

**ICT DETERMINANTS OF WORLD HERITAGE SITES PERFORMANCE IN
TANZANIA: ICT USAGE AS A MEDIATING VARIABLE**

THEREZA ISRAEL MUGOBI

**A THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY OF
THE OPEN UNIVERSITY OF TANZANIA**

2020

CERTIFICATION

The undersigned certify that they have read and hereby recommend for examination a thesis entitled “ICT determinants of performance of World Heritage Sites in Tanzania: ICT usage as a mediating variable” in fulfillment for the requirement for the award of Degree of Doctor of Philosophy (PhD) of The Open University of Tanzania.

.....
Dr. Shogo R Mlozi

(First Supervisor)

.....
Date

.....
Prof. Deus D. Ngaruko

(Second Supervisor)

.....
Date

COPYRIGHT

No part of this thesis may be reproduced, stored in any retrieval system, or transmitted in any form by any means, electronic, Mechanical, photocopying, recording or otherwise without prior written permission of the author or The Open University of Tanzania in that behalf.

DECLARATION

I, **Thereza Israel Mugobi** do hereby declare that this thesis is my original work and has never and will not be presented to any other University or institution for the same or similar award.

.....

Signature

.....

Date

DEDICATION

This thesis is dedicated to my Lord and family who excitedly gave me the moral and material support to complete the work.

ACKNOWLEDGEMENT

The completion of this thesis was based on individual and independent efforts over a long period. However, this was achieved through the efforts of many. I wish to share my sincere appreciation.

I firstly, thank God for giving me life, the strength to overcome the challenges I have passed through and accomplished.

My deepest appreciation goes to my supervisor and my role model Dr. Shogo Mlozi at the National College of Tourism. Her contributions such as guidance from the initial stage of generating a PhD topic, the proposal stage to the final conclusion of the project. She inspired me to use structural equation modeling (SEM) as a method of analysis which I found it very difficult at the initial stages though she never give-up on me as she kept encouraging and giving some readings which I eventually found it very interesting and I would recommend it to anyone interested. Her valuable time to answer my questions towards this project is highly appreciated. I am sincerely thankful to the moral and spiritual support she provided during the time I felt like giving up, she stood by showing love and courage. Her patience and insightful comments have contributed enormously in the accomplishment of my PhD project. Without her time and commitment I would never have been able to complete this study.

My gratitude goes to my second supervisor Professor Deus Ngaruko for his guidance, support, comments and editorial work through this process. His valuable

time towards this project is highly appreciated. I wish to extend my acknowledgement to the Dean of the Faculty of Arts and Social Science Dr. Felician Mutasa for his advice and inspiration words. I wish to extend my acknowledgement to the Department of Tourism and Hospitality at the Open University of Tanzania.

I am very grateful to Dr. France Shayo and Mato Magobe from the Faculty of Business Management of the Open University of Tanzania. Their contributions such as guidance in structural equation modeling (SEM), and their valuable time (on Skype) to answer my questions towards this project is highly appreciated. Their patience and insightful comments have contributed enormously in the accomplishment of my PhD project. Without their time and commitment I would never have been able to complete this study. Also, my sincere recognition goes to Prof Lorenzo Cantoni communication professor and UNESCO chair from University of Lugano Switzerland for his comments and suggestion throughout this process.

I am very grateful to Mr Zuberi Mabie from the Kondo Rock Art sites, Mr Bugumba from Kilwa Kisiwani Site, Mr Haji Suleiman from the Stone Town of Zanzibar and other staff members of the Ministry of Natural Resources and Tourism, Tanzania National Park, Ngorongoro Conservation Area and Tanzania Tourist Board for providing me with the information and statistics I needed for my research and allowing me to conduct my field work to the UNESCO World Heritage sites. Additionally, I acknowledge Mr Alpha Godwin who assisted me in completing surveys for my study in the Northern Circuit. I have also learned and benefited from other people through this process.

I would like to mention a few doctoral student colleagues. Some of us had the same supervisor; some of them I have known for years, and some of them have already become doctors but gave me support during the process. These include Mbise from the National College of Tourism, Ms Veronica Nyerere from the Open University of Tanzania, Dr Matrona Kabyemela from the University of Dar es Salaam, who assisted me with some computer knowledge, word of courage, guidance whenever necessary during my study.

Finally, and most importantly, I would like to thank my Husband, Mr Timothy Mgopa, my mother Ms Josephine Kafuku, my mother in law Ms Pilli Prisca Mutani, and my beautifully two Kids Rapahel Leroy Mgopa and Cordilia Rebacca Mgopa for their love, understanding, and support through this process. To my relatives and family friends who were not mentioned, this work is the outcome of your moral support during this journey, and I thank you all for that.

ABSTRACT

This study aimed to assess ICT determinants of World Heritage Sites Performance in Tanzania with a mediation variable of ICT usage. Data collection was carried out in Tanzania World Heritage through a questionnaire-based survey from 238 WHSs decision makers. The testing of the hypotheses involved the structural equation modeling (SEM) analysis techniques. The results indicate that six factors; perceived relative advantage, perceived less complexity, ICT support infrastructure, ICT support skills, perceived pressure from customers and perceived competitive pressure had statistically positive, significant relationship toward ICT usage in WHSs. Only one variable; perceived compatibility did not have a statistical significant relationship on ICT usage and determine to be an insignificant factor that can influence ICT usage into WHSs. Moreover, ICT Usage had a positively and significant relationship with performance of WHSs. By looking on the mediation effect of ICT usage; (i) ICT usage partially mediate the relationship between perceived relative advantage, ICT support infrastructure, ICT support skills, perceived pressure from customer's and perceived competitive pressure on World Heritage Sites Performance. ICT usage fully mediates the relationship perceived less complexity and World Heritage Sites performance. However, ICT usage did not mediate the relationship between perceived compatibility and WHSs performance. This study theoretically contributes to the literature by revealing how ICT usage full mediated the relationship between perceived less complexity and WHSs Performance.

KEYWORDS: *Technological, Organizational, Environmental, ICT usage, performance, World Heritage sites.*

TABLE OF CONTENTS

CERTIFICATION	ii
COPYRIGHT	iii
DECLARATION.....	iv
DEDICATION.....	v
ACKNOWLEDGEMENT	vi
ABSTRACT	ix
LIST OF TABLES	xix
LIST OF FIGURES	xxii
LIST OF ABBREVIATIONS	xxiv
CHAPTER ONE	1
INTRODUCTION.....	1
1.1 Background to the Study	1
1.2 The Proposed Theoretical Model	11
1.2.1 Technological Factors (TF)	11
1.2.2 Organizational Factors (OF).....	12
1.2.3 Environmental Factors (EF)	13
1.2.4 ICT Usage	14
1.2.5 WHSs Performance (WHSsP).....	14
1.3 Research Problem Statement.....	15
1.4 Objectives.....	17
1.4.1 General Objectives	17
1.4.2 Specific Objectives.....	18
1.5 Justification of the Study	18

1.6	Significance of the Study	20
1.7	Organization of the Study	21
CHAPTER TWO		23
LITERATURE REVIEW.....		23
2.1	Chapter Overview	23
2.2	Conceptual Definitions.....	23
2.2.1	Technological Factors (TF)	23
2.2.2	Organizational Factors (OF).....	25
2.2.3	Environmental Factor (EF).....	26
2.2.4	Information Communication and Technology (ICT)	28
2.2.5	World Heritage Sites (WHSs)	28
2.2.6	WHSs Performance (WHSs PI)	29
2.2.7	Decision Makers.....	30
2.3	Theoretical Literature Review	31
2.3.1	Technology, Organization, and Environment Theory (T.O.E)	31
2.3.2	Technology Acceptance Model (TAM)	43
2.4	Empirical Literature Review	45
2.4.1	The Relationship between Determining Factors and ICT usage.....	45
2.4.2	The relationship between ICT Usage and WHSs Performance	50
2.5	Research Gaps	59
2.6	Conceptual Framework	59
CHAPTER THREE		63
3.0 RESEARCH METHODOLOGY.....		63
3.1	Chapter Overview	63

3.2	Research Philosophy and Approach.....	63
3.3	Research Approach	64
3.4	Research Design and Strategy	64
3.5	Area of Research	65
3.6	Sample Design and Techniques	67
3.7	Sample Size	68
3.8	Unit of Analysis	70
3.9	Variables and Measurement Procedures	70
3.10	Measurement Scales	71
3.10.1	Technological Factors	71
3.10.2	Organizational Factors	71
3.10.3	Environmental Factors	71
3.10.4	ICT usage	72
3.10.5	WHSs Performance Indicators	72
3.11	Criterion of Goodness of Fit indices	72
3.11.1	Chi-Square.....	73
3.11.2	Goodness of Fit Statistic	74
3.11.3	Tucker Lewis Fit Index (TLI)	74
3.11.4	The Comparative Fit Index (CFI).....	74
3.11.5	Root Mean Square Error of Approximation (RMSEA)	75
3.12	Methods of data collection	76
3.12.1	Secondary Data	76
3.12.2	Primary Data	77
3.13	Data Processing and Analysis	78

3.14	Assumptions Underlying Structural Equation Modeling	80
3.14.1	Checking for Missing Data	82
3.15	Tests for Validity	82
3.15.1	Internal Validity	82
3.15.2	External Validity	83
3.15.3	Construct Validity	83
3.15.4	Convergent and Discriminant Validity	83
3.16	Tests for Reliability	84
3.17	Testing for Mediating Variables	85
3.18	Ethical Considerations.....	86
CHAPTER FOUR.....		88
RESEARCH FINDINGS.....		88
4.1	Chapter Overview	88
4.2	Results from the Pilot Study.....	88
4.3	Respondents' Profile	89
4.3.1	Respondents' Distribution by Gender	89
4.3.2	Respondents' Distribution by education	90
4.3.3	Respondents' Distribution by job position.....	90
4.3.4	Respondents' Distribution by job Experience.....	91
4.3.4	Respondents' Distribution by WHSs Size	92
4.4	Missing Data and Outliers.....	92
4.4.1	Results from Missing Data Analysis	92
4.4.2	Checking for Outliers	93
4.5	Results of Normality, Linearity, and Multicollinearity	94

4.5.1	Results from Normality Test	94
4.5.2	Linearity Test	95
4.5.3	Results from Multicollinearity Test	96
4.6	Model Formulation and Validation	98
4.7	Results from Exploratory Factor Analysis (EFA).....	98
4.7.1	Acceptable Loadings	102
4.7.2	Factor Correlation Analysis	105
4.8	Development of Single Construct Measurement Models.....	106
4.8.1	Measurement Model for Perceived Relative Advantage (PR)	107
4.8.2	Measurement Model for Perceived Compatibility (PCT)	108
4.8.3	Measurement Model for Perceived less Complexity (PCL)	109
4.8.4	Measurement Model for ICT infrastructure support characteristics (INF) ...	109
4.8.5	Measurement Model for ICT Skills Support Characteristics (SS)	110
4.8.6	Measurement Model for Perceived Competitive Pressure (PCP)	111
4.8.7	Measurement Model for Perceived Pressure from Customers (PPC)	111
4.8.8	Measurement Model for Moderating Variable ICT Usage (ICTU)	113
4.8.9	Measurement Model for Performance Indicators (PI)	114
4.9	Development of the Overall CFA Model	115
4.10	Results from Validity Measures	120
4.10.1	Results from Reliability Analysis	123
4.11	Testing of Structural Model for Overall Sample.....	124
4.12	Model Path Coefficients and Hypothesis Testing	128
4.12.1	The Relationship between Perceived relative Advantage (PR) and ICT Usage	128

4.12.2 The Relationship between Perceived Compatibility (PCT) and ICT Usage	130
4.12.3 The Relationship between Perceived less Complexity (PCL) and ICT Usage	131
4.12.4 The Relationship between ICT Support infrastructure (INF) and ICT Usage	133
4.12.5 The Relationship between ICT Support Skills (SS) and ICT usage	135
4.12.6 The Relationship between Perceived Competitive Pressure (PCP) and ICT usage.....	136
4.12.7 The Relationship between Perceived Pressure from Customers (PPC) and ICT usage.....	138
4.12.8 The Relationship between ICT usage (ICTU) and performance of WHSs (PI).....	139
4.13 Mediation Effect of ICT Usage on World Heritage Sites Performance.....	141
4.13.1 The Results For Direct Effects Without Mediator	143
4.14 The Mediation Test for both Direct and Indirect Effects with Mediator	145
4.14.1 The Results for Direct and Indirect Effects with Mediator	146
4.15 Model Path Coefficients and Hypothesis Testing for Mediation Variables.....	148
4.15.1 The Mediation Effect of ICT Usage on The Relationship Between Perceived Relative Advantage (PR) and WHSsPI	149
4.15.2 The Mediation Effect of ICT Usage on the Relationship between Perceived Compatibility (PCT) and WHSsPI.....	151

4.15.3	The Mediation Effect of ICT Usage on the Relationship between Perceived Less Complexity (PCL) and WHSs Performance (PI).....	152
4.15.4	The Mediation Effect of ICT Usage on the Relationship between ICT Support Infrastructure (INF) and WHSs Performance (PI)	154
4.15.5	The Mediation Effect of ICT Usage on the Relationship between ICT Support Skills (SS) and WHSs Performance (PI).....	155
4.15.6	The mediation effect of ICT usage on the relationship between Perceived competitive pressure (PCP) and WHSs performance (PI)	156
4.15.7	The mediation effect of ICT usage on the relationship between Perceived pressure from customers (PPC) and WHSs performance (PI)	157
4.16	The Mediation Test Using the Bootstrap Approach.....	159
CHAPTER FIVE.....		161
DISCUSSION OF FINDINGS		161
5.1	Overview	161
5.2	The Relationship between Perceived Relative advantage (PR) and ICT Usage.....	161
5.3	The Mediation Effect of ICT Usage on the Relationship between Perceived Relative Advantage (PR) and WHSs Performance(PI).....	163
5.4	The Relationship between Perceived Compatibility (PCT) and ICT Usage	165
5.5	The Mediation Effect of ICT Usage on the Relationship between Perceived Compatibility (PCT) and WHSsPI.....	167
5.6	The Relationship between Perceived Less Complexity (PCL) and ICT Usage In WHSs	168

5.7	The Mediation Effect of ICT Usage on the Relationship between Perceived Less Complexity (PCL) and WHSsPI.....	169
5.8	The Relationship between ICT Support Infrastructures (INF) and ICT Usage.....	171
5.9	The Mediation Effect of ICT Usage on the Relationship between ICT Support Infrastructure (INF) and WHSsPI.....	173
5.10	The Relationship between ICT Support Skills (SS) and ICT Usage.....	175
5.11	The Mediation Effect of ICT Usage on the Relationship between ICT Support Skill (SS) and WHSsPI.....	177
5.12	The Relationship between Perceived Competitive Pressure (PCP) and ICT Usage in WHSs	179
5.13	The Mediation Effect of ICT Usage on the Relationship between Perceived Competitive Pressure (PCP) and WHSsPI.....	182
5.14	The Relationship between Perceived Pressure from Customers (PPC) and ICT Usage In WHSs	183
5.15	The Mediation Effect of ICT Usage on the Relationship between Perceived Pressure from Customer (PPC) and WHSsPI	185
5.16	The Relationship between ICT Usage and WHSsPI.....	187
CHAPTER SIX		191
CONCLUSION AND RECOMMENDATIONS		191
6.1	Chapter Overview	191
6.2	Summary of major findings.....	192
6.3	Conclusion.....	193

6.3.1	Determining Factors (i.e. Technological, Organizational and Environmental)	
	Influencing ICT usage	193
6.3.2	ICT usage on WHSs performance.....	194
6.3.3	The Mediating Effect of ICTU on the Relationship between the Determining Factors and WHSsPI	195
6.4	Study Implications.....	201
6.4.1	Theoretical Implications.....	201
6.4.2	Contextual Implication	204
6.4.3	Practical Implication	205
6.5	Recommendations	207
6.5.1	Recommendation From the Study Results	207
6.5.2	Limitation and areas for Future Research	208
	REFERENCES.....	210
	APPENDICES	245

LIST OF TABLES

Table 2.1:	Previous Studies on the Link between Determining Factors and ICT Usage	49
Table 2.2:	Previous Studies on the Link between ICT Usage and WHSs Performance	58
Table 3.1:	Criteria for Acceptance of Model Fit.....	76
Table 4.1:	Respondents' Distribution by Gender.....	90
Table 4.2:	Respondents' Distribution by Education Profile	90
Table 4.3:	Respondents' Distribution by Job Position.....	91
Table 4.4:	Respondents' Distribution by Job Experience.....	91
Table 4.5:	Respondents WHSs Size Based on Number of Employees.....	92
Table 4.6:	Skewness and Kurtosis Results.....	95
Table 4.7:	Correlation Matrix of Few Selected Exogenous Variables	97
Table 4.8:	Multicollinearity Statistics	98
Table 4.9:	KMO and Bartlett's Test	100
Table 4.10:	Total Variance Explained	101
Table 4.11:	EFA Output list of Deleted Items	103
Table 4.12:	EFA Output list of Retained Items for T.O.E framework (Variables 59; N=238)	103
Table 4.13:	EFA Output List of Retained Items for ICT Usage (ICTU)	105
Table 4.14:	EFA Output List of Retained Items for WHSs Performance Indicators (PI)	105
Table 4. 15:	Table 4 15: Factor Correlation Matrix	106

Table 4.16: Standardized and Unstandardized Estimates for the Overall CFA Model	119
Table 4.17: CFA Model Validity Measure	122
Table 4.18: Item Total Statistics for ICT Usage Reliability Test	123
Table 4.19: Standardized and Unstandardized Estimates for the Structural Model	127
Table 4.20: Descriptive Statistics for Perceived Relative Advantage (PR)	129
Table 4.21: Perceived Relative Advantage (PR) and ICT Usage SEM results.....	130
Table 4.22: Descriptive Statistics for Perceived Compatibility (PCT)	130
Table 4.23: Perceived Compatibility (PCT) and ICT Usage SEM results.....	131
Table 4.24: Descriptive Statistics for Perceived Less Complexity (PCL)	132
Table 4.25: Perceived less Complexity (PCL) and ICT Usage SEM Results.....	132
Table 4.26: Descriptive Statistics for ICT Support Infrastructure (INF)	134
Table 4.27: ICT Support Infrastructures (INF) and ICT Usage SEM Results.....	134
Table 4.28: Descriptive Statistics for ICT Support Skills (SS)	135
Table 4.29: ICT Support Skills (SS) on ICT Usage (ICTU) SEM Results.....	136
Table 4.30: Descriptive Statistics for Perceived Competitive Pressure (PCP)	137
Table 4.31: Perceived Competitive Pressure (PCP) and ICT Usage SEM Results	137
Table 4.32: Descriptive Statistics for Perceived Pressure from Customers (PPC) .	138
Table 4.33: Perceived Pressure from Customers and ICT Usage SEM Results	139
Table 4.34: Descriptive Statistics for performance of WHSs Performance	140
Table 4.35: WHSs Performance and ICT Usage SEM Results	140
Table 4.36: Summary of the Technological, Organizational and Environmental Factor toward ICT Usage Hypotheses Testing	141

Table 4.37: The Standardized Regression Weights for Path Model without Mediator.....	144
Table 4.38: Standardized and Unstandardized Estimates for Direct and Indirect Structural Model	147
Table 4.39: Testing the Mediation Effect of ICTU on PR and PI	151
Table 4.40: Testing the Mediation effect of ICTU on PCT and PI.....	152
Table 4.41: Testing the Mediation effect of ICTU on PCL and PI.....	154
Table 4.42: Testing the Mediation effect of ICTU on INF and PI.....	155
Table 4.43: Testing the Mediation effect of ICTU on SS and PI.....	156
Table 4.44: Testing the Mediation effect of ICTU on PCP and PI.....	157
Table 4.45: Testing the Mediation effect of ICTU on PPC and PI.....	159
Table 4.46: Summary of the Mediation Effects (Direct without Mediator and Indirect with Mediator).....	159
Table 4.47: The Standardized Indirect Effects and P-Value.....	160
Table 4.48: The Standardized Direct Effect and P-Value.....	160

LIST OF FIGURES

Figure 2.1: Conceptual Framework of ICT usage in WHSs	62
Figure 3.1: Locations of World Heritage Sites in Tanzania ⁶⁶	
Figure 3.2: Single Mediator Model	86
Figure 4.1: Scatter Plots	96
Figure 4.2: Scree Plot	102
Figure 4.3: Standardized Measurement Model for Perceived Relative Advantage (PR).....	108
Figure 4.4: Standardized Measurement Model for Perceived Compatibility (PCT)	108
Figure 4.5: Standardized Measurement Model for Perceived less Complexity (PCL)	109
Figure 4.6: Standardized Measurement Model for ICT Infrastructure Support (INF)	110
Figure 4.7: Standardized Measurement Model for ICT Skills Support Characterizes (SS).....	110
Figure 4.8: Standardized Measurement Model for Perceived Competitive Pressure (PCP)	111
Figure 4.9: Standardized Measurement Model for Perceived Pressure from Customers (PPC).....	113
Figure 4.10: Standardized Measurement Model for Moderating Variable of ICT Usage	114
Figure 4.11: Standardized Measurement Model for Performance Indicators (PI) ..	115
Figure 4. 12: Figure 4 12: Standardized Overall CFA Model.....	118

Figure 4.13: The Structural Model for Overall Sample	126
Figure 4.14: The Structural Model for Direct Effect without a Mediator (ICTU)..	142
Figure 4.15: The Standardized Regression Weights for Every Path in the Model .	146
Figure 4.16: Mediation effect of ICTU on PR and PI.....	150
Figure 4.17: Mediation Effect of ICTU on PCT and PI.....	152
Figure 4.18: Mediation Effect of ICTU on PCL and PI.....	153
Figure 4.19: Mediation Effect of ICTU on INF and PI.....	155
Figure 4.20: Mediation effect of ICTU on SS and PI	156
Figure 4.21: Mediation effect of ICTU on PCP and PI.....	157
Figure 4.22: Mediation effect of ICTU on PPC and PI.....	158
Figure 5.1: Final Model of the Current Study	190

LIST OF ABBREVIATIONS

B2B	Business to Business
B2C	Buisness to Customer Complexity
EF	Environmental Factors
ICTU	ICT usage
INF	ICT support infrastructure
IPA	Interpretive Phenomenological Analysis
OF	Organizational Factors
PCL	Perceived less complexity
PCP	Perceived Competitive pressure
PCT	Perceived Copmatibility
WHSs PI	World Heritage Sites Performance indicators
PPC	Perceived prssure from Customers
PR	Perceved Relative advantage
SEM	Structural Equation Modeling
SS	ICT Support Skills
T.O.E	Technological, Organizational, Environmental Thoery
TAM	Technological Acceptance Model
UNESCO	United National Educational, Scientific and Cultural Organization
WHSs	World Heritage Sites
WHSs PI	World Heritage Sites Performance

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

This study focus on ICT determinants of World heritage sites performance (WHSs) in Tanzania under the mediation effect of ICT usage. ICT usage has had major impacts on tourism and travel, with the development of huge numbers of websites and applications including reservation systems, online travel agents and tour operators, and interactive product review sites. There has been an increase in the global number of internet user in travel and tourism industry.

This constantly changing environment presents many challenges to many tourism destinations specifically those who are not utilizing ICT in efficiently and effectively way to meet the global international destination standards and to increase the supply of information (Bystrowska *et al.*, 2017). Therefore, tourism destination needs to set out critical measures to ensure effectively and efficiently use of ICT in order to gain international visibility of their attractions, increased access to global supply chains, empowers the individual with the information access and increase demands for greater openness and transparency.

One way to achieve this is through investment in ICT innovation which will eventually lead to ICT usage. ICT usage in tourism industry provided destination management organization with the possibility of reaching tourist and prospects in a direct way such as online promotion and marketing, distribution of tourism products,

managing and coordination of all stakeholders involved in the creation and delivery of tourism product (Adukaite *et al.*, 2016).

Tourists travel behavior has been always influenced by development of ICT for example, a traveler who is interested in visiting one of the WHS he/she goes online and access variety of online in search of satisfying her/his information needs (Garbelli, 2015).”Digital connectivity has been bolstered by a growing number of individual using the internet and mobile internet subscriptions, meaning more economies are now in a position to leverage the growing list of digital travel and tourism services”(World Economic Forum, 2019. p9). In 2017 mobile subscriptions per 100 people has risen by more than one quarter, thus more tourism and travel service providers are positioning to rip the fruit of the growing popularity of online services offering, information sharing and marketing opportunity (World Economic Forum, 2019). However, the report argues in Sub Sahara Africa “there is a pronounced lack of ICT adoption, a vital requirement to attract visitors when traveler and industry players increasingly rely on technology”, while East Africa maintain a larger gap on ICT readiness (World Economic Forum, 2019. P87).

TripAdvisor, has become a major leader among all travel related consumer review websites and it serves more than 50 million users per month who search for advice while planning for their travel and it host more that 50 million travel reviews and opinions (Jong and Wu, 2018). In 2020 between August and January 2020, traffic on Tripadvisor is 164.86 Millions, with average visit duration of 00:03:13(SimilarWeb LTD, 2020). Likewise, Social Media such as Instagram, Facebook, are argued to be

the main important traveler's information search and decision making behavior and it is indispensable platforms for tourism marketers (Jong and Wu, 2018).

The history of ICT can be traced into four stages namely, supply creation, supply management, sale and distribution and advanced discovery (Atembe and Abdallah 2015). During the supply creation, tourism product was distributed via telephone, or facsimile machines we know as the FAX, supported by print advertising, word-of-mouth, radio and television. Data were stored using the common IBM punch card, literally a thin paper slip with holes punched in it (Munar and Ooi, 2012).

In 1845, Thomas Cook who is the first recorded travel agent created the first publicly available packaged excursion by arranging a travel for 165,000 people in the UK without the aid of ICT but fountain pen and a paper ledger (Baggio *et al.*, 2013). The thought of managing that much information without the use of ICT seems ludicrous, and yet, it was done.

At the supply management stage, the airlines, without the advantage of computerization were forced to systematize their airline operations (Atembe and Abdallah, 2015). In the early 1950s airlines started to innovate and build different tools for automating the booking process which, at the time, would take airline agents upwards of 90 minutes per customer booking to complete. "American Airline was the first to build the computerized system to allow access to real time data to all its offices" (Abisoye and Opeyemi, 2017, p34). The system helped to reduce the time

required to check availability, helped in overland, and to keep inventory correct thus they can be accessible to agent around the world (Abisoyeand Opeyemi, 2017).

On a parallel track with the growth of the airlines was the growth of the travel agencies during the sale and distribution stage. At this stage, travel agencies had become important sales and booking channels for the airlines industry (Garbelli *et al.*, 2015; De Jong and Wu, 2018). This was accomplished with direct computerized access to the airlines reservation systems. The increase in travel agent hotel reservations and the advent of smaller and more powerful desktop computer systems prompted the creation of hotel reservation systems (Conyette, 2015). During this stage, tourism marketing was done through the traditional travel agencies and many leading travel brands began developing websites, some with online reservation capabilities.

Lastly, advanced in ICT transformed the distribution stage to an electronic marketplace and “from facilitation of information exchange and reservations to a much more sophisticated mechanism of adding value and providing service” (Ashari *et al.*, 2014 who adopted from Buhalis and Licata, 2002). ICT provided unique opportunities in tourism industry by addressing individual needs; it has become one of the core tourism products and revolutionized the promotion and communication function of the tourism industry (Bethapudi, 2013). ICT has turned the world to a global village where an individual can access what is happening in the other parts of the world at a glance (Ali and Frew, 2009). ICT has played a fundamental role in the growth of the tourism industry; it has impacted communications, transactions and

relationships between the various industry operators and with the customer, as well as between regulators and operators (Vicky, 2011).

On the other side; it has enlarged dramatically the possibility for interested people to reach rich and updated info about any WHSs (Permatasari *et al.*, 2016). In order to run online communication effectively and efficiently and win the currently tourism market share, WHSs managers are supposed to invest on time, resources and effort to deliver accurate and clear message, update the contents on a regular basis, interact with online customers, provide feedback on online customers reviews as well as to offer a wide range of services, dialogues with users (Munar and Ooi, 2012). Tourists travel behavior has been always influenced by development of ICT for example, a traveler who is interested in visiting one of the WHS he/she goes online and access variety of online in search of satisfying her/his information needs (Lam *et al.*, 2014).

In 2016, 50% of the developed countries utilize ICT opportunities to choose holidays on the basis of available information at the internet (Bojnec and Kribel, 2004). In 2008 it was found that 82% of US online consumers have checked online reviews, blogs and other online feedback for their travel related purchasing decision (Fotis *et al.*, 2012). TripAdvisor, is a major leader among all travel related consumer review websites and between August and January 2020, traffic on Tripadvisor are 164.86 Millions, with average visit duration of 00:03:13 (SimilarWeb LTD, 2020) However, social media are argued to be the main important traveler's information search and

decision making behavior and it is indispensable platforms for tourism marketers (Varkaris, 2017; Xiang, 2010).

By looking on the presence of WHSs on social media globally, out of 1121 properties, 57 only contain a Facebook profiles, 34 Twitter and 28 Youtube channels (Kalbaska *et al.*, 2015). In Latin America, out of 131 WHSs 124 this shows almost each of their sites is available online (Poong *et al.*, 2013). Permatasari *et al.* (2016) discussed the online presence of WHSs situated in South, East, and South East Asia regions. Their main focus was to analyze the online presence of 175 WHSs on websites, mobile applications, and social media platforms. Their findings revealed that there was an intense online presence of WHSs on YouTube, Facebook, and Twitter and, as a result, there is a growing interest towards WHSs by Asians communities and globally. By looking on the mobile application, the study found that there were 144 iOS applications and 156 Android applications related to the concerned WHSs. Most of WHSs had one or two applications.

Japan has already achieved 52 % mobile penetration rate in the year and the figure is expected to grow to 57% by 2023 (Statista Research Department, 2019). Mobile learning has been identified as a possible ICT implementation to increase World Heritage Site literacy (Poong *et al.*, 2016). ICT contributed to progress on the United Nations' Sustainable Development Goals (SDGs) and improve people's lives, it will power evolution of smart, sustainable cities and communities worldwide (ITU News Magazine, 2017; Wu *et al.*, 2018).

Africa countries with high number of tourist receipt such as Kenya, Egypt and South Africa, have benefited from the potential brought from ICT utilization, such as using ICT from promotion of their destinations, effective and efficient management of the destinations, reducing cost while on the other hand tourists are able to access all necessary information on wherever they would wish to go (Wangwe, 2010). Through ICT usage to the above Africa countries, tourists are able to developed a desire to travel, organize their trip well in advance through e-booking, e-hotel reservation including knowing the mode of transport, costs of living, weather condition at destination and so on (pre travel) (Wangwe, 2010). In county such as Ethiopia, interpretation of WHSs in enhancing visitor enjoyment, learning and experience depends on ICT usage. However, “as of the end of 2015, the digital presence of this WHS is very limited, and no mention at all was found in travel reviews about online resources used to enrich the visit experience through online information sources” (Ndivo and Cantoni, 2016.p25). African heritage sites presented in the list are faced with poor management and preservation, political instability, kidnappings and perceived security (UNESCO World Heritage centre, 2011). It often ranks very lowly in terms of government priority scales (Chirikure, 2013). Of the 39 sites on the global Danger list, nearly a quarter of them 17 (44%) are now being placed on the list of World Heritage in Danger (African World Heritage Sites, 2018).

ICT in heritage sites can became an essential channel for site promotion and branding of these sites (Soler *et al.*, 2019). It also act as a tool for generating a positive image of the destination that informs the decision making process of all potential tourists (Soler *et al.*, 2019). ICT also help destination managers with

accurate and rigorous feedback and information that will help them to come up with strategies for sustainable territorial tourism (Soler *et al.*, 2019). ICT can help to promote sustainable tourism in the future through the proposed ABCDE framework by Cantoni, which means that, ICT can function into five main areas, access, better, connect, dis-intermediate and educate. It can also be used to help tourism players to learn and up skill, especially in such a fast-moving context and ICT can offer endless opportunities to provide good quality information about heritage sites, through websites, videos, social media, mobile apps, and the like (Wiener, 2018). It allows some relationships between prospect travelers and players at the destination to be dis-intermediated so that the destination itself benefits from most of the money spent (Wiener, 2018).

It will also allow destination management officers or sites officers to continue promoting their sites in a controlled manner by optimizing strength and resources. Thus ICT usage in World Heritage Sites are presented as key strategy in the development of sustainable and smart tourism that adds value to user (Soler *et al.*, 2019).“For instance, when it comes to archeological sites, augmented reality can help the visitor to better understand how the place might have looked like. But it can also be used to recognize trees and animals or to better interpret paintings in a museum, just to mention some other applications”(Wiener, 2018.p1).

When we look at the history of ICT in travel and tourism industry and review the trends in the types of technologies created during the four key stages, we see a shift from supplier centric technologies to consumer centric technologies. Indeed, the

wide scope of the involvement of ICTs in tourism has triggered significant discussions among scholars. Certainly, this is because ICT facilitates access of information to every corner of the globe. It is inevitable to admit that the application of ICT in tourism is an important component in the supply chain (Atembe and Abdallah, 2015). There is a need to further research to investigate if these challenges persist in WHSs as failure in addressing these challenges means the tourism sector in the country will not be able to compete with similar destinations not only in Africa but in the World market.

To some extent the Government of the United Republic of Tanzania continues to recognize ICT usage as a critical factor for rapid socio-economic growth, in the effort of aspiring to become a middle income country by 2025 (Ministry of Works, Transport and Communication, 2016). Historically, ICT usage in Tanzania started back in 1995 and it was only used by small group of elites, however, there has been significance increase usage of ICT as people can now access internet through phone and other gadgets (Mgaya, 1994). With the effort of recognizing the value of ICT, the government has been setting policy framework, for example, the National ICT policy framework of 2003 has been implement in area such as telecommunications, infrastructure development, human capital development and in tourism industry (National Information and Communications Technologies Policy, 2003; Mwikoko and Elly, 2017). In this context the government has reviewed the 2003 ICT framework and came up with the National ICT Policy 2016 which recognize the importance of ICT as a central to a competitive social and economic transformation of a country (Mtweve, 2013).

Through the recognition of ICT in the range of economic and social activities in Tanzania, ICT enhanced productivity and efficiency led to increase in job, “ICT contribution to the Gross Domestic Product (GDP) from 1.5% in 2004 to 2.4% in 2013 and sector growth has increased from 17.4% of GDP in 2004 to 22.8% by 2013”(Ministry of Works, Transport and Communication, 2016.p1). ICT reduces operating costs, raise value to customers, achieve strategic competitive customers, and achieve strategic competitive advantage (Kamuzora, 2016). This notion, tells that, for the success of any tourism business, adaption to ICTs innovation is inevitable for any business performance.

However, in contrast to South Africa, Tanzania has historically been rather slow to adopt ICTs into the tourism industry as it only started in 2000 with airline being the first adopter than any other sector in the tourism industry such as tour operator and travel agents (Mwita, 2014). Until now, Tanzania is facing a lot of challenges when it comes to ICT usage, these includes; lack of well-trained local experts and users, poor infrastructure and pronounced rural/urban divide in ICT access and use (Esselaar and Adam, 2013).Likewise, a report from US Commercial Service (2018.p30) argued “E-commerce is constrained by the lack of a legislative framework appropriate for e-business/cybercrime. Tanzania’s legal framework does not yet provide adequate safeguards to create an environment of trust for e-business transactions. Consequently, financial institutions are reluctant to support e-transactions”. Likewise, Mwikoko and Elly (2017. p142) “Little is known about he contribution of ICT toward the growth of tourism sector in Tanzania”.

While many researchers such as (Adukaite *et al.*, 2016; Mwita, 2014; Ndivo and Cantoni, 2016) discuss the benefits of ICT usage toward performance of tourism sectors in general. Many also agreed on the determining factors influencing ICT usage, therefore, the fundamental contention of this study is to study underlying ICT determinants of world heritage sites performance in Tanzania under the mediation variable of ICT usage.

1.2 The Proposed Theoretical Model

This study aimed to investigate determining factors influencing ICT usage toward performance of Tanzania World Heritage Sites with ICT usage being a mediating variable. One construct theoretical framework underpin our study was extracted from Technology, Organization, and Environment (TOE) theory and Technology Acceptance Model (TAM). To achieve the objectives of the study, the study examined how various interrelationships explain the selected factors in relations to ICT usage towards performance of WHSs.

1.2.1 Technological Factors (TF)

Technology factors in tourism organization provides a means of accessing, processing and distributing volumes of data faster in organization, and hence it aids thoughtful process of decision-making (Gastelú *et al.*, 2015). Based upon Ismail (2016); Tornatzky and Fleischer's (1990), and Szymczak (2016). context of technological factors, the following technological factors will be investigated as determinants toward ICT usage (1) perceived relative advantage; (2) perceived compatibility; (3) perceived less complexity. Each will now be considered in turn.

Perceived relative advantage refers to the degree to which ICT usage is considered as better than the idea it supersedes (Rogers, 1995). The implication is that WHSs are more likely to be oriented towards ICT usage in their daily operation if they perceive that its enabling technologies provide greater benefits than existing methods.

Second factor is *perceived compatibility*, which refers to the “degree to which ICT is perceived as being consistent with existing values, past experience and the needs of potential adopters” (Rogers, 1995. p243). The ICT usage resources can bring about significant changes to work practices and consequently causes resistance, particularly if ICT usage requires radical changes in WHSs.

The third factors are *perceived less complexity*, which refers to ICT usage being perceived as relatively easy to understand and use (Rogers 1995). This is because complex technologies create greater uncertainty about their successful implementation; therefore, increasing the risks inherent in the decision to use them.

1.2.2 Organizational Factors (OF)

To achieve the goal of this study, the literature shows that, organization factors varies in their internal resource bases and procedures, thus it affects their ability to respond to both internal and external issues that can impact its strategic objectives and the planning as well as the overall performance (Gastelú *et al.*, 2014). Based upon Szymczak (2016) context of organizational factors are derived from T.O.E theory. The following are organizational factors that will be investigated as determining

toward ICT usage; (1) ICT support infrastructure; (2) ICT support skills each will now be considered in turn.

ICT support infrastructure refers to the degree in which technological base-mate of computer, communication, data and basic systems are within the organization (Angeles, 2014; Moya and Engotour, 2017). The implication WHSs should strongly perceives ICT infrastructure as a technological framework that provide directions to organization in fulfilling business and management needs.

Second is the *ICT support Skills*; employees are the most important part of any organization, the employees knowledge with ICT is one of the crucial factors for an organization to start using ICT. It also needs the changing in work behaviors, qualification and knowledge about technology itself. If employees have knowledge with ICT the organization will accept using ICT (Chairoel et al., .2015).

1.2.3 Environmental Factors (EF)

The environmental factors in the T.O.E theory include features in which the firms conduct business (Malaysia, 2015). Tornatzky and Fleischer (1990), context of environmental factors and T.O.E theory, the following environmental factors will be investigated as determining factors toward ICT usage; (1) perceived competitive pressure; (2) perceived pressure from customers. Each will now be considered in turn.

Perceived competitive pressure is generally perceived to positively influence the ICT usage. Moreover, when the level of competition is high, organizations may use ICT

not on account of its relative advantage, but on account of the competitors who are already using it (Rish, 2013; Azam, 2015.).

Lastly, *perceived pressure from customers*, customer pressure represents a major force on organization to use ICT. Indeed, it is widely acknowledged that the Internet and other related technologies create ‘powerful customers’ who have a wealth of accurate, updated and unbiased information (Moya and Engotour, 2017). Therefore, it is expected that WHSs will have higher levels of using ICT.

1.2.4 ICT Usage

ICT usage is a construct adopted and adapted from the Technological Acceptance Theory which is based on acceptance level of new technology. ICT usage is defined as the “the measurement of the assessment of using different level of ICT application or is the measure of assessment of the degree of ICT utilization among different function area of the organization (Azam, 2015. p188). ICT usage influence the performance of WHSs through a process which comprises ICT usage factor an intervening variable discussed above which include technological, organization and environmental. Therefore, ICT usage is said to significantly play an important role in mediating between independent variables borrowed from .T.O.E theory and the dependent variable WHSs performance.

1.2.5 WHSs Performance (WHSsPI)

ICT usage directly influences organizational performance (Rishi, 2013) consequently, it is essential for an organizational to rethink their strategies to place

greater importance on ICT usage, allowing them to reach superior competitive advantages and performance. Vargas *et al.* (2016. P49), the use of ICTs is a strategy that allows companies to improve their competitiveness in their particular interest of improving their work systems”. Therefore, the following are performance indicators will be investigated; (1) *increase sale*; (2) *business relationship*; and (3) *customer relationship*. Each will now be considered in turn.

Increase sale as a result of ICT usage within an organization. Organization using ICT have on average 10 times higher sales per employees than a company without ICT utilization (Vargas *et al.*, 2016).

ICT usage facilitate business relationship; ICT usage helps to promote easy and fast communication between company and their business partners as it help to track business activates even across borders, lower cost of communication and broaden market base (Moya and Engotour, 2017).

ICT usages strengthen *customer relationship* as the more customers are connected to the site network. ICT usage within the company integrated customer database not only provide the latest client-related information, which better equips managers and employees for responding to customer inquiries, but also make business processes and knowledge accumulation more efficient (Vargas *et al.*, 2016.).

1.3 Research Problem Statement

Tanzania tourism industry particularly World Heritage Sites had been rather slow in

ICT usage in the process of transforming the service delivery system due to inadequate institutional arrangements, inadequate communications and poor infrastructure, shortage of ICTs facilities and skills as well as limited data management capacity has resulted Tanzania WHSs being slow in ICT usage in the process of transforming their service delivery system (Monko *et al.*, 2017).

Majority of these sites specifically the one in Tanzania main land are located in remote areas where ICT usage is still a challenge despite all the efforts and measure taken by the government toward promotion of ICT services in remote areas (Ministry of Works, Transport and Communication, 2016). This challenge is caused by inadequate investment in innovation and infrastructure development (Mtweve, 2013). “The sector is characterized by poor consumption and artworks, neglect, low publicity, weak branding, to mention a few” (Monko *et al.*, 2017, p53). For World Heritage Sites (WHSs) to be sustainable, they need regular care and established Management Plans (Ichumbaki and Mapunda, 2017).

Several studies however demonstrated a consensus that Technological (TF) (i.e., perceived relative advantage, perceived compatibility and perceived less complexity), organizational (i.e., ICT support infrastructure, ICT support skills) and environmental factors (i.e., perceived pressure from competitors and perceived pressure from customers) has a positive relationship with ICT usage (Ali, 2016) ; Awa *et al.*, 2016; Kante *et al.*, 2017; Kim and Kim ,2018; Mairura ,2016; Mairura, 2016; Obonyo *et al.*, 2016; Wagaw and Mulugeta, 2018). There is also a broad scholarly acceptance that ICT usage has a direct effect on organizational

performance. For example, Bahrini and Qaffa (2018) ;Nyambura (2018); Yunis *et al.* (2017); Vargasa *et al.* (2016) found a direct effect between ICT usage and performance of the organization.

With the relationship between determining factors towards ICT usage and between ICT usage toward organizational performance (PI) having broad scholarly acceptance, this study switches focus to the factors that ICTU mediates the relationship between the determining factors and World Heritage sites performance. Based on the researcher best of knowledge, none of the study globally and specifically in Tanzania has investigated the mediation effect of ICT usage on the relationship between the determining factors and World Heritage Sites performance, hence providing the basis for conducting this study due to fill both theoretical gap and contextual gap.

Taking into account that for ICT to be used in an organization it must be determined by technological, organizational and environmental factors which are grounded by T.O.E theory and for ICT to be accepted by individual user within the organization it must promise to bring benefit to the organization this is grounded by Technological Acceptance Model (TAM).

1.4 Objectives

1.4.1 General Objectives

The main objective of the study is to assess ICT determinants ofWorld heritage Sites Performance in Tanzania under the mediation effect of ICT usage.

