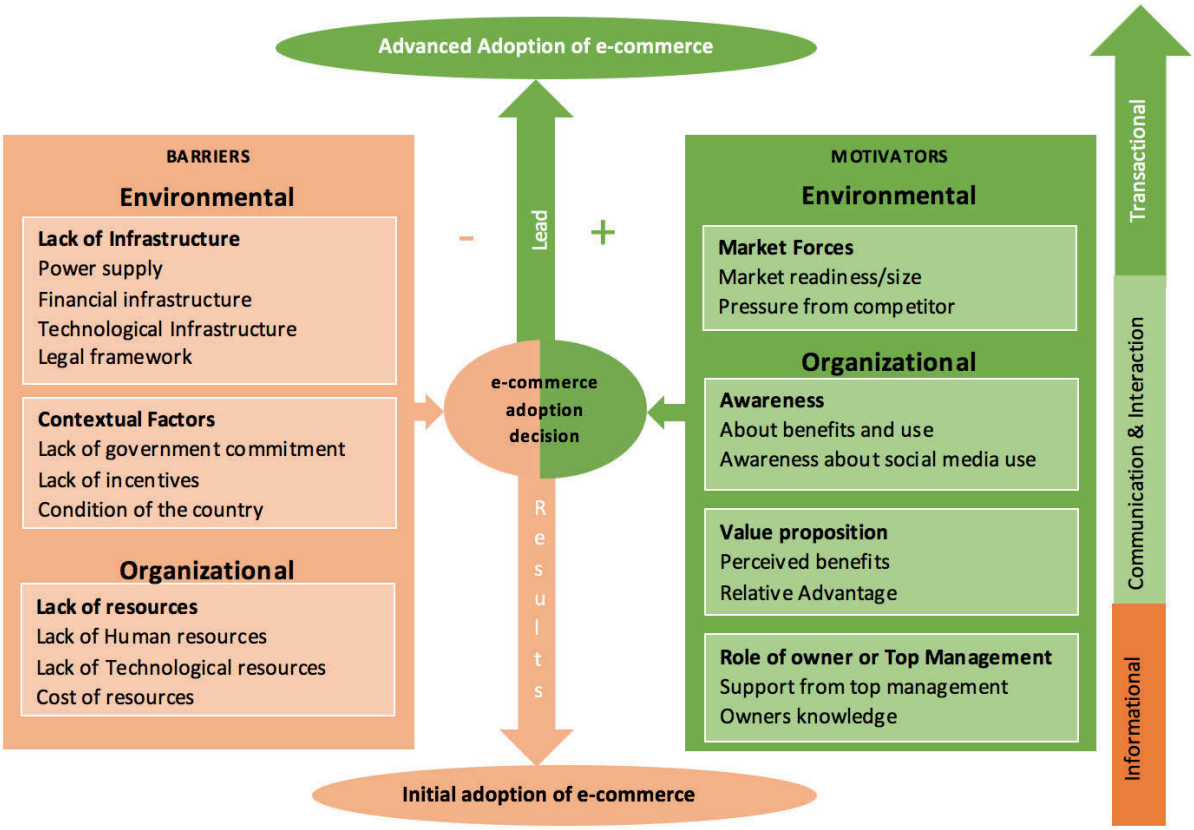

Figure 6.3 The extended model with barriers and motivators

This extended model shows the barriers and motivators of e-commerce adoption based on those factors. The relationship of each factor with the adoption of e-commerce either it is acting as a barrier, or a motivator has also been presented. The factors such as lack of infrastructure, lack of resources, and contextual factors are barriers.

The plus sign (+) in the figure represented that the factor has a positive impact on e-commerce adoption and acts as a motivator whereas negative sign (-) represents barriers that have a negative impact on adoption. Similarly, market forces, awareness, value proposition, and role of the owner or top- management are motivating the e-commerce adoption. The variables of each factor have been included in this extended model.

The two levels of e-commerce adoption by the SMTEs is shown in the model. It also shows how the SMTEs can move in between the levels. The barriers inhibit SMTEs to

move from initial to the advanced level of adoption whereas the motivators can act as a catalyst for e-commerce adoption.

6.3.3 The implication of this model.

The model provides a guideline on how e-commerce is adopted by SMTEs in Nepal. It also depicts levels of adoption, factors, and variables in the form of barriers and motivators.

The stakeholders can have more insights into how these barriers and motivators work. The stakeholders should work to mitigate the identified barriers, and they should make strategic plans and policies by taking consideration of these barriers and motivators.

The model depicts the transitions of SMTEs from an initial level to the advanced level of e-commerce adoption. The model has broad implication for each stakeholder which are described below:

6.3.3.1 SMTEs

In order to implement this model, identifying the existing level of adoption by SMTEs (either initial or advanced) is the first step. Such identification helps to understand the nature of e-commerce use by the SMTEs and make plans according to such assessment. For example, the SMTEs which are at the initial level can concentrate on the plans to upgrade to the advanced level.

The identifications of barriers and motivators help them to plan accordingly to minimise the barriers and apply the motivators.

The SMTEs can also use this model to differentiate these factors whether they are internal or external to their organisation. Such differentiation helps them to devise the strategies

to yield maximum benefits out of the e-commerce usage and solve or minimise the issues related to adoption.

6.3.3.2 Policymaker or government

The model also provides the information on positive or negative effects from those factors on the adoption of e-commerce adoption which helps the government to prepare better plans and policies. The categorisation of the level of adoption helps the government to tailor and prepare plans and policies according to the level of adoption. Such efforts will help to utilise the resources of the government better.

For example, the research shows there is lack of awareness about technical, security and legal issues among initial adopters whereas advanced adopters have raised the concerns about the quality of internet. The government can formulate the program directing their resources according to the issues or the needs based on their levels of adoption.

6.3.3.3 Associations related to Tourism

The tourism associations are working for the betterment of SMTEs and the tourism industry of Nepal, through a collective effort of their members. The association can also differentiate its member organisations based on their level of e-commerce adoption. The identification of barriers at each level helps them to identify where the effort of the association should be prioritised. For example, the model shows that there is lack of information about laws, security for the initial adopters. The association can conduct awareness program to minimise those barriers of the initial adopters. Similarly, this model also helps to identify the areas the association can collaborate with the government.

6.3.3.4 Other stakeholders

The model helps supporting IT organisations to understand the barriers and motivators to e-commerce adoption by SMTEs of Nepal as presented in the model. It provides them

indication where they should concentrate their effort. Such understanding will not only enable them to provide better support to facilitate e-commerce adoption but also help to expand their IT business and to the enhance the quality of their services.

The model can also be referred by global tourism service providers such as airlines, hotel chains to understand about the e-commerce usage in the tourism industry of Nepal.

Similarly, the model is also useful for the tourists as it provides various useful information about features available now and how the tourism industry operates in developing countries like Nepal. Such information will help them to be better informed and plan their journey.

So, the model has broad and substantial practical implications and benefits for a wide range of stakeholders.

6.4 Summary of the Analysis

Table 6.1 Summary of the Analysis

Factors/Variables	Based on theory & literature	Results from this research	Remarks / Impacts
Status of e-commerce in the tourism industry of Nepal.	• The literature shows that there is a lack of studies investigating e-commerce adoption in the tourism industry of developing countries. • E-commerce adoption in developing countries is affected by many factors (Datta 2011; Kapurubandara & Lawson 2006; Kshetri 2007). • Nepal has achieved a mobile penetration rate of 130.24 percent in August 2017, and the internet penetration rate had increased to 61.99 percent (MOCTA 2017). • Tourists have complained about poor management of tourism areas, lack of computer use, inventories and plans for the development of tourist areas (Shrestha et al. 2015).	• The research found that the availability of internet among SMTEs is not an issue, but most of the organisations are at the initial level of e-commerce adoption. • In the tourism industry, e-commerce is used mostly to disseminate the information (or marketing purpose).	• The status of the e-commerce adoption by SMTEs is promising, based on high ICT and internet use, awareness of e-commerce and its potential benefits.
Tourism process in Nepal	• The local transaction is facilitated by some local payment gateways which can be funded through selective banks and usually works on selected sites on a commission basis (Aryal 2016). • The tourism industry of Nepal has not been able to utilise the opportunities provided by ICT.	• The SMTEs operates through the traditional payment system. The tourism industry of Nepal lacks international payment gateway facilities. The payment is through banks (using SWIFT code) or cash payment after the arrival of the tourist.	• The existing traditional system needs to be upgraded by using payment features. Considering only few offer transactional services, all the stakeholders should act to improve online booking and payment systems.

