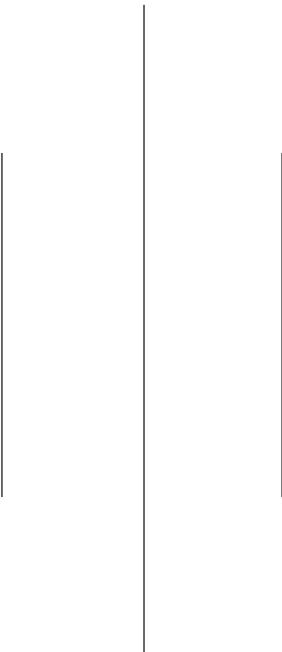


Exploration of factors affecting e-commerce adoption by tourism organisations in Nepal



Sanjay Lama

(Master of Information Technology, QUT)

Master of Science (Research) in Computing Sciences
School of Systems, Management, and Leadership, FEIT
University of Technology Sydney (UTS)
February 2018

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.

Acknowledgement

I would like to express my gratitude from the deepest level of my heart to all the wonderful and kind people who helped me to conduct this research successfully. Conducting the research of this level and producing such results would not have been possible without the support of such personalities. First and foremost, I would like to thank my supervisor Dr Sojen Pradhan for mentoring me throughout my journey. I really appreciate tireless and kind effort by him. You are an inspiration to me. I would also like to thank co-supervisor, Dr David Beirman. Your feedback and comments always helped me to progress. Also, great thanks to Dr Laurel Dyson for all her valuable suggestions. I would like to express gratefulness to Endeavour scholarship for sponsoring this research. Also thanks to my university “University of Technology Sydney (UTS)” my faculty and school and Graduate Research School for providing such a friendly environment where I could excel as a researcher. Also thanks to all my colleagues and other faculties in the university. You made my journey educational and pleasant. Thank you all.

The support of my family has been one of my strengths. So, I would like to thank all the family members for such support, love, and motivation provided by them despite the vast geographical distance. You all are always near my heart.

Also thanks to all the interview participants and all survey respondents (tourism organisations) for helping me by providing such rich and useful information. Without your help, this endeavour would not have been possible.

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.

Date: 28th June 2018

Table of Contents

Abstract	ii
Acknowledgement.....	iv
Certificate of Original Authorship	v
List of Tables.....	xi
List of figures	xiii
List of Abbreviations.....	xiii
CHAPTER 1: Introduction	15
1.1 Introduction	15
1.1.1 Thesis statement	15
1.1.2 Definitions of terminologies.....	15
1.1.3 Scenario: Background of the study.....	17
1.2 Aims and objectives of the research	20
1.3 Research Questions	22
1.4 Significance of the research	22
1.5 The research process: Overview of Methodology	25
1.6 Scope of the study	30
1.6.1 Small and Medium Tourism Enterprises (SMTEs).....	30
1.6.2 Type of e-commerce: Business to Consumer (B2C).....	33
1.7 Justification of Research	33
1.8 The context of Study: Nepal	34
1.8.1 The geographical context	34
1.8.2 ICT in Nepal	35
1.8.3 E-commerce in Nepal	37
1.8.4 History of tourism in Nepal	39
1.8.4.1 Hotel Industry in Nepal.....	41
1.8.4.2 Travel and trekking agencies in Nepal	42
1.8.4.3 Nature and status of Tourism in Nepal	43
1.8.4.4 Tourism and employment in Nepal	46
1.8.5 IT adoption and government of Nepal	46
1.8.5.1 Nepal IT law and regulatory	46
1.8.5.2 Government IT initiatives and programs	48
1.9 Limitations of the study	50
1.10 Summary of Chapter	51
CHAPTER 2: Literature review.....	53
2.1 Introduction	53