1.4.2 Specific Objectives

- i). To examine the relationship between technological, organizational and environmental (T.O.E) factors and ICT usage in WHSs
- ii). To examine the relationship between ICT usage and WHSs performance
- iii). To examine the mediating role of ICT usage on the relationship between technological, organizational and environmental (T.O.E) factors and WHSs performance

1.5 Justification of the Study

Heritage tourism is among those niches growing most rapidly in the tourism market. Both private and public sectors are developing and marketing heritage as a tourism attraction in order to gain a piece of the lucrative global tourism pie (Ioannidis *et al.*, 2013). Indeed, the relationship between tourism and WHS has been explored by different academic and practitioners (e.g., Bartholomew *et al.*, 2011; Ioannidis *et al.*, 2013; Pedersen, 2002; Poong *et al.*, 2015; Schieder *et al.*, 2013). However, based on the researcher best of knowledge the only study that used a mediator effect was Salwani *et al.* (2009) who found technology competence, firm size, firm scope, web technology investment, pressure intensity and back-end usage have a significant influence on e-commerce usage, while back –end integration mediated the relationship .

Even the existing studies have focused on ICT usage in tourism while ignoring the effect of ICT usage on performance of WHSs. For example, Kilangi (2012) studied the factors influencing ICT adoption among SMEs in the tourism sector in Tanzania

and Isote (2013) studied the ICT aiming at finding the impact of ICT on performance of Tanzania Posts Corporation (TPC). Moreover, Msuya *et al.* (2016) studied the status of ICT adoption and use in Tanzania SMEs. However, knowing the mediation factors of ICT usage on the relationship between the determining factors and WHSs performance is one step for finding way to invest in ICT facilities and equipments to improve the UNESCO World Heritage Sites in Tanzania need, among other things, a clear strategy to exploit ICT potentials.

Managing a tourism destination and its attractions in today business environment is more complicated than in the past. Travel and tourism is predominantly digital, indeed, tourism is an information-intensive industry, largely due to the applications of ICT. For example, Matambalya and Wolf. (2001) found that the usage of fixed phone lines nearly reaches the saturation point globally, but is still lower in Tanzania. Therefore, there is a need for further research to the determining factors of ICT usage toward performance of WHSs as failure in addressing these challenges means the tourism sector in the country will not be able to compete with similar destinations not only in Africa, but also in the World market.

Literature reveals that there is limited investment in ICT for Tanzania tourism sector particularly in WHSs. Matambalya and Wolf. (2001.p19) said “diffusion of ICT in East Africa is low by international standards”. Kabanda and Brown (2015) argued that ICT usage in Africa countries is low and characterized by poor infrastructure. Likewise, Msuya *et al.* (2017. P27) “SMEs particularly those in the least developed countries south of the Sahara Desert have not been responding quickly enough to

changes in ICT”. In order to realize the potential brought by ICT and to ensure that effective and efficient utilization of ICT, this study will provide a better understanding on ICT determinants of World heritage Sites Performance in Tanzania under the mediation effect of ICT usage.

Nevertheless, Based on the researcher best of knowledge, there is agreement among scholars pertaining the relationships between determining factors and ICT usage (Adeola and Evans, 2019; Bahrini and Qaffas, 2018; Kante *et al.*, 2017; Kilangi 2012; Kim and Kim 2018; Lama *et al.*, 2018; Mukamanzi and Ndikubwimana. 2018; Wagaw and Mulugeta, 2018) and between ICT usage and performance of WHSs (Bahrini and Qaffa, 2018; Nyambura 2018; Shamim *et al.*, 2016). However, none of these agreements have investigated the mediation effect of ICT usage on the relationship between the determining factors and WHSs performance. Thus, the findings from this study are useful resource academically.

1.6 Significance of the Study

ICT usage is of paramount importance for WHSs to improve organization performance in term of increasing sales, improving both customers and business relationship, reduce operating costs, raise value to customers, achieve strategic competitive customers, and achieve strategic competitive advantage in the changing tourism business environment (Bahrini and Qaffa, 2018; Nyambura 2018; Shamim *et al.*, 2016). In order to address some of the challenges facing World Heritage Sites, ICT usage is appropriate for ensuring performance of the sites. The association between the technological, organizational and environmental factors and ICT usage

is strategy to solving World Heritage Sites ICT challenges. It is therefore important to identify determining factors of ICT usage in World Heritage Sites in WHSs in order to improve their performance under the mediation effect of ICT usage.

Furthermore, the study intends to fill a contextual gap in a sense that it has never been conducted in Tanzania. This will pave the way for other researchers from the LDCs to extend research on T.O.E theory as a review of the literature indicate a limited number of studies in these countries. Best on the researcher best of knowledge Kilangi (2012) conducted a study to tourism SMES which looked into the relationship between relative advantage, compatibility, complexity, organizational e-resources, top management support, competitive pressure and technological support and ICT usage. Therefore, this study contributes to T.O.E theory framework by the inclusion of ICT usage to fully mediate the relationship between perceived less complexity and WHSs performance. Thus the study has filled a theoretical gap that has provided a contribution to theory.

1.7 Organization of the Study

This study is presented in six chapters. Chapter one above, covered the background to the study, statement of the research problem as well as the research objectives and justification for the study. Chapter two contains literature review which present both theoretical and empirical. Conceptual and theoretical frameworks as well as research gap are also presented under this chapter. Chapter three covers research methodology which was applied. Thereafter, chapter four is presented and it covers the findings of the study. The discussion about the findings of the current study, conclusion,

implication of the study and recommendations are presented in chapter five and six respectively. Thereafter references that were consulted follows and the last but not least are the appendices

CHAPTER TWO

LITERATURE REVIEW

2.1 Chapter Overview

In this chapter, both theoretical and empirical literatures are covered. The goal of reviewing the literature is to report in greater detail about a specific range of previous studies that are related to the current topic of study. Consequently, specific areas addressed include conceptual definition, theories supporting the study, policy review, empirical literature review with its tabulated summary. The research gap follows after the summary of the empirical literature review and finally the conceptual framework.

2.2 Conceptual Definitions

2.2.1 Technological Factors (TF)

Oliveira and Martins (2010) define TF as the firm's current practices, equipment which affects its performance. Ismail and Mokhtar (2016) consider TF as an organizational existing technologies in use and new technologies relevant to the firm. In support of the above, Angeles (2014) argued, TF suggest methods that are used to implement technology solution; technocentric, sociocentric, conflict, bargaining, systems life cycle, and socio-technical systems approaches. TF in tourism organization provides a means of accessing, processing and distributing volumes of data faster in organization, and hence it aids thoughtful process of decision-making (Gastelú *et al.*, 2015). For the purpose of this study, the definition provided by Ismail *et al.* (2016) is extended to define technological factors influencing ICT usage by

considering the existing technologies in use and new technologies relevant to the firm. The basis for these technological contexts variables is grounded in the existing research by Ibrahim *et al.* (2015); Gutierrez *et al.* (2015); Musa *et al.* (2015); Osorio *et al.* (2016) who identified the issue of *perceived relative advantage (PR)*, *perceived compatibility (PCT)*, and *perceived less complexity (PCL)*.

2.2.1.1 Perceived Relative Advantage (PR)

Originally relative advantage was used to gain an insight of the relative superiority of an innovation and was defined as the degree to which ICT usage is considered as better than the idea it supersedes (Wang *et al.*, 2008 who adopted from (Rogers 2003,p.229). Wang *et al.* (2008. p6) provided the working definition of perceived relative advantage from as “the degree to which using a particular ICT is perceived as being better in terms of enhancing job performance than using its preceding/competing technologies”. This study will adopt the working definition of Wang *et al.* (2008) and define perceived relative advantage (PR) as the degree to which using modern ICT system is better than the old system and it promise to bring benefits to the organization.

2.2.1.2 Perceived Compatibility (PCT)

Perceived compatibility (PCT) refers to the degree in which ICT adoption and usage is perceived as being consistent with the organizational values, employee’s skills and experience and satisfies the need of the potential users (Alam *et al.*, 2011). Moreover, Shaharudin *et al.* (2012) defined PCT is a degree to which organization will accept modern ICT system if it is compatible with the existing infrastructure. This study

will adopt the definition by Shaharudin *et al.* (2012) as to which World Heritage Site will accept modern ICT system if they perceive to be compatible with the existing ICT system in use.

2.2.1.3 Perceived Less Complexity (PCL)

Perceived less complexity (PCL) refers to ICT usage being perceived as relatively easy to understand and use by user of new ICT system, the less complex of ICT usage, the more chance of individual accept it (Otieno, 2015). This is because complex technologies create greater uncertainty about their successful implementation; therefore, increasing the risks inherent in the decision to use them Otieno (2015) argued the level of complexity of ICT systems and infrastructure affect the cost of support. The study will adopt and adapt the definition from the work of Berman *et al.* (2012) which assert that modern ICT system must be easy of use and manageable in order to increase usage rate.

2.2.2 Organizational Factors (OF)

Angeles (2014) defined OF as the basis for organizing and includes features within the organization that encourage or discourage ICT usage. Another definition of organizational factors (OF) was given by Hwang *et al.* (2015) to mean internal resources bases and procedures which affects organization's ability to respond to both internal and external environment that can impact its strategic objectives and the planning as well as the overall performance. However, for the purpose of this study we adopted and adapted a definition by Hoti (2015) who defined organization factors as a framework containing organizational based equipments including *ICT support*

infrastructure (INF) and ICT support skills (SS) that are deliberately designed to be the determining factors that influence ICT usage within the organization.

2.2.2.1 ICT Support Infrastructure (INF)

ICT support infrastructure (INF) refers to the degree in which technological base-mate of computer, communication, data and basic systems are within the organization (Angeles, 2014; Moya and Engotour, 2017). The Study adopted the definition from Njonje et al. (2018) who defined INF to include both tangible and intangible hardware and software which enhances creation, acquisition, storage, dissemination, retrieval, manipulation and transmission of information.

2.2.2.2 ICT Support Skills (SS)

ICT support Skills (SS) refers to element such as computer and internet skills in term of operating, processing, changing, accessing and using software and hardware of computer and internet devices (Malaysia, 2015). The study borrowed a definition from Cheung (2001) that ICT skills is a degree to which individual; perceptions and beliefs about ICT usage is improved through the ability to tackle the learning curve and to minimize the fear that ICT system may bring to an organization.

2.2.3 Environmental Factor (EF)

Imre (2016) define EF to include arena in which the firm conducts its business which includes industry, competitors, and dealings with the government. Likewise Osorio *et al.* (2013) defined EF to includes elements which influence and hinders some areas of operations, this includes; competitive and customer pressure, trading partners,

readiness, socio-cultural issues, government encouragement technology infrastructure which includes access to quality ICT consulting service. However, for the purpose of this study we defined EF to include *perceived competition pressure (PCP)* and *perceived pressure from customers (PPC)* to be the main variation influencing ICT usage under the environmental factors. The adoption of this variable matches with Gatignon and Xuereb (1997) which argue that, environmental factors influencing ICT usage include elements such as; customer demand and competitors pressure and they have a strong impact on organizational capability and the way firms adapt to ICT.

2.2.3.1 Perceived Competitive Pressure (PCP)

Perceived competitive pressure (PCP) is generally perceived to positively influence ICT usage and defined to be the degree in which the level of competition determines ICT usage. When the level of competition is high, organizations may use ICT not on account of its relative advantage, but on account of the competitors who are already using it (Azam, 2015; Rish, 2013). Moreover, Kilangi (2012) defined PCP as a driving force toward ICT usage in many organizations for them to remain competitive. This study will adopt Kilangi's definition as to which pressure from competitors is a driving force for organization to use ICT for them to be able to compete in the same level.

2.2.3.2 Perceived Pressure From Customers (PPC)

Perceived pressure from customers (PPC) refers to the pressure given from the external factors including customers. Customer pressure represents a major force on

WHSs. Indeed, it is widely acknowledged that the internet and other related technologies create ‘powerful customers’ who have a wealth of accurate, updated and unbiased information (Moya and Engotour, 2017). Therefore, WHSs will have higher levels of performance if their customers exercise substantial pressure on them to be highly involved in ICT.

2.2.4 Information Communication and Technology (ICT)

ICT can be described as Information Communication and Technology (ICT). Sapprasert (2007) defined, ICT as technologies that are used for collecting information, storing of information, editing and passing on information in various forms. Freeman and Hasnaoui and Freeman (2010) defined ICT as a technology means of collecting, collating and conveying information via technology. For the purpose of this study, the definition provided by Hasnaoui and Freeman (2010) is adopted and modified to defined ICT usage as the combination of perceived ease of use and perceived usefulness of informatics technology especially communication technology to process and communicate information of a particular organization.

2.2.5 World Heritage Sites (WHSs)

World Heritage Sites (WHS) are defined to be places with an outstanding universal value; this was set out by the UNESCO convention of 1972 with the aim of protecting the World Cultural and Natural Heritage. Pereira and Oers (2011), WHSs have been a major driver behind the development of effective practices of urban heritage conservation and management. WHSs are places for social cohesion and can

help to foster a sense of pride. They can also act as the focus for education, tourism and economic regeneration (De Ascaniis *et al.*, 2018).

For the purpose of this study, the definition provided by Leask (2006) is adapted to define WHSs as outstanding universal value to be cultural or natural significance that is so unique in a given country and it attracts people beyond national boundaries and used to preserve that particular place for present and future generation.

2.2.6 WHSs Performance (WHSs PI)

According to Gavrea *et al.*(2011),WHSs performance is defined to include both financial and nonfinancial indicators which provide information on the extent of achievement of the site objectives and results. Salem (2003) defined WHSs performance as the ability to exploit its environment for accessing and using the limited resources. ICT usage positively influences WHSs performance (Rishi, 2013) thus, it is essential for WHSs to rethink of some strategies that will place greater importance on ICT usage thus. Vargas *et al.* (2016) the use of ICTs is a strategy that allows WHSs to win their competitors and improving their working environment. For this reason the proposed definition for this study is not a universally definition of the concept rather it has been adopted to fit the content of the study. Therefore, WHSs performance is defined as the extent to which organization such WHSs view their financial and non financial indicators which explain the degree of their success towards their objective and results. Therefore, the following are performance indicators used for this study;

Increase sale as a result of ICT usage. WHSs using ICT have on average 10 times higher sales per employees than a site without ICT utilization (Vargas *et al.*, 2016). *Business relationship*, ICT usage helps to promote easy and fast communication between WHSs and their business partners as it help to track business activates even across borders, lower cost of communication and broaden market base (Moya and Engotour, 2017). ICT usages strengthen *customer relationship* as the more customers are connected to the site network. ICT usage within the site integrated customer database not only provide the latest client-related information, which better equips managers and employees for responding to customer inquiries, but also make business processes and knowledge accumulation more efficient (Vargas *et al.*, 2016).

2.2.7 Decision Makers

The Cambridge English Dictionary defines a decision maker as a “person who decides things, especially at a high level in an organization.” A decision maker might be responsible for strategic decisions like acquisitions, business expansion or capital investment. Longman Dictionary defines decision maker to include individual in a large organization who is responsible for making important decisions. Likewise this study defines decision makers to include informed individuals working into this site with seniority level ranging from directors, senior managers, general park warden, managers, head of units, head of departments and zone warden officers with several roles including; shaping the development of WHSs, structuring their sites and its relation with other organization, facilitate meetings, marketing and business development roles and involved with competence development in a knowledge of the sites.

2.3 Theoretical Literature Review

2.3.1 Technology, Organization, and Environment Theory (T.O.E)

T.O.E theory provides a useful analytical framework that is used to study the determining factors influencing ICT usage (Oliveira and Martin, 2011). T.O.E theory was first developed by Tornatzky and Fleischer (1990), with the aim of considering technology, organizational and environmental factors to determine decision markers to ICT usage behavior. The main assumptions grounding this theory is that, decision to use new ICT system within the organization is determined by three factors namely; technological, environmental and organization (Adeola and Evans, 2019; Bahrini and Qaffas, 2018; Kante *et al.*, 2017; Kilangi 2012; Kim and Kim 2018; Lama *et al.*, 2018; Mukamanzi and Ndikubwimana. 2018; Wagaw and Mulugeta, 2018).

Specifically, the assumption grounding the T.O.E theory is that, it describes both the existing technologies in use and new technologies relevant to the firm. While assumption grounding organizational factors includes features within the organization that encourage or discourage the use of ICT and the assumption grounding environmental factors includes features in which the firms conduct business including; its competitors and its customers (Fuchset *al*,2010; Osorio *et al.*, 2013).

Crotti and Misrahi (2015) criticized T.O.E theory by indicating that, some of the elements in the theory are only applicable in large organization where clients are sure of continuity and they receive less complains from their clients. Therefore, small

organization might find difficulties in applying T.O.E theory. Likewise, Angeles (2014) criticized T.O.E theory by suggesting that, ICT usage factors are not consistent between researchers. For example, the technology factors can be related to system quality, information quality and service support quality while organizational factors are closely connected to structure and environment.

Despite of it's criticizes above, this theory was reliable for Saunders (2012) who applied to investigate ICT adoption and usage to Saudi retailers. The application of the theory was successfully as findings indicated that technological factors that influenced ICT to Saudi retailers included compatibility. The organizational factors included; ICT support infrastructure and ICT support skills while the environment factors included the pressure from competitors. Similarly, Saunders *et al.* (2017) applied T.O.E theory to investigate the determining factors influencing ICT usage at firm level in Philadelphia. This study employed this theory with modification suitable to the study area. It also applied T.O.E theory to guide the first objective of the study which intended to explore the determining factors (technological, organizational and environment) influencing ICT usage in WHSs.

This study applied T.O.E framework as an important theoretical perspective for studying contextual factors because the same technology may be used differently in different environment. The theory is also integrated because it helps to strengthen what has been generally neglected in other ICT usage studies. The T.O.E theory for this study will include different element borrowed from different studies who applied T.O.E theory. Under technological factors we will investigate perceived relative

advantage, perceive compatibility and perceived less complexity, under the organization factors, element such as ICT support infrastructure and ICT support skill while the variables under environmental factors will include perceive pressure from competitors and perceive pressure from customers.

2.3.1.1 Technological Factors influencing ICT usage

Technology factors play a critical role in the way business operates by changing the organizational structures as well as the degree of competition. Based upon Ibrahim *et al.* (2015); Ismail (2016); Gutierrez *et al.* (2015); Musa *et al.* (2015); Osorio *et al.* (2016) the following technological factors were investigated as determining factors influencing ICT usage in WHSs; *perceived relative advantage (PR)*, *perceived compatibility(PCT)* and *perceived less complexity (PCL)*; the following hypothesis is proposed.

H₁: There is a significant positive relationship between the technological factors and ICT usage in Tanzania WHSs in term of perceived relative advantage, perceived compatibility and perceived less complexity

Perceived Relative Advantage (PR): The support of new ICT system must recognize the potential brought by ICT usage to their existing problems (Adukaite *et al.*, 2016). Ismail and Mokhtar (2016) argued that, when employees or business owner perceive a relative advantage to new ICT system then the chance of using ICT will increase. “The greater the benefits received by the SME, the higher the possibility of ICTs adoption” (Mndzebele 2018; p58). Wagaw and Mulugeta (2018)

found that perceive relative advantage significantly influence ICT usage for improved promotion of tourist attractions in Ethiopia. Thus, the following hypothesis is proposed

H1a: There is a positive relationship between Perceived relative Advantage (PR) and ICT usage in WHSs

Perceived Compatibility (PCT): Perceived Compatibility is one of the determining factors of ICT usage in any organization (Isaac *et al.*, 2016; Kante *et al.*, 2017). In case the potential users have a negative perception of their previous technology, then the new technology ideas will be evaluated from the previous ICT performance (Naarmala, 2017). However, when the users perceive the new technology they wish to use will match their beliefs, culture and values and there is no resistance to change from the staff, they will use that technology. “The greater the perceived compatibility with the felt needs, the greater the diffusion rate” (Mndzebele 2013. p473). Thus the following hypothesis is proposed;

H1b: There is a positive relationship Perceived Compatibility (PCT) and ICT usage.

Perceived less Complexity (PCL): The usage of ICT is highly related to the perceived less complexity of the users. Depending with the previous ICT usage experience, if the experience was negative to an organization, then the complexity will consequently be negatively associated with the new ICT and the future ICT

usage will not be accepted (Baggio *et al.*, 2013; Bojnec *et al.*, 2017) argued, organizations are less reluctant to accept using ICT if it expects that a high level of new expertise must be recruited to cater for the new system. Aliu *et al.* (2016) articulated, if employees find difficulties to use ICT at the initial stage, then they will not use ICT even in the later stages. Therefore, Mndzebele (2013) concluded that the usage of ICT is highly related to its perceived less complexity by the organization, if the installed ICT system are much easy to use, it's very obviously like that it will be accepted. Based on the three elements of technological factors, the following hypothesis is proposed.

H1c: There is a positive relationship between Perceived less Complexity (PCL) and ICT usage in WHSs

2.3.1.2 Organization Factors Influencing ICT Usage

The organizational factors discussed above in the definition of concept has its origins from T.O.E theory and it indicates how some of the factors drastically matter if firm want to use new ICT system. Organizational factors include features within the organization that encourage or discourage ICT usage (Angeles, 2014).

Chung *et al.* (2008) argued, organizational factors refer to internal aspects that set the tone for ICT usage. Crotti and Misrahi (2015) added, organizational factors include different aspects to be the leading factors of ICT usage. Therefore, the magnitude elements of an organization's factors to influence ICT usage for this study will be

borrowed from Fuchs *et al.* (2010); Otieno (2015) literature to include ICT support infrastructure and ICT support skills; the following hypothesis is proposed.

H₂: There is a significant positive relationship between the organizational factors and ICT usage in Tanzania WHSs in term ICT support infrastructure and ICT support skills

ICT support infrastructure (INF): ICT infrastructure is defined to be one of the main components within the organization that enables a foundation of shared information technology capabilities upon which business depends (Angeles, 2014). Ismail and Mokhtar (2016) strongly perceives ICT infrastructure as a technological framework that provide direction to organization in fulfilling business and management needs. Most of organization in developed world has installed ICT infrastructure to remain competitive in the world economies (Angeles, 2014). However, this might not be applicable in developing countries, were installation of ICT infrastructure still lag behind to transform their organization to knowledge and information based services economies (Bartholomew *et al.*, 2015). This notion is supported by Osorio *et al.* (2013) as he argued; most developing countries are characterized by limited computer applications in the public sector, inadequate infrastructure and shortage of skilled manpower. The reason behind this is not due to lack of capital but due to poor coordination at different levels in making effective use of the technology; the following hypothesis is proposed.

H2a: There is a positive relationship between ICT support infrastructure (INF) and ICT Usage in WHSs

ICT support skills (SS): ICT usage within an organization is impeded with several barriers, including; lack of knowledge, lack of finance and lack of ICT skills (Osorioet al., 2013). However, few researchers have focused on identifying ICT skills as one of the determining factor that influence ICT usage within the organization (Oliveira and Martins, 2011). ICT skills within an organization contain elements such as computer and internet skills in term of operating, processing, changing, accessing and using software and hardware of computer and internet devices (Osorioet al., 2013). Knowledge in operating the above elements is an essential and key point for our study as it is one of the influences for ICT usage. Poor ICT skills within the organization are regarded as barrier to ICT usage thus cause difficulties in realizing the potential brought by ICT investment within the organizations (Oliveira and Martins, 2011). For instance, Osorioet al. (2013) argues that strong ICT capability which includes specific ICT skills of small firm owners has significant influence on ICT usage. Likewise, Chowdhury and Wolf (2003) argue that managerial ICT skills are important determining factors to influence ICT usage within the organization. Based on the two elements of the organizational factors, the following hypothesis is proposed;

H2b: There is a positive relationship between ICT Support Skills (SS) and ICT usage

2.3.1.3 Environmental Factors Influencing ICT usage

From the above discussion, environmental factors in the T.O.E theory include features in which the firms conduct business (Malaysia, 2015). These features are influenced by the industry itself, its competitors, customers and the firm's ability to access resources supplied by others, and the firm's interactions with the government. Fuchs *et al.* (2010) indicated that the environmental factors includes different elements that facilitate a firm to use ICT and is thus driven by the competitors and customer pressure. Due to the inadequacy of empirical studies on the relationship between environmental factors influences in ICT usage in WHSs, there is a need for practitioners and tourism researchers to further investigate these relationships (Lee *et al.*, 2015). With the aim of identifying environmental factors as a determining factor influence ICT usage in WHSs , this study borrowed two environmental factors elements from the study of Chairael and Riski (2018); Fuchs *et al.*(2010); Ismail and Ali (2013); to include; *perceived competitive pressure (PCP)* and *perceived pressure from customers (PPC)*; this study hypothesizes that;

H₃: There is a significant positive relationship between the environmental factors and ICT usage in Tanzania WHSs in term perceived competitive pressure and perceived pressure from customers

Perceived competitive pressure (PCP): Perceived competitive pressure is generally perceived to positively influence ICT usage. When the level of competition is high, organizations may use ICT not on account of its relative advantage, but on account of the competitors who are already using it (Lee *et al.*, 2015).ICT usage alters the rule

of competitive pressure, restructures the industry make-ups, and unravels novelty in outperforming rivals. It also offer new competitive strategies, alter new competition rules via lock in (Garau, 2014). Companies invest in ICT driven by the need to keep up with competition. ICT usage helps the company to increase the value of their competitiveness by allowing them to improve the process value. If they don't adopt and use ICT their possibility of striving and surviving the competition is slim thus they are force to adopt ICT (Mndzebele, 2018. p58); this study hypothesizes that;

H3a: There is a positive relationship between Perceived Competitive Pressure (PCP) and ICT usage in WHSs

Perceived Pressure from customers (PPC): From the first chapter, perceived pressure from customers represents a major force in any service industry. Customers have a strong influence on organization decision to use ICT as they view ICT to influence them in their purchasing decision, they also can compare between the actual and ideal performance of an application (Jung *et al.*,2015). Lacking pressure from customers, business owners and managers may perceive ICT usage as a waste of resources (Dieck andJung, 2018). Pai and Hiang (2011) evaluate five elements used by customers to make informed decision as a results of ICT usage this include; tangibility, reliability, responsiveness, assurance, and empathy.

These elements can be used by management action to highlight areas requiring managerial attention and action to improve their service quality. Miraz and Habib (2016) argued, as a result of ICT usage, businesses are able to receive immediate

customer feedback which allows companies to react fast to changing client demands and recognizing new market niches. Hassan and Ogundipe (2017) observed, firm tends to use e-commerce as a result of forces from external pressure including customers demand. For the significant influence of the environmental factors variable on ICT usage in WHSs, this study hypothesizes that;

H3b: There is a positive relationship between Perceived Pressure from Customers (PPC) and ICT usage.

2.3.1.4 ICT Usage toward Performance of WHSs (PI)

Regardless of the controversy over the performance indicators brought by ICT usage, know us “productivity paradox” which still exist even in the current face of successful evidence about pay-off from ICT usage (Kiriama, 2014), several literatures has found a positive link between ICT usage and organizational performance. However, the variable measurement of organizational performance is not yet straightforward. Past researchers have used different conceptualizations to measure business performance. (Bystrowska *et al.*, 2017) articulated that, business performance can be measure by market share and profitability, while, Kiriama (2014) said, organizational performance can be measure based on historical data or based on respondent perception of a certain organization performance in relation to their expectation and goal or by comparing the organizational with their competitors.

From the above paragraph, various studies have indicated different measurement of organizational performance for linkage with ICT usage such as market share, profit

growth, historical data, and organizational competitiveness. In this study, WHSs performance will be measured using three different function area according to the plan and goal of WHSs organization; this include; *increase sales*, *facilitate business and customers relationships*.

ICT usage increases sales: ICT usage within an organization facilitate customer's demand that may increase demand for organization products, consumer demand is perceived to raise as a result of internet usage where organization can easily match their products and increase value added in the amount the consumers is willing to pay (Hannif *et al.*, 2014). ICT allows cultural heritage to be uploaded, downloaded and access by other people in another side of the world thus it aims to project cultural identity of a particular destination (Parham, 2017). In recent years, ICT has increased sales especially to business engaging direct with online customers. Bystrowska *et al.* (2017) reported in 2014, there was 19.5% increase in sale of all the business sold online compared to 2009 where there were only 14% of all website sale. In terms of sales value, website sales reached £199 billion in 2014, up from £111 billion in 2009, or an 80% increase over the period. Moreover, a report by UNCTAD (2007) strong emphasizes that, organizational who deploy the use of internet in their day to day operation have seen their share growing faster from 2004 to 2006, to reach 56 per cent and results of the productivity analysis find that computer use, Internet access and there is higher sales per employee. ICTs offer tourism businesses, especially SMEs, unprecedented opportunities to increase their competitiveness.

2.3.1.5 ICT Usage Facilitate Business Relationships

Business relationship is one of the performance indicator brought as a result of ICT usage. ICT usage measures the cooperation that it creates between one organization and others. Service industry uses different tools to measure their cooperation, this includes, internet communication, business modeling tools, service development tools, discussion group and training tools (Bahrami *et al.*, 2012). Alam and Noor (2009), ICT is perceived to be a source of value creation to organizations through provision of intra-organizational communication at reduced cost. ICT has facilitated business meeting without all other part being physically present in the same place. However, there some drawback to this such as decreases the personal aspect of business relationship as in before business people use to network thus ICT has reduce business brainstorming and other communication which used personal touch.

ICT usage facilitate customer relationship: ICT usage enables service industry increases their competitiveness because they change the relationship with customers by creating a stronger link between firms and its clients (Vargas *et al.*, 2016). Alam and Noor (2009), ICT usages also provide customer satisfaction through improvement of service quality thus it offers new opportunities for companies. ICT help in bridging the gaps between customers and organization, by enhancing companies to respond faster on customers complains, by providing immediately feedback thus customers can become loyal to companies and there are room for companies to create niche market. This entail that, organizational that are able to adopt and use to all changes brought by the changing technological environment, and exploit all the opportunities brought by these changes, can handle various type of

innovation process in their business and become competitiveness and increase their growth. Therefore, De Jong *et al.*(2018); Bethapudi and Anand (2017) suggested that organizational needs to use ICT in increase sale, improve business and customer relationship and increase employees satisfaction. Hence becomes reasonable to put forth the following hypotheses regarding the relationship between ICT usage and WHSs performance.

H4: There is a significant positive relationship between ICT usage and WHSs performance

2.3.2 Technology Acceptance Model (TAM)

There are various theories that are associated with ICT usage being acceptance or rejection; in 1985, Fred Davis proposed TAM in his Doctorial thesis at the MIT Sloan School of Management (Hung *et al*, 2005). TAM is one of the popular theories of ICT usage in organization and it deals with user acceptance of technology. TAM suggests that, individual acceptance and use ICT in two different ways namely; “perceived usefulness” (PU) which means the degree to which an individual believe that ICT usage in an organization would enhance their job performance and “perceived ease of use” (PEOU) which is a degree to which an individual believe that ICT usage would enhance their job performance (Gefenet *al.*, 2003). tom Dieckand Jung (2015)acknowledged that TAM theory is considered one of the most influential theories for addressing user acceptance of ICT in the organization.

Oliveira and Martins (2011) criticized TAM theory by arguing that is not usefully for investigating acceptance level of ICTs usage to an organization. However, the

decision to use ICT within the organization is not based on individual level of acceptance rather it incorporate range of strategic firm level. In reality, most organizations require their employees to engage with the system available with no other alternatives. Ervasti and Helaakoski (2010) criticized the theory of TAM by arguing that, behavior should not be considered as a terminal goal instead they should be treated a means to a more fundamental goals. He further argued, intention to use may not be a representative enough of ICT actual use. Because the interval period between intentions to use and the implementation (using the system) could be hindered with many factors, that might influence an individual's decision to use ICT in both positive and negative ways.

A person intention could be subjected to evaluation and reflection, which might influence a person to make a different course of action. This study will focus on the strength of TAM theory by looking on ICT usage as the mediating variable. It is therefore correct to conclude that TAM theory through ICT usage variable mediates the relationship between determining factors (technological, organization and environment) and WHSs performance. They application of the two theory in the study is justified by the fact that, for WHSs to start using ICT it must be influenced by the T.O.E factors

2.3.2.1 Mediating Effect of ICT usage

Through the understanding of TAM theory postulated by Davis *et al.* (1985) above, the degree of user acceptance of technology positively affects ICT usage which in turn will influence performance. Organization will not use ICT if is not influenced by

the above determining factors (technology, organizational and environmental) and will not use ICT if it doesn't promise to bring any benefit to their company (Chung and Hossain, 2008; Ismail and Mokhtar, 2016; Kim and Kim 2017). For the purpose of this study, ICT usage can be observed through Email and web-based applications.

ICT usage enables WHS to enlarge their activities in the geographical, marketing and operational sense and play a particularly important role in managing relationship with customers (Kim and Kim, 2017). Ismail and Mokhtar (2016) added, Environmental factors influenced ICT usage which in turn resulted into increase sales, facilitated business to business relationship and facilitated customer relationship within an organization. Azam (2015) technological factors have a positive relationship with ICT usage resulting into great business to business relationship. However, Kim and Kim (2017) reported, mostly WHSs are not well represented with ICT facilities such as e-destination platforms and e-tourism services. Therefore, this relationship between determining factors influencing ICT usage and relationship between ICT usage and WHSs performance is crucial for investigation. Hence the following hypothesis is proposed regarding ICT as a mediating variable;

H₅: ICT usage positively mediates the determining factors and WHSsPI

2.4 Empirical Literature Review

2.4.1 The Relationship between Determining Factors and ICT usage

Fuchs *et al.*(2010) conducted a study using data gathered from 212 DMOs in Austrian to investigate factors influencing ICT usage and performance of Austrian

Destination by using a linear structural equation modeling approach. Results from the study suggest a positive relationship between environmental factors including pressure from competitors and organizational factor which include both ICT infrastructure and ICT skills proved to be the main determining factors behind ICT usage toward increasing value creation at the Austrian DMO.

Osorio *et al.* (2016) investigated the factors that influence ICT adoption and usage among SMEs in Colombia. Quantitative design was carried out through administering questionnaires to 474 SMEs. And multiple regression models using the data were obtained. The findings indicated that, perceived relative advantage among SMEs owners through new business opportunities that ICT offer were the main determining factors influenced ICT usage. However, ICT incompatibility has a negative impact on ICT usage.

Mndzebele (2018) explored the factors influencing ICT adoption and usage among SMEs in Swaziland. Through a quantitative survey and collection of data from 100 SMEs owner and a descriptive research survey has been used to investigate factors that influence ICT adoption by SMEs. To answer the research question, the mean and standard deviation were used to identify the factors that influence ICT adoption but SME. The findings indicated 8 factors to be the determining factors influencing ICT adoption and usage among Swaziland SMEs. The most important were environmental factors through pressure from customers and pressure from competitors. He also emphasized on providing education to SMEs on the importance

of ICT to their business and affordance of ICT determining how SMEs will benefit from ICT usage.

Mupfiga (2015) employed both qualitative and quantitative methods to examine the determining factors influencing ICT usage in tourism and hospitality sector in the Meikles Hotel in Zimbabwe. Owners and marketing managers of organizations that run innovative web sites, as demonstrated by the methods used to interact with their clientele, were targeted and an interview was requested. Twenty five telephone contacts were made and 28 interviews were finally conducted, which resulted in a 51% response rate. The quantitative findings indicated significant positive relationship between stakeholder readiness or perceived usefulness and ICT usage.

Awa *et al.* (2016) conducted a survey aimed to investigate ICT adoption factors through the application of T.O.E framework in Nigeria SMEs working in service industry. The investigation involved 12 factors within the technology-organization-environment (T-O-E). Survey data were collected from executives of SMEs drawn from six fast service enterprises with strong operations in Port Harcourt, Nigeria.

Quantitative designs were applied and Survey data were collected and analyzed through the logistic regression. The findings indicated that, technological factors are the main determining factors influence ICT usage than the organizational and environmental factors.

Mwai (2016) conducted a study aiming to examine the determining factors influencing ICT by Small and Medium Enterprises in the hospitality industry in

Kenya. The sample size was 100 management and technical staff from Nairobi region. Both quantitative and qualitative data was collected by use of questionnaire with both open and closed ended questions. Data was analyzed and presented using descriptive statistical tools including frequencies, percentages, mean and standard deviation. SPSS (Statistical package for social sciences) model was used in data analysis. The findings indicate that, Environmental factors through pressure from customers, technological factors through compatibility of ICT system were the most determining factors influencing ICT usage among Small and Medium Enterprises in the hospitality industry in Kenya.

Table 2.2 indicates the summary of the reviewed literature on the relationship between determining factors and ICT usage. It reveals that the relationship between determining factors and ICT usage has been studied in different industries such hotel and SMEs and have applied different analytical methods including SEM, t-test statistics, multiple regression and SPSS. However, this technique does not permit generalization of the findings, thus the majority of these studies are limited to the studied population. The current study, however, deviates from the majority of these studies as it has utilized probability sampling specifically simple random sampling. On theoretical base, none of the study applied TAM theory through ICT usage as a mediating variable to test the relationship between determining factors influencing ICT usage. Further, on methodology side, none of the studies applied SEM to test the relationship between determining factors influencing ICT usage and actual ICT usage on WHSs.

Table 2.1: Previous Studies on the Link between Determining Factors and ICT Usage

Author and Year	Study Objective(s)	Context/ study location	Research method and Analytical Method	Findings
Fuchs <i>et al.</i> (2010)	To proposes an empirical approach that shows how the Infrastructure, organization and environmental factors determine both e-business adoption and the impact of ICT.	Austrian	CFA,EFA using Linear structural equation modeling approach	Positive relationship between environmental context and ICT infrastructure proved to be the main factors behind ICT usage
Gallego <i>et al.</i> , (2016)	To investigate the factors that influence ICT adoption and usage among SMEs	Colombia	Quantitative through series of multiple regression models	Positive relationship between perceive relative advantage and ICT usage
Mndzebele (2018)	To explore the key factors that influence ICT adoption on Small Medium Enterprises in	Swaziland	Quantitative study through mean and standard deviation	Positive relationship between pressure from customer and competitors and ICT usage
Mupfiga (2015)	To examine the Adoption of ICT in the tourism industry mainly looking at Meikles Hotel in Zimbabwe	Zimbabwe	Descriptive statistical tools including SPSS	Significant positive relationship between stakeholder readiness and ICT usage
Awa <i>et al.</i> , (2016)	To investigate ICT adoption factors through the application of T.O.E framework in Nigeria SMEs working in service industry	Nigeria	Quantitative through logistic regression.	Positive relationship between technological factors and ICT usage
6. Mwai (2016)	To clarify the factors influencing adoption of ICTs in accessing information by Small and Medium Enterprises in the	Kenya	Descriptive statistical tools including frequencies, percentages, mean and	Customer characteristics, initial ICT installation and running costs are the most

hospitality industry
in Kenya

standard
deviation.
SPSS

determinants
factors
influencing ICT
usage IN SMEs in
Kenya

2.4.2 The relationship between ICT Usage and WHSsPI

The tourism and hospitality industries have continually adopting and using ICT as a strategy to reduce their operation cots, enhance operational efficiency, and most importantly to improve their service quality as well as ensuring customer satisfactions (Law *et al.*, 2009). ICT plays an increasingly important role in almost all aspects of the organization's operations and corporate strategies.

Investment in ICT has provided positive contribution and can be said to have increased the company's productivity (Agwuet *al.*, 2016; Latham and Apulu, 2011), the effective use of ICT in many organizations would assist in creating several opportunities. ICT has enhanced performance in different elements such as profit, efficiency, effectiveness, productivity and quality (Chairoel *et al.*, 2015). ICT has enabled organization to stay competitive by increasing quality and efficiency, it allows great control of management, and it also provides direction by identifying the right process to be taken with an organization.

According to Ion and Andreea (2008) ICT enhance operational benefits, tactical benefits, strategic benefits. Likewise, Latham and Apulu (2011), the benefits of ICT

for a firm includes saving of inputs, general cost reductions, higher flexibility and improvement in product quality.

According to Bahrami *et al.* (2012) conducted a study on 400 tourism and hospitality company in Iran to examine the relationship between ICT usage and customer relationship. The study developed a framework to test the relationship between ICT usage and customer's relationship. It also used modern information technology tools as inputs to collect data. Findings from this study suggest that ICT usage within an organization has a positive effect in improving customer relationship among tourism and hospitality forms in Iran.

Zhang and Liu (2016) conducted a study to investigate the relationship between ICT usage and performance indicators to the WHSs in Europe. Results from quantitative approach indicated positive relationship between ICT usage and customer relationship to European WHSs. A high percentage of the respondents admitted that the use of ICT play a great role in increasing the visibility of the WHSs to other part of the world. These findings are of particular interest for the emerging field of ICTs usage toward performance of WHSs in Tanzania. However, some of the performance indicators that measures ICT usage in WHSs were not included in this stud.

On the other hand, the study done by Chowdhury and Wolf (2003) aimed at investigating ICT usage toward economic performance of SMEs in East Africa. The study used survey method to collect data from 300 food processing industry, textile and tourism industry in East Africa. The distribution is 150 enterprises from Kenya

and Tanzania each, distributed equally among the three sectors. OLS regression was used for analysis. The findings suggest that, ICT usage has a positive impact on market expansion thus ICT usage in the transaction process can foster input and output market expansion.

Moreover, Azdelet *et al.* (2012), ICT usage in restaurant management information system has developed store performance through provision of managerial reports, ensures service quality, reduce waiting times for food delivering, store recording, and improve service quality and planning food production and scheduling labor. Hengst and Sol (2001) investigated the impact of ICT usage on organizations in Nigeria. Case study method was applied and data were analyzed using SPSS software. The study confirm that, ICT usage facilitate an organization to reduce its operation cost which result into decrease of selling price, increase organizational capabilities and also, it help in enhancing inter-organizational coordination.

A study by Ansah *et al.* (2012) analyzed the use of ICT in front office operations of chain hotels in Ghana, the emphasis of the study was to find out if the use of ICT has any effect on chain hotels' front office operation. They noted that, ICT has reduced queues at the front office through on line check in and check out. Consequently, ICT usage has a positive effect in reducing operation cost and labour requirement of the hotel sectors.

Moreover, a study by Yousaf (2011) investigated the impact of ICT in the eyes of hotel managers (Cyprus), the main emphases was to capture the impact of ICT on the

business aspects of hotel administration in the eyes of the general managers, the finding indicated that ICT adoption only plays a significant role in influencing operational productivity more than customer satisfactions, while the intensity of ICT usage plays a role in both operational productivity and customers satisfaction. Having said so, in any case, ICT has become a critical for the competitiveness of both service sectors.

By looking on the performance measurement of ICT usage into world heritage sites, a study by Yamaguchi *et al.* (2009) investigates five underlying needs of introducing ICT in the WHSs town of Luang Prabang namely database system, networking, web site, IT center, and human resource development. The authors did not pay attention on how the introductions of ICT in WHSs will bring performance of the sites. Moreover, a study by Adel (2011) investigated the ICT, organizational innovations, human capital and performance of Tunisian firms sector; they found that, regardless of realizing the important of ICT in their firm performance, much investment is placed intensively in organizational innovation and human capital than in ICT as it allows firms to improve their global performance. The firm's owners believe that, in order to gain business performance, ICT investment should be combined with new organizational practices and high level of human capital.

In the context of Tanzania, a study by Issa (2013) investigated the level of ICT usage within tourist hotel operations in Zanzibar; they noted that, 40% of the hotel owners regard ICT as extremely important while 55% just regard it as important while 5% did not see the important of using ICT in their operation. They further found that,

95% of hotel investigated still has low ICT utilization in their hotel operations areas such as e-booking, e-reservation and e-commerce nevertheless of owning their own websites. In support of their findings, a study by Kijo-Ring (2005) pointed out that, most of Tanzania SMEs does not pay attention in ICT investment, little effort is done to invest in ICT equipment which is one of the reasons less is budgeted for ICT updates.