	• The SMTEs in Nepal lacks payment gateways, and they are based on bricks and mortar model. • The electronic transaction Act 2008 governs electronic transaction in Nepal (Ministry of Science and Technology 2008).	The process is slow, insecure and cumbersome.	
Infrastructure	The Lack of infrastructure in developing countries negatively impacts whereas the availability of infrastructure encourages e-commerce adoption (Datta 2011; Hunaiti et al. 2009; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Kshetri 2007).	The results show that the lack of infrastructure has negatively impacted the e-commerce adoption in the context of SMTEs of Nepal.	There is a lack of infrastructure which corroborates the findings from various earlier studies.
Power supply	• The power supply has been one of the inhibiting factors that affect e-commerce adoption decision (Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008). • Online transactions are affected by frequent power cuts and organisation had to rely on email communication for transactions (Kabanda & Brown 2010). • Some earlier studies on Nepal have shown power supply problem as a factor (Kshetri 2007; Shrestha et al. 2015). • Many organisations in developing countries are using alternatives sources such as fuel, solar to generate electricity for their organisation (Kabanda & Brown 2010).	• SMTEs of Nepal agree that lack of electricity has affected the use of e-commerce. Some informants of the interviews reported that the situation has improved to some extent with increase in the regular power supply. • The initial adopters of the e-commerce are concerned more about the lack of power supply. It has caused a delay in communication and loss of customers. Many organisations report that they have arranged the alternative electricity sources to solve the problems.	• This finding is consistent with previous studies in developing countries (Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008). Like in many other developing countries, SMTEs in Nepal are using an alternative source of electricity.

Financial infrastructure	• The financial problem such as lack of payment system or local bank's inability to process the international financial transactions has been identified as a barrier(Kapurubandara & Lawson 2006). • Unavailability payment acts as a barrier (Kapurubandara & Lawson 2006; Kshetri 2007). • Low penetration of e-payment credit and debit cards is a problem (Kshetri 2007; Uzoka & Seleka 2006). • There is lack of international payment in context of Nepal (Kshetri 2007)	• The research found that lack of financial infrastructure especially payment gateway has negatively affected the e-commerce adoption. The higher proportion amongst initial adopters reports that the lack of financial infrastructure has affected the e-commerce use in the tourism sector.	• It confirms with the earlier study conducted by (Kshetri 2007) and shows that the problem has not been solved yet. • The findings are consistent with other studies (Kapurubandara & Lawson 2006; Uzoka & Seleka 2006) • Usually, the lack of credit card penetration and availability of e-payment facilities among buyers is found to be affecting e-commerce adoption. However, in case of SMTEs of Nepal, the sellers(SMTEs) were unable to offer online payment facilities even if the tourists are capable of using e-payment system.
Technological infrastructure	• Lack of telecommunication infrastructure affects e-commerce adoption (Kapurubandara & Lawson 2006). • Low internet and computer penetration rate act as a barrier to the e-commerce adoption (Hunaiti et al. 2009; Kshetri 2007; Shemi 2013). • Molla & Licker (2005b) created an e-readiness model for the adoption of e-commerce which accesses the readiness for the e-commerce adoption including technological readiness.	• The research shows that the availability of telecommunication facilities such as the internet has been improved, but the SMTEs still face a related problem which is affecting the e-commerce use. The initial adopters indicated about the unavailability of telecommunication infrastructure, and advanced adopters are concerned about the quality. The data from the survey indicates that internet use among SMTEs is common, as most of	• In this research, the proportion of internet use was found to be higher among a selected sample of this research (SMTEs in comparison to sample from other studies that investigated e-commerce adoption in SMEs. The possible reason could be because the research is conducted in the tourism industry where the internet is extensively used.

		them have internet access (a large portion of them have broadband internet).	
Legal Framework	• Unclear policies or lack of laws, policies, and legal framework regarding e-commerce acts as a barrier in developing countries (Hunaiti et al. 2009; Kapurubandara & Lawson 2006; Shemi 2013). • Nepal has an electronic transaction Act (2008) which governs e-business but have not been fully active (Dhami 2015; Ministry of Science and Technology 2008).	• The research found that most of the SMTEs are unaware of legal provisions regarding e-commerce in Nepal. The advanced adaptors argued that there should be some provisions of protection (insurance) for the seller in online transactions.	• The lack of laws or legal infrastructure discourages e-commerce adoption is consistent with other studies in Libya, Srilanka, and Botswana (Hunaiti et al. 2009; Kapurubandara & Lawson 2006; Shemi 2013).
Market Forces	• Market forces influences on e-commerce adoption decision.	• The hypothesis testing that market forces positively impacts e-commerce adoption is supported.	• It shows that the impact of market forces is equally relevant in the context of the tourism industry.
Market size and readiness	• Market size and readiness have an influence on e-commerce adoption decision (Al-Weshah & Al-Zubi 2012; Dwivedi, Papazafeiropoulo & Scupola 2009; Molla & Licker 2005a).	• The research found that SMTEs agree that the market size has encouraged them to adopt e-commerce.	• The results are consistent with the earlier studies (Al-Weshah & Al-Zubi 2012; Dwivedi, Papazafeiropoulo & Scupola 2009; Molla & Licker 2005a).
Pressure from competitors	• Though this factor is common in some developed countries such as Australia, UK, New Zealand (Chen & McQueen 2008; Chong & Pervan 2007; Simpson & Docherty 2004), it is found to be equally relevant in developing countries as well. The competitor's adoption behaviour also	• The research found that SMTEs are encouraged by their competitors to adopt e-commerce. The proportion of organisation agreeing is higher among advanced adopters than the initial adopters which indicate about their motivation for the e-commerce adoption.	• The pressure from competitor's use of e-commerce positively impacts e-commerce adoption which is consistent with various earlier studies. However, there is some statistical difference between initial and advanced adopter.

	impact e-commerce adoption decision (Kapurubandara & Lawson 2006)		
Supporting IT industry	• Several studies have found that readiness of supporting industries affects e-commerce adoption (Brdesee 2013; Kabanda & Brown 2010; Molla & Licker 2005a). • Higher availability of e-commerce support was associated with e-commerce adoption (Ghobakhloo & SH 2011; Kabanda & Brown 2010). • Quality of ICT services available also a concern (Brdesee 2013).	• The role of supporting ICT industry was investigated which showed that the organisations were satisfied with the services provided by them, however, there are issues related to the reliability of services for initial adopters, and quality for the advanced adopters. The SMTEs did not agree that there is lack of a software standard, but they agreed that there is no uniformity in cost, support, and services.	• The hypothesis testing could not ascertain that lack of supporting ICT industry has impacted e-commerce adoption which contradicts with earlier studies (Ghobakhloo & SH 2011; Kabanda & Brown 2010).
Socio-cultural factor	• Social culture factors such as language and culture impacts e-commerce adoption.	• The hypothesis that socio-cultural factors have negatively impacted the e-commerce adoption is not supported.	• The negative impact could not be established.
Language	• Studies have identified the language as a barrier to e-commerce adoption (Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Lawrence & Tar 2010). • Kshetri (2007) presented problems related to language as a "cognitive" factor.	• The research found that the issues related to the language have a neutral impact on the adoption of e-commerce as most of the SMTEs are fluent in English and it is one of the most used languages in both ICT and tourism arena. The informants argued that providing the online services in different languages other than English has been a problem.	• The impact of the language on the e-commerce adoption by SMTEs in Nepal was not established.
Culture	• Culture influence e-commerce adoption decision (Chong et al. 2009; Datta 2011).	• The research found that there is not enough evidence to conclude that cultural factors have affected the e-commerce adoption. The hypothesis:	• The results of the impact of cultural factors on e-commerce

	• Culture-related factors were presented as "cognitive factors" in earlier research in Nepal (Kshetri 2007). •	cultural factors negatively influence the e-commerce adoption, was not supported.	adoption could not be established in this study.
Resistance from the employee	• The resistance from the employee to adopt new technology was introduced for the examination as the informants of the interviews mentioned it as a likely factor.	• The survey results showed a neutral result with advanced adopters not agreeing and initial adopters undecided about the impact of resistance of employee on e-commerce adoption.	• The investigation could not confirm the impact. The further research may yield more results.
Contextual factor	• While good initiative encourages the e-commerce adoption (Hunaiti et al. 2009; Karanasios 2008) whereas government lack of plans, visions, and laws acts as a barrier to adoption (Kapurubandara & Lawson 2006; Zaied 2012). • Pradhan (2002) investigated the role of the government in technology adoption and found that government role to be more "barrier" rather than a catalyst.	• The hypothesis: the contextual factors impact the e-commerce adoption by SMTEs of Nepal, is supported.	• The result is consistent with the findings from the various studies (Kapurubandara & Lawson 2006; Kshetri 2007; Zaied 2012). It is inconsistent with some research (Chong et al. 2009; Kabanda & Brown 2010).
Condition of the country	• The unstable government affects the policies regarding the e-commerce adoption (Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006). • Political instability is linked with poor infrastructural development and government not being able to prioritise industries. • The tourism industry of Nepal was adversely affected by the civil war (Thapa 2004).	• The impact of the political stability could not be established in the research as informants argued that the political stability is not the primary factors and has not directly influenced their e-commerce adoption decision or inhibited them from adopting the e-commerce.	• The political situation in the country has not directly impacted the e-commerce adoption, however, there may be some indirect impacts.