2.2 ICT in developing countries.....	53
2.3 E-commerce and developing countries	54
2.4 Tourism and developing countries	56
2.5 Tourism and e-commerce.....	57
2.6 ICT, E-commerce and Tourism industry of Nepal.....	59
2.7 Factors affecting e-commerce in developed countries.....	59
2.8 Reviewing e-commerce adoption factors in developing countries	63
2.8.1 The Factor affecting e-commerce adoption.....	63
2.8.2 Categorization of factors in developing countries.....	69
2.8.3 Stages of organisation for e-commerce adoption	69
2.9 Factors affecting IT adoption in Nepal	72
2.10 The probable factors and studies.....	72
2.11 Theoretical frameworks in e-commerce adoption	74
2.11.1 Theory of reasoned action	75
2.11.2 Technology Acceptance Model (TAM)	76
2.11.3 Technology-Organisation-Environment (TOE)	78
2.11.4 Technology Acceptance Model (TAM)-2	81
2.11.5 Unified Theory of Acceptance and use of Technology(UTAUT).....	82
2.11.6 e-readiness model	84
2.12 Summary of the Chapter	86
CHAPTER 3 Development of conceptual model and hypotheses	88
3.1 Introduction	88
3.2 Current Research and the available frameworks.....	88
3.3 Suitability analysis of the frameworks	89
3.4 The Analysis of the factors	91
3.5 Classification of the Factors.....	94
3.6 The proposed model and factors	99
3.6.1 Constructs and Variables.....	99
3.6.1.1 Environmental Factors.....	100
3.6.1.2 Organisational Factors	101
3.7 Analysis of constructs and variables, Hypothesis formulation	101
3.7.1 Environmental Factors	101
3.7.1.1 Infrastructure.....	101
3.7.1.2 Market Forces	106
3.7.1.3 Supporting IT industry.....	107
3.7.1.4 Socio-cultural factors	108
3.7.1.5 Contextual factors	110
3.7.2 Organisational Factors.....	113
3.7.2.1 Awareness	113

3.7.2.2 Resources	114
3.7.2.3 Security concerns	117
3.7.2.4 Perceived benefits/value proposition	118
3.7.2.5 Role of owner or top-management	120
3.8 Proposed investigation framework.....	122
3.9 Listing of the hypotheses	123
3.9.1 Environmental factors hypotheses.....	123
3.9.2 Organisational factors hypotheses.....	123
3.10 Summary of the chapter	123
CHAPTER 4: Research Methodology.....	125
4.1 Introduction	125
4.2 Research Philosophy	125
4.2.1 Positivist Paradigm.....	126
4.2.2 Interpretive Paradigm	127
4.2.3 The Critical Paradigm	127
4.2.4 Pragmatism Paradigm.....	128
4.3 Research methodology	129
4.3.1 Research Instruments	131
4.3.1.1 Literature reviews and document analysis	131
4.3.1.2 Qualitative method.....	131
4.3.1.3 Quantitative Method	133
4.4 Formulation of instruments	135
4.4.1 Interview questions.....	135
4.4.2 Survey Questionnaire	135
4.5 Summary of the chapter	136
CHAPTER 5 Data Analysis.....	137
5.1 Introduction	137
5.2 Research Methods adopted	137
5.2.1 Pilot testing of instruments.....	138
5.2.2 The finalisation of the survey instrument.....	139
5.3 Qualitative Data Collection.....	140
5.3.1 Selection of the interviewee	140
5.3.2 Pre-interview process	141
5.3.3 The interview process.....	141
5.3.4 Ethical consideration in the data collection.....	142
5.4 Qualitative Data processing	143
5.4.1 Preparation of the data for the processing.....	143
5.4.2 The coding of respondents	143
5.4.3 The Participants detail	143
5.4.4 Data reduction	144
5.5 Data processing: interviews	144