2.4.2.1 ICT Usage Impact On Sales

ICT usage within an organization facilitate customers demand that may increase demand for organization products, consumer demand is perceived to raise as a result of internet usage where organization can easily match their products and increase value added in the amount the consumers is willing to pay (Hannif *et al.*, 2014). ICT allows cultural heritage to be uploaded, downloaded and access by other people in another side of the world thus it aims to project cultural identity of a particular destination (Nwegbu *et al.*, 2011).

In terms of sales value, website sales reached £199 billion in 2014, up from £111 billion in 2009, or an 80% increase over the period. Moreover, a report by UNCTAD (2007) investigated the economic impact of ICT use in the Thai business sector affirms that, organizational who deploy the use of internet in their day to day operation have seen their share growing faster from 2004 to 2006, to reach 56 per cent and results of the productivity analysis find that computer use, Internet access and there is higher sales per employee. The sectors with high internet penetration rate in business belong to the services industry.

2.4.2.2 ICT Usage Impact On Business Relationships

ICT usage performance measure is the cooperation that it creates between one organization and others. Service industry uses different tools to measure their cooperation, this includes, internet communication, business modeling tools, service development tools, discussion group and training tools (Bahrami *et al.*, 2012), ICT is perceived to be a source of value creation to organizations through provision of intra-organizational communication at reduced cost. ICT has facilitated business meeting without all other part being physically present in the same place. However, there some drawback to this such as decreases the personal aspect of business relationship as in before business people use to network thus ICT has reduce business brainstorming and other communication which used personal touch. 2.10.2. ICT usage impact on efficiency.

Another benefit of adopting e-business could be the higher efficiency obtained in business transactions due to a fast and accurate processing of information (Liebenau and Kärrberg, 2009). Likewise, in education sectors, De Witte and Rogge (2014), ICT improve efficiency by reducing the time needed for instruction and it enhance better administrative processes. However, De Witte and Rogge (2014) said, the efficiency of ICT in education differ from country to country, in their study were they investigated ICT efficiency in education of 27 EU-countries and some OECD countries, their findings noted a quit difference in efficiency between these countries, the efficient countries include Belgium, Korea, Finland and Norway. The inefficient countries are found to have considerable room for improvements.

Another study by Chelariu and Osmonbekov (2014) aimed to investigate the antecedents and performance consequences of three types of communication technology (phone, e-mail and internet) in cross-border business-to-business relationships. Quantitative design was applied as six hypotheses were developed and regression analysis was used to analysis data. Data were collected from American exporters and the findings revealed that ICT usage through phone, e-mail and internet predict both interpersonal communications, they further found that increased frequency of phone and e-mail communication enhance inter-firm relationship.

A study by Ofori-Dwumfuo and Kommey (2013) aimed to investigate the use of ICT tools in Knowledge Management in the Ghanaian state organization, Volta River Authority (VRA) affirm that, ICT knowledge enhance organizational efficiency proved by their data as out of the total 120 respondents, forty-eight (42.5%) responded that ICT management tools have increased their job efficiency. Eighteen (15.9%) stated that the tools have increased job efficiency, also, fourteen (12.4%) of the respondents indicated that the ICT tools have increased job efficiency and given them better access to work. Therefore, Alam and Noor (2009) ICT usage is one of the business strategy to ensure competitive advantage within the organization, it offer a room to compete on global scale with improved efficiency and more concerned in customers and supplier relationship.

2.4.2.3 ICT Usage Impact On Customer Relationship

ICT usage enables service industry increases their competitiveness because they change the relationship with customers by creating a stronger link between firms and

its clients (Melville *et al.*, 2004). Alam and Noor (2009), ICT usages also provide customer satisfaction through improvement of service quality thus it offers new opportunities for companies. ICT help in bridging the gaps between customers and organization, by enhancing companies to respond faster on customers complains, by providing immediately feedback thus customers can become loyal to companies and there are room for companies to create niche market.

This entail that, organizational that are able to adopt to all changes brought by the changing technological environment, and exploit all the opportunities brought by these changes, can handle various type of innovation process in their business and become competitiveness and increase their growth. A study by Al-Azzam (2016) aimed to evaluate the relationship between Customer relationship Management dimensions and hotel performance in Jordan. The study survey 50 hotels in Jordan and they applied both correlation and regression analysis and testing of the hypothesis. The findings revealed that there was a strong relationship between Customer relationship Management and Hotel performance in Jordan.

Table 2.3 summarizes the above-reviewed literature on the relationship between ICT usage and performance of World Heritage sites (PI).However, the literature on the relationship between ICT usage and performance of WHSs are scant and this is one of the reasons which motivated the current study in order to fill this gap.

Table 2.2: Previous Studies on the Link between ICT Usage and WHSs Performance

Author and Year	Study Objective(s)	Context/ study location	Research method and Analytical Method	Findings
1. Chowdhury and Wolf (2003)	To investigate the factors that influence ICT adoption and usage among SMEs	East Africa, Kenya, Uganda and Tanzania	Quantitative through series of multiple regression models	Investment in ICT has a positive effect on general market expansion
2. Bahrami <i>et al.</i> (2012)	to examine the relationship between ICT usage and customer satisfactions to tourism and hospitality company Iran	Iran	modern information technology tools as inputs to collect and analyze data	ICT usage within an organization has a positive effect in improving customer relationship
3. Hengst and Sol (2001)	To investigated the impact of ICT usage on organizations in Nigeria	Nigeria	Case study method and SPSS software	There is posiive impact of ICT usage on improving organization operarton, growth and competitiveness
4. Ansah et al., (2012)	To investigate if ICT usage has any effect on chain hotels' front office operation	Ghana	Quantitative through series of multiple regression models	ICT usage has a positive effect in reducing operation cost and labour requirement of the hotel sectors
5. Zhang and Liu (2016)	To investigate the relationship between ICT usage and performance indicators to the WHSs in Europe	Europe	The simple percentage, mean, standard deviation, t-test statistics, and regression	Positive relationship between ICT usage and WHSs performance through increasing customer relationship

2.5 Research Gaps

There is agreement among scholars pertaining the relationships between determining factors and ICT usage (Adeola and Evans, 2019; Bahrini and Qaffas, 2018; Kante *et al.*, 2017; Kilangi 2012; Kim and Kim 2018; Lama *et al.*, 2018; Mukamanzi and Ndikubwimana. 2018; Wagaw and Mulugeta, 2018) and between ICT usage and performance of WHSs (Bahrini and Qaffa, 2018; Nyambura 2018; Shamim *et al.*, 2016). However, based on the researcher best of knowledge there are limited study that investigated the mediation effect of ICT usage on the relationship between the determining factors and WHSs performance. Thus, this study aimed at filling this gap and making contribution to the theory.

On the other hand, the majority of researches on determining factors influencing ICT usage and ICT usage toward performance in tourism have concentrated in developed countries and those from Africa particularly Tanzania (e.g., Kazoba *et al.*, 2016; Kilangi, 2012; Monko *et al.*, 2017) have concentrated in SMES and on a specific destination while none of the study have given attention on World Heritage Sites. Thus, this study aimed at filling this contextual research gap and making contribution to the theory.

2.6 Conceptual Framework

The conceptual model presented in figure 2.1 reflects the 7 hypotheses that are tested in this study. It is a specified structural equation model (SEM) whose model fit was tested using primary data from this study. In the process of analyzing the mediation effect of ICT usage on the relationship between the determining factors and WHSs

performance, there are two effects involved namely direct effect and indirect effect. The direct effect is the effect from the independent variables (determining factors i.e. technological, organizational and environmental on the left side of the model) directly to dependent variable (WHSs PI on the right side of the model) addressing hypotheses 5 – 7 of the study. While the indirect effect is the effect from independent variables (determining factors i.e. technological, organizational and environmental factors) to dependent variables (WHSsPI) that goes indirectly through the mediating variable (i.e. ICT usage on the middle of the model) and this constitutes hypotheses 1 – 4 of the study.

The conceptual model is generated from the literature; we examined the direct effect and indirect effect of determining factors (i.e. technological, organization and environmental variables) on WHSs performance. In the structure equation model, if the determining factors variables on WHSs performance are reduced, and the determining factors variables through the mediation effect of ICT usage is significant, then ICT usage is said to play a mediation role in linking the determining factors to WHSs performance indirectly.

The independent variables are built from the T.O.E theory as they have been modified to fit the context of study and their borrowed from different studies. Varying number of measured indicators were used to measure and record responses for examples, the technological factors are refined into three first-order variables; (1) perceived relative advantage; (2) perceived compatibility; and, (3) perceived less complexity. The basis for these technological contexts variables is grounded in the

existing research by Aljowaidi, 2015; Chong *et al.*, 2009; Gutierrez *et al.*, 2015; Ibrahim *et al.*, 2015; Isaac *et al.*, 2016; Kante *et al.*, 2017; Musa *et al.* (2015); Osorio *et al.*; 2016; Wagaw and Mulugeta (2018). The organizational factors are refined into two first-order variables; (1) ICT support infrastructure (INF); and, (2) ICT support Skill (SS). The basis for these organizational contexts variables is grounded in the existing research of Adeola and Evans, 2019; Fuchs *et al.*, 2010; Otieno, 2015. The basis for environmental contexts variables is grounded in the existing research by Chairael and Riski (2018); Ismail and Ali (2013);

At the center of the model is the ICT usage mediating variable that link between the independents variables and the dependent variables. This variable make up the TAM which aims to identify user's acceptability level of new ICT system. When a user is presented with new technology, the "perceived usefulness" and "the perceived ease of use" notably influence how and when users utilize it. This variable is also latent and was measured using 6 measured indicators.

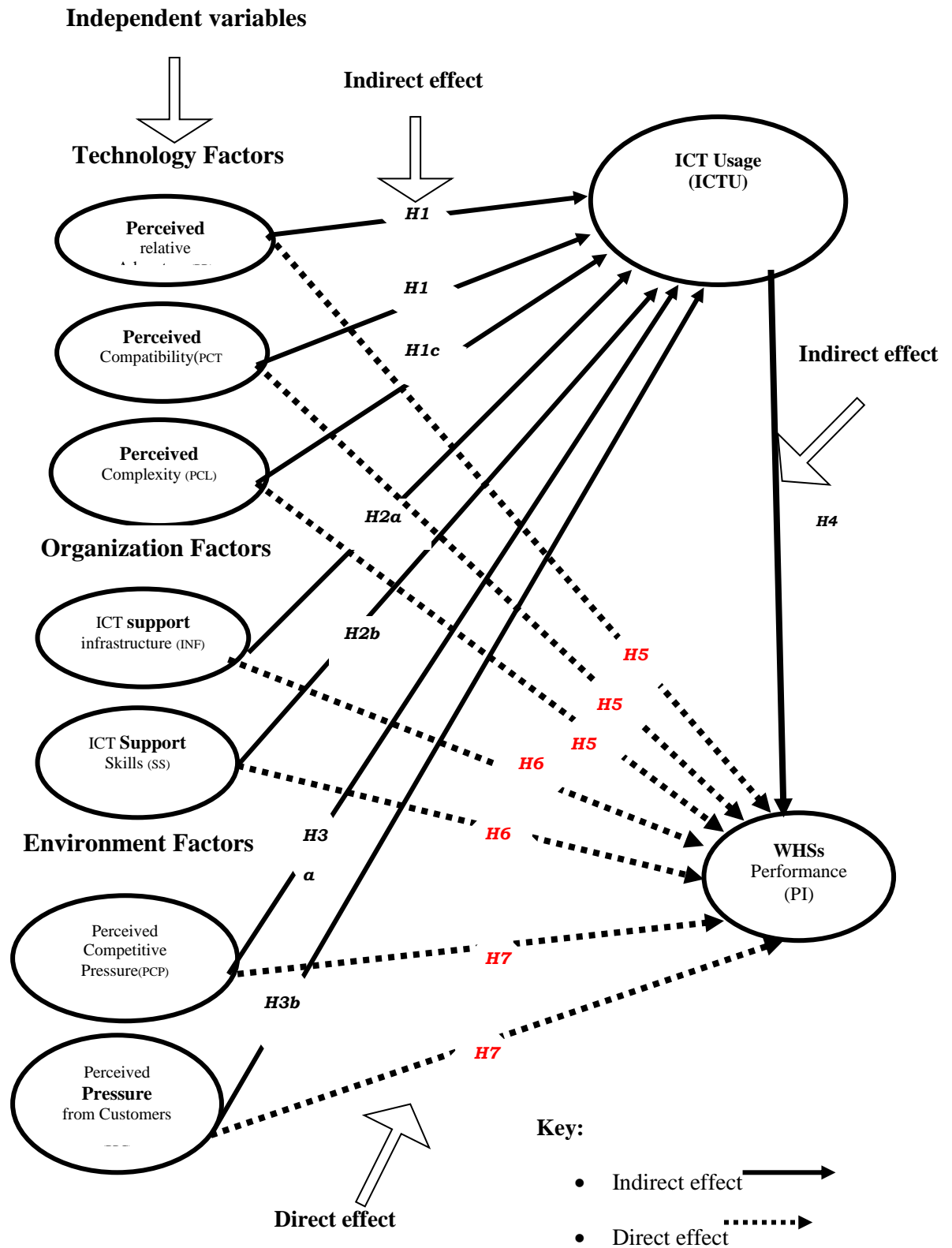


Figure 2.1: Conceptual Framework of ICT usage in WHSs

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Chapter Overview

The aim of this chapter is to describe the research methodology used to investigate the determining factors influencing ICT usage on WHSs performance. It also describes the mediation effect of ICT usage on the link between the determining factors and WHSs performance. This chapter discusses the research design, study area, design of questionnaire, data collection, and data analysis. Finally, the chapter presents a summary.

3.2 Research Philosophy and Approach

Scientifically there are two basic approaches to research methods in Social science. First the Interpretive Phenomenological Analysis (IPA) which prefers humanistic qualitative methods and is concerned with exploring people's accounts of their phenomenology, which is their significant life experiences, and their interpretations, that is the meaning they attach to them (Trinkowsky, 2015). The IPA approach is flexible and responsive, and encourages an organic flow of questioning, interpretation, and meaning making as the process unfolds, for both the participant and the researcher.

The second one is the positivist research philosophy which prefers scientific quantitative methods and will be applied in this study. According to Greener and Martelli (2015) positivism philosophy states that only phenomena which we can

know through our senses can really produce knowledge and that; it is usually associated with empirical testing. Hence this study makes use of positivism research philosophy. According to Scotland (2012), positivist philosophy is aimed at explaining relationships through identification of causes that influence outcomes. The ultimate aim is to devise laws and form a basis for prediction and generalization. Hence the use of positivist philosophy in this study is justified by the fact that the researcher tested the relationships between the determining factors (i.e. technological, organizational and environmental variable) and World Heritage Site performance under the mediation effects of ICT usage and empirical testing of hypotheses.

3.3 Research Approach

With regard to research approach, a deductive approach was followed in this study. In this approach, data collected was used to explain causal relations between the variables and concepts. Accordingly, Bhattacharjee (2012), deductive is a typical approach to positivist philosophy and it employs empirical data. Scotland (2012), deductive approach often involves empirical testing, random sampling techniques, and controlled variables such as independent, dependent, moderators and control groups. With this approach, a researcher was able to use a structured methodology to enable replication of the study if needed.

3.4 Research Design and Strategy

The design of this study is explanatory research. According to Tharenou et al. (2007) and Saunders *et al.*, (2009), explanatory research design is referred to as an attempt

to study cause and effect. Accordingly, Yin (2011) argues that; the main purpose of explanatory research is to identify any causal relations between the factors or variables relevant to the research problem. That is to say, the current study attempted to explain the interplay between the determining factors and ICT usage, ICT usage and WHSs performance and to test the mediation effects of ICT usage on the relationship between the determining factors and WHSs performance using Structural Equation Modeling technique.

The choice of Structural Equation Modeling (SEM) is justified by the fact that; unlike other quantitative statistical models, it can be used to study the relationships among latent constructs that are indicated by multiple measures (Garau, 2014). Byrne argue further that SEM provides explicit estimates of measurement errors in the parameters and that, unlike other multivariate procedures, SEM measures both unobserved and observed variables. With regard to research strategy, this study utilizes survey method. Saunders et al. (2009) assert that survey methods allow researchers to collect quantitative data which can be analyzed quantitatively using descriptive and inferential statistics and that; it is usually associated with the deductive (positivism) approach.

3.5 Area of Research

The population of interest for this study was all the seven Tanzania UNESCO World Heritage Sites (WHSs) which are divided into three categories; natural sites, cultural sites and mixed sites which are located in different region of the United Republic of Tanzania (See attached figure 3.1. location of the WHSs within Tanzania). The

selected study areas includes; Ngorongoro Conservation Area (NCA) in Arusha region (Mixed site); Ruins of Kilwa Kisiwani and Ruins of Songo Mnara in Kilwa Kisiwani region (cultural site); Serengeti National Park in Arusha Mara region(nature); Selous Game Reserve (SGR) in Iringa and Morogoro region (nature); Kilimanjaro National Park in region (nature); Stone Town of Zanzibar (culture) and the Kondo Rock-Art Site located in Dodoma region specifically in Kondo district (culture).



Figure 3.1: Locations of World Heritage Sites in Tanzania

Source: UNESCO (2018)

As pointed out in the literature review, the study utilized data from decision markers of all the WHSs. Given the challenges involved in obtaining a comprehensive list of all the decision markers in WHSs, this study relied on data from the Ministry of Natural resources and Tourism which comprises a cumulative list of 407 decision markers including 191 from natural sites, 149 from cultural sites and 67 from a mixed site (see figure 3.1).

3.6 Sample Design and Techniques

The nature of the study is based on positivist approach; probability sampling was applied for all WHSs of all sizes across the country (nature, mixed and cultural). The importance of ICT usage in measuring WHSs performance is limited as the amount of variance between nature, cultural and mixed sites in several studies is modest (Chowdhury and Wolf, 2004). According to Kalbaska (2015), ICT usage in WHSs enriches visitors experience through the use of ICT tools (i.e. mobile) while onsite. Chowdhury and Wolf (2004), ICT usage in WHSs is an important determinant of market expansion and in the transaction process.

From the population, stratified random sampling was employed by grouping WHSs based on UNESCO categorization type (nature, mixed and culture) to form three strata from which systematic random sampling was conducted. This aimed at ensuring sample representative. Saunders *et al.* (2009), defines stratified random sampling as a modification of random sampling in which the sampling frame (appendix iii) is divided into a number of subsets called strata. Systematic random sampling was then applied to select respondents from each stratum based on their

ratio in the population computed as X_c/XW for cultural sites, X_n/XW for goods natural sites and X_m/XW for mixed sites.

Where X_c is the number of cultural sites

X_n is the number of natural sites

X_m is the number of mixed sites

XW is the total number of WHSs

Hence the ratio of decision makers from cultural sites in the population is $149/407=0.366$. The ratio of decision makers from natural sites in the population is $191/407=0.469$. The ratio of decision makers from the mixed sites is $67/407=0.165$. These ratios were then used to compute the number of respondents that were included in the study from each stratum as shown in section 3.9.

3.7 Sample Size

A literature suggests that the sample size which is taken by research, depend on the type of the research to be undertaken and research design. Mokua and Memba (2015) suggested that correlation research requires 30 cases or more for descriptive study ten percent of the population is enough for population below 10,000. However, the principle of Structural Equation Modeling (SEM) requires large sample sizes. In this study, the research instrument consists of fifty six (65) indicator variables.

The common rule suggests that a researcher has at least 10 – 15 participants per variable (Field, 2009). Hence a sample size of at least 10×65 which equals 650 would suffice. However, 650 sample size exceed the recommended minimum sample size, to be certain that there was an adequate sample size that gave enough data for

analysis and to conform to the principles of structural equation modeling (the major statistical method to be used for analysis), a minimum sample size of 200 which is a typical average in many studies where SEM was used (Byrne, 2010). Taking into consideration each stratum (cultural, natural and mixed), and considering the population ratios for each (as computed in 3.7 above), the sample sizes for each stratum were computed as follows:

- i). cultural sites: $0.366 \times 200 \approx 73$ cultural sites decision makers
- ii). natural sites: $0.469 \times 200 \approx 94$ natural sites decision makers
- iii). mixed sites: $0.165 \times 200 \approx 33$ mixed sites decision makers

The above computation gives a sample size of 200 as recommended by Byne (2010). In order to establish the number of questionnaires to be distributed, the researcher made reference to past similar studies with regard to response rate. For instance Bernard (2006) suggested that paper-based survey delivered through drop and collect techniques on average achieves a response rate of up to 60% whereas Nulty (2008) states that paper based surveys achieve an average response rate of 56.5%.

For the sake of avoiding over-ambition, the researcher anticipated a response rate of 56.5% as suggested by Nulty (2008). This rate 56.5% was used to compute the actual number of questionnaires that would be distributed in order to receive back at least 200 filled in questionnaires as follows: (Number to questionnaires (N_q) = estimated sample size (n) / % retained (y)). The number of questionnaires that were distributed to cultural sites was $0.566 \times N_c = 73$, then $N_q = 73/0.566 \approx 129$. The number of questionnaires (N_n) that were distributed to natural sites were computed as $0.566 \times$

$N_n=94$, then $N_n = 94/0.566 \approx 166$. Likewise, the number of questionnaires (N_m) that were distributed to mixed sites were computed as $0.566 \times N_n = 33$, then $N_g = 33/0.566 \approx 58$. Hence, the total number of questionnaires that were distributed in this study was 353.

3.8 Unit of Analysis

In each heritage site from the sample frame generated from the ministry of Natural resource and Tourism and word of mouth from those working in the sites, a total of 407 informed decision makers preferably directors, senior managers, general park warden, managers, head of units, head of departments and zone warden officers took part in answering the questionnaires as they are sought to be part of the decision making in regard to increasing performance of WHS through ICT usage.

3.9 Variables and Measurement Procedures

This study investigated the determinant factors influencing ICT usage on Tanzania WHSs performance. The five constructs in the ICT usage framework are latent variables that cannot be observed directly. Therefore, a questionnaire was designed as a survey instrument. Designing the questionnaire also involves balancing the length of the questionnaire, the relevance of the individual questions and the comprehensibility of the questionnaire (Field, 2009). All data was designed based and modified on previous studies. All the questions for the study were measure with a five likert scale, where 1=strong disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree. Finally in order to obtain the profile of respondents, few questions

such as age, gender and education were asked as well as the questions of WHSs profile such as number of employees.

3.10 Measurement Scales

3.10.1 Technological Factors

The measurement scales used to collect the data for this study were adopted from the existing ICT measurement scales. The technological factors were adopted from previous studies by Gutierrez *et al.* (2015); Ibrahim *et al.* (2015); Musa *et al.* (2015); Osorio-Gallego *et al.* (2016). It consisted perceived relative advantage (8 items), perceived compatibility (8 items), and perceived less complexity (7 items). (See appendix one: questionnaire attached for details of the measurement).

3.10.2 Organizational Factors

Fuch *et al.* (2010) and Otieno (2015) provided the basis for designing the items for measuring organizational factors which is measured by variables such as its ICT infrastructure (8 items) and ICT skills (6 items). (See appendix 1: questionnaire attached for details of the measurement).

3.10.3 Environmental Factors

We also adopted items from Chairoel and Riski (2018); Ismail and Ali (2013); Lippert and Govindarajulu (2006) who provided the items for measuring environmental characteristics. The items were measured by perceived competitive pressure (7 items) and perceived pressure from customer's variables (8 items). (See appendix 1: questionnaire attached for details of the measurement).

3.10.4 ICT usage

The ICT usage characteristics were adopted from Kilangi (2012). There are six items to measure ICT usage (See appendix 1: questionnaire attached for details of the measurement).

3.10.5 WHSs Performance Indicators

(See appendix 1: questionnaire attached for details of the measurement).

3.11 Criterion of Goodness of Fit indices

When using SEM, researchers frequently uses multiple goodness of fit indices to judge the strength of the model and tell whether there is an acceptable fit between the observable data and the model. There are several criteria accepted, but this study used the one suggested by Iacobucci (2010) in which the Chi-square/Degree of freedom (CMIN/DF), Goodness of Fit Index (GFI), Tucker-Lewis Index (TLI), comparative fit index (CFI), and root mean square error of approximation (RMSEA) are used as criteria for determination of goodness of fit indices.

Modification Indices (MI) were applied in situations where the model fit couldn't be achieved due to the high covariance errors' construct as well as cross loading items. Maximum likelihood (ML) estimation was used to estimate the parameters because the data were normally distributed (Hair *et al.*, 2010) between measurement errors accompanied by high regression weights between these. In the following section we discuss the cutoff criteria for goodness of fit indices that were used in this study as recommended by Iacobucci (2010).

3.11.1 Chi-Square

According to Hu and Bentler (1999) chi-square (χ^2) value is the traditional measure for assessing overall model fit, which evaluates the magnitude of discrepancy between the sample and fitted covariance matrices. A good model fit would provide an insignificant result at a 0.05 threshold (Barrett, 2007); therefore, the chi-square statistic is often referred to as either a badness of fit (Kline, 2005) or a lack of fit (Mulaik *et al.*, 1989) measure. The chi-squared test maintains its popularity as a fit statistic; however, it has a number of severe limitations in its applicability. Firstly, the chi-square statistic assumes multivariate normality and severe deviations from normality that may result in model rejections even when the model is appropriately specified (McIntosh, 2007).

Secondly, the chi-square statistic is very sensitive to sample size; as a result it nearly always rejects the model when large samples are used (Bentler and Bonnet, 1980; Jöreskog and Sörbom, 1993). Conversely, the chi-square statistic lacks power where small samples are used, and because of this may not discriminate between good fitting models and poor ones (Kenny and McCoach, 2003). Due to such limitations of the chi-square model, researchers came up with an alternative index to evaluate model fit. Wheaton *et al.* (1977) proposed that in order to minimize the impact of sample size on the model, chi-square relative/normed chi-square (χ^2/df) can be used. Though, there are no agreement on the acceptable ratio for this statistic, the recommended ration range from high 5.0 (Wheaton *et al.*, 1977) to low 2.0 (Tabachnick and Fidell, 2007).

The ratio of CMIN values relative to degrees of freedom (CMIN/DF) which is the minimum discrepancy, divided by its degrees of freedom and a P-value was used to determine the statistical significance of relationships represented by the model. A value of CMIN/DF less than or equal to three (≤ 3) associated with a p-value < 0.05 indicate a good fitting model.

3.11.2 Goodness of Fit Statistic

Another index that was used is the Goodness of Fit Index (GFI) which calculates the proportion of variance that is accounted for by the estimated population covariance. It shows how closely the model comes to replicating the observed covariance matrix. This statistic ranges from 0 to 1 with larger samples increasing its value. The recommended cut-off value is > 0.90 (Hooper *et al.*, 2008).

3.11.3 Tucker Lewis Fit Index (TLI)

TLI was used to measure the proportionate improvement in fit as one move from baseline to the target model per degree of freedom (Tabachnick and Fidell, 2007). It is generally accepted that values of > 0.90 or greater indicate well-fitting models (Hooper *et al.*, 2008).

3.11.4 The Comparative Fit Index (CFI)

According to Byrne (1998) the CFI is a modified form of the normed fit index (NFI), which takes into account sample size. CFI performs well even when a sample size is small (Tabachnick and Fidell, 2007). CFI was introduced by Bentler (1990) and afterward included as part of the fit indices in his EQS program (Kline, 2005).

CFI compares the sample covariance matrix with the null model and assumes that all latent variables are uncorrelated. Initially a cutoff point for CFI was a value greater or equal to 0.90. However, recent studies have shown that a value greater than 0.90 is needed in order to ensure that mis specified models are not accepted (Hu and Bentler, 1999). As a result, a value of CFI that is greater or equal to 0.95 is presently identified as an indicator of good fit (Hu and Bentler, 1999). Today this index is used in all SEM programs in which it is one of the most popularly reported fit indices due to being one of the measures least affected by sample size (Fan *et al.*, 1999).

3.11.5 Root Mean Square Error of Approximation (RMSEA)

The RMSEA is one of the statistics reported in the LISREL program and was first developed by Steiger and Lind (1980). The RMSEA takes into consideration the error of approximation in the population and measures the discrepancy between the model-fitted covariance matrix and the population covariance matrix. Likewise, it takes into account the complexity of the model. The RMSEA index measures the discrepancy between the observed and estimated covariance matrices per degree of freedom. RMSEA is sensitive to model complexity and it is relatively insensitive to sample size unlike chi-square (Brown, 2006).

In recent years, RMSEA has become one of the most informative fit indices (Diamantopoulos and Siguaw, 2000) due to its sensitivity to the number of estimated parameters in the model. RMSEA favors parsimony in that it will choose the model with the lesser number of parameters (Hooper *et al.*, 2008). Browne and Cudeck (1993) recommended that a RMSEA value of about 0.05 or less would show a close

fit of the model in association to the degrees of freedom, that a value of about 0.08 or less for the RMSEA would show reasonable error of approximation, and that one would not want to use a model with a RMSEA greater than 0.1. The same guidelines were suggested by Steiger (1990). On the other hand, both Browne and Cudeck (1993) and Steiger (1990) cautioned researchers that these cutoff points were subjective measures based on their substantial amount of experience. According to Hoe (2008), $RMSEA \leq 0.08$ indicates good model fit. As one of the most important advantages, RMSEA enables a confidence interval to be calculated around its value (MacCallum *et al.*, 1997). This possibility is due to the known distribution values of the statistic and subsequently allows for the null hypothesis (poor fit) to be tested more precisely (McQuitty, 2004). Table 3.1 summarizes these indices.

Table 3.1: Criteria for Acceptance of Model Fit

Name of Category	Name of Index	Index Name	Level of Acceptance
Absolute Fit	Chi-square RMSEA	Discrepancy chi-square Root mean square error of approximation	$P \geq 0.05$ ≤ 0.08
Incremental Fit	GFI CFI TLI	Goodness of Fit Index Comparative Fit Index Tucker-Lewis Index	> 0.9 > 0.90 > 0.90
Parsimonious Fit	CMIN/DF	Chi-square/Degree of freedom	$of \leq 3$

Source: Awang (2011)

3.12 Methods of data collection

3.12.1 Secondary Data

Secondary information was searched from various sources to help in writing the literature review as well as establish the research gaps. For instance most research

articles were extracted from JSTOR database, Free full Pdf, Google scholar, Sage, Taylor and Francis online, Wiley online library, and Emerald databases. Keywords that were used to search from these databases are T.O.E Framework, TAM theory, Performance indicators, WHSs.

The articles were subjected to content analysis and the information was summarized and tabulated. Hsieh and Shannon (2005); Stemler (2001) argue that content analysis is a flexible method for analyzing text and it is useful for exploring trends and patterns available in documents. Accordingly, Busch *et al.*(2012) argue that content analysis involves counting and comparison of keywords or content, followed by an interpretation of the underlying viewpoints. They point out further that, content analysis involves conceptual and relational analyses. The conceptual analysis involves establishing the existence and frequency of concepts most often represented by words or phrases in a text whereas relational analysis involves an additional process of examining the relationships among concepts in a text. In the current study, the researcher explored both the frequency of occurrence (conceptual analysis) as well as relationships that existed among the concepts (relational analysis) of interest in various publications.

3.12.2 Primary Data

The primary data was collected by self administered structured questionnaire through drop and collect technique. Drop-and-collect technique involves leaving a questionnaire with a respondent and going back later to pick it up after having filled it up. Saunders *et al.*(2012), this technique allows researchers to gather data from a

large, representative sample of respondents, at relatively low cost with response rate of up to 60 percent. A pilot study was conducted from June to July 2018 while data collection for the main study was done during the period of August to February 2019. This study helped in refining the research instrument which included omission of an ambiguous statement.

3.13 Data Processing and Analysis

Initially, the data were analyzed using the Statistical Package for the Social Sciences (SPSS 15.0). Short answers were categorized to allow statistical analysis where frequencies and cross-tabulation were run for several survey questions that provided insights (descriptions) to specific questions. Descriptive data were presented by use of frequency tables. To test for a full proposed model a structural equation modeling (SEM) approach was used. Kaplan (2000) defines SEM as a class of methodologies that try to represent hypotheses about means, variances, and co-variances of observed data in terms of a smaller number of structural parameters defined by a hypothesized underlying model. SEM is designed to assess the applicability of proposed model that includes observed indicators and interrelated constructs (hypotheses) and describes the gathered data (Hoyle, 1995). Likewise, it has the ability to measure or specify the causal relationships among sets of latent (unobserved) variables, while illustrating the amount of unexplained variance (Reisinger and Turner, 1999).

According to Reisinger and Turner (1999) the measured (observed) variables in SEM have a finite number of values, and these variables include distance, cost, size, weight, or height. The authors argued that the measured (manifest) variables are

gathered from respondents through data collection methods or collected as secondary data from a published source in which they are represented by the numeric responses to a rating scale item on a questionnaire. Measured variables in SEM are usually continuous. On the other hand, latent (unobserved) variables are not directly observed, have an infinite number of values, and these variables include attitudes, customer satisfaction, perception of value, or quality. These unobserved variables are theoretical constructs that can only be determined to exist as a combination of other measurable variables. As such they are similar to principal components and are sometimes theoretically justified from a previous factor analysis (Reisinger and Turner, 1999). In addition, SEM is factor, cluster, and regression analysis that can be combined in one single test while providing information about mediation and moderation in the model. Visibly, the hypothesized model in this study was designed to measure interrelationships among latent variables that were proposed based on the past empirical studies and theories.

According to Werner and Schermelleh-Engel (2009), practical advantages for using SEM are the following. First, SEM permits the use of several indicator variables per construct simultaneously, which results in more valid conclusions of the construct levels. Other methods of analysis need several separate analyses and usually lead to less clear conclusions. Second, SEM has the ability to take measurement error into account by explicitly encompassing measurement error variables that correspond to the measurement error portions of observed variables. Consequently, conclusions concerning relationships between constructs are not biased by measurement error and are the same as for relationships between variables of perfect reliability. Third, SEM

permits modeling and testing patterns of relationships, encompassing a multitude of hypotheses simultaneously as a whole, which include mean structures and group comparison. Using other analytical methods would usually need several separate analyses. Fourth, SEM permits testing specific assumptions about parameters (for instance those equal to zero or identical to each other) for their compatibility with the data. As a result, the variances and co-variances of all observed variables are factored in systematic order.

In spite of SEM approach being useful in advanced statistical techniques and widely accepted by academic research, it does have some limitations. SEM cannot test directionality in relationships. The directions of arrows in SEM represent the researcher's hypotheses of causality in a specific model. The SEM's capability to recreate the sample covariance and variance patterns that have been observed in nature can be limited by the researcher's choice of variables and pathways represented. Nachitigall *et al.* (2003) argue that in SEM the needs in sample size appear indistinct/unclear and the interpretation of results should be labeled handle with care. Thus, it is important to take precautions into account when employing SEM.

3.14 Assumptions Underlying Structural Equation Modeling

To avoid wrong conclusions, testing for the multivariate assumptions is inevitable. The first assumption in the application of SEM is that each variable in the study is normally distributed (Byrne, 2010 and Kline, 2011). Measures of Skewness and Kurtosis were used in the current study to test for normality of the collected data. The second assumption is that; the relationship between the indicator variables and

their underlying constructs as well as between one construct and another is linear (Kline, 2011). In this study, linear relationships were explored by creating bivariate scatter plots for all of the variables. The third assumption is the issue of multicollinearity. Multicollinearity can occur because what appear to be separate variables actually measure the same thing (Kline, 2011). In the current study, the application of SEM by design resolved the problems of multicollinearity. The reason is that; multiple measures are required to describe a latent construct (unobserved variable). This was reflected and highlighted in the factor analysis procedures. The fourth assumption is the presence/absence of missing data and outliers. SEM operates under the assumptions that there are neither missing data nor outliers.

According to Byrne (2010), outliers refer to cases whose scores are substantially different from all the others in a particular set of data. According to Cousineau *et al.* (2010) “outliers are observations or measures that are suspicious because they are much smaller or much larger than the vast majority of the observation. Dhakal (2017) defined outliers to be the points in a data set which are very different from the other points. Ignoring them can result in a loss of precision and render the results biased. As outliers can influence the SEM results, it is suggested that if there is an outlier in the data, they should rather be omitted (Dhakal, 2017). In the current study, IBM SPSS software was used to produce box plots for each variable to test for the presence of extreme outliers. To ensure that there was no violation of the assumptions, this study checked for outliers, normality, linearity, homoscedasticity, and multicollinearity.

3.14.1 Checking for Missing Data

Many reasons exist for missing data in survey research which includes among others, respondents ignoring a few or all questions, questions being irrelevant to the respondent's situation, or inability of data collectors to locate the respondent (Cheema, 2014). According to Rhoads (2012), the method for handling missing data that is chosen have a substantial impact on the conclusions that are drawn from the study. Hence understanding how missing data was handled is crucial to understanding the implications of the study. In this study, list-wise deletion method of handling missing data was applied.

3.15 Tests for Validity

The validity of the collected data can be affected by participants' error, participant bias, observer error and observer bias (Greener and Martelli, 2015). According to Saunders *et al.* (2009), validity in research refers to the extent to which data collection method or methods measure accurately what they were intended to measure. Reducing the possibility of getting the wrong data and consequently wrong inferences attention was paid to ensuring validity. For the purpose of this study, the following types of validity check were conducted;

3.15.1 Internal Validity

Internal validity indicates whether the independent variable was the sole rationale for the change in the dependent variable. It implies the researcher's ability to eliminate alternative explanations of the dependent variable (Greener and Martelli, 2015). Since this study made use of Structural Equation Modeling, internal validity

was enhanced as it accounts for measurement errors. Further to the use of SEM, selection biases were minimized through the application of probability sampling technique.

3.15.2 External Validity

External validity indicates the extent to which the results of the experiment are applicable in the real world. According to Bhattacharjee (2012), survey research, where data is sourced from a wide variety of individuals, firms, or other units of analysis, tends to have broader generalizability. It is for this reason that this research adopts survey research design in order to ensure external validity of this study. The second measure to increase external validity is through enhancement of credibility of the source of information. This was done by ensuring that, only senior executives/managers/owners were given the questionnaire to answer as they are often the most informed.

3.15.3 Construct Validity

Construct validity is the extent to which a set of measured items reflects the theoretical latent constructs those items are designed to measure (Hair *et al.* 2010). Construct validity in SEM is achieved by ensuring that all relations in the model have significant loadings on their respective constructs.

3.15.4 Convergent and Discriminant Validity

According to Bhattacharjee (2012), convergent validity determines the closeness with which a measure relates to the construct that it is purported to measure whereas

discriminant validity refers to the degree to which a measure does not measure other constructs that it is not supposed to measure i.e. have low correlation with other constructs. Tharenou *et al.* (2007) argue that both exploratory and confirmatory factor analyses are used to determine evidence of convergent and discriminant validity. This is done by dropping or constraining the redundant items as well as ensuring that correlation between all constructs was lower than 0.90. The second criterion is the use of Fornell-Lacker criterion which involves a comparison between the square root of the Average Variance Extracted (AVE) with the correlation of latent constructs (Hamid *et al.*, 2017). To achieve discriminant validity, AVE estimates should be greater than the squared correlation estimates (Awang, 2011).

3.16 Tests for Reliability

Reliability refers to the extent to which data collection techniques or analysis procedures yield consistent findings (Saunders *et al.*, 2009). According to Pallant (2010), internal consistency reliability is the degree to which the items that make up the scale are all measuring the same underlying attribute. Pallant (2010) adds that there are two frequently used indicators of a scale's reliability namely test-retest reliability and internal consistency reliability. To ensure test-retest reliability of a scale one need to administer it to the same people on two different occasions, and calculate the correlation between the two scores obtained. However, since this study relies on a single measure due time and material constraints, test-retest reliability test was not viable. Nevertheless, Cronbach's Alpha coefficient using SPSS software was used to test for internal consistency for factors that were not part of the factor analysis (the moderator variable) whereas composite reliability (CR) test was used to

check internal consistency for factors that were part of the factor analysis (all the EO constructs and export performance).

3.17 Testing for Mediating Variables

Before testing for mediating variables, there are procedures described in prior research (Hsiao *et al.*, 2015) that are based on Baron and Kenny's (1985) general principles. These procedures include: the exogenous variable must affect the endogenous variable, the exogenous variable should affect the mediating variable and that the mediating variables should affect the endogenous variables. Testing mediation effect using SEM requires significant correlations between independent variable, mediating variable, and the ultimate dependent variable (Hair *et al.*, 2006). If either one or both path is insignificant presented stating that the mediation effect is not supposed to be occurs.

To confirm with the results of direct effect and indirect effect bootstrapping method using AMOS version 23 was employed to examine the effect of mediating variables in the structural model (table 4.47 and table 4.48). This method is superior to Sobel's test because it is a non-parametric test and hence it does not need the normality assumption to be met, can be used with small sample sizes, and increases the power of the test (Namazi and Namazi, 2016). On the other hand, bootstrapping determines the mediation effects with certainty than the Sobel test (Hadi *et al.*, 2016). Figure 3.2 indicates a single mediator model for this study.

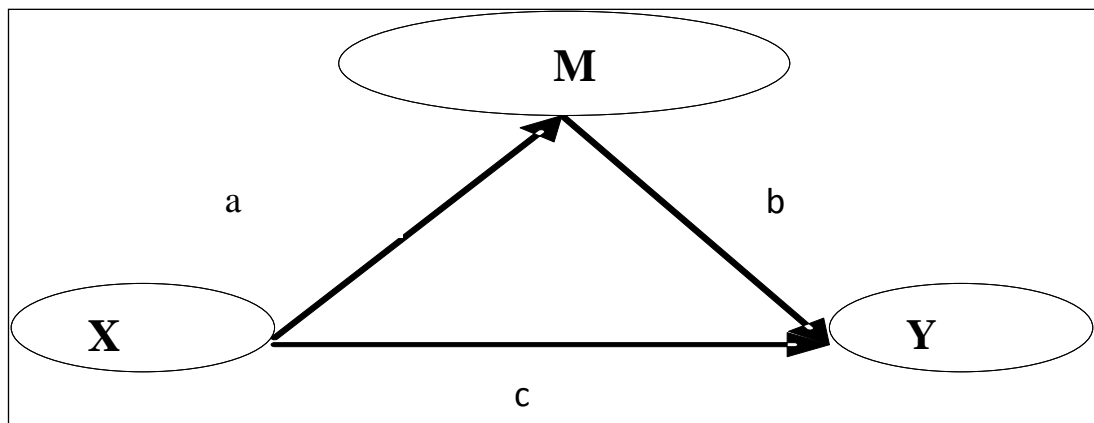


Figure 3.2: Single Mediator Model

Source: Hsiao *et al.* (2015)

In this study X = determining factors, M = ICT usage (ICTU), Y = WHSs performance indicators (PI). Where a are the coefficients for X in a model predicting M from X and while b are the coefficients in a model predicting Y from M respectively and c is the coefficient predicting Y from X (Hayes, 2009). In other words, c' measures the direct effect of X , whereas a and b measures the indirect effect of X on Y through M . The total effect is equal to the direct effect of X on Y plus the sum of the indirect effect through M (Hayes, 2009). On the other hand, full mediation occurs if the effect of the independent variable is no longer significant when the mediating variable is added, whereas partial mediation is suggested if the effect of the independent variable is reduced but remains significant. If either one or both path is insignificant presented stating that the mediation effect is not supposed to be occurs.

3.18 Ethical Considerations

To ensure ethical standards, the researcher observed the ethical principles as proposed by Bhattacharjee (2012) which are voluntary participation and

harmlessness, informed consent, anonymity, and confidentiality as well as disclosure. In this study, we had an introduction letter from the Open University as a sample of the letter indicated in Appendix III that detailed the aim of our study. The aims of our study were well documented, and the confidentiality of the respondent's information was assured in those introduction letters. Furthermore, it is important to note that the researcher has ethical responsibility to follow scientific procedures to come up with study conclusions and implications. We clearly defined our research problem. The problem was supported by the theoretical literature review and was supervised by two supervisors. Finally, during report writing we did not: compromise the research design, deliberately misusing statistics and the issue of plagiarism was highly taken care of by making appropriate citation and referencing.