Lack of plan, policies and government commitment	• Lack of e-commerce laws and standard are discouraging organisations for the adoption of e-commerce (Kartiwi & MacGregor 2007; Zaied 2012).	• The results found that there is a lack of government commitment to adopt e-commerce. It is also found that there is lack of plans, programs from the government to encourage the adoption.	• The finding is consistent with previous studies (Kartiwi & MacGregor 2007; Zaied 2012). The possible reasons may be since most of the SMTEs are in the initial stage of e-commerce adoption and they are not using advanced features; they need the support from the government to solve technological, legal and financial barriers.
Incentives from government	• Some countries have provided incentives to use ICT (Al-Weshah & Al-Zubi 2012), but in most of the developing countries, it has been found that government's support has been inadequate which is acting as a barrier (Hunaiti et al. 2009; Kapurubandara & Lawson 2006; Kshetri 2007).	• The research found that there is an absence of incentives from the government for the adoption of e-commerce. The findings show that such incentives may encourage the e-commerce adoption.	• The finding is consistent with research conducted in other developing countries (Hunaiti et al. 2009; Kapurubandara & Lawson 2006; Kshetri 2007). It indicates the lack of programs to encourage the e-commerce adoption.
Awareness	• The lack of awareness of ICT and e-commerce affects the e-commerce adoption negatively (Darch & Lucas 2002; Ghobakhloo & SH 2011; Hunaiti et al. 2009; Karanasios 2008; Kshetri 2007; Molla & Licker 2005a; Zaied 2012) whereas awareness of the e-commerce and ICT use, especially among owners, positively impacts e-commerce adoption (Karanasios 2008).	• The hypothesis: the awareness about e-commerce positively impacts e-commerce adoption, is supported.	• Unlike in many previous studies conducted on SMEs, the tourism organisations were found to be aware of the e-commerce and its benefits, and such awareness has motivated them to adopt e-commerce. The possible reasons may be e-commerce has been integral and vital part of the tourism industry.

Awareness of use and benefits	• Awareness about benefits encourages e-commerce adoption (Kabanda & Brown 2010).	• The research found that tourism organisations are aware of the benefits of the e-commerce use. The use of internet and e-commerce has been attributed to knowledge about the benefits of e-commerce.	• The tourism organisations were found to be aware of the e-commerce adoption, and most have adopted some form of e-commerce. The awareness of the benefits has motivated the e-commerce adoption. The findings are consistent with findings from the earlier study (Kabanda & Brown 2010).
Aware of social media use	• Many studies show the impact of social media on e-commerce use (Hajli 2013; Hajli 2014; Kwahk & Ge 2012). • Hajli (2013) referred the business activities through social media as social commerce.	• The investigation about the use of the social media was added to this research based on the findings from the interviews. SMTEs are aware of the social media use for their business, and they are using it for the promotion.	• The use of social media was found to have a positive impact which provides useful findings. It is consistent with other studies (Hajli 2013; Hajli 2014; Kwahk & Ge 2012).
Resources	• The lack of resources acts as a barrier (Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Kartiwi & MacGregor 2007; Zaied 2012).	• The hypothesis: lack of resources has impacted e-commerce adoption negatively, is supported.	• The overall findings show that the lack of resources has affected the e-commerce adoption negatively. The finding is consistent with various studies (Kabanda & Brown 2010; Kapurubandara & Lawson 2006; Kartiwi & MacGregor 2007; Zaied 2012).
Human resource skills	• In developing countries, organisations have lack of human skills to adopt e-commerce and such shortage impacts e-commerce adoption negatively (Kabanda & Brown 2010; Kapurubandara &	• The SMTEs reported about the lack of human resources to adopt e-commerce. So, the initial adopters have outsourced the services related to the technology.	• There is a lack of human resources, and it has affected the adoption negatively. The findings are consistent with previous studies (Kabanda & Brown 2010;

	Lawson 2006; Kartiwi & MacGregor 2007; Zaied 2012).		Kapurubandara & Lawson 2006; Kartiwi & MacGregor 2007; Zaied 2012).
Technological resources	• The availability of technological resources in the organisation affects the e-commerce adoption (Ahmad et al. 2015; Kapurubandara & Lawson 2006; Molla & Licker 2005a). • Lack of resources related to technology to implement e-commerce acts as a barrier (Kapurubandara & Lawson 2006).	• The overall findings showed there is lack of technological resources in the organisations and it impacts the e-commerce adoption negatively. The initial adopters were affected more by the lack of technological resources. The advanced adaptor also indicated that they are not able to utilise various features due to lack of availability of technology.	• There is lack of availability of technological resources among SMTEs which is negatively impacting the e-commerce adoption. The finding corroborates other studies (Ahmad et al. 2015; Kapurubandara & Lawson 2006; Molla & Licker 2005a).
Cost of resources	• The studies in developing countries have found cost as one of the most critical factors (Datta 2011; Karanasios & Burgess 2008; Kartiwi & MacGregor 2007; Shrestha et al. 2015; Uzoka & Seleka 2006; Zaied 2012). • Internet access cost (Kapurubandara & Lawson 2006) and cost to set up IT system are expensive (Karanasios 2008).	• The overall analysis of the research shows that cost has affected the e-commerce adoption. The initial adopters are profoundly impacted by the high cost of resources however advanced adopters argued that cost is not a big issue if the quality of services is available.	• The overall analysis showed that cost is one of the factors that impact e-commerce adoption. The finding is consistent with many previous studies (Datta 2011; Karanasios & Burgess 2008; Kartiwi & MacGregor 2007; Shrestha et al. 2015; Uzoka & Seleka 2006; Zaied 2012).
Security Concerns	• Online security and trust issues are important for the adoption of technologies (Brdesee 2013; Ghobakhloo & SH 2011).	• The hypothesis: the security concerns have impacted the adoption of e-commerce adoption by SMTEs, is not supported.	• The research could not conclude the negative impact of security concerns on e-commerce adoption. The findings are not consistent with the other research which argues that security concerns impact e-commerce adoption

			negatively (Ghobakhloo & SH 2011; Grandon & Pearson 2004).
Lack of trust	• Lack of trust for credit cards transactions affecting e-commerce adoption by non-adopters(Grandon & Pearson 2004) • Uncertainties related to the online transaction are impeding e-commerce adoption (Ghobakhloo & SH 2011).	• The tourism organisations reported that they were concerned about the rising number of ATM frauds and argued about the need for the provisions of insurance for online transactions. • The research showed that tourism organisations are neutral about the impact of trust issues on e-commerce adoption in the context of SMTEs in Nepal.	• The research could not conclusively decide on the impact of trust on e-commerce adoption. This finding is inconsistent with earlier research (Ghobakhloo & SH 2011; Grandon & Pearson 2004). One possible reason for such findings may be, the most of the SMTEs were in the initial level of adoption and not involved in activities such as online transactions that requires trust.
Privacy issues	• Lack of laws about privacy in many countries creates security concerns (Shemi 2013).	• The SMTEs argued that the adoption decision is not directly influenced by the concerned regarding privacy issues. Most of the SMTEs are using e-commerce for information purpose only.	• The result is mixed which is inconsistent with earlier research (Shemi 2013).
Value proposition	• The value proposition impacts e-commerce adoption (Grandon & Pearson 2004; Kapurubandara & Lawson 2006).	• The hypothesis: value proposition has positively impacted the e-commerce adoption, is supported.	• The findings show that value proposition has positively impacted e-commerce adoption.