5.5.1 Identification of the themes	144
5.5.2 Thematic analysis	145
5.5.3 Thematic Discussion	148
5.5.3.1 Status of ICT in the tourism industry	148
5.5.3.2 The discussion on the factors.....	151
5.5.4 Summary of the Qualitative Analysis	169
5.5.5 Changes After the Qualitative Analysis	172
5.6 Quantitative Data Analysis	175
5.6.1 Survey Data	175
5.6.2 Selection of the respondents for the survey.....	175
5.6.3 Collection of Survey data	176
5.6.4 Data Screening	177
5.6.5 Survey Respondent Profile.....	177
5.6.6 Analysis of probable factors.....	183
5.6.6.1 Normality test	184
5.6.6.2 Reliability Test.....	186
5.6.6.3 Content validity.....	187
5.6.6.4 Construct validity.....	187
5.7 Descriptive Analysis	192
5.7.1 Dependent variable: adoption of e-commerce	192
5.7.2 Environmental factors	195
5.7.3 Organisational Factors.....	202
5.8 Hypothesis testing and effect of each factor	207
5.8.1 Results of hypotheses testing	209
5.9 The summary of the findings & results: interviews and survey.....	214
5.10 Summary of the chapter	219
CHAPTER 6: Discussion and Conceptual model	221
6.1 Introduction	221
6.2 Research result Analysis	221
6.2.1 The factors affecting e-commerce adoption by SMTEs of Nepal	222
6.2.1.1 Updated e-commerce adoption model for SMTEs in Nepal.....	222
6.2.1.2 Classification of the factors	222
6.2.1.3 Categories of e-commerce adoption	222
6.2.1.4 Analysis of the factors and variables	223
6.3 The proposed conceptual model.....	241
6.3.1 Objectives of the proposed model	242
6.3.2 The conceptual model of e-commerce adoption in Nepal.....	242
6.3.3 The implication of this model.	244
6.3.3.1 SMTEs	244
6.3.3.2 Policymaker or government.....	245
6.3.3.3 Associations related to Tourism	245
6.3.3.4 Other stakeholders	245
6.4 Summary of the Analysis	247

CHAPTER 7 Conclusion and Recommendations	257
7.1 Introduction	257
7.2 Research overview	257
7.3 The fulfilment of research objectives.....	259
7.3.1 Objective one: Status of e-commerce and factors affecting adoption	259
7.3.2 Research objective two: the creation of a conceptual model	260
7.3.3 Research objective Three: Recommendations	261
7.3.3.1 Government	262
7.3.3.2 Tourism organisations:	268
7.3.3.3 Tourism Associations	269
7.3.3.4 Supporting IT industry	272
7.4 Contribution of the research.....	272
7.5 Future research	275
7.6 Concluding remarks	276
References:	xv
Appendix A Interview Questions.....	xv
Appendix B Survey Questions	xvi
Appendix C Participant Information Sheet	xxi
Appendix D Consent form	xxii

List of Tables

Table 1.1 Studies and keywords.....	17
Table 1.2 Tourism organisations as on 2016-2017	32
Table 1.3 History of technology in Nepal	36
Table 1.4 Summary of history of tourism in Nepal	39
Table 1.5 Tourism organisations registered in tourism industry division 2003-2014	41
Table 1.6 History of Hotel industry in Nepal.....	42
Table 1.7 Tourism in Nepal for administrative calendar 2015-2016	45
Table 2.1 Summary of research and factors for developed countries	61
Table 2.2 The studies and factors: based on the time period	68
Table 2.3 Classification of factors based on review	69
Table 2.4 Listing of factors for developing countries	72
Table 2.5 Summary of the major adoption frameworks	85
Table 3.1 Frameworks Analysed.....	88
Table 3.2 Suitability analysis of frameworks.....	89
Table 3.3 Inclusion or exclusion of the factors.....	92
Table 3.4 Proposed categories and grouping of the categories.....	96
Table 3.5: Categories and factors in each category.....	96
Table 3.6 Additional proposed categories and grouping	98
Table 3.7 Updated list: proposed factors including the added categories.....	98
Table 3.8 Variable Definitions of constructs	100
Table 3.9 Summary of infrastructure factor	105
Table 3.10 Summary of market factors.....	107
Table 3.11 Summary of supporting IT industry.....	108
Table 3.12 Summary of social-culture factors	110
Table 3.13 Summary of contextual factors	112
Table 3.14 Studies identifying awareness factors	114
Table 3.15 Studies identifying lack of resources as a factor.....	116
Table 3.16 Studies identifying security as a factor	118
Table 3.17 Studies identifying value proposition as a factor.....	120
Table 3.18 Studies identifying owner/top management as a factor	121