CHAPTER FOUR

RESEARCH FINDINGS

4.1 Chapter Overview

This chapter presents analysis of data and results in support of the theory in this thesis together with the testing of hypotheses of the research mode. Data were collected between August to February 2019. The chapter begins by giving a summary of the results from the pilot study followed by the basic profile of WHSs decision makers from which the data for analysis was collected. It also shows the results of EFA and CFA and how measurement and the structural model were tested. It then outlines the findings of the tests for validity and reliability of the instruments.

4.2 Results from the Pilot Study

A pilot study involving 20 decision makers from natural world heritage sites were conducted in Arusha from June to July 2018. Results from this study were used to refine the research instrument through omission of ambiguous statement. In addition, the section on the measurement of technological, organizational and environmental factors was reconstructed after the pilot study as findings suggested that respondents were confused with the semantic differential scale that was initially proposed. This was indicated by the high number of missing values in that particular section of the questionnaire; whereby 09 out of 20 questionnaires had at least 3 missing values. Technological factors comprised seven (7) semantic differentials, Organizational factors contained (8) semantic differential the environmental factors had (8) semantic

differential in the pilot study was then replaced with Likert scale statements in the main study.

4.3 Respondents' Profile

Respondents' profile was explored in order to gain insight into the nature and characteristics of the respondents of the study. There were a total of six (7) questions used to profile of decision makers in the World heritage sites that were involved in the study. In order to prepare and present some statistics there is a needful to offer a broad picture of the sample representing something specific. A biased sample typically means that inferences can be made only to the particular group represented by the sample. To provide an understating of interpreting data of the study, this section will first offer some feature/characteristic of the respondents. The report includes information about the size of the site which is represented by number of employees. Table 4.1 illustrates the respondent description by gender, age, education levels, and years of experience and Occupation.

4.3.1 Respondents' Distribution by Gender

Okello and Yerian (2009) reported that male respondents (54%) outnumbered female respondents (46%) who are working in tourism related sectors in Tanzania. Similarly this study found that, male's respondents (68.3%) outnumbered females (30.3%) who are employed in WHSs (Table 4.1). With regard to gender balance in tourism related employment, women are more vulnerable to formal employment in tourism sector due to complex working conditions (i.e. working benefits, numbers of hour's women work and legal entitlements for mother) and job position. Okello and Yerian (2009)

reported that men take great risk than women and therefore men are well represented in managerial position compared to women. Furthermore, since the difference was very huge, we argue that this representation between men and women does not fits well with the representation of typical gender balance to those employed in WHSs.

Table 4.1: Respondents' Distribution by Gender

		Frequency	Percent
Valid	Male	166	68.3
	Female	72	29.6
	Total	238	97.9
Missing	System	5	2.1
Total		243	100.0

4.3.2 Respondents' Distribution by education

In terms of education level, this study found that 47.7% had attained bachelor degree, while 3.8% had a master degree. The educational profiles are summarized in table 4.2.

Table 4.2: Respondents' Distribution by Education Profile

		Frequency	Percent
Valid	Primary school	1	.4
	Secondary/ High School	20	8.2
	Certificate/Diploma	32	13.2
	Bachelor degree	116	47.7
	Advanced Diploma	60	24.7
	Master's degree	9	3.7
	Total	238	97.9
Missing	System	5	2.1
Total		243	100.0

4.3.3 Respondents' Distribution by job position

With this study completed it was also important to broaden the picture of responded position in the WHSS. Different position was highlighted with the respondent

however; as shown in table 4.3, high percentage was 29% reflecting other positions that were not highlighted by researcher which might include director of finance, director of human resource etc.

Table 4.3: Respondents' Distribution by Job Position

		Frequency	Percent
Valid	Chief Park	25	10.3
	Park Warden	46	18.9
	Head of Department	44	18.1
	Head of Unit	52	21.4
	Others	69	28.4
		2	.8
	Total	238	97.9
Missing	System	5	2.1
Total		243	100.0

4.3.4 Respondents' Distribution by job Experience

The sample contains a reasonably wide variety of employees with WHSs experiences. As is shown in table 4.4, about 50% of employees had been employed in WHSs for between one to 10 years. This information is summarized in table 4.4.

Table 4.4: Respondents' Distribution by Job Experience

		Frequency	Percent
Valid	Less than a year	30	12.3
	Between 1-5 Years	20	8.2
	Between 6-10 years	98	40.3
	Between 11-15 years	78	32.1
	Between 16-20 years	10	4.1
		2	.8
	More than 20 years		
	Total	238	97.9
Missing	System	5	2.1
Total		243	100.0

4.3.4 Respondents' Distribution by WHSs Size

Size of WHSs was measured by a number of full-time employees. Number of employees in a company is one of the indicators used to determine the size of the company (Okello and Yerian (2009)). In this study, more than half of the WHSs have 40-60 employees and about one third has between 60-80 employees. Table 4.5 presents findings on the WHSs size based on number of employees.

Table 4.5: Respondents WHSs Size Based on Number of Employees

		Frequency	Percent
Valid	40-60 employee's	140	57.6
	60-80 employee's	76	31.3
	80-100 employee's	14	5.8
	More than 100 employee's	6	2.5
		2	.8
	Total	238	97.9
Missing	System	5	2.1
Total		243	100.0

4.4 Missing Data and Outliers

4.4.1 Results from Missing Data Analysis

Subsequent to running the data on IBM SPSS for frequency analysis, 12 questionnaires (4.8% of the sample) appeared to have between 1 to 4 missing values. The missing values displayed neither consistent nor systematic pattern hence suggesting that the values were missing completely at random (MCAR). According to Graham (2012), a value is missing completely at random if the probability that a data point is missing depends on neither observed nor unobserved variables. This was probably a technical issue that arose when numbers were inputted manually from the questionnaires into SPSS. Cheema (2014) argue that when data is missing

completely at random, it is safe to remove it from the dataset so as to obtain unbiased estimates of population parameters. Therefore list-wise deletion method was used in this study by removing all cases that had one or more missing values so the analyses are restricted to cases that have complete data. The main advantage of list-wise deletion is that it produces a complete data set, which in turn allows for the use of standard analysis techniques (Baraldi and Enders, 2010). For instance, 12 questionnaires were dropped from the study hence remaining with 238 cases throughout the rest of the study.

4.4.2 Checking for Outliers

Prior to any implementation of statistical analysis, it is very important to check for present of outliers in the dataset because their existences imply a distorted analysis that leads to unreliable results and incorrect policy decisions (Palmegiani, 2016). By analyzing possible outliers the study found the possible impact of outliers on the results was negligible. Thus, all the observations used in the structural model were confined to a rating scale ranging from 1 to 5; which successfully minimized the possibility of observations falling outside these predetermined ranges.

One difficulty with treatments of outliers is that there is no unanimously accepted theoretical framework for the treatment of outliers (Pollet and van der Meij, 2017). In this case, box plots using SPSS software were sufficiently used to assess the possibility of extreme outliers of which none was discovered. The same was applied to the profiling variables for the firms where the researcher did not identify any extreme outliers. It should be noted that extreme outliers in IBM SPSS are indicated

by an asterisk while moderate outliers are presented by a small circle. Removal or retention of the outlier depends on several matters including the context of the study. Given the fact that the study utilizes factor analysis, the few moderate outliers which were observed were retained for possible deletion during the EFA and CFA analyses should they bring about problems in the model fitting.

4.5 Results of Normality, Linearity, and Multicollinearity

4.5.1 Results from Normality Test

After checking for missing values and outliers above, the commonly used statistical methods in the social science are based a procedure for checking estimates of data normality which was performed. There were not many normality issues found in the study questionnaire. When found they were reported in two ways: (1) suggested a deletion of the item or (2) suggested the use of another estimator. While the first one does not need a thorough explanation, the second one does need a clarification. In the second case we used SEM when there was a non-normal distribution as a recommended control by using estimators that are distribution free (e.g., asymptotic and maximum likelihood robust). These estimators are very common in social sciences and recommended in the statistical literature (Kline, 1998). One significant assumption in using SEM is that the observed variables follow a normal distribution.

In this study, to test for univariate normality, the researcher conducted SPSS descriptive statistics analysis and examined the kurtosis and skewness indices of the output. The non-normal data were omitted. However, we accepted non-normal data for general loyalty because it was the dependent variable, but did run a regression

based on an asymptotic distribution-free assumption to not violate the premises of normality.

In the current study, normalized estimates of Skewness and Kurtosis using SPSS version 22 were carried out to test for normality of the collected data. Accordingly, Won *et al.*(2017) assert that; the acceptable range of absolute values for both Skewness and Kurtosis is ± 2 although some studies e.g. Gorondutse and Hilman, (2014) recommend acceptance of Kurtosis absolute values of up to ± 7 . In this study, the values of both Skewness and Kurtosis fall within the recommended range of ± 7 . Skewness is within absolute values ranging from -0.553 to -1.918 while Kurtosis showed absolute values ranging from -0.050 to +5.434 as shown in table 4.6. These values indicate that normality assumptions in this study are not violated.

Table 4.6: Skewness and Kurtosis Results

		PR	PCT	PCL	PCL	SS	PCP	ICTU	PI
N	Valid	238	238	238	238	238	238	238	238
	Missing	0	0	0	0	0	0	0	0
	Skewness	-1.165	-.553	-.913	-.866	-1.195	-1.167	-1.398	-1.918
	Std. Error of Skewness	.158	.158	.158	.158	.158	.158	.158	.158
	Kurtosis	.593	-.487	-.050	-.263	1.593	.814	2.207	5.434
	Std. Error of Kurtosis	.314	.314	.314	.314	.314	.314	.314	.314

4.5.2 Linearity Test

This study analyzed the characteristics of data through the inspection of bivariate scatter plots. An inspection of the bivariate scatter plots between selected variables showed no serious violation of linearity as illustrated in figure 4.1.

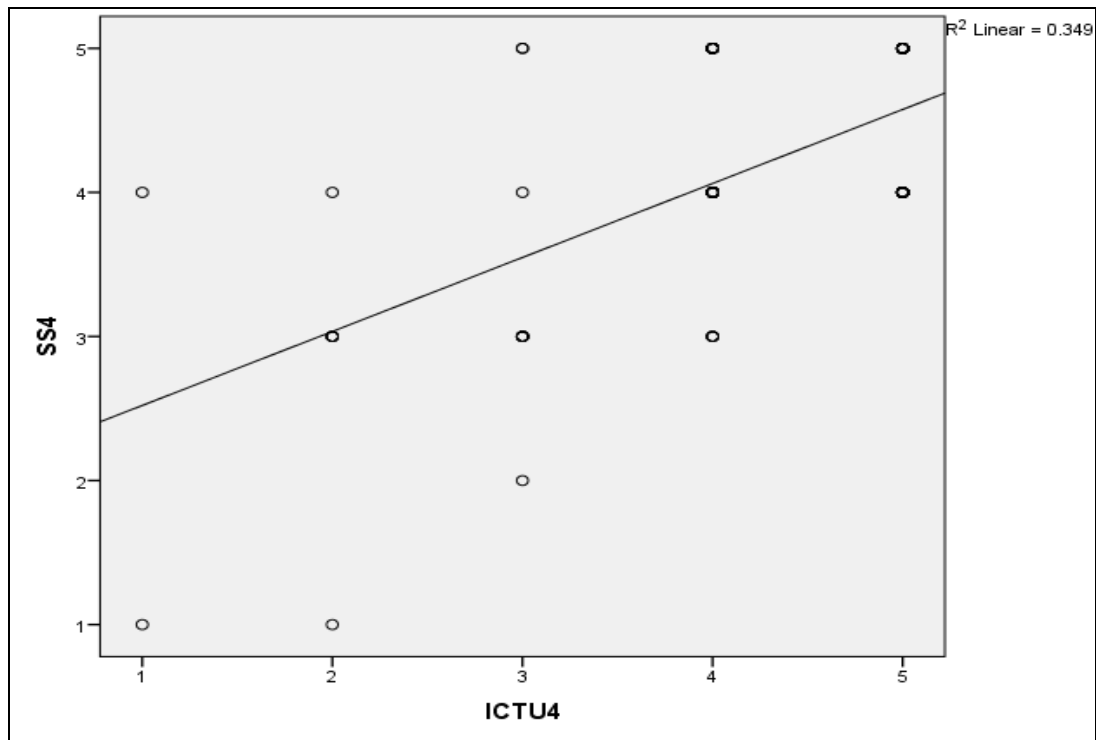


Figure 4.1: Scatter Plots

4.5.3 Results from Multicollinearity Test

Multicollinearity poses a major concern in the multivariate statistical analysis (Hair *et al.*, 2010). It results from the circumstances where two or several variables are so highly correlated in such a way they both essentially represent the same underlying construct, that is; what appear to be separate variables actually measure similar constructs (Byrne, 2010; Hair *et al.*, 2010 and Kline, 2011). To ensure that multicollinearity did not pose a problem to the current study results, two methods were utilized to test multicollinearity. First, a bivariate correlation of few exogenous variables while considering the recommendation by Hair *et al.* (2010). The authors consider exogenous variables to be highly correlated if they obtain correlation values above 0.9. However, Table 4.7 indicates that the correlation among the exogenous variables was less than the values suggested by Hair *et al.* (2010).

Table 4.7: Correlation Matrix of Few Selected Exogenous Variables

		PR1	PCT1	PCL1	INF1	SS1	PCP1
PR1	Pearson Correlation	1	.225**	-.005	.220**	.203**	.206**
	Sig. (2-tailed)		.000	.937	.001	.002	.001
	N	238	238	238	238	238	238
PCT1	Pearson Correlation	.225**	1	.133*	.288**	.242**	.249**
	Sig. (2-tailed)	.000		.041	.000	.000	.000
	N	238	238	238	238	238	238
PCL1	Pearson Correlation	-.005	.133*	1	.357**	.247**	.106
	Sig. (2-tailed)	.937	.041		.000	.000	.104
	N	238	238	238	238	238	238
INF1	Pearson Correlation	.220**	.288**	.357**	1	.290**	.277**
	Sig. (2-tailed)	.001	.000	.000		.000	.000
	N	238	238	238	238	238	238
SS1	Pearson Correlation	.203**	.242**	.247**	.290**	1	.393**
	Sig. (2-tailed)	.002	.000	.000	.000		.000
	N	238	238	238	238	238	238
PCP1	Pearson Correlation	.206**	.249**	.106	.277**	.393**	1
	Sig. (2-tailed)	.001	.000	.104	.000	.000	
	N	238	238	238	238	238	238

****.** Correlation is significant at the 0.01 level (2-tailed).

Second approach to test for multicollinearity was the Variance Inflated Factor (VIF) and Tolerance values. The cut of off points by Hair *et al.* (2011) was considered. The authors posit that VIF values greater than 5 and Tolerance values less than 0.2 indicate the presence of multicollinearity. Table 4.8 shows that there was no multicollinearity issue in the current study as the tolerance and VIF values did not exceed the threshold values.

Table 4.8: Multicollinearity Statistics

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error				Zero-order	Partial	Part	Tolerance	VIF
(Constant)	1.116	.298		3.739	.000					
PR1	.091	.041	.121	2.212	.028	.297	.144	.115	.896	1.116
PCT1	.190	.057	.185	3.323	.001	.364	.213	.172	.868	1.152
PCL1	-.089	.043	-.117	2.069	.040	.097	-.135	.107	.838	1.194
INF1	.235	.047	.297	5.024	.000	.433	.313	.260	.767	1.304
SS1	.321	.053	.339	6.038	.000	.466	.369	.313	.849	1.177

a. Dependent Variable: ICTU1

4.6 Model Formulation and Validation

This section checks to ensure the proposed factor structures are indeed consistent with the collected field data. The importance of this section emanates from the fact that the conceptual framework was developed by the researcher based on the review of literature and theories. With this in mind, it is important to assess how well the proposed factor structure fits the collected data through the process of factor analysis and consequently structural analysis (SEM). For instance, the researcher applied both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to make certain that the construct is aligned with their indicator variables. Regardless of the fact that the measurement instrument was adopted from previous studies, the context in which it was applied differs hence necessitating EFA prior to CFA and structural analysis.

4.7 Results from Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis is a statistical technique that is used to reduce data to a smaller set of summary variables and to explore the underlining theoretical structure of the phenomena (Tabachnick and Fidell, 2007). EFA is used to measure the

relationship between variable and the respondent and explain them in terms of their common underlying dimensions (Williams *et al.*, 2010). The goal of EFA is to reduce the dimensionality of the original space and to give an interpretation to the new space, spanned by a reduced number of new dimensions which are supposed to underlie the old ones (Okello and Yerian, 2009).

EFA offers not only the possibility of gaining a clear view of the data, but also the possibility of using the output in subsequent analyses. EFA is usually preceded by Kaiser-Mayer-Olkin (KMO) measure of sampling adequacy (KMO test) offers a convenient option to test whether the sample is big enough (Awang, 2011). The sample is adequate if the value of KMO is greater than 0.5 (Williams *et al.*, 2010), while Tabachnick and Fidell (2007) concluded that, in order to warranty the application of EFA, the KMO statistic value should range from 0.6 or above.

In SPSS the inter-correlation can be checked by using Bartlett's test of sphericity, which "tests the null hypothesis that the original correlation matrix is an identity matrix" (Field 2000: 457). Bartlett's test of sphericity also provides a chi-square output that must be significant. This test has to be significant: when the correlation matrix is an identity matrix, there would be no correlations between the variables (Okello and Yerian, 2009). In brief, if the KMO indicates sample adequacy and Bartlett's test of sphericity indicates the item correlation matrix is not an identity matrix, then researchers can move forward with the Factor Analysis.

In addition to the above, the communality values which refer to the proportion of common variance present in a variable should be at least 0.5. Communalities are

good indices of whether too few factors have been retained. As such, a variable that has no specific discrepancy (or random variance) would have a communality of 1; a variable that shares none of its discrepancy with any other variable would have a communality of 0. The nearer the communalities are to 1; the better the factors are at explaining the original data (Field, 2009). In this study the findings have met the above criteria as the communalities values ranged from 0.476 to 0.980, the KMO value was 0.918 while Bartlett's Test of Sphericity was significant at $p < 0.05$ hence suggesting that the sample size was adequate and that the data were appropriate for application of factor analysis as the structure was not an identity matrix. These results are summarized in table 4.9.

Table 4.9: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.918
	Approx. Chi-Square	14877.163
Bartlett's Test of Sphericity	DF	1770
	SIG.	.000

In order to make a decision on the numbers of factors that can be retained, Kaiser's criterion (all factors with Eigenvalues greater than 1.0) were retained. According to Kaiser (1960) as cited by Field (2009) it was recommended that all factors greater than 1 must be retained. This idea is generated from the sense that an Eigen value of 1 represents a substantial amount of variation. This study applied oblique method of rotation to model both uncorrelated and correlated factors, which it oppose the orthogonal rotations that cannot handle correlated factors (Osborne, 2015). Rotation 9 factors were extracted successfully after rotating EFA once. Each of the nine (9)

factors had Eigen values greater than 1 which explains a cumulative variance of 74.517% (refer to Table 4.10).

Table 4.10: Total Variance Explained

Factor	Total	Initial Eigenvalues		Rotation Sums of Squared
		% of Variance	Cumulative %	Loadings
				Total
1	20.022	33.370	33.370	11.382
2	6.531	10.886	44.255	8.546
3	4.186	6.976	51.232	10.003
4	3.053	5.088	56.320	10.523
5	2.830	4.717	61.037	9.511
6	2.654	4.424	65.460	10.488
7	2.374	3.956	69.416	6.700
8	1.823	3.039	72.455	9.352
9	1.237	2.062	74.517	8.112

There are different methods suggested by Field (2009) on the factors that are supposed to be retained. For the case of this study, adding to the Kaiser's criterion based on Eigen values greater than one, Scree plot was also applied to discover the appropriateness of the Kaiser's criterion. From the Scree plot, all the factors above the point of inflection were retained and those below the cut-off point were ignored. Therefore, the Scree plot also produced nine (9) factors above the point of inflation. This number is similar to that of the of the Kaiser's Criterion (Eigenvalues greater than 1). Consequently it can be concluded that EFA output results were reliable. Figure 4.2 presents the Scree Plot.

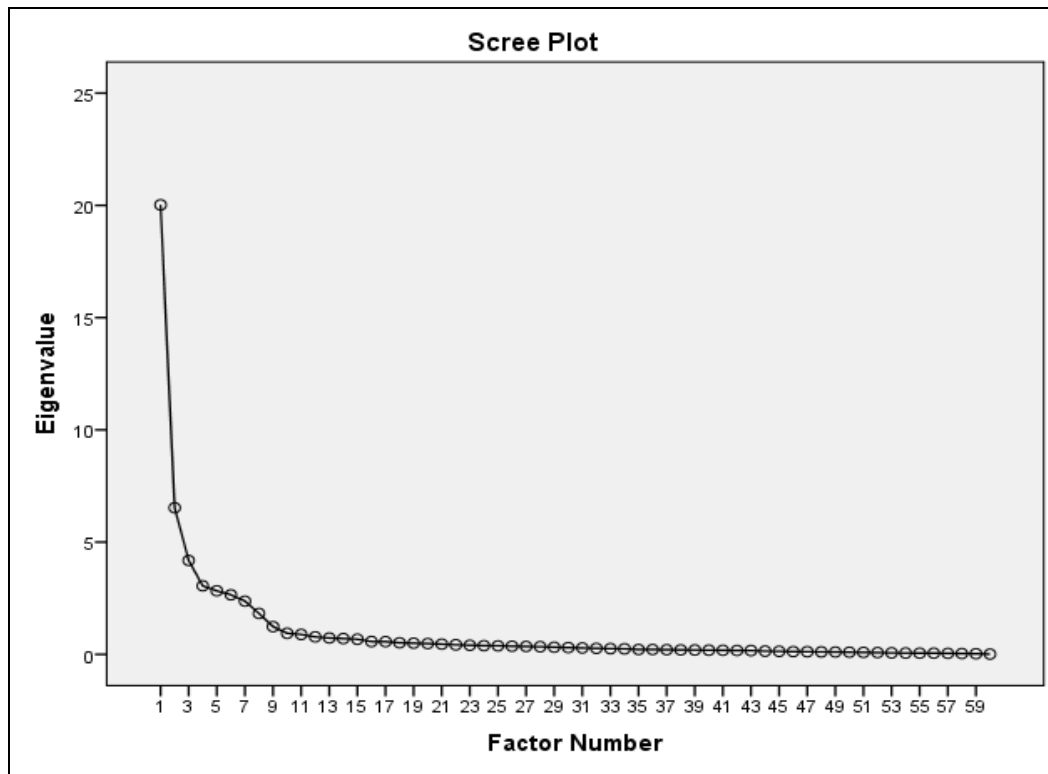


Figure 4.2: Scree Plot

4.7.1 Acceptable Loadings

For this study, nine factors were retained and contained at least loading factors Eigenvalues greater than 1 explaining a cumulative variance of 74.517 (refer to Table 4.10 above). For example, factor 1 represent ICT skills support (SS), factor 2 represent perceived less complexity (PCL), factors 3 represent perceived compatibility (PCT), factors 4 represent perceived pressure from customers (PPC), factors 5 represent performance indicators (PI), factors 6 represent ICT infrastructure support (INF), factor 7 represent perceived relative advantage (PR), factor 8 represent perceived competitive pressure (PCP) and factor 9 represent ICT usage (ICTU). These findings are summarized in tables 4.12, 4.13 and 4.14. Details of factors and their underlying factor loadings are presented in the pattern matrix (Appendix two).

Table 4.11: EFA Output list of Deleted Items

ITEM	ITEMS DELETED
PR3	ICT enable to reach new market
PR4	ICT provide fast access to information
PCT4	ICT system is compatible with our supplier
INF5	The site has positively influence ICT
PCP4	Using ICT is important to keep comp in the market
PPC3	Our customers demand safety and privacy ICT system

**Table 4.12: EFA Output list of Retained Items for T.O.E framework
(Variables 59; N=238)**

TECHNOLOGICAL FACTORS		ITEM	ITEMS RETAINED
Perceived Relative Advantage		PR1	Email and web-based applications
		PR2	ICT allow better communication
		PR5	ICT provide more objective recommendations
		PR6	ICT allow comparison of our service
		PR7	ICT ensure effectiveness and efficiency
		PR8	ICT increase job performance
Perceived Compatibility		PCT1	ICT system is compatible with ours
		PCT2	ICT system is compatible with our customers
		PCT3	ICT system is compatible with our existing system
		PCT5	ICT system is compatible with our business partners
			ICT system is compatible with our employees past experience
		PCT6	
		PCT7	ICT system is compatible with org cultural
		PCT8	ICT application is compatible with current value system
Perceived Complexity	less	PCL1	ICT application system requires new expertise
		PCL2	ICT application system exploit the existing expertise
			ICT application system can easily be utilized by our employees
		PCL3	
			ICT application system can easily be utilized by our customers
		PCL4	
			ICT application system can easily be utilized by our suppliers
		PCL5	
		PCL6	The value of ICT application is still not known
		PCL7	ICT application system is difficult to understand and use
ORGANIZATIONAL FACTORS			
ICT infrastructure	support	INF1	The site had previous used ICT
		INF2	The site had already in house ICT

ICT Support Skills	INF3	The site had enough financial resource to support ICT
	INF4	The site had enough ICT hardware
	INF6	The technology readiness positively associate with ICT
	INF7	Availability of ICT hardware
	INF8	Availability of ICT software
	SS1	Employees had positive experience with ICT
	SS2	Employees are willing to bring innovative idea
	SS3	Employees often risk do thing differently bcz of ICT
	SS4	Top management support ICT usage
	SS5	Employees eager to learn ICT application
	SS6	Site manager positively influence ICT usage
ENVIRONMENTAL FACTORS		
Perceived Competitive Pressure	PCP1	Our competitor applies ICT
	PCP2	Our suppliers demand ICT
	PCP3	ICT application increase competitive advantage
	PCP5	We respond quickly to other competitors
	PCP6	We are faced with very intense competition
	PCP7	Our competitors can easily offer our service and products
	Perceived Pressure from Customers	PPC1
PPC2		Our customers demand compatible and accessible ICT application
PPC4		Our customers demand an online interaction
PPC5		Our customers demand online information of our products and service
PPC6		Our customers demand online booking
PPC7		Our customers demand to become loyal to our org
PPC8		Our customers demand customized service

ICT usage was measured using six (6) items all of which were retained for subsequent analysis. The summary is given in table 4.13:

Table 4.13: EFA Output List of Retained Items for ICT Usage (ICTU)

ITEM	ITEMS RETAINED
ICTU1	Our site uses ICT applications for displaying company information and products
ICTU2	Our sit uses ICT application to communication with my suppliers
ICTU3	Our site uses ICT application to communicate with employees
ICTU4	Our site uses ICT application to communicate with my customers
ICTU5	I regularly use ICT application to sell my product online
ICTU6	Our site uses ICT application to sell our service and receive payment

Seven (7) indicator items were used to assess WHSs performance indicators of ICT usage (whether it increases sale, facilitate B2C relationships or B2B relationship).

All the seven indicators were retained as shown in table 4.14.

Table 4.14: EFA Output List of Retained Items for WHSs Performance Indicators (PI)

ITEM	ITEMS RETAINED
PI1	ICT usage increase in sales of service and good
PI2	ICT usage improve business relationship characteristic
PI3	ICT usage improve customer relationship
PI4	ICT usage improve quality of service
PI5	ICT usage increased help to serve more tourist at once
PI6	ICT usage improve social climate at work
PI7	ICT usage help in identification of potential customers

4.7.2 Factor Correlation Analysis

Correlation coefficient measures the degree to which two variables vary together or oppositely. First, if there is a maximum positive correlation (1.00). This means two

variables vary oppositely and perfectly. Likewise, when the correlation coefficient (r) is $0 < r < 1$ between two variables, then they vary together in the same direction. Thus, for this study, the correlation matrix between the factors was then examined for the purpose of assessing their interrelatedness as well as discriminant validity. Table 4.15 indicates absence of either extremely high correlations or extremely low correlations among the factors hence suggesting that the factors for these analyses are distinct and have limited overlap.

Table 4. 15: Table 4 15: Factor Correlation Matrix

Factor	SS	PCL	PCT	PPC	PI	INF	PR	PCP	ICTU
SS	1.000								
PCL	.287	1.000							
PCT	.273	.181	1.000						
PPC	-.412	-.253	-.310	1.000					
PI	-.356	-.064	-.324	.322	1.000				
INF	-.366	-.402	-.335	.373	.254	1.000			
PR	.307	-.010	.290	-.296	-.324	-.157	1.000		
PCP	.440	.008	.332	-.308	-.451	-.220	.370	1.000	
ICTU	-.389	-.280	-.299	.340	.236	.456	-.252	-.252	1.000

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

4.8 Development of Single Construct Measurement Models

Literatures recommend that researchers need to develop measurement models for each individual construct of the framework. On the other hand, some problem might appear while developing these models therefore, it is recommended researchers employ the Pooled-CFA for all construct in addition to the single construct CFA (Kline, 2011 and Awang, 2011). For the case of this study, each in depended variable

(IV) and dependent variable (DV) contain its own measurement model as well as pooled CFA model.

4.8.1 Measurement Model for Perceived Relative Advantage (PR)

IBM Amos 24 was run to test for Perceived Relative Advantage (PR) measurement model fitness which comprised six indicators namely PR1, PR2, PR5, PR6, PR7 and PR8. (Two items, PR3 and PR4 were dropped during the EFA procedure). In the initial CFA run, all the standardized path coefficients (regression weights) were above 0.5 and significant at $p \leq 0.00$. The model fit output produced the following indices: CMIN/DF= 4.265, GFI = 0.951, TLI = 0.923, CFI = 0.954 and RMSEA = 0.117 which indicate poor fit hence the need for further model improvement/refinement in order to achieve model fit.

In order to improve the model, the researcher made use of Modification Indices (MI) which showed that the error terms for PR2 and PR5 were the source of instability in the model as they had high MI value of 20.331 with several other error terms. The MI suggested these error terms to be covaried and the model was re-run for the second time. The standardized path coefficients (regression weight) were still above 0.5 and significant at $p \leq 0.038$ and the following fit indices were produced; CMIN/DF= 2.037, GFI = 0.978, TLI = 0.975, CFI = 0.987 and RMSEA = 0.066. These indices indicate a perfect model fit. Figure 4.3 presents the measurement model for perceived relative advantage (PR).

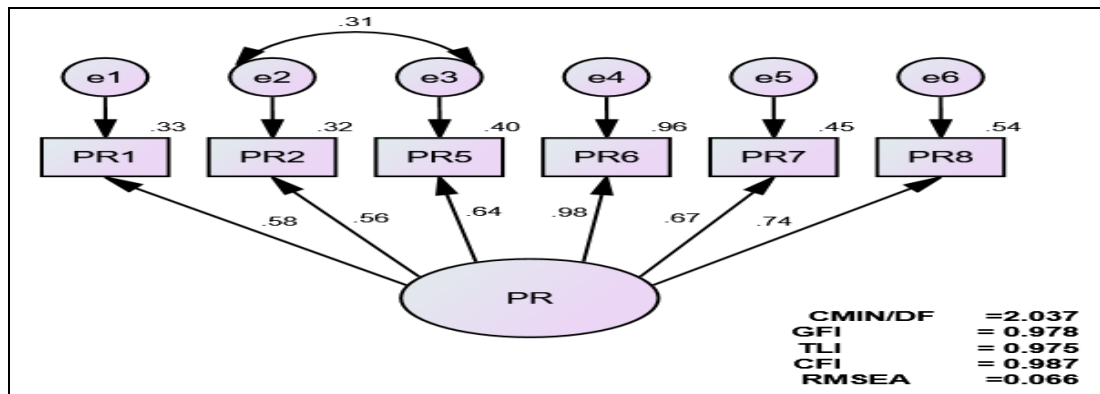


Figure 4.3: Standardized Measurement Model for Perceived Relative Advantage (PR)

4.8.2 Measurement Model for Perceived Compatibility (PCT)

Amos software was run to test for perceived compatibility (PCT) measurement model fitness which comprised seven indicators namely PCT1, PCT2, PCT3, PCT5, PCT6, PCT7 and PCT8, (One item, PCT4 was dropped during the EFA procedure). In the initial CFA run, the entire standardized path coefficient (regression weights) was above 0.5 and significant at $p \leq 0.116$. Thereafter, the model produced a good fitting model for first run with the following fit indices: CMIN/DF= 1.462, GFI = 0.977, TLI = 0.996, CFI = 0.997 and RMSEA = 0.044. Figure 4.4 summarizes these findings.

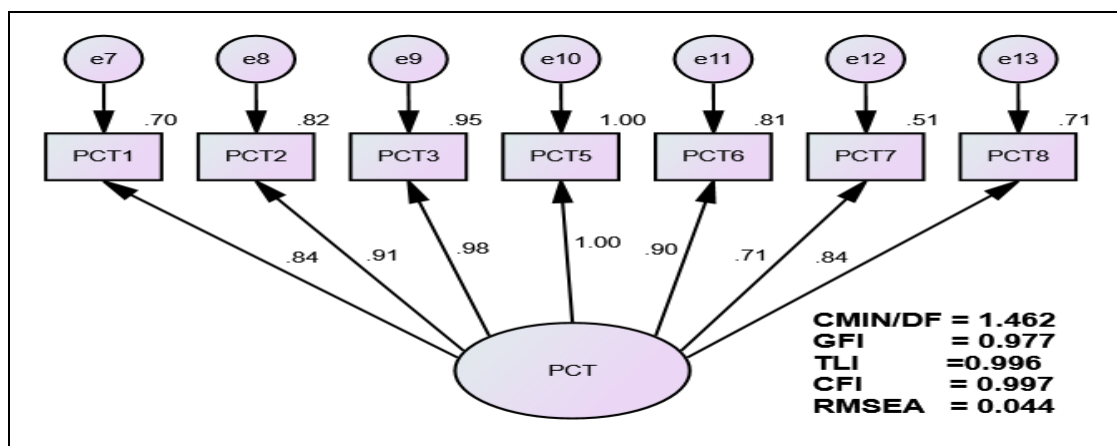


Figure 4.4: Standardized Measurement Model for Perceived Compatibility (PCT)

4.8.3 Measurement Model for Perceived less Complexity (PCL)

The model for perceived less Complexity (PCL) was run using IBM Amos 24. The PCL construct had the following indicator variables; PCL1, PCL2, PCL3, PCL4, PCL5, PCL6, and PCL7. In the initial CFA run, all the standardized path coefficients (regression weights) were above 0.5 and significant at $p \leq 0.05$. For first run, a good fitting model indices produced was as follows: CMIN/DF= 2.239, GFI = 0.961, TLI = 0.987, CFI = 0.991 and RMSEA = 0.072. Figure 4.5 summarizes these findings.

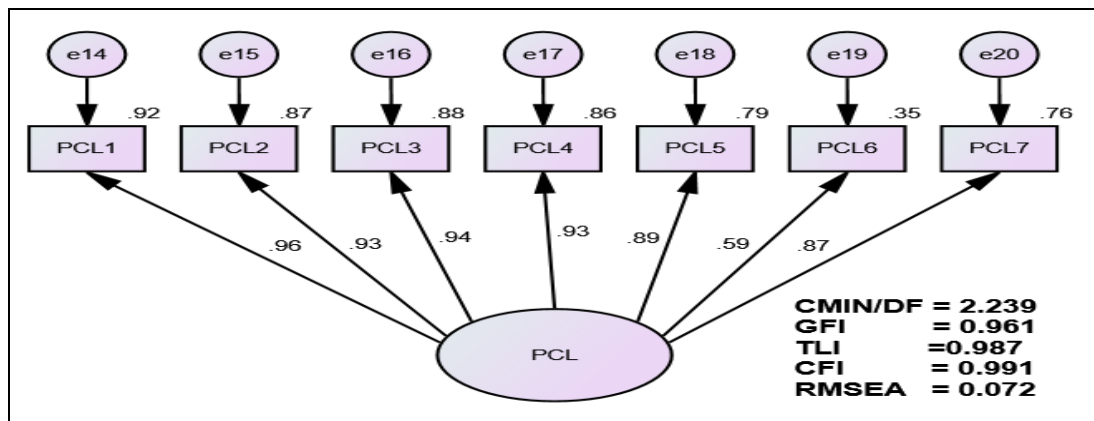


Figure 4.5: Standardized Measurement Model for Perceived less Complexity (PCL)

4.8.4 Measurement Model for ICT infrastructure support characteristics (INF)

A CFA model for ICT infrastructure support (INF) was run. The INF construct had seven indicator variables namely; INF1, INF2, INF3, INF4, INF6, INF7, and INF8. (One item, INF5 was dropped during the EFA procedure). In the initial CFA run, all the standardized regression weights were above 0.5 and significant at $p \leq 0.04$. At the initial stage, a model produced a good fitting indices with the following; CMIN/DF= 2.262, GFI = 0.966, TLI = 0.984, CFI = 0.989 and RMSEA = 0.073 therefore, there was no need for further refinement of the model. Figure 4.6 summarizes these findings.

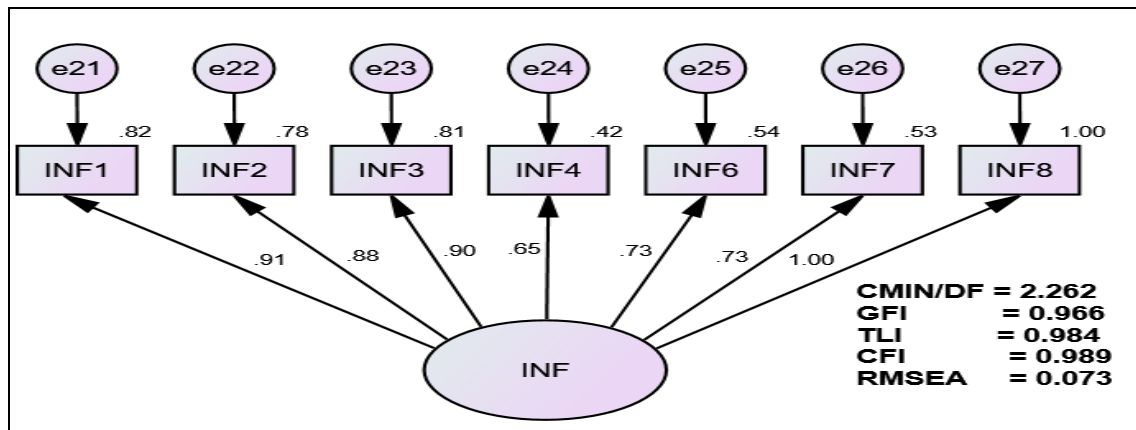


Figure 4.6: Standardized Measurement Model for ICT Infrastructure Support (INF)

4.8.5 Measurement Model for ICT Skills Support Characteristics (SS)

A CFA measurement model for ICT Skills support (SS) was run using Amos software 24. The SS latent construct had six indicator variables; SS1, SS2, SS3, SS4, SS5, and SS6. During the initial CFA run, all the standardized regression weights were above 0.5 and significant at $p \leq 0.118$. The Critical ratio values were all within the acceptable range of ≥ 1.96 . The standardized residual covariance was within the acceptable range (below 2.58). The model fit index produced the following indices: CMIN/DF= 1.568, GFI = 0.981, TLI = 0.994, CFI = 0.996 and RMSEA = 0.049 which indicate good fitting and hence there was no need for further refinement. Figure 4.7 summarizes these findings.

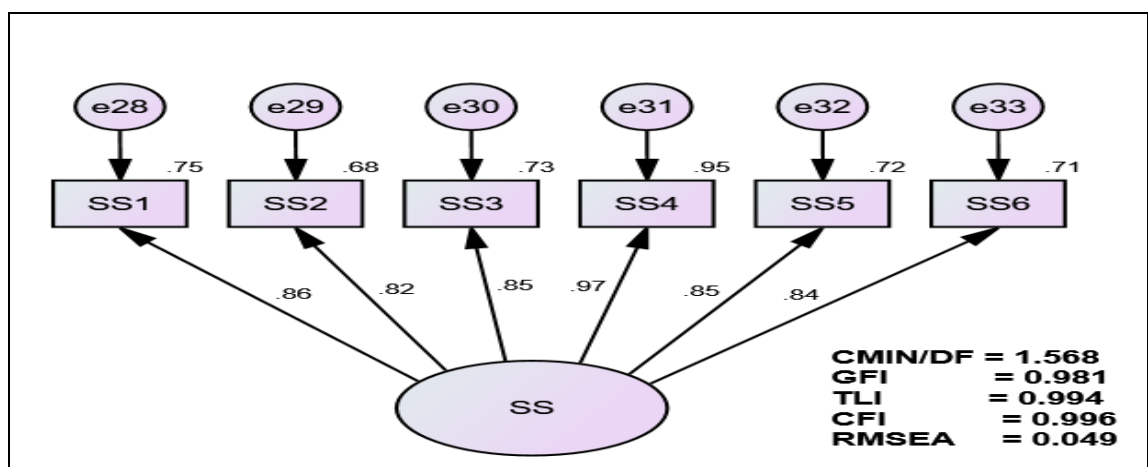


Figure 4.7: Standardized Measurement Model for ICT Skills support characterizes (SS)

4.8.6 Measurement Model for Perceived Competitive Pressure (PCP)

A CFA model for Perceived Competitive Pressure (PCP) was run. There were six PCP construct indicator variables; IN1, IN2, IN3, IN4, and IN5. (Only one item PCP4 was dropped during EFA procedure). In the initial CFA run, the standardized regression weights of the path reading to PCP2 was below 0.5, it was 0.31 and significant at $p \leq 0.02$. The model fit index produced the following indices: CMIN/DF = 2.888, GFI = 0.964, TLI = 0.965, CFI = 0.976 and RMSEA = 0.089. From these indices, the regression coefficient of the path reading to PCP2 was deleted and the RMSEA indices of 0.089 did not fit as it was above the ratio of ≤ 0.08 . Therefore, these indicate poor fit hence the need for further refinement in order to achieve a model fit.

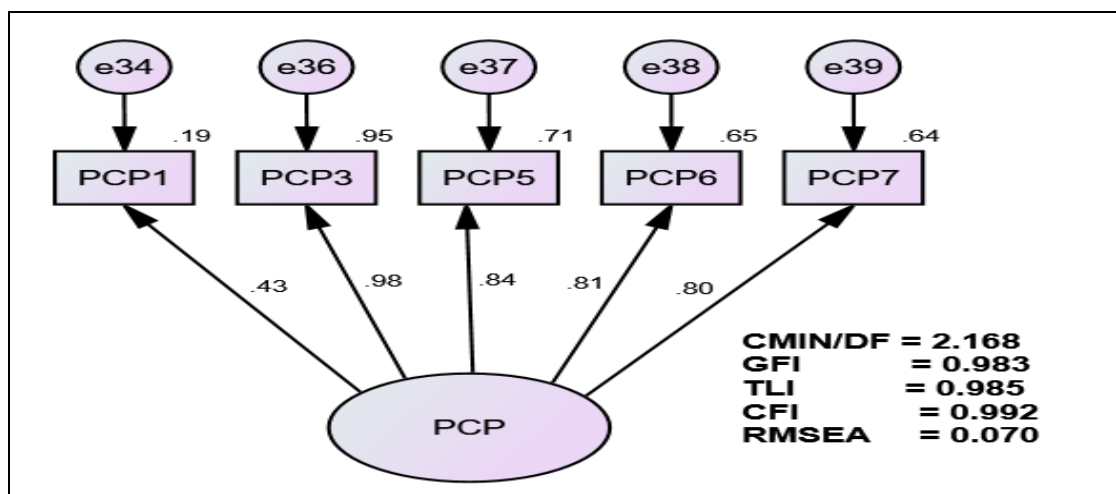


Figure 4.8: Standardized Measurement Model for Perceived Competitive Pressure (PCP)

4.8.7 Measurement Model for Perceived Pressure from Customers (PPC)

A CFA model for perceived pressure from customers (PPC) was run. The PPC construct had the following indicator variables; PPC1, PPC2, PPC4, PPC5, PPC6, PPC7, and PPC8 (Only one item PPC3 was dropped during EFA procedure. In the

initial CFA run, all the standardized regression weights were above 0.5 and significant at $p \leq 0.000$. The model fit index produced the following indices: CMIN/DF= 13.705, GFI = 0.801, TLI = 0.819, CFI = 0.879 and RMSEA = 0.232 which indicate poor fit hence the need for further refinement in order to achieve a model fit.