Perceived benefits	• Perceived benefits of the organisations influence the e-commerce adoption (Grandon & Pearson 2004; Kapurubandara & Lawson 2006). • The business efficiency benefits positively impact the advanced level of e-commerce adoption (Abou-Shouk, Megicks & Lim 2013).	• The research found that perceived benefits have encouraged e-commerce adoption among SMTEs of Nepal. The results show that the perceived benefits have significantly influenced their decision to adopt e-commerce.	• The findings are consistent with various research (Grandon & Pearson 2004; Kapurubandara & Lawson 2006). • The impact of perceived benefits on adoption was equivocally reported by most of the SMTEs as organisations felt that e-commerce can bring various benefits to tourism business.
Relative advantage	• Many studies have found a positive relation between relative advantage and e-commerce adoption (Ahmad et al. 2015; Brdesee 2013; Dwivedi, Papazafeiropoulo & Scupola 2009; Grandon & Pearson 2004; Rowe, Truex & Huynh 2012).	• The research found that most of the tourism organisations believed that the adoption of e-commerce would provide a relative advantage to them. They believe that e-commerce will provide a relative advantage by making the tourism processes faster, cheaper and more efficient.	• The finding is consistent with various earlier research (Ahmad et al. 2015; Brdesee 2013; Dwivedi, Papazafeiropoulo & Scupola 2009; Grandon & Pearson 2004).
Owner's or top management's role	• E-commerce adoption decision is affected by manager's commitment, characteristics such as knowledge and expertise in technology (Brdesee 2013).	• The hypothesis: the role of owners or top management has a positive influence on e-commerce adoption by SMTEs of Nepal, was supported.	• The research found that role of owner or top-management is positively linked to the e-commerce adoption by SMTEs. The findings are consistent with various other research (Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Shemi 2013).

Owners or top management support	• Top management commitment is key as they provide financial resources required to adopt e-commerce (Teo, Lin & Lai 2009) • Support from the owner or top management affects adoption of e-commerce (Kabanda & Brown 2010; Molla & Licker 2005a).	• The results show that owners or top management of SMTEs are supportive regarding the adoption of e-commerce. The advanced level of adoption of e-commerce was directly linked with the support from owners or the top management.	• Unlike earlier study (Kabanda & Brown 2010) which found that management commitment for the e-commerce implementation endeavour was low, this research found high support from top management or owners. One of the possible reasons may be the owners are aware of the benefits of e-commerce for their business and use of e-commerce in the tourism industry.
Owner knowledge	• Owners characteristics play a role in new technology adoption decision (Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Shemi 2013). • Lack of ICT knowledge, fear or reluctance to adopt new technology acts as a barrier (Kapurubandara & Lawson 2006).	• The research found that owner or top management characteristics have a positive impact on the adoption of e-commerce by SMTEs of Nepal. The informants reported that owners or top management that are aware of the e-commerce and its benefits are found to be keen to adopt e-commerce and are supportive of adopting advanced features.	• The knowledge of the owner or top management has a positive impact on e-commerce adoption by the organisation. The finding is consistent with earlier studies (Al-Weshah & Al-Zubi 2012; Kapurubandara & Lawson 2006; Karanasios & Burgess 2008; Shemi 2013).

6.5 Summary of the chapter

This chapter provides the analysis and discussion of the findings based on research objectives. The analysis of each factor and items (variables) are presented in the first part, and the details about the conceptual model including implications details are described in the second part.

The three environmental factors and four organisational factors are identified as factors. Each factor and its items are analysed and discussed in the context of findings from research and the literature review. The data analysis on lack of infrastructure shows that lack of electricity, technological resources, financial infrastructure, and laws have negatively impacted the adoption. Similarly, the 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 market forces are found to be encouraging e-commerce adoption.

The awareness of the e-commerce and social media is found to be positively impacting the adoption. The value proposition factors such perceived benefits are also found to be encouraging adoption. Similarly, the owner or top management support is also positively linked to adoption. However, the lack of resources in organisations is found to be negatively influencing the e-commerce adoption. The impact of supporting IT industry, cultural factors and security concerns on e-commerce adoption is not supported.

A conceptual model has been created showing the impact of factor significant factors on e-commerce adoption based on statistical analysis. The implications of each factor for different stakeholder have been presented. The chapter ends with the table summarising the research which provides a comprehensive picture of the research.

CHAPTER 7 Conclusion and Recommendations

7.1 Introduction

This chapter presents an overall conclusion of the research. It provides an overview of the major findings of this research. The contributions of the research have been discussed in detail followed by comprehensive recommendations for each stakeholder based on identified factors and level of adoption. The limitations and requirement of the further research have also been presented. Finally, the chapter ends with concluding remarks about the research.

7.2 Research overview

The research identified factors affecting e-commerce adoption, created a conceptual model based on the identified factors and statistically validated the model. The research is built on the earlier frameworks and research work, but unique in various aspects. The research was conducted in the light of the dearth of research investigating the issue of e-commerce adoption by SMTEs in developing countries (Datta 2011; Kshetri 2007; Molla & Licker 2005a).

During the investigation, a comprehensive literature review on the subject was conducted analysing the factors of e-commerce adoption in various developing countries, context and industries. The investigation helped to identify some of the probable factors and the frameworks which could be helpful in the context of the tourism industry of Nepal. This research has been conducted amidst the absence of many studies investigating this topic. The various models on the diffusion of technology or the adoption of technology such as TOE, e-readiness model(Molla & Licker 2005a) were investigated in detail, and the factors were proposed based on these models and the related literature review.

TOE (Tornatzky & Fleischer 1990) presents a simplified classification of the technology adoption. Similarly, e-readiness model examines e-commerce adoption in the context of developing countries. Many adoption frameworks and e-commerce adoption model were examined, however, among those models, the two models (TOE and e-readiness models) and the probable factors from literature review were used as a starting point.

Molla & Licker (2005a) observed that most of the studies generally emphasised five areas of adoption of e-commerce: managerial, organisational, technological, environmental and interactionism. Based on the context of Nepal and the scope of this research, two models (TOE, e-readiness model) were used. The two broad groups were proposed to classify the factors, i.e., environmental and organisational. The probable factors were divided into these categories.

After the review, identification of probable factors and a proposed model, the pilot tests were conducted. After the pilot testing, semi-structured interviews were conducted with the key informants: representative of tourism associations and SMTEs.

The data collected through the interviews were processed and analysed. The proposed factors and the model were adjusted based on the feedback and the findings. Similarly, based on the findings, an instrument was created to administer a survey to validate the proposed model and factors among SMTEs.

After finalising the survey, one hundred ninety-eight SMTEs were surveyed following the random sampling among the list of the organisations obtained from the major tourism associations.

The quantitative survey data were processed for the findings. The data were analysed to identify the factors. The effect of the major factors on e-commerce adoption was tested through hypothesis testing and descriptive analysis. The tourism organisations were

divided as initial adopters and advanced adopters. A conceptual model was created based on analysis and findings of the research. Following this research design, all the objectives of the study were answered, and aims of the research were achieved.

The most important determinants of the e-commerce adoption in Nepal were identified. This chapter starts with the review of the research objectives and provides a conclusion for each objective.

7.3 The fulfilment of research objectives

7.3.1 Objective one: Status of e-commerce and factors affecting adoption

The research unearthed various findings which provide useful information about the status of IT usage in the tourism industry of Nepal. It was found that most of the SMTEs are in the initial level of adoption whereas some organisations have also achieved advanced adoption level. Most of the SMTEs did not have dedicated IT staff. The websites were used primarily for the marketing purpose to display the products and services without interactive features and payment facilities. The SMTEs received assistance from the third-party local IT companies to maintain their websites and other ICT activities.

All these findings show the use of ICT and e-commerce is moderate among SMTEs of Nepal. The following table shows the snapshot of ICT and e-commerce use with some findings.

Table 7.1 Some findings of the status of e-commerce use

Item	Details
Adoption	Initial adopters (68%) Advanced adopters (32%)
Website	93 percent of the SMTEs surveyed have a website
Internet medium (Top 3)	1) ADSL 2) Wireless 3) Broadband
Internet used for: (top 5)	1) Communication 2) Marketing 3) Social network 4) Share information 5) Booking
Participation profile:	Male: 86% Female: 14%. Owner: 52% Manager: 26 and others: 22%

The research identified several barriers and motivators from the comprehensive literature review and validated using qualitative interviews and survey. The proposed model (Figure 6.3) shows all the major barriers and motivators identified in this research which affects e-commerce adoption by SMTEs of Nepal. The identification of various factors in their relationship with e-commerce adoption analysed in the earlier chapter solves this research question.