Table 3.19 List of hypotheses	123
Table 4.1 Paradigm Highlights	128
Table 4.2 Difference between quantitative and qualitative research	130
Table 5.1 List of interview participants	143
Table 5.2 Phases of thematic analysis.....	145
Table 5.3 Summary of qualitative analysis	170
Table 5.4: participants based on tourism business type	178
Table 5.5 participation by gender.....	178
Table 5.6 Participation by position	179
Table 5.7 Level of e-commerce adoption	182
Table 5.8 Skewness and kurtosis analysis	184
Table 5.9 Reliability Analysis.....	186
Table 5.10 Results of PCA.....	190
Table 5.11 Factors from PCA	192
Table 5.12 Classification of the Adoption	194
Table 5.13 Statistical scores: Lack of infrastructure	195
Table 5.14 Statistical scores: Market	197
Table 5.15 Statistical scores: Supporting IT industry	198
Table 5.16 Statistical scores: Lack of socio-cultural factors.....	199
Table 5.17 Statistical scores: Contextual factors	201
Table 5.18 Statistical scores: Awareness	202
Table 5.19 Statistical scores: Lack of resources	203
Table 5.20 Statistical scores: Contextual factors	204
Table 5.21 Statistical scores: Value proposition	205
Table 5.22 Statistical scores: Top management or owners	206
Table 5.23 Hosmer and Lemeshow test	207
Table 5.24 Cox & Snell R Square and Nagelkerke R Square (variance).....	208
Table 5.25 Classification table.....	208
Table 5.26 The results of the binary regression	209
Table 5.27 Results of hypotheses testing	212
Table 5.28 Summary of the findings of survey and interviews	214
Table 6.1 Summary of the Analysis.....	247
Table 7.1 Some findings of the status of e-commerce use.....	260

List of figures

Figure 1.1 Major stakeholders of the research	23
Figure 1.2 Research methods	26
Figure 1.3 Overview of the research process	30
Figure 1.4 Map of Nepal	35
Figure 2.1 E-commerce adoption internal and external stages	71
Figure 2.2 Theory of Reasoned Action	75
Figure 2.3 Technology Acceptance Model	76
Figure 2.4 TOE Framework	78
Figure 2.5 TAM 2	82
Figure 2.6 Unified Theory of Acceptance and use of Technology	82
Figure 2.7 Extension of UTAUT with personality traits.....	83
Figure 2.8 E-readiness e-commerce model	85
Figure 3.1 Proposed Constructs	95
Figure 3.2 Proposed conceptual model	122
Figure 5.1 Participants IT knowledge	179
Figure 5.2 IT staffs in participating SMTEs	180
Figure 5.3 Type of internet in participating SMTEs	181
Figure 5.4 Participant SMTEs purpose of internet use	182
Figure 5.5 Classification of adoption	194
Figure 5.6 Detail analysis of lack of infrastructure	196
Figure 5.7 Detail analysis of market	198
Figure 5.8 Detail analysis of Supporting IT industry.....	199
Figure 5.9 Detail analysis of socio-cultural factors	200
Figure 5.10 Detail analysis of contextual factors.....	201
Figure 5.11 Detail analysis of awareness	203
Figure 5.12 Detail analysis of lack of resources	204
Figure 5.13 Detail analysis of security concern	205
Figure 5.14 Detail analysis of value proposition	206
Figure 5.15 Details of top management or owner's role.....	207
Figure 6.1 Updated conceptual model	222
Figure 6.2 Factors affecting e-commerce adoption: Proposed model.....	242
Figure 6.3 The extended model with barriers and motivators	243

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