In improving the model, the researcher observed the modification indices which suggested a paring of error terms e44 and e45as it had 75.033 M.I.values The model was re-run and produced the following fit indices: CMIN/DF= 7.909, GFI = 0.883, TLI = 0.901, CFI = 0.939 and RMSEA = 0.171 which shows improvement but still indicate poor fit hence the need for further refinement in order to achieve a model fit.

In observing the modification indices, the error variances suggested the need for removing item PPC6 as its error terms appeared to be causing instability in the model. The following were the output after running the model for the third round; CMIN/DF= 5.970, GFI = 0.932, TLI = 0.932, CFI = 0.956 and RMSEA = 0.145 which shows a slightly improvement but still indicate poor fit hence the need for further modification in order to achieve a model fit.

After observing the modification indices, the error variance suggested the need for removing item PPC5 as its error terms appeared to be causing instability in the model. The following were the output after running the model for the fourth time around. All the standardized regression weights were above 0.5 and significant at $p \leq 0.004$. While the CMIN/DF= 3.438, GFI = 0.972, TLI = 0.974, CFI = 0.987 and

RMSEA = 0.101. These indicate major improvement however; poor fit is observed hence the need for further refinement in order to achieve a good model fit.

In improving the model, the researcher observed the modification indices which suggested a paring of error terms e42 and e45 as they had both high MI and EPC values; after which the model was re-run and produced the following fit indices: All the standardized regression weights were above 0.5 and significant at $p \leq 0.077$ while the CMIN/DF= 2.104, GFI = 0.986, TLI = 0.988, CFI = 0.995 and RMSEA = 0.068 which shows a good fitting as presented in figure 4.9.

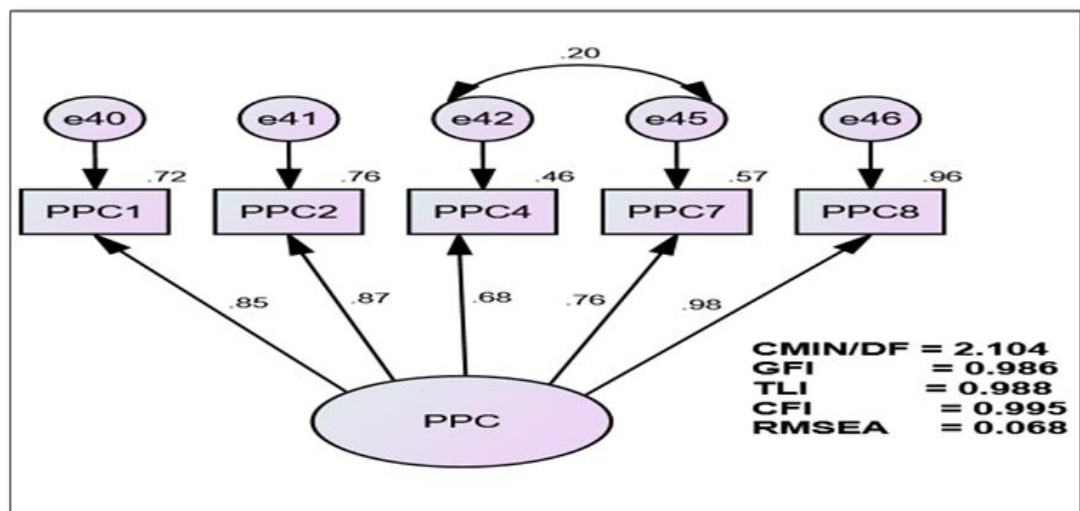


Figure 4.9: Standardized Measurement Model for Perceived Pressure from Customers (PPC)

4.8.8 Measurement Model for Moderating Variable ICT Usage (ICTU)

A CFA measurement model for the moderating variable ICT Usage (ICTU) was run using Amos software 24. The ICTU latent construct had six construct indicator variables; ICTU1, ICTU2, ICTU3, ICTU4, ICTU5, and ICTU6. During the initial CFA run, all the standardized regression weights were above 0.5 and significant at p

≤ 0.000 . The model fit index produced the following indices: CMIN/DF= 4.541, GFI = 0.952, TLI = 0.933, CFI = 0.960 and RMSEA = 0.122 which indicate poor fit hence the need for further refinement in order to achieve a model fit.

After observing the modification indices, the error variances suggested the need for removing item ICTU3 as its error terms appeared to be causing instability in the model. The following were the output after running the model for the second round; CMIN/DF= 0.795, GFI = 0.994, TLI = 1.000, CFI = 1.000 and RMSEA = 0.000 which shows a good fitting as presented in figure 4.10.

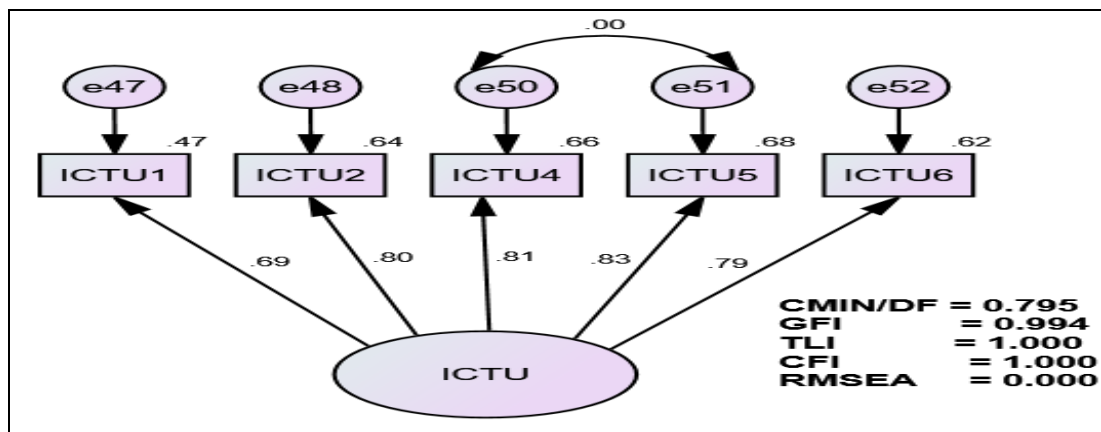


Figure 4.10: Standardized Measurement Model for Moderating Variable of ICT Usage

4.8.9 Measurement Model for Performance Indicators (PI)

IBM Amos 24 was run to test for performance indicators (PI) measurement model fitness which comprised seven indicators namely PI1, PI2, PI3, PI4, PI5, PI6, and PI7. In the initial CFA run, all the standardized path coefficients (regression weights) were above 0.5 and significant at $p \leq 0.000$. The model fit output produced the following indices: CMIN/DF= 4.310, GFI = 0.936, TLI = 0.951, CFI = 0.967 and

RMSEA = 0.118 which indicate poor fit hence the need for further model improvement/refinement in order to achieve model fit.

In order to improve the model, the researcher made use of Modification Indices which showed that the error term for PI2 was the source of instability in the model as it had high MI value with several other error terms. This item PI2 was removed and the model was re-run for the second time. The following fit indices were produced; CMIN/DF= 1.414, GFI = 0.982, TLI = 0.995, CFI = 0.997 and RMSEA = 0.042. These indices indicate a perfect model fit as presented in figure 4.11.

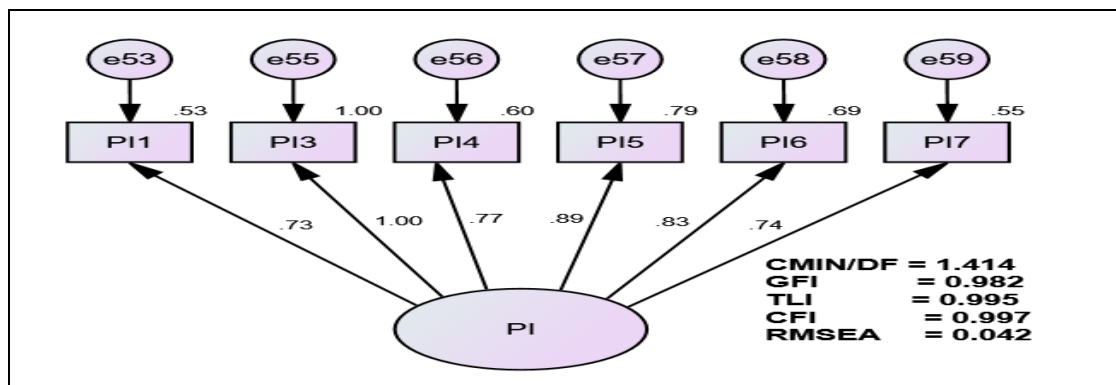


Figure 4.11: Standardized Measurement Model for Performance Indicators (PI)

4.9 Development of the Overall CFA Model

With the above standardized measurement model for each single construct, this section test the overall CFA model that fits all the nine constructs for this study. CFA model was run in AMOS version 26 with a plugin “Pattern Matrix Builder” for single CFA model. The plugin automates the tedious job of creating a CFA from a pattern matrix by simply paste a principle component or pattern matrix from SPSS into the plugin window of AMOS version 26 and it automatically generate the single CFA model. All that need to be done is to rename the latent factors appropriately.

The model comprises the six Perceived Relative Advantage (PR) constructs, seven Perceived Compatibility (PCT) constructs, seven Perceived less Complexity (PCL) constructs, seven ICT infrastructure support characteristics (INF) constructs, six ICT Skills support characteristics (SS) constructs, five Perceived Competitive Pressure (PCP) constructs, five Perceived Pressure from Customers (PPC) constructs, five construct of the moderating variable ICT usage (ICTU) and six construct of the performance indicators (PI). CFA was run with maximum likelihood estimate in Amos software to determine its fitness. After the initial run, all the produced standardized regression weights were above 0.5 as a rule of thumb proposed by Hair *et al.* (2010) and significant at $p \leq 0.05$ within the acceptable critical ratio (CR) of above ± 1.96 and standardized residual covariance within the acceptable range (below 2.58).

In addition, the standardized model produced the following fit indices; CMIN/DF = 1.669, GFI = 0.753, TLI = 0.927, CFI = 0.931 and RMSEA = 0.053. This is not a good model fit based on the ration of GFI and RAMSEA which is below the recommended ration of $GFI \geq 0.90$ by (Hoe, 2008). Hence the need for further refinement in order to achieve a model fit.

After observing the modification indices, the error variances suggested the need for removing item SS4 as its error terms appeared to be causing instability in the model. The following were the output after running the model for the second round; CMIN/DF = 1.629, GFI = 0.763, TLI = 0.930, CFI = 0.931 and RMSEA = 0.052.

These indicate slightly improvement however; poor fit is observed hence the need for further refinement in order to achieve a good model fit.

In order to improve the model, the researcher observed the modification indices which suggested the need to remove items PCT10 and PCT12 as they had high modification indices of 25,822 and 25,358 therefore causing instability of the model. The model was re-run for the third time and it produced the following indices; CMIN/DF = 1.605, GFI = 0.773, TLI = 0.931, CFI = 0.936 and RMSEA= 0.051. This indicates poor model fit hence the need for further refinement in order to achieve a good model fit.

The researcher observed standardized residual covariance to ensure a good fit. Olivares and Shi (2017) recommended that, standardized residual covariance provide information about the source of misfit in poorly fitting models and they may be considered an alternative to modification indices with a value under 2.00 or 2.58. After checking the output of the standardized residual covariance data, PR2,INF4 and PCL6 had a greater value of 3 causing instability of the model. Therefore, they were deleted and the model was re-run for the fourth time and it produced the following indices; CMIN/DF = 1.519, GFI = 0.796, TLI = 0.945, CFI = 0.950 and RMSEA= 0.047. This is a good fitting model based on Radzi and Hui *et al.*(2017) who recommended that, only four model fitting tests are required for acceptable results.

Likewise, Hoe (2008) recommends that a good model fit should achieve the following minimum fit indices; CFI (>0.90 indicates good fit), GFI \geq 0.90, TLI >

0.90, RMSEA (< 0.08 indicates acceptable fit), and commonly used χ^2 statistic (CMIN/DF ratio of 3 or less) in order to be considered fit. The value of GFI which is 0.796 is just below the recommended threshold of 0.90 but should be accepted because further improvement of the model could result in model over-fitting. Scholars provided some warning on the danger effect of over-fitting model based on trivial effects arising from capitalization on the chance factors. For examples, Ping, 2004 and MacDonald *et al.* (1988) suggested that, GFI has high chance of decreasing when the number of factors items included in a model increases. In view of this statistical evidence, it is concluded that the nine scales achieved adequate convergent validity, reliability, and unidimensionality (figure 4.14). Figure 4.12 presents the overall CFA model for this study and model estimates summarized in table 4.12

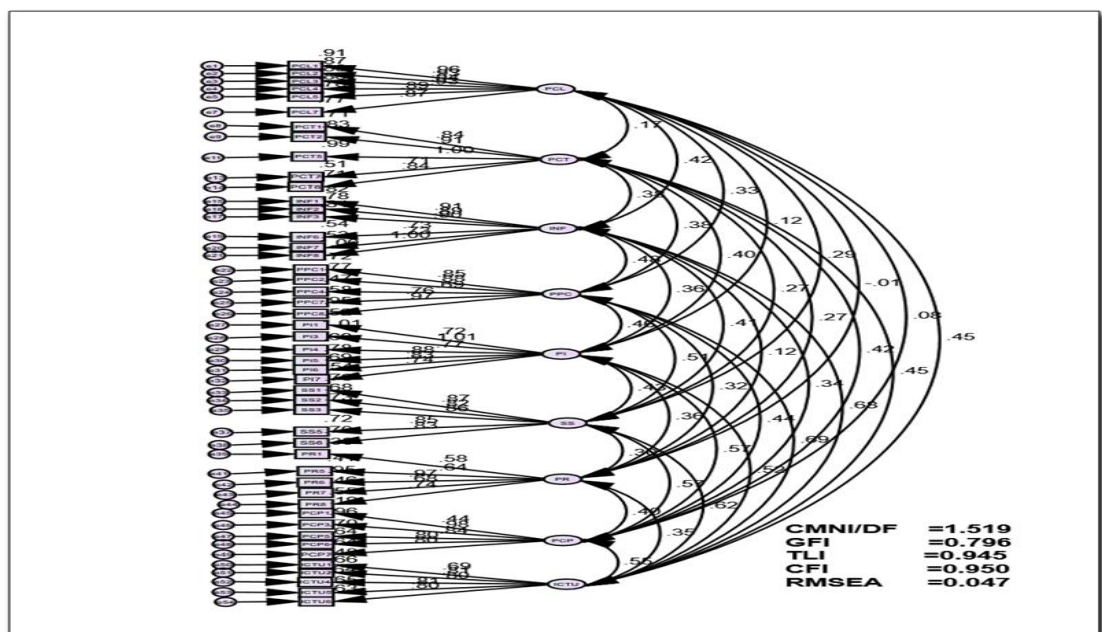


Figure 4. 12: Figure 4 12: Standardized Overall CFA Model

In addition to the fit indices of the CFA which showed good fitting model, the researcher observed the p-values which were all significant at $p < 0.05$ as shown in Table 4.16.

Table 4.16: Standardized and Unstandardized Estimates for the Overall CFA Model

	Path	Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate
PCL1	<--- PCL	1.000				.957
PCL2	<--- PCL	.996	.033	30.491	***	.932
PCL3	<--- PCL	1.027	.033	31.535	***	.939
PCL4	<--- PCL	1.013	.034	29.732	***	.927
PCL5	<--- PCL	.961	.039	24.935	***	.886
PCL7	<--- PCL	.968	.041	23.902	***	.875
PCT1	<--- PCT	1.000				.841
PCT2	<--- PCT	1.061	.055	19.393	***	.909
PCT5	<--- PCT	1.086	.047	23.037	***	.997
INF1	<--- INF	1.000				.907
INF2	<--- INF	.973	.044	21.912	***	.885
INF3	<--- INF	.980	.043	23.055	***	.902
INF6	<--- INF	.916	.062	14.858	***	.735
INF7	<--- INF	.707	.048	14.726	***	.731
INF8	<--- INF	1.009	.032	31.989	***	.998
PPC1	<--- PPC	1.000				.848
PPC2	<--- PPC	1.012	.056	18.151	***	.878
PPC4	<--- PPC	.890	.073	12.260	***	.686
PPC7	<--- PPC	.980	.068	14.315	***	.762
PPC8	<--- PPC	.995	.045	21.880	***	.974
PI1	<--- PI	1.000				.723
PI3	<--- PI	1.027	.064	16.059	***	1.005
PI4	<--- PI	.957	.078	12.268	***	.772
PI5	<--- PI	1.066	.075	14.182	***	.885
PI6	<--- PI	.986	.075	13.215	***	.828
SS1	<--- SS	1.000				.870
SS2	<--- SS	.999	.061	16.365	***	.825
SS3	<--- SS	1.017	.058	17.539	***	.857
PR1	<--- PR	1.000				.577
PR5	<--- PR	.870	.107	8.130	***	.643
PR6	<--- PR	1.311	.131	10.032	***	.974
PR7	<--- PR	1.134	.135	8.410	***	.675
PR8	<--- PR	1.251	.140	8.939	***	.740
PCP1	<--- PCP	1.000				.438
PCP3	<--- PCP	1.647	.225	7.304	***	.981
PCP5	<--- PCP	1.619	.230	7.034	***	.839
PCP6	<--- PCP	1.597	.230	6.932	***	.801
ICTU1	<--- ICTU	1.000				.692
ICTU2	<--- ICTU	1.165	.101	11.506	***	.814
ICTU4	<--- ICTU	1.208	.107	11.336	***	.801
ICTU5	<--- ICTU	1.290	.113	11.421	***	.808
ICTU6	<--- ICTU	1.286	.114	11.259	***	.795

	Path		Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate
PCT7	<--- PCT		.981	.075	13.106	***	.715
PCT8	<--- PCT		1.062	.063	16.961	***	.844
PI7	<--- PI		.948	.081	11.701	***	.738
SS5	<--- SS		1.002	.058	17.180	***	.848
SS6	<--- SS		1.009	.060	16.703	***	.834
PCP7	<--- PCP		1.657	.239	6.922	***	.797

4.10 Results from Validity Measures

With the above CFA model, construct validity testing was run in AMOS version 24 with a plugin “Master Validity Tool” developed by Gaskin and Lim (2016). The plugin adopted the seminal study’s threshold values for testing the construct validity, viz. convergent validity and Discriminant validity. The plugin produced the table 4.15 below showing no valid concerns were found in the model. However, the respective values for CR, AVE, MSV and MaxR(H) are presented as well in the same table. MaxR(H) is used to reflect another term for CR with inherent calculation for improved CR. All of the values depicted under CR are greater than AVE and MSV is less than AVE. The square-root of AVE is presented in the diagonal and in the bold letters. The minimum value of AVE for each factor should be 0.5 in order to achieve convergent validity (Radzi and Hui, 2017). In the current study, all the items in the measurement model achieved statistical significance at $p = 0.000$. Given the statistical significance level of AVE as depicted in table 4.17, it is concluded therefore that the measurement scale has achieved convergent validity. The inter-construct correlation is also depicted in the table below. There were no construct validity departures from the standardized threshold values were found.

Furthermore, construct validity is proved to achieved the required level based on the fitness indices, their respective category, and the level of acceptance as presented in Table 4.17. The model fit indices indicate how fit is the items in measuring their respective latent constructs. Likewise, table 4.17, declared that discriminant validity for each construct was achieved since the AVE estimate for each construct (shown in bold) was greater than the squared correlation estimate for each pair of constructs. The correlation between all constructs was lower than 0.90 is another indication that discriminant validity is being achieved.

Table 4.17: CFA Model Validity Measure

	CR	AVE	MSV	MaxR(H)	PCL	PCT	INF	PPC	PI	SS	PR	PCP	ICTU
PCL	0.960	0.776	0.199	0.975	0.881								
PCT	0.962	0.786	0.197	1.000	0.173*	0.886							
INF	0.942	0.702	0.467	0.996	0.422***	0.375***	0.838						
PPC	0.918	0.695	0.491	0.966	0.331***	0.379***	0.482***	0.834					
PI	0.930	0.690	0.330	1.012	0.126*	0.3999***	0.361***	0.462***	0.831				
SS	0.948	0.753	0.422	0.971	0.321***	0.266***	0.431***	0.531***	0.440***	0.868			
PR	0.857	0.507	0.173	0.945	0.000	0.280***	0.129*	0.330***	0.373***	0.313***	0.712		
PCP	0.888	0.626	0.333	0.972	0.084	0.416***	0.334***	0.437***	0.574***	0.577***	0.416***	0.791	
ICTU	0.885	0.608	0.491	0.890	0.447	0.443***	0.684***	0.701***	0.529***	0.649***	0.372***	0.559***	0.780

4.10.1 Results from Reliability Analysis

Construct reliability was tested with a plugin “Master Validity Tool” in AMOS version 24, construct reliability (CR) is used to measure internal consistency of a latent construct. A value of $CR > 0.6$ is required in order to achieve composite reliability for a construct. For this study, factor loading of every item is above 0.6 (table 4.17 above) as Awang (2011) recommended a value of $CR > 0.6$ is required in order to achieve composite reliability for a construct. Therefore, CR for this study is achieved.

Further analysis of the reliability of the mediating variable (ICT Usage) was conducted by computing Cronbach’s alpha coefficient using SPSS software and results were tabulated in Table 4.18. It should be noted that ICT Usage (ICTU) was measured using six items ICTU1 to ICTU6 and none was dropped in the Exploratory Factor analysis. Kline (2011) suggests that the reliability coefficient around 0.90 is excellent, values near 0.80 are very good, and values close to 0.70 are adequate. Values below 0.5 should be avoided.

Table 4.18: Item Total Statistics for ICT Usage Reliability Test

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach’s Alpha Coefficient	Cronbach's Alpha if Item Deleted
ICTU1	20.37	15.583	.660	0.966	.891
ICTU2	20.29	14.990	.769		.876
ICTU3	20.55	15.371	.691		.887
ICTU4	20.34	14.806	.747		.878
ICTU5	20.45	14.519	.736		.880
ICTU6	20.56	14.290	.759		.876

The total results output from the current study produced an alpha coefficient of 0.966. The high value is due to the nature of the scale as it comprises a large number of items. However, Tavakol and Dennick (2011) pointed out that there are diverse reports about the acceptable values of alpha, ranging from 0.70 to 0.95. Field (2009) asserts however that, the value of the alpha coefficient is highly sensitive to the number of scale items. Table 4.18 shows the total statistics for this analysis. Deletion of items was not necessary as none promised significant improvement in the Cronbach,s Alpha upon its deletion.

4.11 Testing of Structural Model for Overall Sample

This stage present the structural model which was tested with the entire sample (N=238), following the acceptance of the overall measurement model with its fit indices and parameter estimates. Through structural model testing, structural association between exogenous and endogenous variables was estimated. Based on the proposed conceptual framework of this study, the structural associations encompassed the following: (1) perceived relative advantage on ICT usage (PR), (2) perceived compatibility on ICT usage(PCT), (3) perceived less complexityon ICT usage (PCL), (4) ICT infrastructure support on ICT usage (INF), (5) ICT skills support on ICT usage(SS), (6) perceived competitive pressure (PCP) on ICT usage, (7) perceived pressure from customers on ICT usage(PPC), (8) the mediating ICT usage (ICTU), and (9) performance Indicators.

By using the 59 retained variables (Table 4.12, 4.13 and 4.14) a composite scale was developed. 11 variables were dropped(such as; ICT enable to reach new market, ICT

provide fast access to information, ICT system is compatible with our supplier, the site has positively influence ICT, Using ICT is important to keep comp in the market and our customers demand safety and privacy ICT system.) due to weak relationship to provide a sound theoretical understanding. The results of the analysis using IBM AMOS software are presented in table 4.19 including the observable variables which are represented by rectangles based on multiple questions in the questionnaire (Appendix 1). Latent measures (unobserved variables) are represented by ovals. The structural model in Figure 4.13 is demonstrated by 8 single-directed arrows, seven of them being arrows from exogenous to endogenous variables and one from one endogenous variable to another.

The findings for initial run of SEM model fit in figure 4.13 are presented as follows: The ratio of the chi-square to the degree of freedom-CMIN/DF commonly referred to as normed chisquare value has yielded a value of 1.555, which fall within the suggested cut of point values of ≤ 3 by Schermelleh-Engel *et al.* (2003). The GFI = 0.790, TLI = 0.942 and CFI = 0.946 obtained fall under the acceptable range whereas values close to 1 and generally values above 0.9 indicate a good fit as suggested by (Engel *et al.*, 2003). To avoid model over fitting, the GFI value of this sample, 0.790 is accepted as its below 0.9, because the GFI and AGFI are known to depend on the sample size (Mulaik et al., 1989). On the other hand, Hoe (2008) suggested that a RMSEA value of 0 indicate perfect fit, < 0.05 = indicate close fit, 0.05 to 0.08 indicate fair fit and 0.08 to 0.1 a mediocre fit > 0.1 , = poor fit. Comparing to the current study findings the RMSEA values of 0.048 that was produced in the analysis

indicate that the model fairly fits the data. The results show that there is good fit for the structural. These findings are summarized in Table 4.19.

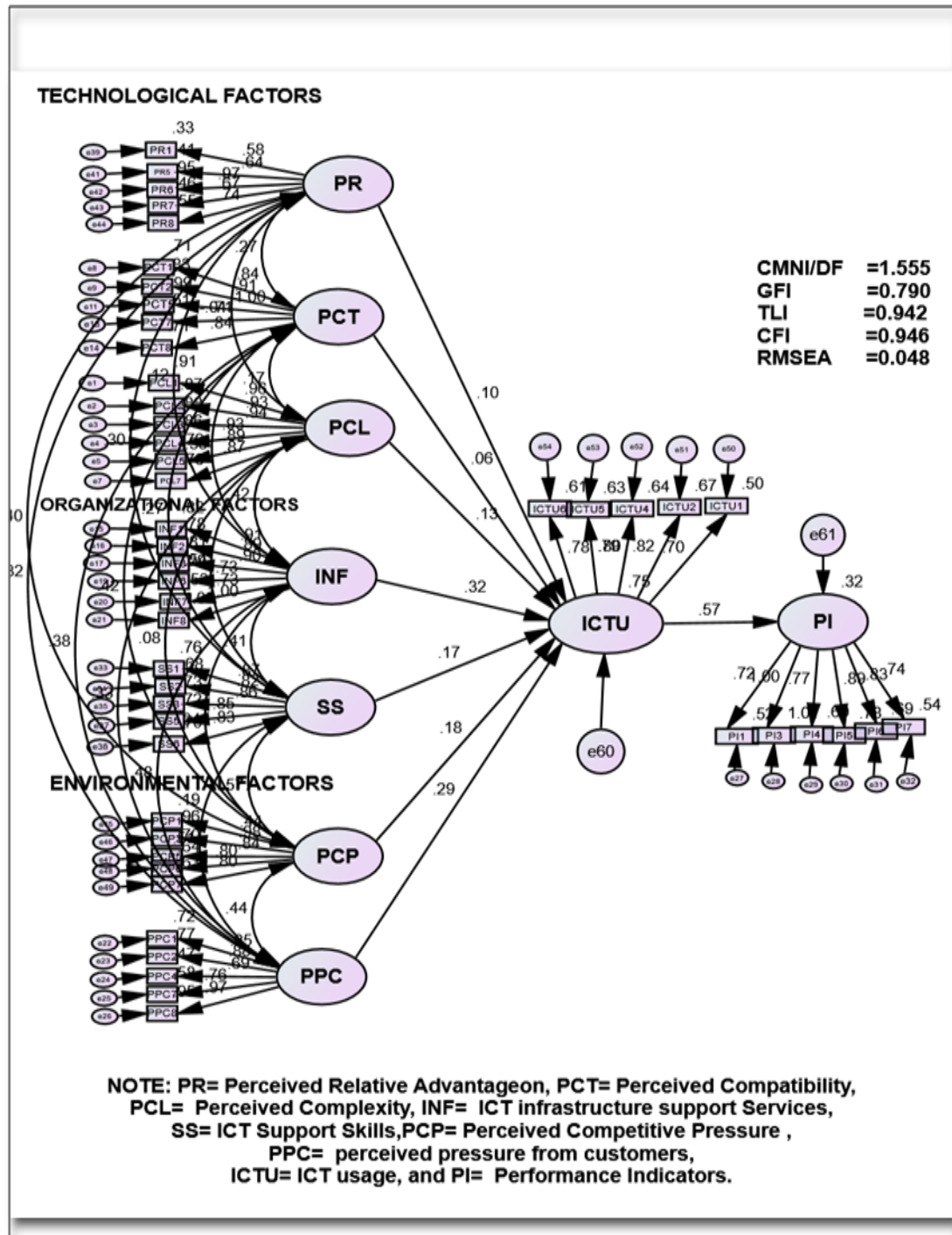


Figure 4.13: The Structural Model for Overall Sample

Table 4.19: Standardized and Unstandardized Estimates for the Structural Model

Path			Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate
ICTU	<---	PR	.097	.044	2.207	.027	.105
ICTU	<---	INF	.197	.034	5.794	***	.321
ICTU	<---	SS	.129	.045	2.878	.004	.168
ICTU	<---	PCP	.229	.079	2.899	.004	.180
ICTU	<---	PPC	.197	.040	4.932	***	.286
ICTU	<---	PCT	.055	.040	1.350	.177	.063
ICTU	<---	PCL	.072	.026	2.718	.007	.128
PI	<---	ICTU	.712	.096	7.396	***	.568
PCL1	<---	PCL	1.000				.956
PCL2	<---	PCL	.996	.033	30.490	***	.932
PCL3	<---	PCL	1.027	.033	31.516	***	.939
PCL4	<---	PCL	1.013	.034	29.733	***	.927
PCL5	<---	PCL	.961	.039	24.941	***	.886
PCL7	<---	PCL	.968	.041	23.886	***	.875
PCT1	<---	PCT	1.000				.841
PCT2	<---	PCT	1.061	.055	19.404	***	.909
PCT5	<---	PCT	1.086	.047	23.037	***	.997
INF1	<---	INF	1.000				.907
INF2	<---	INF	.973	.044	21.913	***	.885
INF3	<---	INF	.980	.043	23.056	***	.902
INF6	<---	INF	.916	.062	14.858	***	.735
INF7	<---	INF	.707	.048	14.726	***	.731
INF8	<---	INF	1.009	.032	31.989	***	.998
PPC1	<---	PPC	1.000				.848
PPC2	<---	PPC	1.013	.056	18.141	***	.878
PPC4	<---	PPC	.891	.073	12.261	***	.686
PPC7	<---	PPC	.980	.069	14.308	***	.762
PPC8	<---	PPC	.995	.046	21.864	***	.974
PI6	<---	PI	.987	.075	13.216	***	.829
SS1	<---	SS	1.000				.870
SS2	<---	SS	.999	.061	16.365	***	.825
SS3	<---	SS	1.017	.058	17.541	***	.857
PR1	<---	PR	1.000				.577
PR5	<---	PR	.870	.107	8.137	***	.643
PR6	<---	PR	1.311	.131	10.035	***	.974
PR7	<---	PR	1.133	.135	8.411	***	.675
PR8	<---	PR	1.250	.140	8.942	***	.740
PCP1	<---	PCP	1.000				.439
PCP3	<---	PCP	1.643	.225	7.319	***	.981
PCP5	<---	PCP	1.615	.229	7.048	***	.839
PCP6	<---	PCP	1.595	.230	6.948	***	.802

Path			Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate
PCT7	<---	PCT	.981	.075	13.108	***	.715
PCT8	<---	PCT	1.062	.063	16.964	***	.844
PI7	<---	PI	.948	.081	11.695	***	.738
SS5	<---	SS	1.002	.058	17.179	***	.847
SS6	<---	SS	1.009	.060	16.703	***	.834
PCP7	<---	PCP	1.652	.238	6.934	***	.797
ICTU1	<---	ICTU	1.000				.704
ICTU6	<---	ICTU	1.241	.109	11.338	***	.781
ICTU5	<---	ICTU	1.241	.108	11.480	***	.791
ICTU4	<---	ICTU	1.186	.102	11.614	***	.801
ICTU2	<---	ICTU	1.149	.097	11.840	***	.817
PI1	<---	PI	1.000				.723
PI3	<---	PI	1.027	.064	16.031	***	1.005
PI4	<---	PI	.958	.078	12.262	***	.772
PI5	<---	PI	1.067	.075	14.186	***	.886

4.12 Model Path Coefficients and Hypothesis Testing

The hypothesized relationships as indicate in chapter two are examined against various coefficients and scores obtained from the analysis. In this study the hypotheses are tested based on the direction, the strength of the standardized paths coefficient (β), the critical ratio (C.R), and significance level (p-value).

4.12.1 The Relationship between Perceived relative Advantage (PR) and ICT usage

This study had argued in chapter two that there is a positive association between technological factors through perceived relative advantage (PR) and ICT usage. Thus;

H1a: there is a positive relationship between Perceived relative Advantage (PR) and ICT usage in WHSs

Hypothesis 1a was tested with Cronbach's Alpha of perceived relative advantage (PR) constructs as presented in table 4.20. Cronbach's Alpha was used to assess internal consistency reliability of the constructs prior to hypothesis testing. For this constructs, Cronbach's alpha coefficient was 0.843 which is well above the recommended minimum threshold of 0.7.

Table 4.20: Descriptive Statistics for Perceived Relative Advantage (PR)

	N	Minimum	Maximum	Mean	Std. Deviation	Cronbach's Alpha
PR1	238	1	5	3.85	1.188	0.843
PR2	238	1	5	4.34	.751	
PR5	238	1	5	4.13	.927	
PR6	238	1	5	4.15	.923	
PR7	238	1	5	3.87	1.151	
PR8	238	1	5	3.89	1.159	

Further analysis was done using SEM in order to determine the significance of the influence of perceived relative advantage (PR) on ICT usage (ICTU) as illustrated in table 4.21. The path leading from PR to ICTU in table 4.19 was used to examine the hypothesized relationship (H1a) that there is a positive relationship between perceived relative advantage (PR) and ICT Usage (ICTU). The test for this hypothesis showed that PR has weak, positive and significance related to ICTU ($\gamma = 0.105$; C.R = 2.207; $p = 0.027$), meaning that when WHSs decision makers perceive a relative advantage by 1 standard deviation, ICTU goes up by 0.105 standard deviations. This implies that a higher level of PR would result in a greater level of ICTU. Hence, the H1a of the study is supported.

Table 4.21: Perceived Relative Advantage (PR) and ICT Usage SEM results

Path		Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate	Results
ICTU <--- PR		.097	.044	2.207	.027	.105	Supported
PR1 <--- PR		1.000				.577	Fixed
PR5 <--- PR		.870	.107	8.137	***	.643	Significant
PR6 <--- PR		1.311	.131	10.035	***	.974	Significant
PR7 <--- PR		1.133	.135	8.411	***	.675	Significant
PR8 <--- PR		1.250	.140	8.942	***	.740	Significant

4.12.2 The Relationship between Perceived Compatibility (PCT) and ICT usage

From the argument made in chapter two of this study, there is a positive relation between Perceived Compatibility (PCT) and ICT usage. Thus, H1b stated that; *there is a positive relationship Perceived Compatibility (PCT) and ICT usage*

To test this hypothesis, Cronbach's Alpha was used to assess internal consistency reliability of the constructs prior to hypothesis testing. For this construct, Cronbach's Alpha coefficient was 0.958 which is well above the recommended minimum threshold of 0.7 as presented in table 4.22.

Table 4.22: Descriptive Statistics for Perceived Compatibility (PCT)

	N	Minimum	Maximum	Mean	Std. Deviation	Cronbach's Alpha
PCT1	238	1	5	4.07	.874	0.958
PCT2	238	1	5	4.08	.858	
PCT3	238	1	5	4.12	.834	
PCT5	238	2	5	4.13	.800	
PCT6	238	1	5	4.08	.865	
PCT7	238	1	5	3.96	1.008	
PCT8	238	1	5	4.05	.924	

Hypothesis 1b was tested to examine whether ICT Usage (ICTU) as a dependent and a mediator latent variable is related to Perceived Compatibility (PCT). The path leading from Perceived Compatibility (PCT) to ICT Usage (ICTU) in table 4.23 was

used to examine the hypothesized relationship (H1b) that there is a positive relationship between Perceived Compatibility (PCT) and ICTU usage (ICTU). The test for this hypothesis showed that Perceived Compatibility has weak, positive and non-significant relationship to ICTU ($\gamma = 0.063$; C.R =1.350; $p = 0.177$), meaning that when WHSs decision makers perceive level of compatibility goes up by 1 standard deviation, ICTU goes down by 0.063 standard deviations. Thus, the study showed that a higher level of perceived compatibility would not result in any meaningful and significant change in the level of ICT usage. Hence, H1b of the study is not supported.

Table 4.23: Perceived Compatibility (PCT) and ICT Usage SEM results

Path	Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate	Results
ICTU <--- PCT	.055	.040	1.350	.177	.063	Not Significant at $p \leq 0.05$
PCT7 <--- PCT	.981	.075	13.108	***	.715	Significant
PCT8 <--- PCT	1.062	.063	16.964	***	.844	Significant
PCT1 <--- PCT	1.000				.841	Fixed
PCT2 <--- PCT	1.061	.055	19.404	***	.909	Significant
PCT5 <--- PCT	1.086	.047	23.037	***	.997	Significant

4.12.3 The Relationship between Perceived less Complexity (PCL) and ICT Usage

Hypothesis 1c was tested to investigate whether Perceived less Complexity (PCL) is directly related to ICT usage. The second chapter has argued that there is a positive association between technological factors through Perceived less Complexity (PCL) and ICT usage. Thus, 1c postulated that; *there is a positive relationship between Perceived less Complexity (PCL) and ICT usage in WHSs*

To beginning testing the hypotheses, Cronbach's Alpha was used to assess internal consistency reliability of the constructs prior to hypothesis testing. For this constructs, Cronbach's alpha coefficient was 0.956 which is well above the recommended minimum threshold of 0.7 as presented in table 4.24.

Table 4.24: Descriptive Statistics for Perceived Less Complexity (PCL)

	N	Minimum	Maximum	Mean	Std. Deviation	Cronbach's Alpha
PCL1	238	1	5	3.79	1.180	0.956
PCL2	238	1	5	3.75	1.205	
PCL3	238	1	5	3.74	1.235	
PCL4	238	1	5	3.74	1.233	
PCL5	238	1	5	3.71	1.224	
PCL6	238	1	5	3.89	1.251	
PCL7	238	1	5	3.72	1.250	

Furthermore, this Hypothesis was tested through SEM to examine the significance relationship between Perceived less Complexity (PCL) and ICT usage. Table 4.25 shows the impact of a latent variable over a measurement variable, which is one of the features of SEM techniques for modeling.

Table 4.25: Perceived less Complexity (PCL) and ICT Usage SEM Results

	Path		Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate	Results
ICTU	<---	PCL	.072	.026	2.718	.007	.128	Significant
PCL1	<---	PCL	1.000				.956	Fixed
PCL2	<---	PCL	.996	.033	30.490	***	.932	Significant
PCL3	<---	PCL	1.027	.033	31.516	***	.939	Significant
PCL4	<---	PCL	1.013	.034	29.733	***	.927	Significant
PCL5	<---	PCL	.961	.039	24.941	***	.886	Significant
PCL7	<---	PCL	.968	.041	23.886	***	.875	Significant

The path leading from Perceived less Complexity (PCL) to ICT usage ICTU in table 4.25 was used to examine the hypothesized relationship (H1c) that there is a positive

relationship between Perceived less Complexity (PCL) and ICT usage. The test for this hypothesis showed that Perceived less Complexity (PCL) is positively significant related to ICT usage ($\gamma = 0.128$; C.R = 2.718; $p = 0.007$), meaning that when WHSs decision makers perceived less complexity (PCL) level goes up by 1 standard deviation, ICT usage goes up by 0.128 standard deviations. Thus it can be concluded that a higher level of perceived less complexity (PCL) would result in a greater level of ICT usage. Hence, H1c of the study is supported.

4.12.4 The Relationship between ICT Support infrastructure (INF) and ICT Usage

The second hypothesis is analyzed to test the relation between ICT support infrastructure (INF) and ICT Usage. This relationship has been argued from the second chapter that there is a positive relationship between ICT support infrastructure (INF) and ICT Usage. Thus,

H2a state that, there is a positive relationship between ICT support infrastructure (INF) and ICT Usage in WHSs

The initial test of the second hypotheses was through cronbach's Alpha which was used to assess internal consistency reliability of the constructs prior to hypothesis testing. For this constructs, Cronbach's alpha coefficient was 0.938 which is well above the recommended minimum threshold of 0.7 as presented in table 4.26.

Table 4.26: Descriptive Statistics for ICT Support Infrastructure (INF)

	N	Minimum	Maximum	Mean	Std. Deviation	Cronbach's Alpha
INF1	238	1	5	3.95	1.135	0.938
INF2	238	1	5	3.94	1.131	
INF3	238	1	5	3.95	1.118	
INF4	238	1	5	3.93	1.113	
INF6	238	1	5	3.75	1.283	
INF7	238	1	5	4.02	.996	
INF8	238	1	5	4.04	1.041	

Furthermore, in testing the second hypotheses, SEM output was performed to highlight the significance of the influence between ICT support infrastructures (INF) on ICT usage as illustrated in table

Table 4.27: ICT Support Infrastructures (INF) and ICT Usage SEM Results

Path		Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate	Results
ICTU	<--- INF	.197	.034	5.794	***	.321	Significant
INF1	<--- INF	1.000				.907	Fixed
INF2	<--- INF	.973	.044	21.913	***	.885	Significant
INF3	<--- INF	.980	.043	23.056	***	.902	Significant
INF6	<--- INF	.916	.062	14.858	***	.735	Significant
INF7	<--- INF	.707	.048	14.726	***	.731	Significant
INF8	<--- INF	1.009	.032	31.989	***	.998	Significant

The path leading from INF to ICTU in table 4.27 was used to examine the hypothesized relationship (H2a) that there is a positive relationship between ICT support infrastructures (INF) and ICT Usage (ICTU). The test for this hypothesis showed that WHSs ICT support infrastructures (INF) is positively related to ICT usage ($\gamma = 0.321$; C.R = 5.794; $p = 0.000$), meaning that when WHSs ICT support infrastructures (INF) goes up by 1 standard deviation, ICT usage goes up by 0.321 standard deviations. Thus it can be concluded that a higher level of ICT support

infrastructures (INF) would result in a greater level of ICT usage by WHSs decision makers. Hence, H2a of the study is supported.

4.12.5 The Relationship between ICT Support Skills (SS) and ICT usage

It was argued in this study that organizational factors through ICT support Skills (SS) tend to be the determining factors of ICT usage (ICTU). Hence the hypothesis was stated as; *H2b: There is a positive relationship between ICT Support Skills (SS) and ICT usage*

The process of testing this hypothesis was preceded cronbach's Alpha to assess internal consistency reliability of the construct prior to hypothesis testing. For this construct, Cronbach's Alpha coefficient was 0.946 which exceeds the recommended minimum threshold of 0.7 as presented in table 4.28.