This research is one of the earliest studies investigating e-commerce adoption in Nepal and works as a commencement point. The research provides the comprehensive list of the factors after the intensive investigation covering broad participation of stakeholders.

7.3.2 Research objective two: the creation of a conceptual model

A conceptual model has been created summarising the barriers and motivators of e-commerce adoption after validating the model through interviews and surveys.

The review of the literature has shown that there is the absence of rigorous research and a model for adoption of e-commerce by SMTEs in Nepal. So, this is one of the pioneer models in the context of the tourism industry of Nepal. This is one of the first instances of the model proposed for the e-commerce adoption in the tourism industry of Nepal. The

model has been proposed after the interviews with various eminent stakeholders and the survey on sizable sample size (SMTEs) which shows the comprehensive coverage of the research.

The findings and the model provide useful information for the creation of laws, policies, and programs. The IT policies of Nepal are revised from time to time. Table 1.3 shows that one of the earliest policies, "IT policy 2000 " was enacted in the year 2000 which was revised in 2010 and 2015 respectively (Pariyar 2007; Shrestha et al. 2015). The findings from this research may be useful for such policy amendment tasks as well.

Similarly, the implementation of e-commerce requires the technical platform. The model can be used as a useful information tool for the creation of technical prototype which can be used by the SMTEs to implement e-commerce. The IT experts and software developers will be benefitted by the creation of such prototype based on the conceptual model created in this research.

So, a conceptual model has been created and proposed as a guiding document for the adoption of e-commerce by SMTEs of Nepal which not only fulfils the research objectives but provides a convenient tool for the promotion of tourism industry in developing countries.

7.3.3 Research objective Three: Recommendations

This research aims to provide recommendations to stakeholders especially the government (policy makers), organisations and associations. A report including the recommendations will be submitted to stakeholders.

Nepal has recently implemented the federalism, and seven federal states have been formed. The first state governments are scheduled to take charge of the states. Such governments will need to make new programs to promote tourism and use of ICT in their

states. So, the timing of the research and recommendations are also appropriate and may be helpful for the governments in the formulation of such programs.

The research showed the status of e-commerce usage in the tourism industry of Nepal. Several gaps have been identified in the research which should be fulfilled by various stakeholders to facilitate the e-commerce adoption. The government and other stakeholders should create a conducive environment for tourism organisations to adopt e-commerce in tourism by removing the barriers and encouraging various enablers.

The research also provides the recommendations to some stakeholders to solve the problems faced by the tourism organisations in Nepal to adopt e-commerce. Since Nepal is in the initial stage in the context of ICT usage and formulating the policies regarding e-commerce, the recommendations can be used by the policymakers and the government in the formulation of required plans, policies and laws. The following recommendations show the area each stakeholder needs to focus on.

7.3.3.1 Government

The government is one of the major stakeholders for the adoption of e-commerce as findings show that many barriers and enablers to the e-commerce adoption are linked to the plans, policies, and laws of the country. Also, the various problems related to infrastructure and resources identified in the research are also linked with the development programs of the government. Since the tourism industry of Nepal is one of the major contributors to GDP and employs a large number of people, the betterment in the tourism industry using e-commerce can significantly contribute to expand the market and enhance the tourism processes, which eventually will help in economic development of Nepal.

Based on the findings, the government has a significant role to play to promote e-commerce adoption by SMTEs. The government should also work for creating highly trained professionals. The government can also play a major role in the promotion of e-commerce and materialisation of e-commerce implementation. The government should come up with plans blended with social, cultural and organisational settings which can play an active role in the implementation of technology or e-commerce in a new environment.

The recommendations for the government has been presented based on the factors identified in the research. The government is primarily concerned with the environmental factors (external to the organisation).

7.3.3.1.1 **Infrastructure**

- Technological Infrastructure

Though the technical facilities such as the internet, and mobile penetration are found to be improving, the overall context of the technical infrastructure required for the adoption for e-commerce was deficient, so the government should prioritise the infrastructural development in ICT sector. The annual budget report of Nepal shows the allocation for ICT sector is lower compared to other sectors. The budget for ICT and its infrastructure should be increased.

The initial adopters were found to be most affected by the lack of infrastructure. So, improving the technical infrastructure may entice initial adopter to use e-commerce and upgrade to the next level. The availability of reliable internet facilities is considered as one of the prerequisites to advance to the next level of e-commerce adoption. Similarly, provisions should be made to provide reliable and quality internet services for the

advanced adopters as they expressed lack of quality internet services. Such provision will help SMTEs to implemented features such as video, and other interactive features.

The government should formulate the plans and programs to create a conducive technological environment for the adoption of e-commerce.

- Financial infrastructure:

The lack of payment gateway with facilities to pay and receive international payment through a local bank is one of the prime barriers. The SMTEs should be able to accept the online payment and withdraw or deposit such payments to their local banks. The government should act to eliminate the barriers, create required laws and policies to enable such transactions. This will help to make tourism service providing process faster, efficient, reliable and to expand the market.

The unavailability of payment facilities is also inhibiting the initial adopters to progress to advanced level. The introduction of the payment gateway is also related to the law of the country. So, the government should introduce the required laws and provisions to create payment gateways with online payment facilities.

The government should promote the electronic transactions. This will not only help e-commerce adoption but indirectly contribute to the overall economy of the country.

- Legal framework

Most of the SMTEs reported that they are unaware of the provision of laws related to e-commerce usage. The government should create the necessary laws and awareness programs to inform SMTEs about the available laws and policies. Based on the results, the government should upgrade the laws and policies required for online transactions, privacy and copyright of the contents.

7.3.3.1.2 Tourism Market

The SMTEs are concerned about the lack of plans and policies to expand tourism market using e-commerce. So, the government should ease the processes relate to tourism using online technology and use e-commerce tools to market the tourism places of Nepal to increase the tourist arrivals. Such usage will encourage the tourism organisations not only to adopt e-commerce but also to expand the market.

The research showed that most of the tourism organisations and associations believe that market size of the tourism industry of Nepal is encouraging for the adoption of e-commerce. The government should contemplate such findings during the creation of plans and policies.

The government should create electronic portal or tools which will enable tourism organisations to showcase their tourism products and services.

7.3.3.1.3 Supporting IT Industry

Most of the tourism organisations mentioned about the lack reliability and a standard of supporting IT industry. There is no uniformity regarding price, service standard, the competence of the various IT companies which are supporting SMTEs. So, the government should work to create some guidelines and standards for the IT companies to support tourism organisations. Such guidelines and standards should also make supporting companies legally liable, so they are reliable and can deliver quality service on time.

The SMTEs are found be highly dependent on supporting IT industry for technical support, the government should also introduce training programs to enhance technical capabilities of tourism owners, and various programs can be launched to increase cooperation between IT and tourism industry identifying the mutual goals and opportunities.

7.3.3.1.4 Plan, policies, and incentives:

The SMTEs complained that government's plans and policies regarding e-commerce adoption are not adequate and the role of government has not been satisfactory.

The SMTEs argued that private sector has been proactive than government in the adoption of e-commerce. The government plans and policies should promote private-public partnership and formulate the plans integrating the private sectors also into the plans. The government should introduce some plans, incentives programs such as tax rebate, a tax cut to encourage e-commerce adoption.

7.3.3.1.5 Awareness

The government should introduce training and IT skills enhancement programs for the tourism organisations. Such events should be held periodically and in the different parts of the country.

The government should organise information sessions in partnership with tourism associations to create awareness about potential and benefits of using e-commerce in their business. Such awareness program will help to make them aware of laws, plans, policies, and programs of government for e-commerce.

The research found that awareness is positively impacting the e-commerce adoption, so the government can formulate the plans and programs to utilise such awareness to yield maximum benefits by expanding the e-commerce in the tourism industry of Nepal.

7.3.3.1.6 Resources in Organisation

Generally, the SMTEs in developing countries lacks various resources to adopt e-commerce. The government can introduce the cut in import customs/duties for related equipment used by SMTEs to implement e-commerce.

Similarly, the government should also introduce and promote vocational training programs to generate technical skills required by the organisations for the adoption of e-commerce. Such action will also help to generate employment for youth.

The initial-adopters who have not been able to adopt various features of e-commerce because of lack of resources should be provided with some rebates to acquire resources. The educational policies should encourage the update and revision of university and school level curriculum to foster the availability of technical human resources.

7.3.3.1.7 Security issues:

The government should ensure a digital environment in which the SMTEs can carry out their business confidently without concerns for security and privacy. The laws should be strong with a provision for the punishment for the wrong-doers which conveys positive message among buyers and sellers and enhance the confidence to carry out online transactions. The electronic transaction act should be updated periodically as per changes in the circumstance, the industry, and global market.

Most of the organisations indicated that they are not aware of provisions related to security. So, the government should introduce programs to create awareness about the security issues. Similarly, with the rise of various kind of issues related online and ATM frauds, the government should upgrade and revise the laws, policies to accommodate the change in the ICT industry.

The government in partnership with tourism association can launch various kind of programs to enhance the awareness about e-commerce.

7.3.3.2 Tourism organisations:

The recommendations for the tourism organisations have been presented below:

7.3.3.2.1 Awareness

The results show that the owners of the SMTEs are aware of e-commerce and its benefits. However, the awareness about various issues such as security, laws, policies, technical usage was found to be inadequate. So, the organisations should introduce training programs to enhance the skills of owners and employees of the organisation.

7.3.3.2.2 Resources

The SMTEs should introduce the technical skills enhancement programs so that they are not entirely dependent on the third-party supporting IT companies. Skills enhancement of the staff should be part of company plans and policies.

The company can save the cost of some technical services such as web hosting by outsourcing those services to the countries where it is cheaper and shared by many users.

7.3.3.2.3 Security and trust

The security and trust issues are intangible processes. The organisation should keep itself updated with the latest security-related laws, policies and provision of punishment, so they are abreast with the available provisions. The organisation can organise or employees can participate in various kind of awareness and training programs related to security. The tourism organisation should also keep them updated with the legal provision regarding security studying the documents such as electronic transaction Act of Nepal introduced in 2008.

The SMTEs which are offering online payment services should enhance trust among the customers by providing the required information, using reputed third-party security

certificates to boost the confidence. They should also keep their sites technically secure and run the periodic security audits. They should also check their privacy measure are up to date.

7.3.3.2.4 Perceived benefits: value proposition

The organisation should make plans to utilise the benefits offered by the e-commerce to business. The initial adopters can use such awareness to upgrade to the advanced adopter implementing various interactive and transactional features to materialise the benefits of e-commerce.

7.3.3.2.5 Top management support

The research also shows that the level of support is also linked with e-commerce knowledge of owners or top management. The top management of the organisation should keep them updated and motivated by using e-commerce. The top management should attempt to use various advanced features where possible. Though some features which are used in global tourism arena may or may not work in the context of Nepal, the top management should be supportive and courageous to make such attempts. The top management should participate in various training and awareness programs organised by government or association if such programs are available.

7.3.3.3 Tourism Associations

7.3.3.3.1 Infrastructure

The research has identified that there is lack of various infrastructure which is impacting e-commerce adoption. The association can provide suggestions about the infrastructures problems that should be prioritised to solve the barriers.

The association can also suggest and collaborate with the government in planning and policy-making. For example, associations can lobby and work with the central bank to implement the payment gateway features. Similarly, the association can also provide inputs to the government for the laws and policies required to implement the e-commerce successfully.

7.3.3.3.2 Tourism Market:

The tourism associations have been facilitating the participation of SMTEs in various international exhibitions with the aim of getting new customers and expanding the market. Such physical participation usually is expensive and requires lots of time and effort. So, the association should encourage using digital media such as e-commerce for the expansion of the Nepalese tourism market.

7.3.3.3.3 Contextual factors(government)

The associations should lobby the government for the creation of required infrastructure (laws, financial and technical infrastructure). They should create programs to expand market and awareness of e-commerce use.

The association should represent the SMTEs in the creation of laws and lobby to eliminate the barriers and implement various motivators. The association should propose a program to enhance the use of e-commerce in tourism sectors in partnership with government. The association should lobby to increase the budget allocated for ICT and tourism sector. Such actions will help for the betterment of IT industry in Nepal which will be eventually useful for e-commerce adoption in the tourism industry as well.

7.3.3.3.4 Awareness

Most of the informants in the research agreed that the government and tourism associations should launch programs to inform and make organisations aware of the latest e-commerce tools. They can also organise the programs where entrepreneurs share their experience, problems to mitigate the problems collectively and share success stories to inspire other tourism entrepreneurs.

7.3.3.3.5 Resources

The association should promote creating software or the platforms which can be used by SMTEs to implement e-commerce. Such collaborative effort will help to minimise the resource cost and help to establish a standard. Such actions will encourage e-commerce adoption and help in upgrading to advanced level of e-commerce adoption.

7.3.3.3.6 Security and trust

The association can play a role to make organisations and tourists aware of the security issues. Each SMTE may not be able to hire a security expert. So, the association can create a support team or hire consultants to help member organisations with the issues related to security, privacy, and online legal issues.

- **Top management support**

The association can organise training programs for the owner or the top management of the organisation so that they remain updated and are motivated to adopt e-commerce. The association can also make them aware of the advanced features of the e-commerce that can be used in the context of Nepal to yield maximum benefits of the e-commerce.

The association can also play the role of facilitator and educator in partnership with the government and other similar national and international associations.

7.3.3.4 Supporting IT industry

7.3.3.4.1 Standard and upgrade

The SMTEs complained that tourism software developed in Nepal lacks the global standard. So, the IT companies should work to maintain the quality. Similarly, they should remain updated with the latest technologies and implement the enhanced technologies in the software and applications they create for the tourism industry.

7.4 Contribution of the research

This research contributes to the body of knowledge, IT industry, tourism industry and tourism of Nepal in various aspects. The research on e-commerce adoption by tourism organisations of countries such as Nepal which is in the infancy stage and this research aids for the progression in such discourse. In addition to academic contributions to e-commerce adoption discourse, the research has several practical contributions for policymakers and tourism organisations which can be implemented for the betterment of the tourism industry. This research contributes to fulfilling the gap created due to lack of many studies investigating e-commerce adoption in the tourism industry of developing countries such as Nepal.

The research provides the practical and realistic recommendations that can be implemented as a part of plans and policies by tourism organisations, government, and other stakeholders.

The major contribution has been summarised below:

7.4.1 Filling the knowledge gap: Identification of factors

The research has been conducted amidst a dearth of research investigating factors e-commerce adoption for tourism organisations of countries like Nepal. The research has attempted to minimise the knowledge gaps regarding e-commerce adoption discourse in

developing countries by unearthing various useful findings. The findings are not only useful in the context of Nepal but also provide a plethora of information about the usage of e-commerce in the tourism industry and e-commerce usage in developing countries *like* Nepal. This research contributes to fulfilling the knowledge gaps in e-commerce adoption models and discourse in developing countries created due to lack of studies as reported in various studies (Ahmad et al. 2015; Datta 2011). The research has identified various determinants that affect e-commerce adoption by SMTEs.

7.4.2 Creation of a model for developing countries such as Nepal

The tourism industry of Nepal suffers from lack of information about e-commerce use. The model has been created (depicted in Figure 6.3) which can act as a guideline for e-commerce adoption by SMTEs. The model with barriers and motivators has many uses for stakeholders. The tourism industry is one the most significant contributors to the economy of Nepal. So, the creation of such model will aid to increase the level of e-commerce adoption among tourism organisation which will eventually contribute to the economy of Nepal.

7.4.3 Status of ICT, and e-commerce adoption in Nepal

It is one of the first studies investigating the problem in this context, scope and location. It has unearthed various useful details about the ICT industry and e-commerce use in Nepal which contributes to the body of knowledge by providing useful information. The research reveals various benefits which help to explore the opportunities that adoption of e-commerce can herald to the tourism industry of Nepal. It may also help the investigators who are exploring the various issues related to IT industry of Nepal or IT usage in developing countries.

7.4.4 Providing Recommendations for the stakeholders in Nepal

The research has various practical implications for the stakeholders. The research has made various recommendations based on the findings and analysis of the research data. The recommendation made after the detailed study can be used by the policymakers, information consultants, tourism organisations in their plans and policies. Unlike many earlier studies, the recommendations have been made differentiating levels of adopters which helps to maximise the effectiveness. It facilitates the decision making on the issues related to IT and e-commerce for tourism organisations managers and policymakers.

The plans and policies regarding IT, tourism and use of e-commerce are in developing stage in Nepal. Various federal states have been just created after the prolonged political instability. In addition to national plans and policies, each federal state will need to create their programs related to ICT and tourism. The findings and recommendation from this research should be useful in such processes.

The model created can be used as a guideline to create a prototype or online technology platform to adopt e-commerce in developing countries.