Table 4.28: Descriptive Statistics for ICT Support Skills (SS)

	N	Minimum	Maximum	Mean	Std. Deviation	Cronbach's Alpha
SS1	238	1	5	4.09	.948	0.946
SS2	238	1	5	4.05	.999	
SS3	238	1	5	4.07	.979	
SS4	238	1	5	4.18	.843	
SS5	238	1	5	4.08	.975	
SS6	238	1	5	4.07	.997	

Further analysis was done using SEM in order to determine the level of significance of the influence of ICT support Skills (SS) on ICT usage (ICTU) as illustrated in table 4.29.

Table 4.29: ICT Support Skills (SS) on ICT Usage (ICTU) SEM Results

Path			Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate	Results
ICTU	<---	SS	.129	.045	2.878	.004	.168	Significant
SS1	<---	SS	1.000				.870	Fixed
SS2	<---	SS	.999	.061	16.365	***	.825	Significant
SS3	<---	SS	1.017	.058	17.541	***	.857	Significant
SS5	<---	SS	1.002	.058	17.179	***	.847	Significant
SS6	<---	SS	1.009	.060	16.703	***	.834	Significant

The path leading from SS to ICTU in table 4.29 was used to examine the hypothesized relationship (H2b) that there is a positive relationship between ICT support Skills (SS) and ICT usage (ICTU). The test for this hypothesis showed that ICT support Skills (SS) is positively related to ICT usage ($\gamma = 0.168$; C.R = 2.878; $p = 0.004$), meaning that when WHSs ICT support Skills (SS) goes up by 1 standard deviation, ICT Usage goes up by 0.168 standard deviations. Thus, the study showed that a higher level of ICT support Skills (SS) would result in a greater level of ICT usage by WHSs decision makers. Hence, H2b of the study is supported.

4.12.6 The Relationship between Perceived Competitive Pressure (PCP) and ICT usage

This study had argued in chapter two that there is a positive association between environmental factors through perceived competitive pressure (PCP) and ICT usage. Thus **H3a:** state that; *There is a positive relationship between Perceived Competitive Pressure (PCP) and ICT usage in WHSs*

This hypothesis was tested with cronbach's Alpha was used to assess internal consistency reliability of the constructs prior to hypothesis testing. For this

constructs, Cronbach's alpha coefficient was 0.777 which is well above the recommended minimum threshold of 0.7 as presented in table 4.30.

Table 4.30: Descriptive Statistics for Perceived Competitive Pressure (PCP)

	N	Minimum	Maximum	Mean	Std. Deviation	Cronbach's Alpha
PCP1	38	1	5	3.85	1.132	0.777
PCP3	38	1	5	4.28	.832	
PCP5	38	1	5	4.18	.956	
PCP6	38	1	5	4.16	.988	
PCP7	38	1	5	4.14	1.029	

Moreover, the hypothesis was tested through SEM in order to examine the significance relationship of ICT usage as a dependent and mediator latent variable is related to perceived competitive pressure (PCP) as illustrated in table 4.31.

Table 4.31: Perceived Competitive Pressure (PCP) and ICT Usage SEM Results

	Path		Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate	Results
ICTU	<---	PCP	.229	.079	2.899	.004	.180	Significant
PCP1	<---	PCP	1.000				.439	Fixed
PCP3	<---	PCP	1.643	.225	7.319	***	.981	Significant
PCP5	<---	PCP	1.615	.229	7.048	***	.839	Significant
PCP6	<---	PCP	1.595	.230	6.948	***	.802	Significant
PCP7	<---	PCP	1.652	.238	6.934	***	.797	Significant

The path leading from PCP to ICTU in table 4.31 was used to examine the hypothesized relationship (H3a) that there is a positive relationship between perceived competitive pressure (PCP) and ICT Usage (ICTU). The test for this hypothesis showed that there is significant positive relationship between perceived competitive pressure (PCP) and ICT Usage (ICTU) ($\gamma = 0.180$; C.R = 2.899; $p = 0.004$), meaning that when WHSs decision makers perception of competitive pressure (PCP) goes up by 1 standard deviation, ICTU goes up by 0.180 standard

deviations. Thus, the study showed that a higher level of perceived competitive pressure (PCP) by WHSs decision makers would result in greater level of ICT usage. Hence, H3a of the study is not supported.

4.12.7 The Relationship between Perceived Pressure from Customers (PPC) and ICT usage

From the argument made in chapter two of this study, there is a positive relation between environmental factors through Perceived Pressure from Customers (PPC) and ICT usage. Thus, ***H3b: There is a positive relationship between Perceived Pressure from Customers (PPC) and ICT usage***

To test this hypothesis cronbach's Alpha was used to assess internal consistency reliability of the constructs prior to hypothesis testing. For this construct, Cronbach's Alpha coefficient was 0.911 which is well above the recommended minimum threshold of 0.7 as presented in table 4.32.

Table 4.32: Descriptive Statistics for Perceived Pressure from Customers (PPC)

	N	Minimum	Maximum	Mean	Std. Deviation	Cronbach's Alpha
PPC1	238	1	5	4.06	1.079	0.911
PPC2	238	1	5	4.08	1.056	
PPC4	238	1	5	3.90	1.189	
PPC7	238	1	5	3.95	1.177	
PPC8	238	1	5	4.18	.935	

Further analysis was done using SEM in order to determine the significance influence of Perceived Pressure from Customers (PPC) on ICT usage as illustrated in Table 4.33.

Table 4.33: Perceived Pressure from Customers and ICT Usage SEM Results

Path			Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate	Results
ICTU	<---	PPC	.197	.040	4.932	***	.286	Significant
PPC1	<---	PPC	1.000				.848	Fixed
PPC2	<---	PPC	1.013	.056	18.141	***	.878	Significant
PPC4	<---	PPC	.891	.073	12.261	***	.686	Significant
PPC7	<---	PPC	.980	.069	14.308	***	.762	Significant
PPC8	<---	PPC	.995	.046	21.864	***	.974	Significant

The path leading from PPC to ICTU in table 4.33 was used to examine the hypothesized relationship (H3b) that there is a positive relationship between Perceived Pressure from Customers and ICT Usage. Results from this test showed that there is a significant positive relationship between Perceived Pressure from Customers and ICT Usage ($\gamma = 0.286$; C.R = 34.932; $p = 0.000$), meaning that when WHSs decision makers perception level on the pressure from customers goes up by 1 standard deviation, ICT usage goes up by 0.286 standard deviations. Thus, it could be concluded that a higher level of perceived pressure from customers would result in a greater level of ICT usage by WHSs decision makers. Hence, H3b of the study is supported. Hence, H4 of the study is supported.

4.12.8 The Relationship between ICT usage (ICTU) and performance of WHSs (PI)

The fourth Hypothesis regards understanding the direct relation between ICT Usage and performance of WHSs. From the argument made in chapter two of this study, there is a positive relation between ICT usage (ICTU) and performance of WHSs. Thus, *H4, There is a positive relationship between ICTU usage and WHSs performance*

To test this hypothesis, the descriptive statistical analysis was run first as presented in table 4.34. Cronbach's Alpha was used to assess internal consistency reliability of the constructs prior to hypothesis testing. For this construct, Cronbach's Alpha coefficient was 0.922 which is well above the recommended minimum threshold of 0.7.

Table 4.34: Descriptive Statistics for performance of WHSs Performance

	N	Minimum	Maximum	Mean	Std. Deviation	Cronbach's Alpha
PI1	238	1	5	4.15	1.096	0.922
PI3	238	1	5	4.37	.809	
PI4	238	1	5	4.22	.982	
PI5	238	1	5	4.28	.954	
PI6	238	1	5	4.27	.943	
PI7	238	1	5	4.22	1.017	

Further analysis was done using SEM in order to determine the significance of the influence of ICT usage on performance of WHSs as illustrated in Table 4.35.

Table 4.35: WHSs Performance and ICT Usage SEM Results

Path	Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate	Results
PI <--- ICTU	.712	.096	7.396	***	.568	significant
PI6 <--- PI	.987	.075	13.216	***	.829	significant
PI7 <--- PI	.948	.081	11.695	***	.738	significant
PI1 <--- PI	1.000				.723	Fixed
PI3 <--- PI	1.027	.064	16.031	***	1.005	Significant
PI4 <--- PI	.958	.078	12.262	***	.772	Significant
PI5 <--- PI	1.067	.075	14.186	***	.886	Significant

The path leading from ICTU to PI in table 4.35 was used to examine the hypothesized relationship (H4) that there is a positive relationship between ICT usage (ICTU) and WHSs Performance (PI). The test for this hypothesis showed that

ICT is positively related to WHSs performance ($\gamma = 0.568$; C.R = 7.396; $p = 0.000$), meaning that when ICT usage level in WHSs goes up by 1 standard deviation, performance of these site goes up by 0.568 standard deviations. Thus it can be concluded that a higher level of ICT usage in WHSs would result in a greater level of performance to these sites. Hence, H4 of the study is supported. Table 3.36 summaries all the hypotheses of the direct effect;

Table 4.36: Summary of the Technological, Organizational and Environmental Factor toward ICT Usage Hypotheses Testing

Independent Dependent Variable	Hypotheses	Significance	Nature of the relationship +ve/-neg	Hypotheses Conclusion
PR <--- ICTU	H1a	Significant	+ve	Accepted
PCT <--- ICTU	H1b	Not Significant	+ve	Rejected
PCL <--- ICTU	H1c	Significant	+ve	Accepted
INF <--- ICTU	H2a			Accepted
SS <--- ICTU	H2b	Significant	+ve	Accepted
PCP <--- ICTU	H3a	Significant	+ve	Accepted
PPC <--- ICTU	H3b	Significant	+ve	Accepted

4.13 Mediation Effect of ICT Usage on World Heritage Sites Performance

The concept of mediation in latent constructs is equivalent to that of the observed variables. First of all, when testing for mediation the initial process involves the removal of the mediator (i.e. ICT Usage), we need to show that the direct effect of determining factors on WHSs performance indicators (PI) is significant. In this study, the exogenous construct includes constructs of the determining factors to endogenous construct which is the WHSs performance as presented in figure 4.14. The model fit results for the direct structural model without the mediator produced

the following fit indices; CMIN/DF= 1.375, GFI = 0.825, TLI = 0.965, CFI = 0.968 and RMSEA=0.040. Thus, model fit confirms the suitability of the structural model to explain the mediation effect of ICT Usage on the determining factors and WHSs performance (PI).

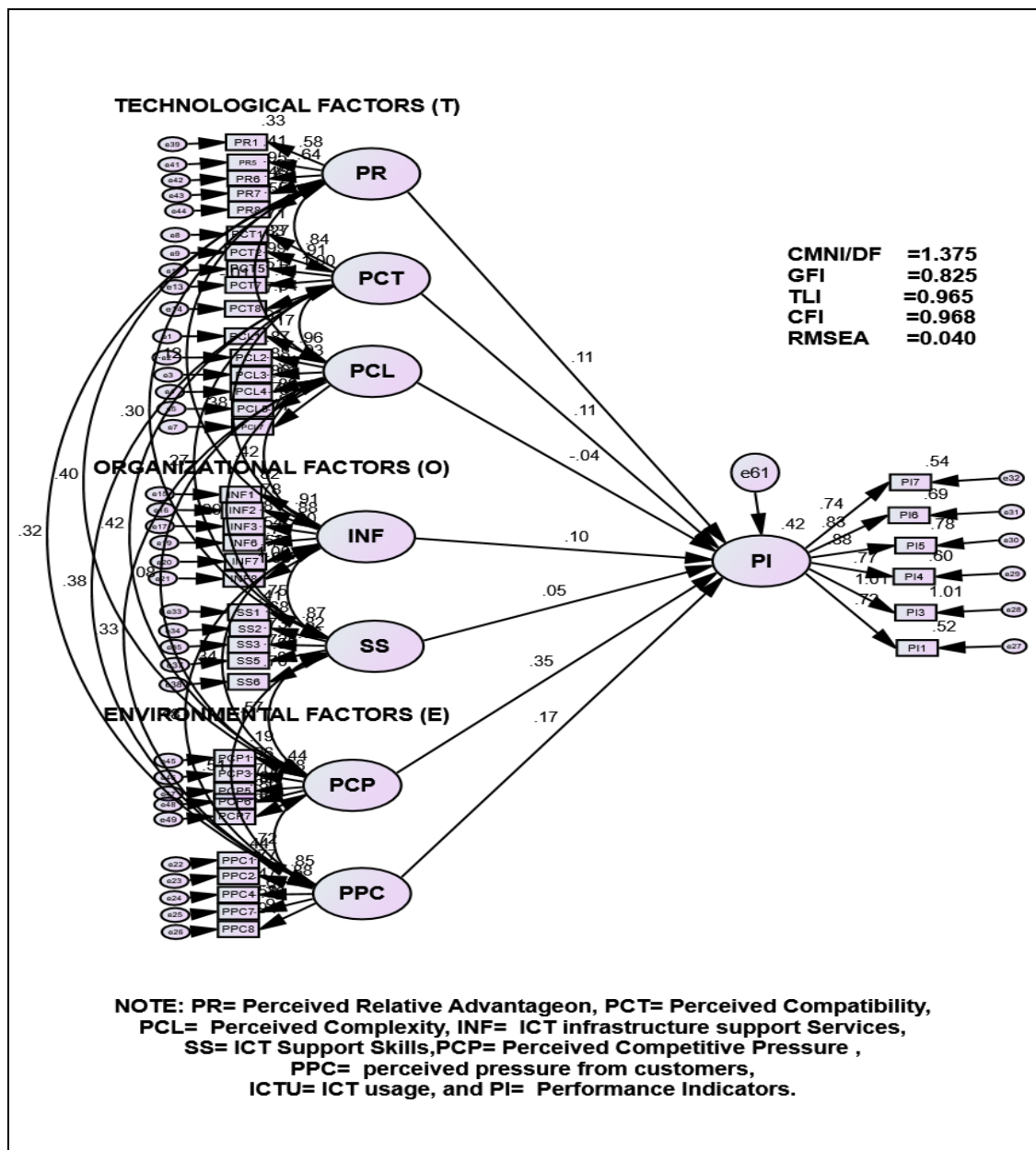


Figure 4.14: The Structural Model for Direct Effect without a Mediator (ICTU)

4.13.1 The Results for Direct Effects Without Mediator

Table 4.37 shows the estimates to be extracted to check for direct effects without mediator after establishing model fit. The process is done by observing standardized regression weights and regressions weights in Table 4.37. The significant relationships (i.e. based on p-values and the estimates) are extracted from Amos output to explain the direct effects without mediator as shown in Table 4.37: These will be compared with indirect effect results when the mediator is added on table 4.38.

According to Cohen (1988) the standardized path with absolute values less than 0.10 indicates a small effect, values around 0.20 to 0.30 indicate a medium effect, and values of 0.50 or more indicate a large effect. Thus, Cohen's suggestion was used to interpret the magnitude of effect in the direct effect model. In so doing absolute values for all effects were considered and presented in table 4.37. Thus, the magnitude of a direct effect indicated that the path coefficient from PI to PR (.11), PI to PCT (.11), PI to PCL (-.04), PI to INF (.10), PI to SS (.05), PI to PPC (.35) and PI to PCP (.17). Only two factor had a value below 0.10 (PI to PCL=-.04 and PI to SS=.05) suggesting a small direct effect while other variables had small to medium effect. Therefore, table 4.37 present the structural model and standardized value of a direct effect of the determining factors to WHSs performance (PI) without a mediator. This helps us to compare the test of the indirect effect of the structural model when ICT Usage is entered as a mediator and presented in Figure 4.15.

Table 4.37: The Standardized Regression Weights for Path Model without Mediator

	Path		Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimates
PI	<---	PR	.127	.062	2.040	.041	.120
PI	<---	PCT	.129	.057	2.248	.025	.131
PI	<---	PCL	-.025	.036	-.712	.477	-.040
PI	<---	INF	.079	.042	1.857	.063	.112
PI	<---	SS	.054	.055	.983	.326	.061
PI	<---	PPC	.143	.050	2.856	.004	.181
PI	<---	PCP	.562	.125	4.500	***	.382
PCL1	<---	PCL	1.000				.956
PCL2	<---	PCL	.996	.033	30.403	***	.932
PCL3	<---	PCL	1.028	.033	31.542	***	.940
PCL4	<---	PCL	1.013	.034	29.664	***	.927
PCL5	<---	PCL	.961	.039	24.866	***	.886
PCL7	<---	PCL	.969	.041	23.916	***	.875
PCT1	<---	PCT	1.000				.840
PCT2	<---	PCT	1.061	.055	19.332	***	.908
PCT5	<---	PCT	1.088	.047	22.995	***	.998
INF1	<---	INF	1.000				.905
INF2	<---	INF	.973	.045	21.705	***	.883
INF3	<---	INF	.980	.043	22.796	***	.900
INF6	<---	INF	.916	.062	14.814	***	.733
INF7	<---	INF	.705	.048	14.615	***	.728
INF8	<---	INF	1.014	.032	31.962	***	1.001
PPC1	<---	PPC	1.000				.849
PPC2	<---	PPC	1.009	.056	18.060	***	.875
PPC4	<---	PPC	.889	.073	12.249	***	.685
PPC7	<---	PPC	.983	.068	14.397	***	.765
PPC8	<---	PPC	.995	.046	21.766	***	.975
PI6	<---	PI	.986	.082	12.083	***	.803
SS1	<---	SS	1.000				.865
SS2	<---	SS	1.005	.062	16.196	***	.826
SS3	<---	SS	1.026	.059	17.407	***	.860
PR1	<---	PR	1.000				.576
PR5	<---	PR	.863	.106	8.106	***	.638

Table 4.37 show the direct effect and the significance of exogenous latent constructs toward endogenous latent construct in the absence of mediator latent construct. All exogenous latent constructs are identified to have significant influence toward the endogenous latent construct except PCL and SS whereby the p-value is greater than the acceptable ration of 0.05. This finding indicates that PR, PCT, INF, PPC and PCP contribute in performance of WHSs. It has been also found that two exogenous latent constructs; PCL and SS both are not significant and PCL have negative estimates value.

4.14 The Mediation Test for both Direct and Indirect Effects with Mediator

The structural model is executed to test for both direct and indirect effect with a mediation variable of ICTU. This process is intended to test for direct and indirect effects. This is followed by confirmation of model fit to ascertain the legitimacy of estimates shown in figure 4.15. The model fit results for the structural model with the mediator are; CMIN/DF= 1.519, GFI = 0.796, TLI = 0.945, CFI = 0.950 and RMSEA=0.047. This confirms that the structural model is appropriate to explain the mediation effect of ICT Usage on the relationship between determining factors and WHSs performance (PI).

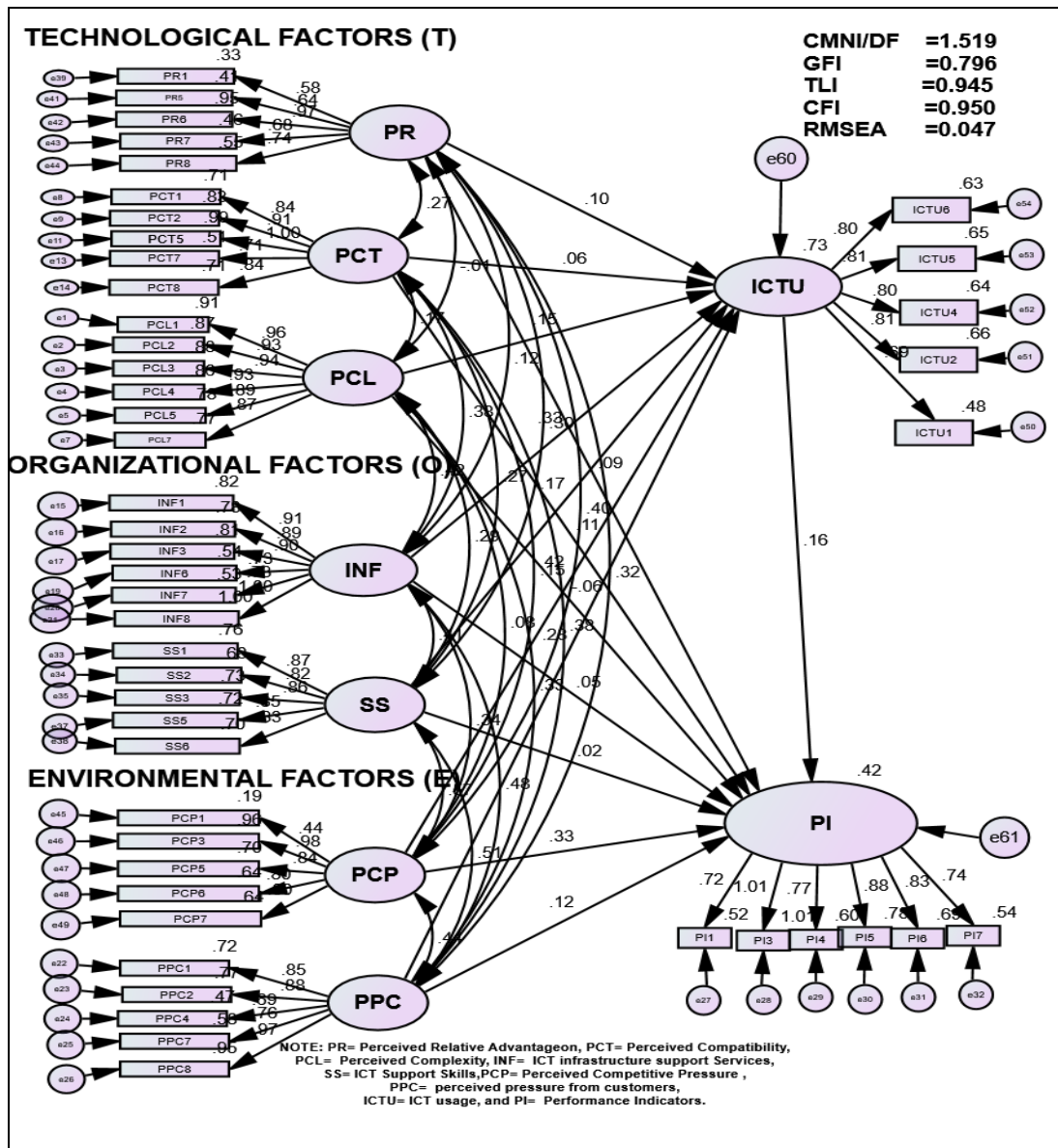


Figure 4.15: The Standardized Regression Weights for Every Path in the Model

4.14.1 The Results for Direct and Indirect Effects with Mediator

The next stage after confirming model fit is the extraction of significant estimates (p-values: < .05) to check if there are significant direct and indirect effects with the mediator variable present. The significant estimates are compiled and tabulated in the composite Table 4.38 for comparison with direct effects without mediator in table 4.37.

Table 4.38: Standardized and Unstandardized Estimates for Direct and Indirect Structural Model

	Path		Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate
ICTU	<---	PPC	.193	.041	4.759	***	.285
ICTU	<---	PR	.087	.044	1.956	.050	.096
ICTU	<---	PCP	.186	.078	2.392	.017	.148
ICTU	<---	PCT	.047	.041	1.151	.250	.056
ICTU	<---	PCL	.080	.027	2.989	.003	.146
ICTU	<---	INF	.199	.035	5.722	***	.329
ICTU	<---	SS	.127	.045	2.797	.005	.169
PI	<---	PR	.105	.068	1.534	.125	.091
PI	<---	PCT	.114	.064	1.801	.072	.106
PI	<---	PCL	-.042	.042	-.989	.323	-.059
PI	<---	INF	.039	.056	.689	.491	.050
PI	<---	SS	.020	.071	.284	.776	.021
PI	<---	PCP	.527	.139	3.801	***	.330
PI	<---	PPC	.108	.065	1.659	.097	.125
PI	<---	ICTU	.198	.148	1.336	.182	.155
PCL1	<---	PCL	1.000				.957
PCL2	<---	PCL	.996	.033	30.491	***	.932
PCL3	<---	PCL	1.027	.033	31.535	***	.939
PCL4	<---	PCL	1.013	.034	29.732	***	.927
PCL5	<---	PCL	.961	.039	24.935	***	.886
PCL7	<---	PCL	.968	.041	23.902	***	.875
PCT1	<---	PCT	1.000				.841
PCT2	<---	PCT	1.061	.055	19.393	***	.909
PCT5	<---	PCT	1.086	.047	23.037	***	.997
INF1	<---	INF	1.000				.907
INF2	<---	INF	.973	.044	21.912	***	.885
INF3	<---	INF	.980	.043	23.055	***	.902
INF6	<---	INF	.916	.062	14.858	***	.735
INF7	<---	INF	.707	.048	14.726	***	.731
INF8	<---	INF	1.009	.032	31.989	***	.998
PPC1	<---	PPC	1.000				.848
PPC2	<---	PPC	1.012	.056	18.151	***	.878
PPC4	<---	PPC	.890	.073	12.260	***	.686
PPC7	<---	PPC	.980	.068	14.315	***	.762
PPC8	<---	PPC	.995	.045	21.880	***	.974
PI6	<---	PI	.986	.075	13.215	***	.828
SS1	<---	SS	1.000				.870
SS2	<---	SS	.999	.061	16.365	***	.825
SS3	<---	SS	1.017	.058	17.539	***	.857
PR1	<---	PR	1.000				.577
PR5	<---	PR	.870	.107	8.130	***	.643

	Path		Unstandardized Estimate	S.E.	C.R.	P	Standardized Estimate
PR6	<--- PR		1.311	.131	10.032	***	.974
PR7	<--- PR		1.134	.135	8.410	***	.675
PR8	<--- PR		1.251	.140	8.939	***	.740
PCP1	<--- PCP		1.000				.438
PCP3	<--- PCP		1.647	.225	7.304	***	.981
PCP5	<--- PCP		1.619	.230	7.034	***	.839
PCP6	<--- PCP		1.597	.230	6.932	***	.801
PCT7	<--- PCT		.981	.075	13.106	***	.715
PI7	<--- PI		.948	.081	11.701	***	.738
SS5	<--- SS		1.002	.058	17.180	***	.848
SS6	<--- SS		1.009	.060	16.703	***	.834
PCP7	<--- PCP		1.657	.239	6.922	***	.797
ICTU1	<--- ICTU		1.000				.692
ICTU6	<--- ICTU		1.286	.114	11.259	***	.795
ICTU5	<--- ICTU		1.290	.113	11.421	***	.808
ICTU4	<--- ICTU		1.208	.107	11.336	***	.801
ICTU2	<--- ICTU		1.165	.101	11.506	***	.814
PI1	<--- PI		1.000				.723
PI3	<--- PI		1.027	.064	16.059	***	1.005
PI4	<--- PI		.957	.078	12.268	***	.772
PI5	<--- PI	1.066		.075	14.182	***	.885
PCT8	<--- PCT	1.062		.063	16.961	***	.844

4.15 Model Path Coefficients and Hypothesis Testing for Mediation Variables

In order to examine the hypotheses 5a -7c, the researcher used the indirect and direct structural models or the fully mediated models. The aim of this analysis is to check whether ICT usage play the role as mediators between technological factors through PR,PCT and PCL variables, organizational factors through INF and SS variables and environmental factors through PCP and PPC variable and WHSs performance and to what extent of these impacts. First of all, the researcher obtains the standardized regression weights and the probability values which indicate the significance for the respective path (table 4.37). The model fit results for the direct structural model without the mediator produced the following fit indices; CMIN/DF= 1.375, GFI = 0.825, TLI = 0.965, CFI = 0.968 and RMSEA=0.040. Second, the

researcher obtained the standardize regression weights and probability values of the indirect effect which indicate the significance for the respective path (Table 4.38 and Figure 4.15). The model fit results for the structural model with the mediator are; CMIN/DF= 1.519, GFI = 0.796, TLI = 0.945, CFI = 0.950 and RMSEA=0.047. This confirms that the structural model is appropriate to explain the mediation effect of ICTU on the relationship between determining factors and WHSs performance (PI). Hence, the following hypotheses were tested;

4.15.1 The Mediation Effect of ICT Usage on the Relationship between Perceived Relative Advantage (PR) and WHSsPI

It was argued in this study that ICT usage mediate the relationship between technological factors and WHSs performance (PI). Hence the hypothesis was stated as: *H5a, ICT usage mediates the positive effect of perceived relative advantage and WHSs performance (PI)*

The analysis for mediation begins by showing that the direct effect of perceived relative advantage (PR) on WHSs Performance is significant. The direct effect is measured through beta coefficient. In this case, Beta Coefficient is significant as illustrated in table 4.39. When the mediating variable ICT usage enters the model, the value of path coefficient for perceived relative advantage (PR) is expected to reduce, or in other words the direct effect of perceived relative advantage (PR) on WHSs performance would be reduced when the mediator enters the model. It is observed that the value of direct effect linking perceived relative advantage (PR) to WHSs performance is reduced from 0.120 to 0.096.

The type of mediation here is called “partial mediation” since the direct effect of perceived relative advantage (PR) on WHSs Performance (WHSs PI) was not significant before mediation however, when the mediator variable ICT usage was entered the model the path of the indirect effect became significant. In this case, perceived relative advantage (PR) was not significant on the direct effect on WHSs Performance and changed to significant on the indirect effect on WHSs Performance (table 4.39) through the mediator variable namely ICT usage (ICTU) as illustrated in figure 4.16. Thus the result partly confirms hypothesis 5a. However, the researcher needs to confirm with the results of direct effect and indirect effect from Bootstrapping. The Bootstrapping result is shown in Table 4.47 and 4.48.

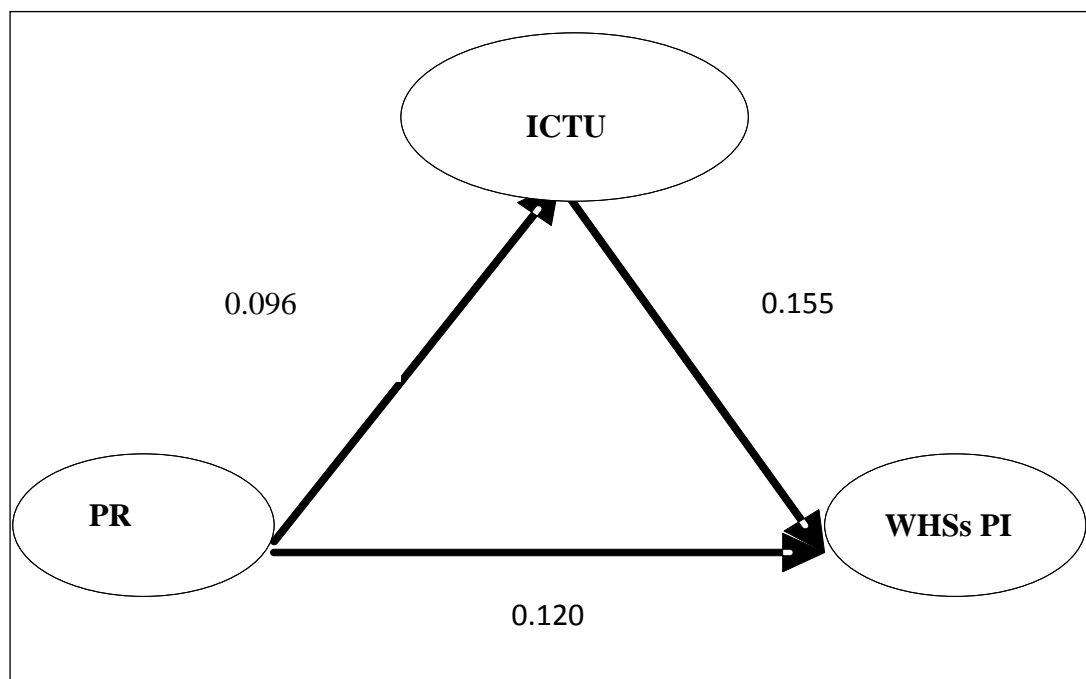


Figure 4.16: Mediation effect of ICTU on PR and PI

Table 4.39: Testing the Mediation Effect of ICTU on PR and PI

Items	Baron and Kenny's mediation principle
ax b	The indirect effect= $0.096 \times 0.155 = 0.01488$
C	The direct effect 0.120
X and M	(PR to ICTU) p-value=0.050 significant
M and Y	(ICTU to PI) p-value =0.182 is not significant
Types of Mediation	Partial mediation

4.15.2 The Mediation Effect of ICT Usage on the Relationship between Perceived Compatibility (PCT) and WHSsPI

It was argued in this study that ICT usage mediate the relationship between technological factors and WHSs performance (PI). Hence the hypothesis was stated as: *H5b, ICT usage mediates the positive effect of Perceived Compatibility (PCT) on WHSs performance (PI)*

The mediation effect of ICT usage on PCT and WHSs Performance is not observed as the direct effect standardized estimate without mediator is higher compared to the direct effect estimate after mediation entered as indicate in table 4.40. Likewise, the paths of the indirect effect are not significant while the path of the direct effect remain to be insignificant when the mediator is entered as indicated in figure 4.17. Thus, the mediation effect does not occur. Non mediation effect cannot be presume as a fail findings or analysis but can be elaborate as no effect on endogenous construct (table 4.40). This might be happen due to less correlation with endogenous construct or view of respondent at the targeted population that deem this factor is unnecessary to be addressed (Afthanorhan, 2014). Thus the result partly rejects hypothesis 5b. However, the researcher needs to confirm with the results of direct

effect and indirect effect from Bootstrapping. The Bootstrapping result is shown in Table 4.47 and 4.48.

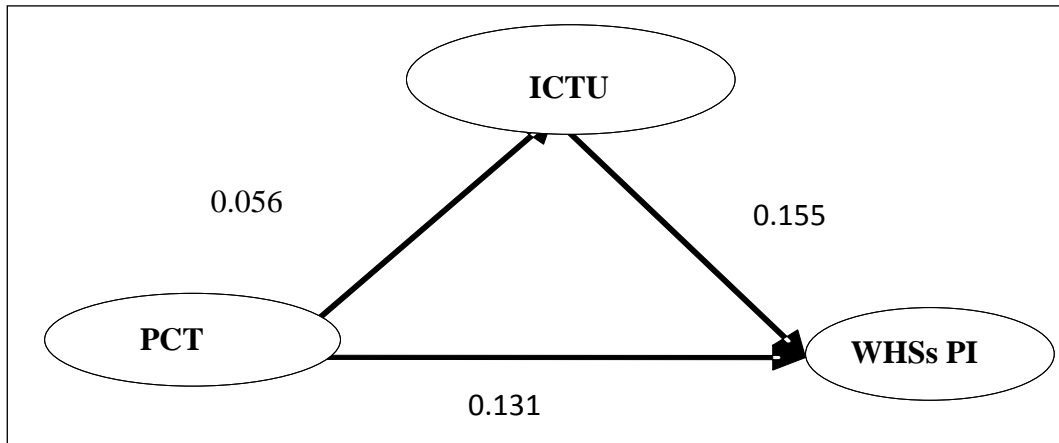


Figure 4. 17: Mediation Effect of ICTU on PCT and PI

Table 4. 40: Testing the Mediation effect of ICTU on PCT and PI

Items	Baron and Kenny's mediation principle
a x b	The indirect effect= 0.056 x 0.155=0.00868
C	The direct effect 0.131
X and M	(PCT to ICTU) p-value=0.250 not significant
M and Y	(ICTU to PI) p-value =0.182 is not significant
Types of Mediation	No mediation occurs

4.15.3 The Mediation Effect of ICT Usage on the Relationship between Perceived Less Complexity (PCL) and WHSs Performance (PI)

It was argued in this study that ICT usage mediate the relationship between technological factors and WHSs performance (PI). Hence the hypothesis was stated as: *H5c, ICT usage mediates the positive effect of Perceived less Complexity (PCL)on WHSs performance (PI)*

The mediation effect of ICTU on PCL and WHSs PI is very strong given that the direct effect estimate is negative as indicate in figure 4.18. The standardized path estimates for direct effect is also not significant, this implies that mediation could occur. Gunzler *et al.* (2013) full mediation occurs when direct effect of X (i.e. PCL) and Y (i.e PI) will not be significant to the presence of mediation. The type of mediation here is a called a “full mediation” since the direct effect of Perceived less Complexity (PCL) on WHSs performance is no longer significant after ICT usage entered the model (table 4.41). Instead, the indirect effect is significant. Thus, Perceived less Complexity (PCL) has an indirect effect on Performance of WHSs through the mediator variable ICT usage as illustrated in table 4.41. Thus the result fully confirms hypothesis 5c. However, the researcher needs to confirm with the results of direct effect and indirect effect from Bootstrapping. The Bootstrapping result is shown in Table 4.47 and 4.48.

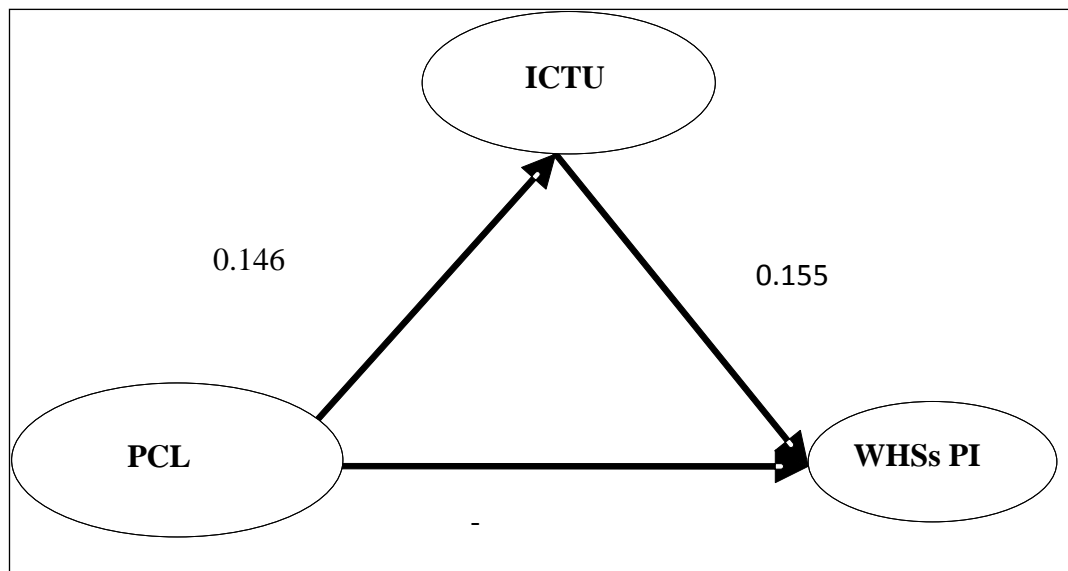


Figure 4.18: Mediation Effect of ICTU on PCL and PI

Table 4.41: Testing the Mediation effect of ICTU on PCL and PI

Items	Baron and Kenny's mediation principle
a x b	The indirect effect= 0.146 x 0.155=0.02263
C	The direct effect -0.040
X and M	(PCL to ICTU) p-value=0.003 significant
M and Y	(ICTU to PI) p-value =0.182 is not significant
Types of Mediation	Full Mediation occurs

4.15.4 The Mediation Effect of ICT Usage on the Relationship between ICT Support Infrastructure (INF) and WHSs Performance (PI)

It was argued in this study that ICT usage mediate the relationship between organizational factors and WHSs performance (PI). Hence the hypothesis was stated as: *H6a, ICT usage mediates the positive effect of ICT support infrastructure (INF) on WHSs performance (PI)*

The mediation effect of ICT usage on INF and WHSs Performance is observed to be weak after the mediation enters the model as indicated in figure 4.19. The strength of indirect effect has dropped compared to the direct effect before the mediation (table 4.42). However, the p-value of the direct effect before mediation was not significant while it became significant after the mediation enter the mode, therefore, partial mediation occurs (table 4.42). Thus the result partly confirms hypothesis 6a. However, the researcher needs to confirm with the results of direct effect and indirect effect from Bootstrapping. The Bootstrapping result is shown in Table 4.47 and 4.48.

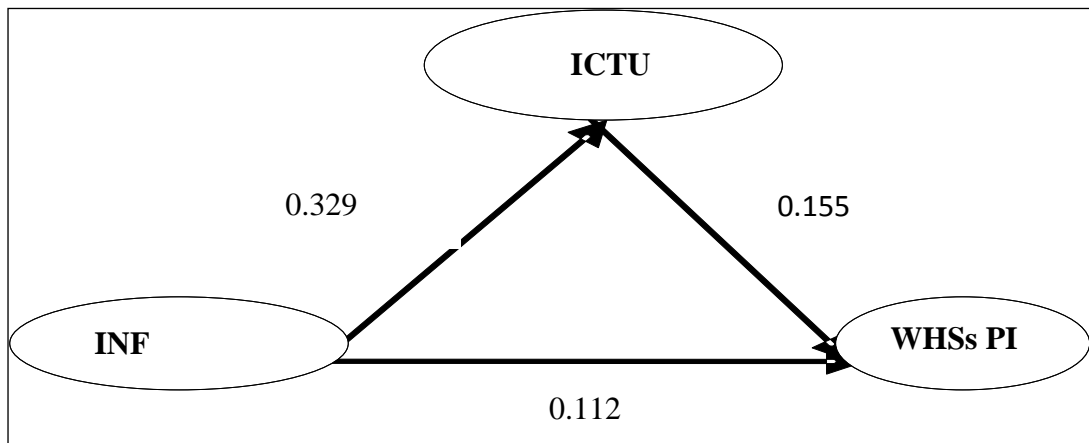


Figure 4.19: Mediation Effect of ICTU on INF and PI

Table 4.42: Testing the Mediation effect of ICTU on INF and PI

Items	Baron and Kenny's mediation principle
a x b	The indirect effect= $0.329 \times 0.155 = 0.05099$
C	The direct effect 0.112
X and M	(INF to ICTU) p-value=0.000 significant
M and Y	(ICTU to PI) p-value =0.182 is not significant
Types of Mediation	Partial Mediation occurs

4.15.5 The Mediation Effect of ICT Usage on the Relationship between ICT Support Skills (SS) and WHSs Performance (PI)

It was argued in this study that ICT usage mediate the relationship between organizational factors and WHSs performance (PI). Hence the hypothesis was stated as: *H6b, ICT usage mediates the positive effect of ICT support Skills (SS) on WHSs performance (PI)*

The same is true for the mediation effect of ICTU on ICT support skills (SS) and WHSs performance (PI) as indicated in figure 4.20. The strength of indirect effect has dropped compared to the direct effect before the mediation as indicated in table

4.43. However, the p-value before mediation was insignificant and when mediation enters the model the p-value observed to be significant thus partial mediation occurs. Thus the result partly confirms hypothesis 6b. However, the researcher needs to confirm with the results of direct effect and indirect effect from Bootstrapping. The Bootstrapping result is shown in Table 4.47 and 4.48.