7.4.5 Addition to the global e-commerce adoption discourse

This research adds to existing knowledge about 'e-commerce adoption.' Since there are only a few studies investigating e-commerce adoption in the context of developing countries, this research provides various additional information by investigating e-commerce adoption in the context of Nepal.

7.4.6 Alignment of existing models for the tourism industry

There are few e-commerce adoption models which are developed for the tourism industry. The e-commerce adoption model such as e-readiness model and TOE models and other models on technology adoption were not developed for the tourism industry and have not been extensively tested in the context of tourism organisations. The TOE model presents

technology as a separate context whereas this research argues that context related to the technology is rather a part of either organisation or the environment. Similarly, TOE and e-readiness do not explicitly examine the impact of factors related to culture, security and value proposition on e-commerce adoption which has been addressed in this research. The results show that value proposition factors have an impact on the e-commerce adoption. The research contributes to the discourse of e-commerce adoption by investigating and creating the e-commerce adoption model for the tourism industry in developing countries.

7.4.7 Contribution to socio-economic policies of developing countries

This research provides various useful findings to increase the use of e-commerce in the tourism industry which should help to expand the tourism market in developing countries. Any betterment in the tourism industry has ripple effects on the overall development of the country since the tourism industry is intertwined with the economy and employment. It is fair to postulate that any expansion or progress in tourism market/volume will eventually help in the socio-economic development of the country.

7.4.8 Transferable recommendations for other developing countries

The findings and recommendation will be useful not only for tourism organisations in Nepal but also for the other developing countries which are embracing e-commerce in their tourism industry. The model created can also act as a base for development of generic frameworks for e-commerce adoption.

7.5 Future research

This research is one of the earliest studies investigating the adoption of e-commerce in Nepal. This research initiates not only the investigation of e-commerce but also explore the overall ICT use and potential in the context of other developing countries like Nepal.

The research could be extended to customers or the tourists to explore the e-commerce adoption as it will help the industry by enhancing the model.

The various factors have been identified in the research that affects the e-commerce adoption. The study has investigated the direct relationship between the identified factors and e-commerce adoption. The future research can even investigate the existence of latent variables and relationship among factors.

Only Small and Medium Tourism Enterprises (SMTEs) have been included in the research. The further research may also include other tourism organisations, such as domestic or international airlines and star hotels, operating in Nepal.

This research has identified various factors and the relationship of each factor with the e-commerce adoption in Nepal. The findings, results, and model can be validated or extended in other developing countries like Nepal through similar studies by collaborating with the researchers from other countries.

It should be noted that this is one of the earliest attempts to investigate and unveil the factors of adoption of e-commerce in any sector in Nepal. This research helps as a starting point for other further research in the area.

7.6 Concluding remarks

This research has identified the several factors affecting e-commerce by SMTEs of Nepal and proposed a model. As a result, the research has achieved its aims and objectives.

The proposed model provides various insights into e-commerce adoption discourse in the tourism industry in developing countries. It fulfils a significant knowledge gap and

provides both theoretical and practical contributions. The model may be transferable to other developing countries which embrace e-commerce in the tourism industry.

The results obtained show that e-commerce adoption by SMTEs is affected by environmental factors: lack of infrastructure, market size, and contextual factors in addition to organisational factors: awareness, lack of resources, value proposition and top management support. This research confirms the factors through qualitative and quantitative methods. The study complements the existing research on e-commerce adoption by coinciding with or contradicting with the previous findings.

This researcher's identification of barriers to the adoption of the e-commerce aids in devising the strategies, plans, and programs required to mitigate those barriers. Such strategies can be at organisational or national/governmental level. Similarly, the identification of motivators will encourage e-commerce adoption. The use of e-commerce in the tourism industry entails the removal of the barriers and use of the motivators to achieve the benefits and expand the market.

Finally, this study has recommended several visions, plans, actions, and strategies to help different stakeholders group in the context of Nepal. Such recommendations not only enable to solve the current problems but also enhance and expand the overall development of the current Nepalese tourism industry.

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[Referencing: UTS Harvard]

Appendix A Interview Questions

Themes or questions for semi-structured interviews

The interviews will be face to face semi-structured interviews which will start with some of the following major questions to explore about factors affecting e-commerce adoption: (all the question related to e-commerce adoption and tourism organisations of Nepal)

1. **Awareness of the benefits of e-commerce? Benefits?** (*Number of members/organisations for association*)

2. **Use of e-commerce in association or organisation? Why used? Why not? members having a website (*for association*)? Doing online transactions (e-commerce)?**
3. **Tourism organisations and resources to adopt e-commerce? (IT staff, budget, technologies, devices)?**
4. **Owners of organisations and encouragement for e-commerce adoption in their organisations?**
5. **Benefits of e-commerce for tourism industry?**

6. **Government's role in e-commerce adoption? What government needs to do?**

7. **IT companies (vendors) of Nepal their capacity to facilitate e-commerce adoption?**
8. **Challenges faced by tourism organisations in Nepal for e-commerce adoption?**
9. **Infrastructural problems in e-commerce adoption?**
10. **Security problems? affected? How?**

11. **Tourism industry (market size) and e-commerce adoption?**

12. **Problems related to culture?**

13. **Things that are stopping e-commerce adoption in Nepal**
14. **Things that will encourage e-commerce adoption?**
15. **Any other factors?**
16. **Final comments**

Notes:

All the questions will be discussed in the context of Nepal.
There may be follow up questions on each section, and these questions are indicative questions of the overall discussion. These questions only provide the overall theme of the interview.
Duration: *1 hour approximately*

Appendix B Survey Questions

Survey questionnaire

Factors affecting e-commerce adoption by tourism organisations in Nepal

About this survey

You have been invited to complete this survey as you are the owner/manager of one of the tourism organisations in Nepal. So, your inputs are important, and I would like to invite you to fill up this survey form for the research. All the information provided by you will be confidential and will NOT be used for other than this research purpose.

The research will involve answering some questions based on your experience in the tourism industry and should take no more than 20 minutes of your time.

There are two sections in this survey. The first section collects information about you and the use of IT in your organisation. The second section allows you to choose a right answer based on your experience in the tourism industry.

Information:

E-commerce can be defined as an IT tool for various aspects of business. Some of the business activities include sharing information (e.g., create website to advertise about services), communication (e.g. email correspondence with clients), and electronic transactions (processing and accepting payment through online). Though some definitions of e-commerce are limited to online financial transactions, in this study, the ecommerce is defined in a much broader context and includes non-financial transaction such as information sharing/publishing, information exchange.

Ecommerce adoption refers to using tools of IT such as websites, software in the tourism business for information sharing, communication with customers or accepting online payments. Adoption refers to first time or **subsequent usage** of ecommerce after it has been setup (not limited to setup for first time).

1. Please fill the details or tick appropriate box(es)

Participant Profile:

Gender ☐ Male ☐Female ☐Others ☐ Prefer not to say

Position ☐Owner ☐ Manager ☐Others (Please specify) _____

How do you rate your knowledge of the Internet and Information Technology (IT)?

(Select one) ☐None ☐ Little ☐ Moderate ☐ Good ☐ Expert Level

Primary industry (Tick Applicable) ☐ Travel ☐ Trekking ☐ Hotel

If Hotel, **Does your hotel provide accommodation to a tourist?** ☐ Yes ☐ No

Are total assets of your organisation less than 250 million (25 crores) Nepalese rupees? Yes ☐ No ☐

Total number of staff

☐ 0-20 ☐ 20-50 ☐ 50-100

Number of dedicated IT staff

☐ 0 (self- managed) ☐ 0 (use third party) ☐ 1 ☐ 2-5 ☐ 6-10

Currently what type of Internet connection does your organisation have? (Select applicable)

☐None ☐Dial-up ☐ Mobile Data (2G/3G) ☐ADSL/CDMA

☐ Broadband ☐ Wireless ☐ Others (please specify)

If you use Internet,

What do you use the Internet for (purpose)? (select all applicable)

☐ Email/Communication ☐ Sharing information ☐ Social networking

☐Marketing ☐ Online booking ☐ Online sales/Transactions ☐ To get information about tourism industry ☐ To use international travel software

☐ Others (please specify) _____

Use of E-commerce: How is your business connected with the e-commerce (click the best one that describes your ecommerce use-only one)?

☐ Not connected at all (no internet, no email or no used of e-commerce tools)

☐ Connected but just use internet/email only (no website or ICT system)

☐ Connected-have Web or ICT system-informational purpose only

☐ Connected-have Web or ICT system-interaction/communication purpose (including online customer support, use interactive features in system)

☐ Connected, have website or ICT system and use it for online transactions or to sell packages

If your system does not have online transactions, do you intend to implement online payment processing in the future?