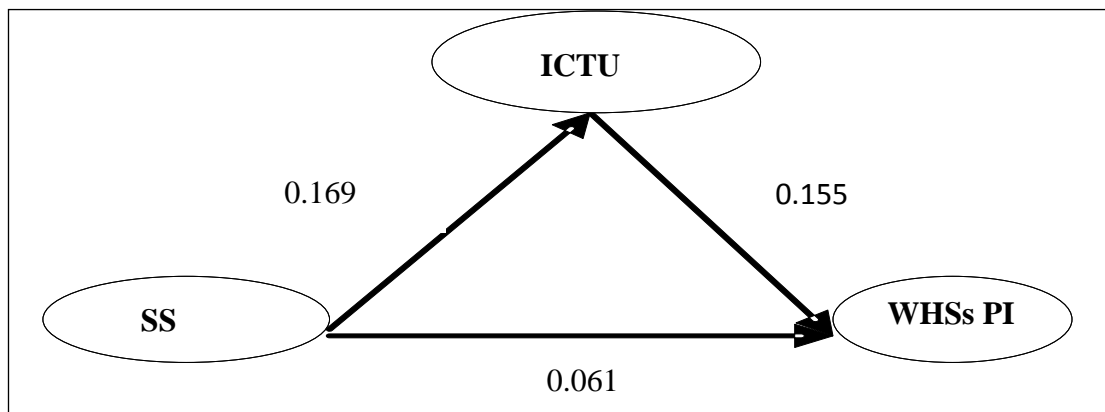


Figure 4.20: Mediation effect of ICTU on SS and PI

Table 4.43: Testing the Mediation effect of ICTU on SS and PI

Items	Baron and Kenny's mediation principle
a x b	The indirect effect= 0.169 x 0.155=0.02619
C	The direct effect 0.061
X and M	(SS to ICTU) p-value=0.005 significant
M and Y	(ICTU to PI) p-value =0.182 is not significant
Types of Mediation	Partial Mediation occurs

4.15.6 The mediation effect of ICT usage on the relationship between Perceived competitive pressure (PCP) and WHSs performance (PI)

It was argued in this study that ICT usage mediate the relationship between environmental factors and WHSs performance (PI). Hence the hypothesis was stated as: *H7a, ICT usage mediates the positive effect of Perceived Pressure competitive pressure (PCP) on WHSs performance (PI)*

The mediation effect of ICT usage on PCP and WHSs Performance is observed to be weak after the mediation enters the model as indicated in figure 4.21. The strength of indirect effect has dropped compared to the direct effect before the mediation as indicated. The indirect path PCP to ICTU is significant while ICTU to PI was not significant (table 4.44) thus partial mediation occurs. Therefore, the result partly confirms hypothesis 7a. However, the researcher needs to confirm with the results of direct effect and indirect effect from Bootstrapping. The Bootstrapping result is shown in Table 4.47 and 4.48.

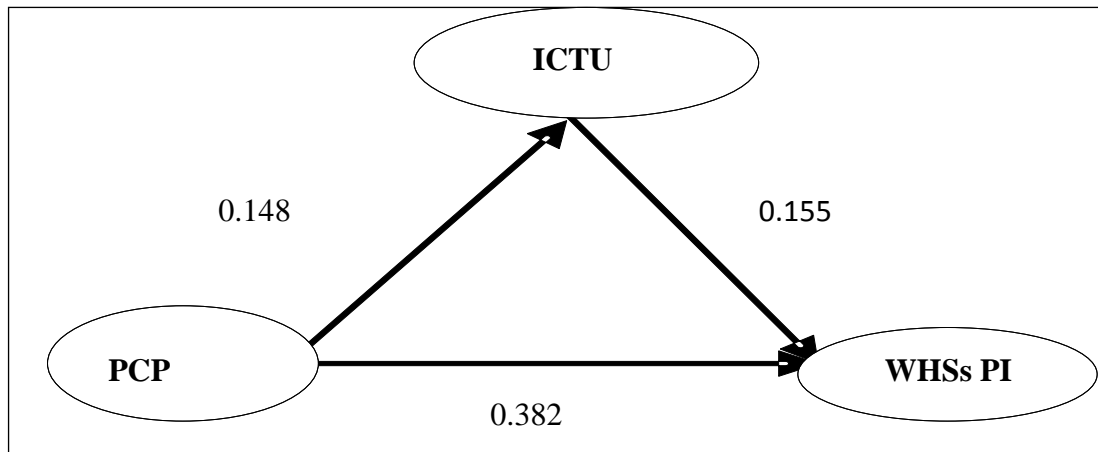


Figure 4.21: Mediation effect of ICTU on PCP and PI

Table 4.44: Testing the Mediation effect of ICTU on PCP and PI

Items	Baron and Kenny's mediation principle
a x b	The indirect effect= 0.148 x 0.155=0.02294
C	The direct effect 0.382
X and M	(SS to ICTU) p-value=0.017 significant
M and Y	(ICTU to PI) p-value =0.182 is not significant
Types of Mediation	Partial Mediation occurs

4.15.7 The mediation effect of ICT usage on the relationship between Perceived pressure from customers (PPC) and WHSs performance (PI)

It was argued in this study that ICT usage mediate the relationship between environmental factors and WHSs performance (PI). Hence the hypothesis was stated

as: *H7b, ICT usage mediates the positive effect of Perceived Pressure from customers (PPC) on WHSs performance (PI)*

The mediation effect of ICTU on PPC and WHSs performance is weak as indicated in figure 4.22. There is a drop in strength of the standardized estimate from the direct effect without a mediator to the direct effect with a mediator as indicated in table 4.45. The indirect path (PPC to ICTU is significant while ICTU to PI is not significant). Thus partial mediation occurs, the p-value before mediation was significant and after mediation it was observed to remain significant (table 4.44). Thus the result partly confirms hypothesis 7b. However, the researcher needs to confirm with the results of direct effect and indirect effect from Bootstrapping. The Bootstrapping result is shown in Table 4.47 and 4.48. Table 4.46 summaries the mediation testing of hypotheses 5a-7c

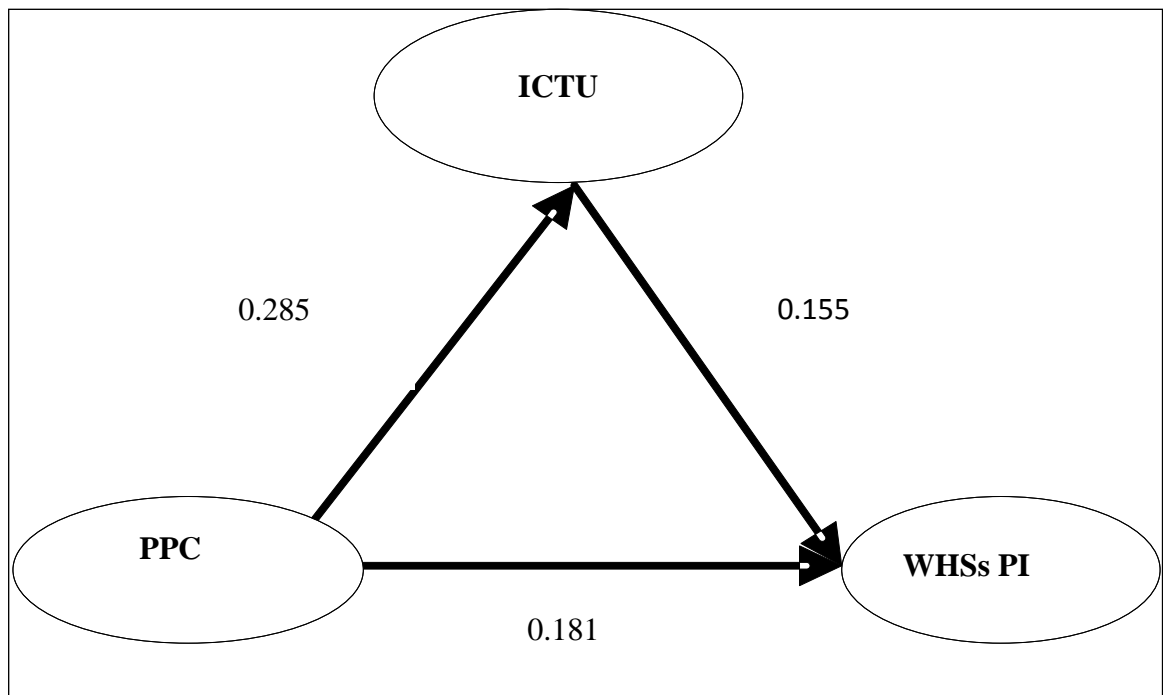


Figure 4.22: Mediation effect of ICTU on PPC and PI

Table 4. 45: Testing the Mediation effect of ICTU on PPC and PI

Items	Baron and Kenny's mediation principle
a x b	The indirect effect= 0.285 x 0.155=0.04418
C	The direct effect 0.181
X and M	(PPC to ICTU) p-value=0.000 significant
M and Y	(ICTU to PI) p-value =0.182 is not significant
Types of Mediation	Partial Mediation occurs

Table 4.46: Summary of the Mediation Effects (Direct without Mediator and Indirect with Mediator)

Hypothesis	Relationship	Direct without mediator	Direct with mediator (a value)	Indirect	Hypotheses Conclusion
H5a	PRICTUPI	0.120 (.041)	0.096 (.050)	0.015	Partially Supported
H5b	PCTICTUPI	0.131 (.025)	0.056(.250)	0.009	Not supported
H5c	PCLICTUPI	-0.040 (.477)	0.146 (.003)	0.023	Fully Supported
H6a	INFICTUPI	0.112 (.063)	0.329 (.000)	0.051	Partially Supported
H6b	SSICTUPI	0.061(0.326)	0.1169	0.026	Partially Supported
H7a	PCPICTUPI	0.382 (***)	0.148 (017)	0.044	Partially Supported
H7b	PPCICTUPI	0.181 (.004)	0.285 (***)	0.023	Partially Supported

4.16 The Mediation Test Using the Bootstrap Approach

To confirm the results of a mediation effect, researcher need to reconfirm the results of their mediation tests by using the re-sampling procedure called Bootstrapping which is very usefully for testing the indirect effect. The study used 2000 number of bootstrapping sample with 95% confidence interval values for total effect, direct effect, and indirect effect. There is evidence (Table 4.47 and 4.48) that the mediator, ICT Usage fully mediates the relationship between Perceived less Complexity (PCL) and WHSs performance.

We obtained the standardized indirect effect together with its significance level and also the standardized direct effect together with its significance level (table 4.37 and table 4.38). Finally, we would like to compare these results with the mediation test conducted using conventional procedure in table 4.46. Note: table 4.47 indicates Bootstrapping results for the significance of indirect effect and table 4.48 indicates the mediation exists, and the significance or insignificance of direct effects indicates the type of mediation.

Based on the results in Table 4.47- and 4.48, the researcher can conclude that the results of bootstrapping are consistent with the results of mediation test in Table 4.46 above.

Table 4.47: The Standardized Indirect Effects and P-Value

	PCP	PR	SS	PPC	INF	PCT	PCL	ICTU	PI
ICTU	.000	.000	.000	.000	.000	.000	.000	.000	.000
PI	.023	.015	.026	.044	.051	.009	.023	.000	.000

Table 4.48: The Standardized Direct Effect and P-Value

	PCP	PR	SS	PPC	INF	PCT	PCL	ICTU	PI
ICTU	.148	.096	.169	.285	.329	.056	.146	.000	.000
PI	.330	.091	.021	.125	.050	.106	-.059	.155	.000

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Overview

This chapter discusses the findings of the study. It elaborates on the information generated in the previous chapters on data analysis and compares and contrasts the current findings with what has been found out in previous related studies. This helps to develop an in-depth understanding of the direct effect of the determining factors of ICT usage on WHSs performance as well as the associated mediation effects.

5.2 The Relationship between Perceived Relative advantage (PR) and ICT Usage

The study considered whether perceived relative advantage could have a positive effect on ICT usage into WHSs as stated in hypothesis 1a. The empirical results in chapter four (table 4.17) strongly supported the first hypothesis with a positive and significant contribution of perceived relative advantage on ICT usage ($\gamma = 0.105$; C.R = 2.207; $p = 0.027$). These results suggest that, WHSs decision makers must be shown that perceived relative advantage of a new technology is a key determining factor of ICT usage.

These findings are consistent with several previous studies by Mairura(2016), Obonyo *et al.*(2016), Saxena and Kehar (2011), Tornatzky and Klein, (2012), Vogiatzi (2015), Wanyoike (2013), and Wagaw and Mulugeta (2018).Accordingly Mairura (2016) and Wanyoike (2013) revealed that, perceived relative advantage which is one of the technological factor has a positive and significant contribution to

ICT usage. Similar findings were obtained in India and United States of America (USA) by Saxena and Kehar (2011) who concluded that perceived relative advantage had a positive relationship with ICT adoption. This is confirming by Tornatzky and Klein, (2012) who also found that perceived relative advantage has a positive relationship with adoption of ICT. WHSs decision makers should be shown that new technology offers considerable benefit compared to traditional offering.

A recent study by Wagaw and Mulugeta (2018) found that; perceived relative advantage significantly influence ICT usage for improved promotion of tourist attractions in Ethiopia. They found that in order to increase number of visitors to a destination, hence integration of well crafted ICT solution is inevitable, and since we are living in 21st century, digitized world, it is more necessary for any tourism organization to rely on ICT as a tool of international communication. In a similar study by Wanyoike (2013), it confirms that the respondent perceived relative advantages are related to ICT usage. WHSs need to be shown that the use of modern technology offers considerable benefit compared to traditional offering.

Moreover a study by Obonyo *et al.* (2016) found that, perceived relative advantage was one of the five key determinants factor identified by employees in Kenya hotel and the authors further say, perceived relative advantage may influence sustained use of ICT once adopted. Likewise, in Greek hotel industry, Vogiatzi (2015) found that, perceived relative advantage positively related to ICT usage, the positive opinion of user with regard to ICT usage may further enhance employee's effectiveness toward achieving higher performance.

The results, however, contradict those obtained by Kilangi (2012) which showed that perceived relative advantage is not significant to ICT usage for Tanzania small media enterprises in tourism. However, this study was conducted in the tourism small and media enterprises of which is owned and operated under the private sectors where the socio-economic, technological, political and management factors is quite different with the UNESCO World Heritage site of Tanzania.

The study by Ali (2016) investigated the adoption of e-government among medium business enterprises in Kenya and found that, there is low level of perceived relative advantage of e-government compare to the manual system. The employee's believed that, the new system will not be effective than the manual system this indicates that, there is likelihood that the e-government system adoption will be slowed. However, this study was conducted in Kenya where the socio-economic, political, technological and management factors is quite different from that of UNESCO WHSs in Tanzania. The results, however, contradict those obtained by Mndzebele (2013) which showed that relative advantage was not a predictor of ICT usage. However, this study was conducted in South Africa hotel sector where socio-economic environment and context is quite different from that of Tanzania.

5.3 The Mediation Effect of ICT Usage on the Relationship between Perceived Relative Advantage (PR) and WHSsPI

This relationship was then subjected to mediation analysis using ICT usage as a mediating variable in order to establish the type of mediation that enhances the relationship. It was thus hypothesized in the 5a that; ICT usage mediates the positive

effect of perceived relative advantage on WHSs Performance (PI). Results from the direct effect before mediation where PR has a direct relationship with PI supported the study by having a positive significant relationship between PR and WHSs Performance (PI) ($\gamma = 0.120$, $p = 0.041$). However, when the mediator enter the model, the strength of the direct effect dropped while the relationship remained significant ($\gamma = 0.096$, $p = 0.050$) (refer to table 4.46) thus partial mediation occurs. Wanyoike (2013) articulated that perceived relative advantage would results into ICT usage and hence increase WHSs performance.

The above results are not surprising given the nature of the study where WHSs decision makers need to perceive a high level of relative advantage for them to start using ICT thus they can increase organization efficient and effectiveness (Chairoelet *et al.*, 2015). Organizational performance could then be measure based increase in sale, operational performance and reducing cost while increasing productivity. They further concluded that perceived relative advantage have proven statistically to be positive significantly to determine ICT usage thus will lead to organization performance (Chairoelet *et al.*, 2015).

These findings are consistent with the findings of several previous studies including that of Khujaand Mohamed (2016) which showed that perceived relative advantage is one of the most determining factors of ICT usage in SMEs in Libya which in turn increase firm performance gain competitive advantage, ICT usage also improving business processes and reducing business operating and administrative costs. Within the same year, Mairura (2016) found that, perceived relative advantage has a

significant contribution to ICT usage which offers considerable benefits in automobile technology such as Uniform air/fuel mixture distribution, highly accurate air/fuel ratio control throughout all engine operating conditions. This suggests that the perceived relative from the technological factors of T.O.E model is indeed a robust tool to predict ICT usage toward Tanzania UNESCO WHSs performance.

5.4 The Relationship between Perceived Compatibility (PCT) and ICT Usage

It was hypothesized in this study that there is a positive relationship Perceived Compatibility (PCT) and ICT usage in our 1b hypothesis. Perceived Compatibility is one of the determining factors of ICT usage in any organization (Isaac *et al.*, 2016; Kante *et al.*, 2017). This study, however, did not support this hypothesis. Finding from the current study show that there is weak, positive non-significant relationship between perceived compatibility (PCT) and ICT usage with the following; $\gamma = 0.063$, CR = 1.350, $p = 0.177$ (table 4.19).

These findings make sense on the account that WHSs decision makers has low perception level on compatibility associated with ICT usage because they have not been exposed to such technologies, in most case, WHSs decision makers would prefer to be the followers rather than leader in ICT usage within their sites. The harmonization of personal characteristic together with other driving factors does not influence ICT usage consequently; one of the first policy measures in the sector should be the expansion of staff training in information communication technologies (ICT). On top of it, language is among the top matters that should be stressed in order to enhance WHSs decision makers' perceive ease of ICT usage.

To support these finding, the factors of perceived compatibility was frequently mentioned to be non significant in studies where internet service were not well supported, for example; a study by Chong *etal.*(2009) found that, the main barriers to ICT usage in Malaysia were lack of compatibility between existing systems and the new technologies. The author says “compatibility factor however, was found to be an insignificant determinant of the ICT usage”(Chong *et al.*,2009.p20).Likewise, Aljowaidi (2015) perceived compatibility is less a determining factor to ICT usage especially when technology is a change from a traditional business model to e-commerce. These paradoxical results may suggest that perceived compatibility is not enough to drive someone to use ICT without the awareness of the usefulness of ICT. Thus; PCT will not bring any significant effect on ICT usage.

This finding is contrary to other studies such as Kante *et al.* (2017) and Kilangi (2012) who assert that perceived compatibility found to be significant determining factors of ICT usage. DeBerryet *al.* (2008) found that perceive compatibility to be statistically significant determining factors of ICT usage in Ghana tourism industry. Likewise, Aljowaidi (2015) found that the compatibility of e-commerce to the internal IT infrastructure and the employee’s key competencies was another technological influence in effective ICT usage. It is generally suggested that for effective ICT usage to take place in any organization, ICT system should be established over time and in incremental stages. It should be tested and confirmed to be effective before moving on to the more advanced stages.

5.5 The Mediation Effect of ICT Usage on the Relationship between Perceived Compatibility (PCT) and WHSsPI

This relationship was then subjected to mediation analysis using ICT usage as a mediating variable in order to establish the type of mediation that enhances the relationship. It was thus hypothesized in the 5b that; ICT usage mediates the positive effect of perceived compatibility on WHSs Performance (PI). Results from the direct effect before mediation where PCT has a direct relationship with PI supported the study. The relationship between PCT and PI were observed to be positive and significant ($\gamma = 0.130$, $p = 0.025$) when the mediation enter the model, strength of the direct effect dropped and the relationship was not significant ($\gamma = 0.056$, $p = 0.250$) thus, ICT usage would not mediate the relationship between perceived compatibility (PCT) and performance of WHSs (PI). Thus only the direct relationship is observed and it remained to be significant from PCT to PI as illustrated in table 4.46.

This findings suggest that WHSs decision makers, by all means should find ICT usage to be consistent and compatible with their value, belief, lifestyle and need, the more they perceive new ICT system to be compatible, easy to use, understandable, flexible and it turn it can lead to tremendously performance such as accomplish their task quickly and easily. Issac *et al.* (2016) when employees perceive the system to be compatible it can lead to coming up with innovative idea, it can increase their communication quality, and making high quality decisions.

This argument is supported by Mndzebele (2013) who put forth that perceived compatibility practices can have a positive significant impact on deciding to use new

ICT in order to increase the benefit of using ICT in an organization. Usluel *et al.* (2008) concluded that perceived compatibility can be important considerations when introducing an innovation into instructional settings toward increasing performance of an organization.

5.6 The Relationship between Perceived Less Complexity (PCL) and ICT Usage In WHSs

It was hypothesized in 1c of the study that there is a positive relationship between Perceived less Complexity (PCL) and ICT usage in WHSs. Perceived less Complexity (PCL) is one of the technological determining factor of ICT usage (Bakkabulindi, 2012; Kilangi, 2012). Findings from the current study (table 4.21) supported this relationship ($\gamma = 0.128$; C.R = 2.718; $p = 0.007$). These findings suggest that when WHSs decision makers perceive ICT system to be less complexity they will use it and when they perceive ICT system as too complex, there is a high possibility of rejecting the new information system.

The findings of this study are consistent with and supported by several other previous studies such as Kilangi (2012) who argued that perceived less complexity characteristics significantly determine ICT usage to Tanzania SMEs. Similarly, Bakkabulindi (2012) found that perceived less complexity correlated positively and significantly with ICT usage among Makerere university staff, According to Setiowati *et al.*(2015), with regards to technological factors, less complexity is one of the three factors that positively influence ICT usage among Indonesian SMEs.

The findings of this study are contradict those obtained by Awa *et al.* (2016); Bozbay and Yasin (2008) which showed that perceived complexity is negatively related to ICT usage by SMEs in Nigeria. Likewise Tan and Eze (2008) found that, perceived complexity is found to be negatively related by Malaysian SMEs. Nazari *et al.* (2013) found that perceived complexity played a negative factor in ICT usage. However, this study was conducted in different geographical areas where social-economic, political and technological environment is quite different from that of Tanzania. Moreover, Nazari *et al.* (2013) suggests that in order to ensure positive significant relationship between perceived less complexity and ICT usage, the population under investigation should be broken down into five different categories; based on their propensity to adopt a specific innovation: innovators, early adopters, early majorities, late majorities and laggards.

5.7 The Mediation Effect of ICT Usage on the Relationship between Perceived Less Complexity (PCL) and WHSsPI

This relationship was then subjected to mediation analysis using ICT usage as a mediating variable in order to establish the type of mediation that enhances the relationship. It was thus hypothesized in the 5c that; ICT usage mediates the positive effect of perceived less complexity on Performance of WHSs (PI). Results from the direct effect before mediation where PCL has a direct relationship with PI was weak, negative and insignificant ($\gamma = -0.040$, $p = 0.477$). However, when the mediation enter the model, the strength of the direct effect increased and the relationship observed to be positive and significant ($\gamma = 0.146$, $p = 0.003$) (refer to table 4.46). These results

suggest that ICT usage fully mediates the relationship between perceived less complexity (PCL) and WHSs performance (PI).

The above results imply that the potential of perceived easy to use and usability of ICT toward improving WHSs performance should not be overlooked. Therefore, WHSs decision makers are suppose to positively perceive ICT usage to be friendly to ensure WHSs performance. This notion correlate with Intan *et al.*(2009) ICT usage positively mediates the relationship between perceived ease of use and business performance. These relationships therefore, will have implications on the firms planning to use ICT or enhance utilization of their e-commerce technology. WHSs decision makers should now realize that the focus in no longer on whether to deploy e-commerce but how to deploy it profitably (Intan *et al.*,2009).They concluded that ICT usage plays a vital role toward improving performance of any organization, younger firms cannot afford to delay their ICT adoption and usage due to the reason of size. With this regard, the government and all its tourism stakeholders can play a more pivotal role by creating awareness and rendering assistance to WHSs management.

These findings are consistent with the findings of several previous studies including that of Chairoe *et al.*(2015); Chairoel and Riski (2018) and Ntshakala and Obono (2013) which showed that when firm realize the importance of ICT usage they will perceived less complexity which eventually will lead to operation performance. They further said, ICT usage impact on market share, improve internal and external communication and ability to dominate the overall market. Similarly, Dalipi *et*

al.(2011) found that the most cited benefit by Macedonians SMEs as result of ICT use and adoption is improved quality of service. With regard of the perceived less complexity and the benefit associated with ICT, all of the SME are willing to use ICT for not only collecting information but also to improve relationships with clients, to keep up with rivals and to be updated with new technological trends.

5.8 The Relationship between ICT Support Infrastructures (INF) and ICT Usage

The study considered whether ICT support infrastructure could have a positive effect on ICT usage as stated in hypothesis 2a. The empirical results in chapter four (table 4.23) strongly supported this hypothesis with a positive and significant contribution ICT support infrastructure (INF) on ICT usage ($\gamma = 0.321$; C.R = 5.794; $p = 0.000$). These results imply that, for successful WHSs development, the need for more intensive investment in modernization of ICT infrastructure is inevitable and appearing as a necessary condition (Jovanovic and Ilic , 2016).Thus ICT supporting infrastructure is a key determining factor of ICT usage. WHSs decision makers will perceive greater control to employ technology into day to day activities when they have necessary hardware and software resources (Moses *et al.*, 2012).For that reason, contributions and involvement of public authorities is essential in providing ICT support infrastructure which eventually encourages ICT usage in WHSs.

According to Shiue (2007), teachers will perceive greater control to employ technology into instructional use when they have the necessary hardware and software resources. This result lends support to what has been reported in the

literature. For instance, Cowie and Jones (2009) report that; ICT support infrastructure can be one of the factors that influence the technology use among school teachers. Similarly, Petti and Passiante (2009) reported that ICT support infrastructure is one of the conditions for effective implementation of ICT usage for the management of destinations. This is confirming with a very recent study by Adeola and Evans (2019) who found that ICT support infrastructure has a positive, statistically significant relationship with ICT usage for tourism development. Prior to that, Bathapudi (2013) found that, effective ICT support infrastructure in tourism and hospitality industry in India are crucial determining factors for ICT usage toward tourism development, ICT played a vital role in marketing, promoting, building brand loyalty in India tourism. In Hashim (2015) found that ICT support infrastructure has a significant relationship with ICT usage among tourism organization.

On the other hand, the results contradict those obtained by Bahrini and Qaffas (2018) which showed that the relationship between ICT support infrastructures was found to be not significant determining factors of ICT usage in developing countries. Likewise Ladokun *et al.*(2013) found that ICT support infrastructure is one of the most factors that inhibit ICT adoption and usage by SMEs in Nigeria. Hennessy *et al.*(2010)in most developing countries, Tanzania in particular, inadequate ICT support infrastructure such as lack of hardware and software, and internet, limit not only individual but also organization access to ICT usage. Shortage of electrical energy supply together with power breakdown and power cuts has increased the cost of owning ICT support infrastructure and make it even impossible for rural areas to

access and use ICT. In support of this, Gikundi (2016) found that lack of ICT support infrastructure, poor, old, unmaintained hardware, lack of software, lack of internet connectivity were positively related to hindering ICT usage. Agdo (2015) found that, having up-to date ICT support infrastructure is a key feature to ICT usage in an organization. From this contradicting findings, it can be concluded that most organization in developing countries including Tanzania have been slow in adopting and using ICT in their day to day operation as they face major constraints including; poor energy supply, lack of ICT skills, failure to integrate ICT into their business operation or process, high cost of ICT equipment, government regulation and police does not support ICT, lack of research and development on ICT related matters, excessive reliance on foreign technology, weaknesses in ICT implementation and a poor understanding of the dynamics of the knowledge economy.

5.9 The Mediation Effect of ICT Usage on the Relationship between ICT Support Infrastructure (INF) and WHSsPI

When this relationship was subjected to mediation analysis using ICT usage as a mediating variable in order to establish a type of mediation that enhance the relationship between ICT support infrastructure (INF) and WHSPI. It was thus hypothesized in the 6a that; ICT usage mediates the positive effect of ICT support infrastructure (INF) on WHSs Performance (PI). Results from the direct effect before mediation where INF has a direct relationship with PI did not support the study. The relationship between INF and PI were observed to be positive and insignificant ($\gamma = 0.112$, $p = 0.063$), when the mediation enter the model, strength of the direct effect increased and the relationship was very significant ($\gamma = 0.329$, $p = 0.000$) thus, ICT

usage would partially mediate the relationship between ICT support infrastructure (INF) and performance of WHSs (PI). Thus only the direct relationship after the mediator enters the model has observed to be strong and positive as illustrated in table 4.46. These findings suggest that WHSs decision makers, by all means should invest in ICT support infrastructure so they can be able to utilize ICT in their day to day operation which will eventually lead to performance of the sites. Kessi (2016) found that improved ICT support infrastructure ensure effective use of ICT and increase the percentage of staff who have access to broadband and internet in the work place and this will support research innovation and service provision.

However, there are contradictory results in the empirical literature in this field, Aristovnik (2012) found that, supported ICT infrastructure and ICT usage alone does not guarantee a good student performance. Likewise, Youssef and Dahmani (2013) found that, academic institution have invested heavily on ICT support infrastructure and at the same time employees are using ICT on their day to day operations, but there has been little change on the organization performance.

The author further said, due to lack of ICT strategy this lead to weak impact of the use of ICT on performance of organization. Nazari *et al.* (2013) poor ICT support infrastructure may form a barrier to ICT usage hence poor performance of the organization. However, this study was conducted in different field and different geographical areas where socio-economic, technological is quite different from that of Tanzania UNESCO WHSs. In order for tourism organization to use ICT, organization should implement ICT supporting infrastructure (including hardware

and software) and it must be planned carefully before replacing the existing business approaches with new ICT supporting infrastructure which will eventually bring significant performance of the organization.

5.10 The Relationship between ICT Support Skills (SS) and ICT Usage

The study considered whether ICT support skills could have a positive effect on ICT usage as stated in hypothesis 2b. The empirical results in chapter four (table 4.25) strongly supported the second b hypothesis with a positive and significant contribution of ICT support skills (SS) on ICT usage ($\gamma = 0.168$; C.R = 2.878; $p = 0.004$). These results suggest that, WHSs decision makers must have support skills for them to start using ICT.

These findings are consistent with several previous studies by Leung *et al.*(2015), Lassnig and Strasser(2006), Tarawneh and Lahawyeh (2014) and Wagaw and Mulugeta (2018). Accordingly, Tarawneh and Lahawyeh (2014) found that, ICT support skills including familiarity and knowledge about ICT will improve ICT usage among teachers in Balqa university. Similar findings were obtained in Ethiopia by Wagaw and Mulugeta (2018) who concluded that ICT support skills has a positive significant relationship with ICT usage among tourism sectors in Ethiopia. Likewise, Leung *et al.* (2015) found that ICT technical skills and experience of employees is a crucial determining factor of ICT adoption among hotel in Hong Kong. These findings confirming Lassnig and Strasser(2006) who found that lack of ICT skills among employees and owners is a significant barrier of ICT usage proved to be hazardous in the growth of tourism industry.

A study by Ilkan *et al.* (2014) found that; ICT support skills learned by future support managers determine level of ICT usage, more training of people working in tourism industry on ICT foster the level of ICT adoption and usage and foster local engagement with e-Tourism related projects. They further said, adequate ICT skills by employees help with effective use of ICT and provide higher quality customer service. In a similar study by Morais *et al.* (2013), confirms that ICT skills is one of the demand required for new tourism professionals worldwide necessary to act and position themselves in front of situation through the use of ICT. Shanker (2008) found that ICT skills is one of the essential factors in tourism industry as the volume of information need to be analyzed and exchange every day between client and companies.

The above findings, confirm a more recent study by Rondović *et al.* (2019) who found that organizational factor which include ICT support skills has the most significant positive impact on ICT usage. This means that, in order to accelerate the level of ICT usage among WHSs in Tanzania, efforts should be made to increase ICT knowledge among employees. Qualified employee's increases the level of acceptance of new technology since they are able to utilize vast data output produced by highly computerized systems and maximize the expected benefits of the new systems (Arvanitis, 2005).

The results, however, contradict those obtained by Nchunge (2013) which showed that ICT support skills are not significant to ICT adoption in most developing countries. The long term barrier to ICT usage is lack of ICT related skills to most of

employees which results into too little understanding of ICT usage, too little awareness of ICT opportunities, and too little relevant content. Hooft (2010) found that, SMEs in tourism lack ICT skills to develop and maintain their own website resulting into lack of adequate ongoing business planning and marketing processes. Likewise, Lama *et al.*(2018) found that, lack of skills is one of the most important barriers of e-commerce adoption by SMTEs of Nepal. In these countries, ICT skilled individuals are subjected to lower earning and most of them leave their countries for higher wages in other countries. Nchunge (2013), unavailability of ICT literacy training institution is one of the barrier for acquiring ICT related skills and a huge barrier to ICT usage. For example in Nigeria, teachers with low level of ICT skills fail to integrate ICT into their teaching and learning process. Therefore, with reference to nature of developing countries, it can be concluded that, inadequately ICT skill will negatively affect ICT usage into the Tanzania UNESCO WHSs.

5.11 The Mediation Effect of ICT Usage on the Relationship between ICT Support Skill (SS) and WHSsPI

This relationship was then subjected to mediation analysis using ICT usage as a mediating variable in order to establish the type of mediation that enhances the relationship. It was thus hypothesized in the 6b that; ICT usage mediates the positive effect of ICT support skills (SS) on WHSs performance (PI). Results from the direct effect before mediation where SS has a direct relationship with PI was positive insignificant ($\gamma = 0.061$, $p = 0.326$). However, when the mediation enter the model, the strength of the direct effect increased and the relationship observed to be positive and significant ($\gamma = 0.169$, $p = 0.005$) (refer to table 4.46). These results suggest that ICT

usage partially mediates the relationship between ICT support Skill (SS) and WHSs performance (PI). In order to achieve high performance in WHSs, the ability of employees to use appropriate ICT tools efficiently and effectively is more important. This implies that, ICT skills of employees are essential in order to utilize the optimum capacity of an ICT tool (Silva, 2017).

The above results imply that ICT support skills determining ICT usage toward WHSs performance should not be overlooked. As any kind of performance in any industry needs people who are skills and expertise. Isote (2013) articulated that in order to have this, there must be some costs incurred by WHSs decision makers facilitate the progress of ICT usage. This cost might be observed in things like training, short course and establishing ICT center so that it can provide ICT knowledgeable personnel who will be experts in ICT usage for the performance of their sites. This notion correlate with Rondović *et al.* (2019) who found that ICT supportive skills enables ICT usage, investment in ICT skills also contribute positively significant to firm performance. ICT skills help employees to make more productive and efficient use of investments in ICT hardware and software. Prior to that Basri *et al.* (2018) found that ICT support skills influence ICT usage and it has a relationship with academic performance in Saudi Universities. Ibrahim *et al.* (2018) found ICT support skills positively and significantly moderate the relationship between ICT usage and student performance in Yobe state Nigeria.

However, the above findings differ with Forth and Mason (2004) who found that, ICT support Skills (SS) influence ICT usage however indirect negative impact upon

company performance. Likewise UNCTAD (2007) found that, ICT usage remain confined to small proportion companies, and the performance of ICT usage is limited due to lack of ICT skills. Lack of trained ICT skills personnel remained to be the main barrier for accessing ICT usage toward performance of their business. From these contradicting results of the mediating variable, this study was conducted in different field and different geographical areas where socio-economic, technological and tourism environment is quite different from that of Tanzania UNESCO WHSs. It can be concluded that ICT usage partially mediate the relationship between ICT support skills on WHSs performance. Thus WHSs decision makers need to provide ICT training for these sites to capture the potential brought by ICT usage.

5.12 The Relationship between Perceived Competitive Pressure (PCP) and ICT Usage in WHSs

It was hypothesized in 3a of the study that there is a positive relationship between Perceived Competitive Pressure (PCP) and ICT usage in WHSs. Perceived Competitive Pressure (PCP) is one of the environmental determining factor of ICT usage (Bakkabulindi, 2012; Kilangi, 2012) as indicated in our framework (Figure 2.2). Findings from the current study (table 4.27) supported this relationship ($\gamma = 0.180$; C.R = 2.899; $p = 0.004$). These findings suggest that when WHSs decision makers perceived high level of competitive pressure they will start using ICT. One possible reason is that Tanzania tourism industry is more involved with visitor from all over the global and the level of competition between East and South Africa countries is almost the same so there is more pressure from competitors for WHSs to start utilizing ICT in their daily operations. The growing important of ICT usage in

tourism industry caused several threats and opportunities which transform the value chain of the industry.

The findings of this study are consistent with and supported by several other previous studies such as Gratzner and Winiwarter (2003) who argued that perceived competitive pressure from ICT usage force the company to find new ways to expand the market so that they can be able to compete, attract and retain customers by providing tailoring products and services to meet their need. Company can adopt and start using ICT to gain competitive advantage. Kilangi (2012) found that increase market competition is one of the determining factors of ICT usage in many developing countries. The author said, large number of SMEs in developing countries adopting and using ICT as a means of communication and distribution as a results of increase pressure from competitors and suppliers. Likewise, Buhalis and Deimezi (2004) found that pressure from competitor increase level of ICT usage in Greece.

Firm are forces to adopt and use ICT to remain competitive in the business environment. As argues, SMEs are more sensitive to pressure brought by their competitors because they are not able to alter the force of the market due to their small market segment. Most of SMEs in tourism industry compete for similar tourism products and similar customers and the sector is one among the most liberalized sector due to higher dependence on ICT. If the competition is to higher the level of adopting and using ICT will also be high among WHSs. Iacovone *et al.*(2016) argued, increase level of competition has indeed induce innovation and ICT

usage in OECD countries thus to productivity growth. Finally Ayadi *et al.* (2008) argues, competitive pressure positively significantly influence ICT usage among Botswana organizations.

The findings of this study are contradicting those obtained by Mihalic and Buhalis, (2013) which showed that perceived competitive pressure negatively relate to ICT usage. Tourism manger in Slovenian perceived competitive pressure to be the least determining factor of ICT usage. Cakmak and Tas (2012) found that, in constructive industry, there is not much evidence that firm are using ICT as a result of increase level of competition, rather ICT have been used at operational level which creates both technical and economic benefits. Alam and Noors (2009) found that external pressure including pressure from customers are insignificant in determining ICT adoption in Malaysia thus SMEs are not involved in global business therefore, there is not much pressure from customer or suppliers to adopt ICT in their business operation.

Finally, from a more recent study by Mukamanzi and Ndikubwimana (2018) pressure from competitors are insignificant in ICT adoption by SMEs in Rwanda. The above studies were conducted in different industry and geographical areas where socio-economic, technological, political conditions and tourism attractions are quite different from that of WHSs in Tanzania. It can be concluded that, for WHSs decision makers in Tanzania to keep up with both internal and external competition, managing change, and staying ahead of their competitors neighboring countries, adopting ICT for their daily operation is inevitable (Ghobakhloo *et al.* 2012).

5.13 The Mediation Effect of ICT Usage on the Relationship between Perceived Competitive Pressure (PCP) and WHSsPI

In order to test the relationship of the structural model for these variable, a mediation effect was applied to test whether ICT usage mediate the relationship between perceive competitive (PCP) on performance f WHSs (PI). It was thus hypothesized in the 7a that; ICT usage mediates the positive effect of perceived competitive pressure on WHSs Performance (PI).Results from the direct effect before mediation where PCP has a direct relationship with PI supported the study. The relationship between PCP and PI were observed to be positive and significant ($\gamma = 0.382$, $p = 0.000$) when the mediation enter the model, strength of the direct effect dropped and the relationship remained to be significant ($\gamma = 0.148$, $p = 0.170$) thus, ICT usage would partially mediate the relationship between perceived competitive pressure (PCP) and WHSs performance (PI). Thus both the direct relationship before mediation and after mediation is observed to remain significant as illustrated in table 4.46.

This finding suggests that WHSs will remain competitive in the market if they will perceive high level of pressure from their competitors. Ghobakhloo *et al.*(2012) ICT usage has change the rules of competition through changing of business structure, creating competitive advantage by delivering business in new ways to outperform their competitors and to remain in the business environment. Ghobakhloo *et al.*(2011) argue pressure from competitors has influenced business to gain performance after ICT adoption and usage firm are now cable of promoting services to customers, and staying competitive and be able to manage changes.

This argument is supported by Mndzebele (2013) who put forth that perceived competitive pressure influence performance. Businesses that are reluctant to ICT usage will have difficulty in surviving in the global market competition. Berisha-Shaqiri and Berisha-Namani (2015) business who do not feel any pressure from competitor will also will fail to adapt to the fast pace and complexity of the business which will eventually lose from the growing globalization. Increase in the level of completion forces business to perform better as more focus will be emphasized on new research, new products and new market. Finally, a more recent study by Barba-Sanchez *et al.* (2018) emphasize that, there is a positive relationship between perceived competitive pressure results into ICT usage toward corporate performance. Full integration of ICT in an organization is recommended for the company to remain competitive. Wachira (2014) competition is the key in selecting firms that are able to seize the benefits of ICT and in making them flourish and grow.

5.14 The Relationship between Perceived Pressure from Customers (PPC) and ICT Usage In WHSs

It was hypothesized in 3b of the study that there is a positive relationship between Perceived Pressure from Customers (PPC) and ICT usage in WHSs. Perceived Pressure from Customers (PPC) is another environmental determining factor of ICT usage (Bakkabulindi, 2012; Kilangi, 2012). Findings from the current study (table 4.29) supported this ($\gamma = 0.286$; C.R = 34.932; $p = 0.000$). These findings suggest that when WHSs decision makers perceive pressure from customers there is a high possibility of using ICT in order to satisfy their customers need. This imply that, WHSs decision makers need to perceive pressure from customers as a business

strategy for them to adopt ICT in order to satisfy customer tangible and intangible needs, maintain customers and build loyalty. Lacking of pressure from customers, WHSs decision makers may perceive ICT usage as a waste of resources (Alam and Noor, 2009). It means that tourist visiting Tanzania is not fully utilizing IT in before, during and after travel.

The findings of this study are consistent with and supported by several other previous studies such as Ghobakhloo *et al.*(2011) and Kim and Kim (2018) who found that, perceived pressure from customers significantly determine ICT usage and success in Portuguese manufacturing SMEs. Similarly Alam and Noor (2009) found that, perceived pressure from customer is one of the major factors influencing ICT usage among SMEs in Malaysia. These results are consistent with those of Taylor (2017) who indicated that small businesses are vulnerable to customer pressure thus they adopt and use ICT from their customer demand. Customer pressure is the significant determining ICT usage. Finally Chian (2010) and Otiso *et al.*(2012) found that external pressure including pressure from customer is a determinant effect of ICT usage for SMEs in Europe.

The findings of this study are contradict those obtained by Alam and Noor (2009) which show that pressure from customer is not significant factors for ICT usage by SMEs in Malaysia. The main reason for this is that, Malaysia SMEs are not involved in global business thus they barely perceive pressure from customers to use ICT in their business operation. This findings is in line with previous literature of Setiowati *et al.*(2015), as SMEs in Indonesia revealed that they don't consider pressure from

their customers to be the factor for them to start using ICT rather they considered ICT skills and innovativeness of managers are the main factors for ICT usage by SMEs. On the other hand, these studies were done outside Tanzania where geographically, socio-economic conditions and the tourism attraction are quite different from that of the Tanzania UNESCO WHSs. It has been reported by Kilangi (2012) that, there has been an increase of SMEs in developing countries adopting and using ICT under pressure from customers. In view of the increase global competition, conforming to customer demand and expectation is inevitable to survive in the changing market demand (Leung *et al.* 2015).

5.15 The Mediation Effect of ICT Usage on the Relationship between Perceived Pressure from Customer (PPC) and WHSsPI

This relationship was then subjected to mediation analysis using ICT usage as a mediating variable in order to establish the type of mediation that enhances the relationship. It was thus hypothesized in the 7b that; ICT usage mediates the positive effect of perceived pressure from customers (PPC) on WHSs Performance (PI). The result of a direct effect before mediation where PPC has a direct relationship with PI were weak, positive and significant ($\gamma = 0.181$, $p = 0.004$). However, when the mediation enter the model, the strength of the direct effect increased and the relationship observed to be positive and very significant ($\gamma = 0.285$, $p = 0.000$) (refer to table 4.46). These results suggest that ICT usage partially mediates the relationship between perceived pressure from customers (PPC) and WHSs performance (PI).

The above results indicate that the perceived pressure from customers and ICT usage toward improving WHSs performance should not be overlooked. In addition, partial mediation effect of ICT usage was found between perceived pressure from customer and WHSs performance. These findings extend our understanding of WHSs perception on customer pressure. When WHSs decision makers perceive pressure from customer they will be more likely to use ICT, and ICT usage will contribute to increase of sale, customer relationship as well as business relationship (Polo Pena *et al.*, 2013). The further said, as a result of ICT usage, customers are now the drive and govern of the tourism value chain. Customer are now willing to try new destination, products, foods, attractions and their not willing to give a second chance to destinations providing poor products or services.