☐ Yes ☐ No

SECTION TWO, Please respond to the following questions based on your experience. All the responses should be provided in the context of the tourism industry in Nepal. *Note: When providing your response to the following questions, please note that "e-commerce" is NOT only limited to online transactions but also use of e-commerce/IT for information sharing communication and other activities related to tourism business and "adoption" is NOT limited to using it for the first time but also refers to your current usage of e-commerce/IT in your tourism business.(please refer to information on page 1 of this survey for full definition). The rating scale of 1-5 will be used, 5 indicating Strongly Agree, 4=agree, 3=neutral, 2=disagree and 1=strongly disagree.*

Please tick ONE box that indicates your level of agreement or disagreement with each of the following statements *(Scale 1 to 5)*:

Infrastructure

The unreliable power supply (load shedding) of Nepal has influenced our e-commerce use.

The payment gateway connected with local and international banks for online transactions are not available.

We feel that the telecommunication infrastructure of Nepal is not reliable to support e-commerce.

We feel that there are inadequate legal facilities to do tourism business using e-commerce.

Market Forces

We feel that the market readiness and size of tourism business of Nepal is good enough to use e-commerce.

We believe that the use of e-commerce by our competitors encourages our organisation to use e-commerce.

Supporting IT Industry

Local IT companies in Nepal are NOT competent/adequate to support our use of e-commerce.

There is poor and unreliable support from IT companies to use e-commerce in our business.

There is a lack of software standards to use/adopt e-commerce for the tourism industry of Nepal.

Socio-cultural Factors

There is lack of availability of local languages in e-commerce affecting the e-commerce use.

In the Nepalese culture, people usually prefer face to face communications and like paper-based records in their offices.

There is a resistance from employees against adopting technologies such as e-commerce, as they fear to lose their jobs because of such technologies.

Contextual Factors

Our organisation believes that there is a lack of commitment and programs from government to promote e-commerce use by tourism organisations.

There is a lack of incentives such as tax rebates, subsidies to adopt e-commerce from the government to encourage use.

The situation of the country is not suitable for e-commerce use.

Awareness

Our organisation is aware of how to use the internet.

Our organisation is aware of benefits of e-commerce to our business.

Our organisation is aware of the use of e-commerce by competitors.

Our organisation is aware of the use of social media such as Facebook for tourism activities.

Resources

Our organisation DOES NOT have sufficient human resource to use e-commerce.

We do NOT have staff with IT/Technical skills to use e-commerce.

The cost of resources to use e-commerce is too high for us.

Our organisation does NOT have sufficient technological resources such as hardware, Internet connections.

Security Concerns

Our organisation is concerned by the online frauds and cyber crimes.

Our organisation is concerned with the online trust issues.

We fear the misuse of data of data online.

We are not confident about the privacy of our customers online.

Value Proposition

We believe that using e-commerce we will have an advantage.

We believe that using e-commerce will improve our current tourism process.

Owner Characteristics

The top management of our company fully supports e-commerce initiatives.

The owner of the company has knowledge about the benefits of e-commerce.

(Scale 1 to 5)

Please specify any **OTHER** barriers/obstacles for your organisations to implement or use e-commerce, if you have:

Please specify any **OTHER** motivators for your organisations to implement or use e-commerce if you have:

Comments (if any):

Thank you for participating in the survey and providing valuable information. All the information given by you will be confidential and will NOT be used for other than this research purpose. You will not be identified.

Appendix C Participant Information Sheet

PARTICIPANT INFORMATION SHEET

Factors affecting e-commerce adoption by tourism organisations in Nepal

ETH16-1106

WHO IS DOING THE RESEARCH?

My name is Sanjay Lama and I am a research candidate at UTS. I have been working in IT industry from 15 years. My supervisor is Dr. Sojendra Pradhan.

WHAT IS THIS RESEARCH ABOUT?

This research is to know what the barriers and motivators affecting ecommerce adoption by tourism organisations in Nepal. A model will be created based on barriers and drivers identified. The identification of factors and creation will help government, tourism organisations and tourists. It will greatly contribute to tourism industry of Nepal especially in use of IT in tourism business.

E-commerce is doing various aspects of business using tools of information technology. Such activities include sharing information (for e.g., create website to advertise about services), using IT tools for communication (for e.g. email correspondence with clients), doing electronic transactions (processing and accepting payment through online). Though some definitions of e-commerce limit it to online financial transactions, ecommerce is much broader and non-financial transaction such as information disseminations, information exchange.

Ecommerce adoption refers to using tools of IT such as websites, software in the tourism business for information sharing, communication with customers or accepting online payments.

SCHOLARSHIP/FUNDING

Endeavour Scholarship

IF I SAY YES, WHAT WILL IT INVOLVE?

For Interviews: One semi-structured interview will be conducted asking your opinions on different factors affecting e-commerce adoption. The initial set of the questions will be emailed to you before the interview. The interview will be for roughly 1 hour, and it will be tape recorded. The interview will be face to face meeting and will be conducted in Nepal.

For Survey: It involves providing rating (either you agree or disagree) to a questionnaire related to ecommerce barriers and motivators based on your experience in tourism industry. It will take approximately 15-20 minutes. It can be completed online, email or using paper form.

ARE THERE ANY RISKS/INCONVENIENCE?

There should be any inconvenience or risk related to data collection as this process asks for your independent view what you feel based on your experience. The research is exploratory in nature.

WHY HAVE I BEEN ASKED?

I have asked you to participate as we are investigating on tourism organisations of Nepal and you are owner/manager of one of the tourism organisations and we need to your opinion.

DO I HAVE TO SAY YES?

Participation in this research is voluntary. The participation is confidential (name not identified/disclosed).

WHAT WILL HAPPEN IF I SAY NO?

You are free to withdraw from participating in this research at any time without consequences. I will thank you for your time so far and won't contact you about this research again.

IF I SAY YES, CAN I CHANGE MY MIND LATER?

You can change your mind at any time. However, changing your mind after data collection may affect analysis and research outcomes. Please advise as soon as possible of any intension to withdraw. I will thank you for your time so far.

WHAT IF I HAVE CONCERNS OR A COMPLAINT?

If you have concerns about the research that you think I Sanjay Lama or my supervisor can help you with, please feel free to contact me (us) on sanjay.lama@student.uts.edu.au or sojendra.pradhan@uts.edu.au

Appendix D Consent form

INFORMED CONSENT FORM

Factors affecting e-commerce adoption by tourism organisations in Nepal

I _____ agree to participate in the research project ***Factors affecting e-commerce adoption by tourism organisations in Nepal*** being conducted by Sanjay Lama, 15 Broadway, Ultimo NSW 2007, Sydney Australia (Phone +61 (02) 9514 2000). Funding for this research has been provided by Endeavour Scholarship.

I understand that the purpose of this study is to identify the barriers and motivators of ecommerce adoption by tourism organisations and Nepal. The study aims to create a model which will help tourism organisations to adopt ecommerce in their business.

I understand that I have been asked to participate in this research as I own/am manager of one of the tourism organisations in Nepal and that my participation in this research will involve providing response to some survey questions related to e-commerce adoption in tourism organisations based on my experience, knowledge representing my organisation. The survey can take up to 15-20 minutes. I noticed there is no physical risk associated with data collection and involves information sharing.

I agree to be:
☐ Audio recorded

I agree to keep confidential all information including all conversations and discussions, materials and methods provided to me by the UTS research team.

I agree that the research data gathered from this project may be published in a form that:
☐ May be used for future research purpose

I am aware that I can contact Sanjay Lama if I have any concerns about the research. I understand that participation is voluntary. I also understand that I am free to withdraw my participation from this research project at any time I wish, without consequences, and without giving a reason.

I agree that Sanjay Lama or his delegate has answered all my questions fully and clearly.

_____ ____/____/____
Organisation Name and participant Signature Date

_____ ____/____/____
Name and Signature (researcher or delegate) Date

NOTE:
This study has been approved by the University of Technology Sydney Human Research Ethics Committee (UTS HREC). If you have any concerns or complaints about any aspect of the conduct of this research, please contact the Ethics Secretariat on ph.: +61 2 9514 2478 or email: Research.Ethics@uts.edu.au, and quote the UTS HREC reference number. Any matter raised will be treated confidentially, investigated and you will be informed of the outcome.