When WHSs decision makers perceive ICT service delivery affect customer satisfaction, they will start using ICT in their service delivery and ultimately customer service excellence. Through ICT usage, WHSs will be able to move much of their customer support on line so that customers can access databases or manuals directly. This significantly cuts costs while generally improving the quality of service. ICT usage is very effective at lowering the costs of attracting new customers, because advertising and promotion is typically cheaper than for other media and more targeted (Lee, 2014). Implementation of ICT due to customer pressure will enable business to receive immediate customer feedback which will allow WHSs decision makers to react fast to changing customer demand and even be able to recognize new niche market (Alam and Noor, 2009). This is supported by Chairael and Riski, (2018) whom they proposed that, in various developing countries,

pressure from customers had a strong influence on ICT adoption and usage and it cost much less when compared to using telephone costs to contact their customer and it also keep their customer happy because they don't use cash to buy their products.

5.16 The Relationship between ICT Usage and WHSsPI

The results provide insights into the relationship between the ICT usage (ICTU) and WHSs performance (PI). These offer three theoretical contributions from the determining factors of ICT usage: that (i) technological factor is derived from three factors, namely, perceived relative advantage, Perceived Compatibility (PCT), and Perceived Compatibility (PCT), (ii) Organizational factors is derived from two perspectives, namely; ICT support infrastructure (INF) and ICT Support Skills (SS), and (3) Environmental factors is derived from two perspectives, namely; Perceived Competitive Pressure (PCP) and Perceived Pressure from Customers (PPC). The empirical results in chapter four (table 4.31) strongly supported this fourth hypothesis with a positive and significant contribution ICT usage (ICTU) on WHSs performance (PI) ($\gamma = 0.568$; C.R = 7.396; $p = 0.000$),

The findings show that ICT Usage significantly influences WHSs performance. Consistent with the studies of Mihalic and Buhalis (2013) who found that ICT usage was found to have a significant influence on tourism operational productivity. This study confirms that employees, who utilize ICT in their daily hotel operations, significantly affect positively customer satisfaction and ensure business to business relationship of tourism hotel. Moreover, Bahrini and Qaffa (2018) pointed out that, ICT usage should improve economic growth by fostering competition among firms

which results in the development of new products, process, and business mode. These results suggest that; continue use of ICT foster competition which eventually improve economic growth by accelerating the development. Prior to that Bethapudi (2013) found that integration of ICT in tourism industry would benefit both service providers and customers as well as bring other stakeholders on a common platform. This results highlights that ICT usage is crucial to match customer requirement with service providers. In economic performance, ICT usage significantly increase accessibility to potential customers and ensure customer relationship management (Wachira *et al.*, 2014). They further pointed that, ICT usage ensure product quality improvements and customers service, timeliness and convenience.

This finding is consistent with a very recent study by Nyambura (2018) who investigated the direct effect of ICT usage in hotels firm of the developing countries. The finding indicates that investment in ICT is very low, its productivity potential has been proven to be significant. Manufacturing firms who have leveraged on ICT usage were recorded an improved performance compared to those which had not leveraged on ICT usage. This means that tourism policy in developing countries should aim to speed up the process of implementing ICT. Yunis *et al.*(2017) found that, ICT usage positively generate organizational performance, such as higher level of growth and sustained competitive advantage. In addition, Vargasa *et al.*(2016) found that, SMEs in Europe confirm that ICT usage and business performance are positively correlated. ICT usage has the potential to minim costs and increase productivity.

This finding is inconsistent with the results of obtained by Shamim *et al.*(2016) which showed that there is no significant relationship between the use of ICT and performance of an organization however, habit based use is the main driver of performance. Moreover, Pekkanen (2012) found ICT usage is not sufficient enough to improve performance of an organization rather effective fit team would enhance organization performance. Youssef and Dahmani (2008) argued that, the relationship between ICT usage and student performance is not real clear and there are contradicting results. The author found negative and marginally significant relationship between ICT usage and student performance. This means that, student might be using ICT during their leisure time and less during their study time. In addition Aristovnik (2012) suggest that, the relationship between ICT and performance would differ depending on how employees manage and utilize ICT in their daily activities.

These contradicting finding were done in academic industry which is quite different with tourism industry. It was also done outside Tanzania where the socio-economic condition is quite different. it can be concluded that successfully utilization of ICT in tourism industry has the potential toward sustainable tourism management and overcoming challenges related to operation of tourism in rural and remote destination (Bystrowska *et al.*,2017).In addition, ICT usage is a key influencing factor in enhancing hotel performance at both the strategic and operational levels (Chevers, 2015). Based on the discussion of the findings and a significant level of each relationship, the final model of the current study is presented in figure 5.1

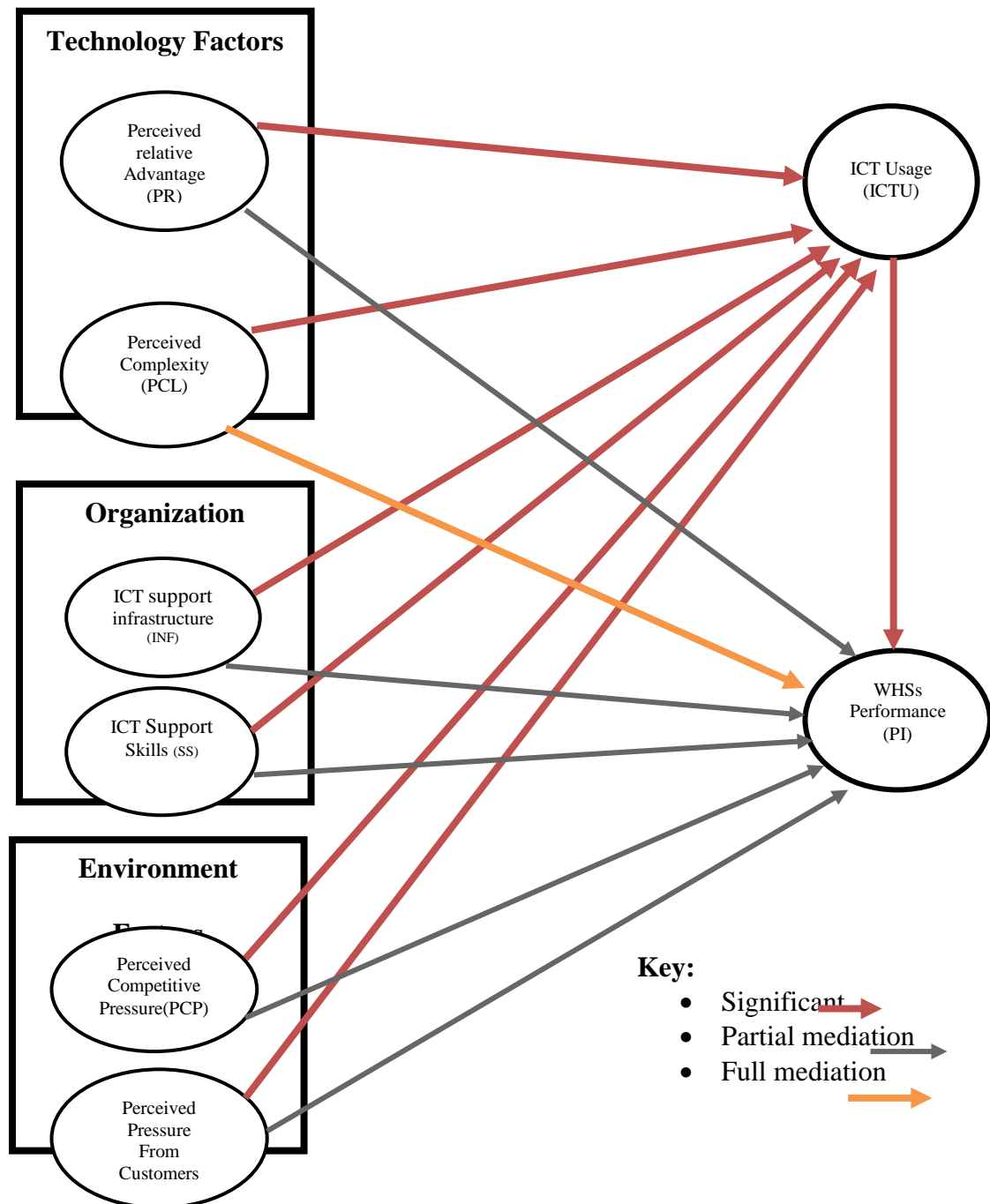


Figure 5.1: Final Model of the Current Study

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Chapter Overview

The study proposes and tests the relationship between determining factors influencing ICT usage and between ICTU toward WHSsPI. It further tested the mediation effect of ICTU on the relationship between determining factors and WHSsPI. The main objective of the study is to assess ICT determinants of WHSsPI in Tanzania under the mediation effect of ICT usage. This study specifically aimed at (i) to explore the technological, organizational and environmental factors influencing ICT usage in WHSs, (ii) to examine the actual ICT usage on WHSs performance, (iii) to examine the mediating role of ICT usage on the relationship between technological, organizational and environmental factors and WHSs performance.

The result of this research based on 238 samples obtained from the Tanzania UNESCO WHSs including; Ngorongoro Conservation Area (NCA) in Arusha region (Mixed site); Ruins of Kilwa Kisiwani and Ruins of Songo Mnara in Kilwa Kisiwani region (cultural site); Serengeti National Park in Arusha Mara region(nature); Selous Game Reserve (SGR) in Iringa and Morogoro region (nature); Kilimanjaro National Park in region (nature); Stone Town of Zanzibar (culture) and the Kondoa Rock-Art Site located in Dodoma region specifically in Kondoa district (culture). IBM SPSS statistic version 20, IBM SPSS Amos version 22, 23, 24, 25, and 26 was employed for data analysis. This final chapter presents the key conclusion, recommendations,

and suggestions for further research. The same chapter will provide the implication of the study by addressing the theoretical and practical implications of the results as well as the contribution of this study to the body of knowledge. Finally, the limitations of the study will be highlighted.

6.2 Summary of major findings

The results of this study revealed that six of the determining factors (PR), (PCL), (INF), (SS), (PPC) and (PCP) had statistically significant relationship and to influence ICT usage into WHSs. Under technological factors, this implies that, when WHSs decision makers positively perceive a relative advantage and perceive ease of use of any new ICT system, there is high chance of using ICT in their day to day operation. Moreover under organizational factors, when these sites are supported with ICT infrastructures (i.e. Network, desktop, printing management, virus patch management and hardware maintenance) and ICT skills to their employees the chance of using ICT in their day to day operation increases.

Lastly, on the environmental factors, when WHSs decision makers perceive high level of competition in the tourism market and from their competition the chance of using ICT also increase. These findings also indicate PCT did not have a statistical significant relationship toward ICT usage and determine to be an insignificant factor that can influence ICT usage into WHSs. This result signify that, decision makers had less experience and some have not used ICT in their daily operation to recommend if the new ICT system will be compatible with their existing system.

On the other hand, the results show that ICT Usage had a positively and significant relationship with WHSs performance. This implies that these constructs play a big role in influencing WHSs performance in term of increasing sale, business and customer relationship. Moreover, it was found that (i) ICT usage partially mediate the relationship between perceived relative advantage and performance of WHSs, ICT usage fully mediates the relationship between perceived less complexity and performance of WHSs and ICT usage did not mediate the relationship between perceived compatibility and performance of WHSs. (ii) ICT usage partially mediate the relationship between ICT support Infrastructure , ICT support skills and performance of WHS, and (iii) ICT usage partially mediate the relationship between perceived competitive pressure, perceived pressure from customer and performance of World Heritage site (WHSs).

This suggests that the determining factors are the mechanism that influences ICT usage toward WHSs performance.

6.3 Conclusion

6.3.1 Determining Factors (i.e. Technological, Organizational and Environmental) Influencing ICT usage

Our first research objective aimed at exploring the determining factors (technological, organizational and environmental) influencing ICT usage in WHSs. There have not been substantial studies that have examined the determining factors influencing ICT usage in the Tanzania WHSs. Therefore, through adoption and adaption, the study examined whether ICT usage in WHSs relies heavily on the sites

technological, organizational and environmental settings. Second, seven factors were examined. Six factors (perceived relative advantage (PR), perceived less complexity (PCL), ICT support infrastructure (INF), ICT support skills (SS), Perceived pressure from customers (PPC) and perceived competitive pressure (PCP) had statistically significant relationship and determine to be significant factors that influence ICT usage into WHSs. Our study assumed that the highest level of ICT usage among WHSs should be desirable, which might be not the case in the eyes of the decision markers of these sites in the context of developing countries (e.g. Tanzania).

Only one variable (perceived compatibility (PCT) in the study did not have a statistical significant relationship toward ICT usage and determine to be an insignificant factor that can influence ICT usage into WHSs. This result signify that, decision makers had less experience with ICT usage to recommend if it's compatible with their existing system. Third, between the six factors ICT support infrastructure and Perceived pressure from customers (PPC) were determined to be the most significant determining factors influencing ICT usage into WHSs.

6.3.2 ICT usage on WHSs performance

In addressing the second research objective, our study also concludes that actual ICT usage had a statistically significant relationship with WHSs performance. Further analysis indicated that e-mail and web-based services are mostly used for displaying company information and products offered communicate with my suppliers, communicate with my employees, and communicate with customers, to sell products online and to sell WHSs services and receive payments. Surprisingly, the findings

indicated there is positive relationship between ICT usage and WHSs performance. Therefore, ICT usage increase sales, improve business to business relationship, customer relationship, quality of services, social climate at work and help in identification of potential customers. However, we conclude that, WHSs rarely use email and web-based applications in dealing with tourists activities. We equally find the same pattern in some of the studies carried out in developing countries, where email and web-based applications are rarely used in tourism activities in Tanzania. Therefore, the measure to enhance ICT usage in WHSs should be geared towards educating decision makers on; perceived less complexity (PCL) is an influence to ICT usage toward performance of WHSs.

6.3.3 The Mediating Effect of ICTU on the Relationship between the Determining Factors and WHSsPI

As stated in the third research objective, the mediation effect of ICT usage was also confirmed. Our study aimed at examining the mediating role of ICT usage on the relationship between the determining factors and WHSs performance.

6.3.3.1 The Mediation Effect Of ICTU on the Relationship between Technological Factors (PR, PCT, PCL) and WHSsPI

The mediation effect of ICT usage on the technological factors, the current study came up with three hypotheses namely (i) H_{5a}: ICT usage positively mediate the relationship between perceived relative advantage and WHSsPI, (ii) H_{5b}: ICT usage positively mediate the relationship between Perceived Compatibility (PCT) and

WHSs performance, and (iii) H_{5c}: ICT usage positively mediate the relationship between perceived less complexity (PCL) and WHSs performance.

The findings reveal that; firstly, ICTU partially mediates the relationship between perceived relative advantage (PR) and WHSsPI and hence H_{5a} was accepted. This means that the path leading from PR-ICTU-PI have more influence on ensuring performance of WHSs than the path leading from PR-PI. In other words, PR and actual ICT usage have a synergistic influence on ensuring WHSs performance. Therefore, it is concluded that, ICT usage mediate the link between PR and PI. Hence ICTU plays a big role in strengthening the link between PR and PI.

Secondly, the findings revealed that, ICT usage fully mediates the relationship between perceived less complexity (PCL) and WHSsPI and hence H_{5b} was accepted. This means that, PCL, actual ICT usage work harmoniously to influence WHSs performance. The path leading from PCL-ICTU and PI have more influence on ensuring WHSs performance than the path leading from PCL-PI. In other words, a desire to use ICT is higher when decision makers perceive ease of use for the new system and when they receive recommendation from other organization on the performance brought from ICT usage. Moreover, ease of use is determining factors that influence actual ICT usage on WHSsPI. These findings confirm T.O.E theory by Tornatzky and Fleischer (1990) which explains that perceived less complexity (PCL) describes both the existing technologies in use and new technologies relevant to the firm. In this study, the results suggest that perception of WHSs decision makers about ICT usage is positive irrespective of financial constraints, types of

heritage sites. Some initiative can be taken to improve ICT use rate among WHSs in Tanzania such as training on ICT, introducing a course on ICT to these sites and lowering the cost of internet connection and ICT devices.

Thirdly, perceived compatibility (PCT) did not have a statistical significant when the mediation was entered in the model therefore; ICT usage did not mediate the relationship between perceived compatibility (PCT) and WHSsPI thus H_{5c} was not accepted. This means that perceived compatibility (PCT), ICT usage does not work synergistically to influence WHSs performance. The path leading from PCT- ICTU and PI have no influence on ensuring WHSs performance than the path leading from PCT to PI. The insignificance of these characteristics may be attributed to lack of ICT system in use. The study findings also indicate that most of the decision makers perceive ICT application to be not compatible with their business culture and values, supplier system, business partners, organizational cultural and current value system. In other words, a desire to use ICT on WHSs performance is less when decision makers perceive the new ICT system not to be compatible with their existing system.

6.3.3.2 The Mediation Effect of ICTU on the Relationship between Organizational Factors (INF, SS) and WHSsPI

The study tested the mediation effect of ICT usage on organizational factors and it came up with two hypotheses namely H_{6a} : ICT usage positively mediates the relationship between ICT support infrastructure WHSs and performance and (ii) H_{6b} : ICT usage positively mediates the relationship between ICT support Skills (SS) and WHSs performance. It was found that ICT usage partially mediate the link between

INF and PI and hence 6a: ICT support infrastructure (INF) is positively related to WHSs performance with ICT usage as a mediator variable is accepted. This means that the path leading from INF-ICTU-PI have more influence on ensuring WHSs performance than the path leading from INF-PI. In other words, INF and ICTU have a synergistic influence on ensure WHSs performance. Therefore, it is concluded that ICT usage partially mediate the link between ICT support infrastructure (INF) and WHSs performance (PI). Hence ICT usage plays a big role in strengthening the link between ICT support infrastructure and WHSs performance. These findings connote that if WHSs want to increase the level of ICT usage in their day to day operation of the site toward increasing sale, ensuring business and customer relationship they should put strategies to attract investors to ICT support infrastructure.

Furthermore, the mediation effect of ICT usage on the relationship between ICT support skill (SS) and WHSs performance was also confirmed. It was found that ICT usage partially mediate the links between ICT support skills (SS) and WHSs performance and hence H_{6b}: ICT support skills (SS) is positively related to WHSs performance with ICT usage as a mediator variable is accepted. This means that the path leading from SS-ICTU-PI have more influence on WHSs performance than the path leading from ICT support skills- WHSs performance. In other words, ICT support skills (SS) and ICT usage have a synergistic influence on WHSs performance. Therefore, it is concluded that ICT usage mediates the link between SS and PI. Hence ICT usage plays a big role in strengthening the link between ICT support Skills (SS) and WHSs performance (PI). These findings also confirm T.O.E theory by Tornatzky and Fleischer (1990) which is based on the determining factors

influencing ICT usage. The theory state that organizational factors include features such as ICT support skills within the organization that encourage or discourage ICT usage (Angeles, 2014). Thus ICT skills within an organization contain elements such as computer and internet skills in term of operating, processing, changing, accessing and using software and hardware of computer and internet devices (Osorioet *al.*, 2013). Knowledge in operating the above elements is an essential and key point for our study as it is one of the influences for ICT usage. In the current study, the findings suggest when WHSs decision makers are knowledgeable with ICT usage they tend to adopt and use ICT which will eventually bring performance of their site.

6.3.3.3 The Mediation Effect of ICTU on the Relationship between Environmental Factors (PCP, PPC) and WHSsPI

With an effort of determining the mediation effect of ICT usage (ICTU) in the kink between environmental factors (PCP, PPC) and WHSs performance (PI), the current study came up with two hypotheses namely: (i) H_{7a} : ICT usage positively mediates the relationship between perceived competitive pressure (PCP) and WHSs performance (PI) and (ii) H_{7b} : ICT usage positively mediates the relationship between perceived pressure from customers (PPC) and WHSs performance (PI). Starting with PCP, firstly, the findings reveal that ICTU partially mediate the effect of perceived competitive pressure (PCP) on WHSs performance. This means that PCP and ICTU work synergistically to influence WHSs performance the path leading from PCP-ICTU-PI have more influence on ensuring better customer and business relationship and increase sales that the path leading from PCP- WHSs performance (PI). In other words, a desire to use ICT toward increase of business and

customer relationship and sale is higher when they perceive that the business environment is very competitive that when they direct use ICT without the competition perception. In other words, high perception of competitive pressure is determining factors that influence ICT usage on WHSs performance. One can also say that, when the level of competition is high, organizations may use ICT not on account of its relative advantage, but on account of the competitors who are already using it (Lee *et al.*, 2015). Thus, it is concluded that, ICT usage mediate the relationship between perceived competitive pressure and WHSs performance. These findings also confirm T.O.E theory by Tornatzky and Fleischer (1990) which explains that companies invest in ICT driven by the need to keep up with competition. ICT usage helps the company to increase the value of their competitiveness by allowing them to improve the process value. In this study, the results suggest that when WHSs perceive high level of competition they tend to use ICT, if they don't use ICT their possibility of striving and surviving the competition is slim (Mndzebele, 2018).

Secondly and lastly, the mediation effect of ICT usage on perceived pressure from customers and WHSs performance was also conformed. It was found that ICTU usage (ICTU) partially mediates the link between perceived pressure from customers and WHSs performance and hence H_{7b}: Perceived pressure from customers (PPC) is positively related to WHSs performance with ICT usage as a mediator variable is accepted. This means that the path leading from perceived pressure from customers- ICT usage- WHSs performance (PI) have more influence on ensure WHSs performance (i.e. increase sale, increase business, customers relationship) than the

path leading from perceived pressure from customers (PPC)- WHSs performance (PI) .In other Words, PPC and ICTU have synergistic influence on increase WHSs performance. Therefore, it is concluded that ICT usage (ICTU) partially mediates the link between perceived pressure from customers (PPC) and WHSs performance (PI). Hence ICT usage plays a big role in strengthening the link between perceived pressures from customers (PPC) and increasing performance of WHSs.

This finding confirms T.O.E theory by Tornatzky and Fleischer (1990) which indicates that firm tends to use ICT as a result of forces from external pressure including customers demand. Thus, lacking pressure from customers, business owners and managers may perceive ICT usage as a waste of resources (Dieck and Jung, 2018). In the current study, the findings suggest that when WHSs perceive high level of pressure from customers they tend to use ICT in order to ensure better customer service and maintain relationship with their customers.

6.4 Study Implications

6.4.1 Theoretical Implications

This study will provide contribution to the theory through identifying how the factors in the conceptual model were deleted or added and the relationship between the accepted variable. Kachchhap and Mishika, (2015) argued, theoretical contribution constitutes using original insightful perspective to advance knowledge that is usefully for practice. In order to provide a theoretical contribution any article must develop a systematic understanding of its phenomenon at an abstract level (Whetten, 1989). Likewise, Cornelissen and Durand (2014) said, issues of originality

of a contribution, is one of the feature used to describe a good theoretical work i.e. a research paper that present new insights that have not been ever discussed before.

In the current study we investigated the mediation effect of ICT usage in the relationship between determining factors and WHSs performance to be one of the most significant theoretical contributions of the study. Many previous studies have focus either the relationship between determining factors and ICT usage or ICT usage and performance of an organization. None of the study has studied the mediation role of ICT usage on the relationship between the determining factors and World Heritage Site Performance. Thus, this study adds to the literature as it has ICT usage to fully mediate the relationship between perceived less complexity and WHSs performance.

When ICT usage is perceived less complexity its obviously that ICT usage will be accepted which in turn will enhance WHSs performance i.e. business relationship, customer relationship and increase sales. Therefore, this study is the first empirical study that applied ICTU to mediate the relationship between the perceived less complexity s and WHSs PI, thus to be one of the theoretical contribution of the study.

On the other hand, this study strengthens the theoretical foundation of the association between ICT usage and WHSs performance. Different debates have been raised in the literature that has divided scholars into two groups. First, the literatures that suggest that ICT usage impact organizational performance (Bahrini and Qaffa, 2018; Chairoelet *al.*,2015; Nyambura, 2018; Shamim *et al.*, 2016; Vargasa *et al.*,2016).

Second, the flow that suggests ICT usage does not impact organizational performance (Aristovnik, 2012; Pekkanen, 2012; Youssef and Dahmani, 2008). However, this study has confirmed that ICT usage has a significant and positive relationship with WHSs performance.

Nevertheless, this study adds to the literature as it has confirmed the technological, organizational and environmental theory (Tornatzky and Fleischer's, 1990) which posits that decision to use new ICT system within the organization is determined by three factors namely; technological, environmental and organization (Angeles, 2013; Ismail and Mokhtar 2016; Oliveira and Martins, 2011). Specifically, the assumption grounding the technological factors is that, it describes both the existing technologies in use and new technologies relevant to the firm. While assumption grounding organizational factors includes features within the organization that encourage or discourage the use of ICT and the assumption grounding environmental factors includes features in which the firms conduct business including; its competitors and its customers (Fuchs et al., 2010; Osorio *et al.*, 2013).

The significant and positive relationship between technological factors, (i.e. perceived relative advantage (PR), and perceived less complexity (PCL) organizational factor (i.e. ICT support infrastructure (INF) and ICT support skills (SS)) and environmental factors (i.e. perceived competitive pressure (PCP) and perceived pressure from customers (PPC)) suggests that the theory fits perfectly in explaining the association between these constructs to influence ICT usage. These results imply that when WHSs perceive a relative advantage (PR) and higher level of

perceived less complexity (PCL) would result in a greater level of ICT usage. Moreover, higher level of ICT support infrastructures (INF) and support skills (SS) would result in a greater level of ICT usage. Lastly, higher level of perceived competitive pressure (PCP) and perceived pressure from customers (PPC) would result in greater level of ICT usage.

Moreover, this study also adds more insights into one of the technological factors i.e. perceived compatibility (PCT) variable was found insignificant to influence ICT usage. Thus, the study showed that a higher level of perceived compatibility would not result in any meaningful and significant change in the level of ICT usage. For decades now, the relationship is still clear that perceived compatibility (PCT) influence ICT usage (Aljowaidi, 2015; Kante *et al.*, 2017; Kilangi, 2012). However, the current study indicates that there is a positive and insignificant impact of perceived compatibility (PCT) towards ICT usage in WHSs and hence deviates from the findings of other researches which found that perceived compatibility (PCT) influence ICT usage and ICT usage does not mediate the relationship between perceived compatibility (PCT) WHSs and performance.

6.4.2 Contextual Implication

Contextually, this study contributes to the understanding of the relationships of determining factors influencing ICT usage, actual ICT usage on WHSs performance in Africa particularly Tanzania UNESCO WHSs. This adds knowledge to the literature on how the determining factors influence ICT usage particularly the mediation effect of ICT usage on the link between Perceived less Complexity (PCL)

and WHSs performance in Tanzania. Majority of studies about determining factors of ICT usage have concentrated on tourism SMES, students and teachers ICT adoption factors for developed economies (Buhari *et al.*, 2017; Olise *et al.*, 2014; Vodopivec *et al.*, 2014; Zhang and Liu, 2016) while ignoring the ICT determining factors encountered by World Heritage sites in developing economies particularly Africa.

However, ICT usage and performance of an organization vary across different sectors and various performance indicators studied (Moreira *et al.*, 2017). Therefore, this study viewed WHSs performance as the extent to which WHSs view their financial and non financial indicators which explain the degree of their success towards their objective and results. These indicators can be observed through increase sales, business and customer's relationships. Tanzania being an emerging economy with seven UNESCO World Heritage sites which include cultural, nature (for example, Serengeti National Park has even voted to be the best national park in Africa and won a prestigious global award) and mixed sites is worth studying the determining factors of ICT usage toward performance of these sites. Hence the findings from this study can be compared with other results from different countries and provide empirical support on the mediation effect of ICT usage on the link between the determining factors influencing ICT usage and WHSs performance.

6.4.3 Practical Implication

This study has a number of practical implications in tourism and ICT usage literature, particularly in the Tanzanian context. It is important to WHSs decision

makers, WHSs employees, tourism stakeholders such as tour operators, travel agents, and the government of Tanzania and other countries in particular Africa.

The findings from this study revealed that Technological (i.e. perceive relative advantage (PR) and perceived less complexity (PCL)), Organizational (i.e. ICT infrastructure support (INF), ICT support skills (SS), and environmental (i.e. perceived competitive pressure (PCP) perceived pressure from customers (PPC)) factors significantly influence ICT usage on WHSs performance. This implies that WHSs decision makers have to positive perceive these variables to influence their ICT usage level which will eventually contribute to increase of sale, facilitate business and customer relationship. This is because, Tanzanian WHSs are not able to sustainably promote, distribute information and potentially not able to compete on a level playing field without a proper online media platform (Moya and Engotour, 2017; Rishi, 2013). Most people are not aware of the cultural heritage sites and cultural materials present in our country making these sites receive only minimal attention from the public which in turn leaves the heritage sites in poor condition and eventual deterioration” (Monko *et al.*, 2017. p53). This call for WHSs decision makers to positively adopt ICT usage in their daily operation so as increase sales, and facilitate business and customer relationship. ICT reduces operating costs, raise value to customers, achieve strategic competitive customers, and achieve strategic competitive advantage (Kamuzora, 2016; Kamuzora, 2004). This notion, tells that, for the success of any tourism business, particularly WHSs ICT usage is inevitable for their sites performance. For the government of Tanzania, the current study is important for policy formulation particularly those relating to ICT usage in tourism

industry in the country so as to create a conducive business environment which will nature the growth of the tourism industry specifically the WHSs.

6.5 Recommendations

This study provide a number of recommendations that need to be taken into consideration by the government and all the tourism related stakeholders to ensure effective and efficient running of the WHSs. These recommendations are based on the study results, reviewed policy and areas of future research.

6.5.1 Recommendation From the Study Results

It is recommended that to increase sales, ensure business and customer relationship actual ICT usage in WHSs in inevitable. This seems to be the best option, particularly by looking back on the trend of ICT usage in tourism industry which has now shifted from supplier centric to consumer centric. It is also recommended that the Tanzania government should invest in ICT facilities. Tourism marketing activities are carried out through ICT. Therefore, combination of traditional tourism activities with current online opportunities activities is considered essential. Through ICT usage and ensuring customer relationship, tourists will be able to develop a desire to travel, organize their trip well in advance through e-booking, e-hotel reservation including knowing the mode of transport, costs of living, weather condition at destination and so on.

ICT usage also will facilitate interpretation of WHSs which enhances visitor enjoyment, learning and experience. After their trip, ICT will allow visitors to share

their photos, experience and provide testimony to others about the sites and the destination at large.

6.5.2 Limitation and areas for Future Research

The current study recommends a number of areas where future research can be conducted. This study has studied the relationship between determining factors influencing ICT usage, ICT usage and WHSs performance. However, other scholars may research the association of these constructs on other tourism areas like those of the national parks, travel agents, tour operators and others may involve ICT usage in the country.

On the other hand, the coverage of this study was limited to UNESCO WHSs which include Ngorongoro Conservation Area (NCA) in Arusha region (Mixed site); Ruins of Kilwa Kisiwani and Ruins of Songo Mnara in Kilwa Kisiwani region (cultural site); Serengeti National Park in Arusha Mara region(nature); Selous Game Reserve (SGR) in Iringa and Morogoro region (nature); Kilimanjaro National Park in region (nature); Stone Town of Zanzibar (culture) and the Kondoa Rock-Art Site located in Dodoma region specifically in Kondoa district (culture) but other studies may include World Heritage sites which has not yet received a UNESCO recognition to gather more information on the determining factors influencing ICT usage and how actual ICT usage influence performance of these sites.

Future research may also consider involving more respondents such as employees and government official working in the ministry of natural resources and tourism.

Moreover, this study is a cross-sectional which collected data at a single point of time. It is suggested that other researches may consider conducting a longitudinal study to ascertain the determining factors influencing ICT usage toward performance of WHSs and the mediation effect used in this study to have better inferences over time. Lastly, the same research may be replicated to other countries in studying determining factors influencing ICT usage towards WHSs performance, the mediation effect of ICT usage on the link between the determining factors and WHSs performance. This is because, these factors encountered by organization varies according to the nature of the organization. For that case determining factors of ICT usage in Tanzania may not be the same as those of Algeria and from other countries.

REFERENCES

- Abdul Aziz, A., Bakhtiar, S., Faez, M., Kamaruddin, M. S. Y., and Ahmad, N. A. (2012). Information and communication technology application's usage in hotel industry. *Journal of Tourism, Hospitality and Culinary Arts (JTHCA)*, 4(2), 34-48.
- Abisoye Blessing, O., Umar, A., and Abisoye Opeyemi, A. (2017). Challenges of airline reservation system and possible solutions (A case study of overland airways).
- Adel, B. K. (2011). ICT, organizational innovations, human capital and performance of Tunisian firms of EEHA Sector.
- Adeola, O., and Evans, O. (2019). ICT, infrastructure, and tourism development in Africa. *Tourism Economic*. Online available: <https://doi.org/10.1177/1354816619827712>. Accessed 12/08/2019
- Adukaite, A., van Zyl, I., and Cantoni, L. (2016). The Role of ICT in Tourism Education: A Case Study of South African Secondary Schools. In *Review of Tourism Research (eRTR). ENTER 2016 Conference of Information and Communication Technologies in Tourism* (Vol. 7).
- Agbo, I. S. (2015). Factors Influencing the Use of Information and Communication Technology (ICT) in Teaching and Learning Computer Studies in Ohaukwu Local Government Area of Ebonyi State-Nigeria. *Journal of Education and Practice*, 6(7), 71-86.
- Agwu, M. E., Taiwo, J. N., Agumadu, M., and Afieroho, E. O. (2016). The role of ICTS in the improvement of the competitiveness of SMEs. *Asian Journal of Information Technology*, 15(18), 3414-3421.

- Alam, S. S. A. S. S., Omar, N. A., and Hashim, N. M. H. N. (2011). Applying the theory of perceived characteristics of innovating (PCI) on ICT adoption in the SMEs in Malaysia. *Australian Journal of Basic and Applied Sciences*, 5(8), 8-17.
- Ali, A. A. (2016). *Diffusion of Innovation Theory and adoption of e-Government by Medium Business Enterprises in Kenya: A case of Nairobi City County* (Doctoral dissertation, University of Nairobi).
- Ali, A., and Frew, J. A. (2009). ICT and sustainable tourism development: An analysis of the literature. *Queen Margaret University, UK, SITI Research Centre*.
- Aljowaidi, M. A. (2015). *A study of E-commerce Adoption Using the TOE Framework in Saudi Retailers: Firm Motivations, Implementation and Benefits*. Melbourne Australia: School of Business Information Technology and Logistics RMIT University (PhD thesis).
- Angeles, R. (2014). Using the Technology-Organization -Environment Framework and Zuboff's Concepts for Understanding Environmental Sustainability and RFID. *World Academy of Science, Engineering and Technology International Journal of Social, Educati*, 7 (11), 1599-1606
- Ansah, A. K., Blankson, V. S., and Kontoh, M. (2012). The use of information and communication technologies (ICT) in front office operations of chain hotels in Ghana. *International Journal of Advanced Computer Science and Applications*, 3(3), 72-77.

- Apulu, I., and Latham, A. (2011, April). The Benefits of ICT Adoption: an empirical study of Nigerian SMEs. In *Proceedings of the European Conference on Information Management and Evaluation* (pp. 483-491).
- Aristovnik, A. (2012). The impact of ICT on educational performance and its efficiency in selected EU and OECD countries: a non-parametric analysis. *Available at SSRN 2187482*.
- Arvanitis, S. (2005). Computerization, workplace organization, skilled labour and firm productivity: Evidence for the Swiss business sector. *Economics of innovation and new technology*, 14(4), 225-249.
- Ashari, H. A., Heidari, M., and Parvaresh, S. (2014). Improving SMTEs' business performance through strategic use of information communication technology: ICT and tourism challenges and opportunities. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 4(3), 1-20.
- Atembe, R., and Abdalla, F. (2015, April). The use of smart technology in tourism: evidence from wearable devices. In *ISCONTOUR 2015-Tourism Research Perspectives: Proceedings of the International Student Conference in Tourism Research* (Vol. 23). BoD–Books on Demand.
- Awa, H. O., Ukoha, O., and Emecheta, B. C. (2016). Using T-O-E theoretical framework to study the adoption of ERP solution. *Cogent Business and Management*, 3 (11), 1-23
- Awang, Z. (2011). A Handbook on SEM: Structural Equation Modeling 2nd Ed., Kelantan: Universiti Teknologi MARA.

- Ayadi, O. F., Iyanda, O., and Ojo, S. O. (2008). Motivation, influences, and perceived effect of ICT adoption in Botswana organizations. *International Journal of Emerging Markets*, 3(3), 311-322.
- Ayu, A. R., and Abrizah, A. (2011). Do you Facebook? Usage and applications of Facebook page among academic libraries in Malaysia. *The International Information and Library Review*, 43(4), 239-249.
- Azam, S. (2015). *Diffusion of ICT and SME Performance: The Mediating Effects of Integration and Utilisation (PhD thesis)*. Curtin : Curtin University .
- Baggio, R., Sigala, M., Inversini, A., and Pesonen, J. (2013). Information and communication technologies in Tourism 2014. EProceedings of the ENTER 2014 Ph. D. Workshop, 1–146.
- Bahrami, M., Ghorbani, M., and Arabzad, M. (2012). Information Technology (IT) as An Improvement Tool For Customer Relationship Management (CRM). *Elsevier*, 41, 59-64.
- Bahrini, R., and Qaffas, A. (2018). Impact of Information and Communication Technology on Economic Growth: Evidence from Developing Countries. *Economies*, 7 (21), 2-13.
- Bakkabulindi, F. E. K. (2012). Does Use of ICT Relate with the way it is Perceived? Evidence from Makerere University. *International Journal of Computing and ICT Research*, 6(2), 75-94.
- Barba-Sanchez, V., Calderón-Milán, M. J., and Atienza-Sahuquillo, C. (2018). A study of the value of ICT in improving corporate performance: a corporate competitiveness view. *Technological and Economic Development of Economy*, 24(4), 1388-1407.

- Baron, R. M., and Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51(6), 1173
- Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual differences*, 42(5), 815-824.
- Bartholomew, A., Udechukwu, O., and David, W. (2011). ICT adoption in developing countries: perspectives from small-scale agribusinesses. *Journal of Enterprise Information Management*, 24 (1), 68-84.
- Basri, W. S., Alandejani, J. A., and Almadani, F. M. (2018). ICT Adoption Impact on Students' Academic Performance: Evidence from Saudi Universities. *Education Research International*, 2018. Article ID 1240197 . 9 pages
- Bentler, P.M. and Bonnet, D.C. (1980), "Significance Tests and Goodness of Fit in the Analysis of Covariance Structures," *Psychological Bulletin*, 88 (3), 588-606.
- Berisha-Shaqiri, A., and Berisha-Namani, M. (2015). Information technology and the digital economy. *Mediterranean Journal of Social Sciences*, 6(6), 78.
- Bernard, H. R. (2006). *Research Methods in Anthropology: Qualitative and Quantitative Approaches*, Oxford: Rowman and Littlefield Publishing Group, Inc.
- Bethapudi, A. (2013). The role of ICT in tourism industry. *Journal of Applied Economics and Business*, 1(4), 67-79.
- Bhattacharjee, A. (2012). *Social Science Research: Principles, Methods, and Practices*, (2nd ed.), Florida: Global Text Project.

- Bojnec, S., and Kribel, Z. (2017). *Information and Communication Technology in Tourism*. Slovenia: University of Primorska.
- Bozbay, Z., and Yasin, B. (2008). The impact of perceived innovation characteristics on technology adoption. *The International Journal of Technology, Knowledge and Society*, 4(4), 117-127.
- Browne, M. W., and Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological methods and research*, 21(2), 230-258.
- Buhalis, D., and Deimezi, O. (2004). E-tourism developments in Greece: Information communication technologies adoption for the strategic management of the Greek tourism industry. *Tourism and hospitality research*, 5(2), 103-130.
- Busch, C., Maret, P. S., Flynn, T., Kellum, R., Le, S., Meyers, B., Saunders, M., White, R., and Mike Palmquist, M., (2012). Content Analysis, Writing Guide. Colorado State University.
- Byrne, B. (2010). Structural Equation Modelling with AMOS: Basic Concepts, Applications, and Programming, (2nd ed). New York: Routledge Taylor and Francis Group.
- Bystrowska, M., Wigger, K., and Liggett, D. (2017). The use of information and communication technology (ICT) in managing high arctic tourism sites: A collective action perspective. *Resources*, 6(3), 33.
- Cakmak, P. I., and Tas, E. (2012). The use of information technology on gaining competitive advantage in Turkish contractor firms. *World Applied Sciences Journal*, 18(2), 274-285.
- Cantoni, L., and Marchiori, E. (2015). Studying Online Contents Navigation: a Comparison between Eye-Tracking Techniques and Self-Reported

- Investigation. In I. . In A. Tussydia and Inversini (Ed.), *Information and Communication Technologies in Touris*. (pp. 349-359). Lugano: Proceeding of the International Conference in Lugano.
- Chairoel, L., and Riski, T. R. (2018). Internal And External Factor Influence Ict Adoption:A Case of Indonesian Smes. *Jurnal Manajemen Dan Kewirausahaan*, 20 (1), 38-48.
- Chairoel, L., and Riski, T. R. (2018). Internal and External Factor Influence ICT Adoption: A Case of Indonesian SMEs. *Jurnal Manajemen dan Kewirausahaan*, 20(1), 38-44.
- Chairoel, L., Widyarto, S., and Pujani, V. (2015). ICT adoption in affecting organizational performance among Indonesian SMEs . *The International Technology Management Review*, 5 (2), 82-93
- Cheema, J. R. (2014). Some general guidelines for choosing missing data handling methods in educational research. *Journal of Modern Applied Statistical Methods* 13(2), 53-75.
- Chelariu, C., & Osmonbekov, T. (2014). Communication technology in international business-to-business relationships. *Journal of Business & Industrial Marketing*.
- Chevers, D. A. (2015). Evaluating the impact of ICT usage on the performance of Jamaican hotels: A conceptual perspective. *Journal of Tourism and Hospitality Management*, 3(1-2), 22-31.
- Chian, F. T. T. (2010). A perception-based model for technological innovation in small and medium enterprises.

- Chirikure, S. (2013). Heritage conservation in Africa: The good, the bad, and the challenges. *South African Journal of Science*, 109(1-2), 1-3.
- Chong, A. Y.-I., Lin, B., Ooi, K. B., and Raman, M. (2009). Factors affecting the adoption level of C-commerce: an empirical study. *Journal of Computer Information Systems*, 13-22.
- Chowdhury, S. K., and Wolf, S. (2003). *Use of ICTs and the economic performance of SMEs in East Africa* (No. 2003/06). WIDER Discussion Papers//World Institute for Development Economics (UNU-WIDER).
- Chung, K. K., and Hossain, L. (2008). *Network structure, ICT use and performance attitudes of knowledge workers*. Wollongong: University of Wollongong.
- Conyette, M. (2015). 21 century travel using websites, mobile and wearable technology devices. In *Athens: ATINER'S Conference Paper Series*.
- Cornelissen, J. P., and Durand, R. (2014). Moving forward: Developing theoretical contributions in management studies. *Journal of Management Studies*, 51(6), 995-1022.
- Cousineau, D., and Chartier, S. (2010). Outliers detection and treatment: a review. *International Journal of Psychological Research*, 3(1), 58-67.
- Cowie, B., and Jones, A. (2009). Teaching and learning in the ICT environment. In *International handbook of research on teachers and teaching* (pp. 791-801). Springer, Boston, MA.
- Crotti, R., and Misrahi, T. (2015). *The Travel and Tourism Competitiveness Report 2015*. Geneva: World Economic Forum. Online available: http://www3.weforum.org/docs/TT15/WEF_Global_Travel&Tourism_Report_2015.pdf. Retrived;12/8/2018

- Dalipi, F., Idrizi, F., and Kamberi, L. (2011). Determinants of e-business and ICT adoption among SMEs in Macedonia-An application of TOE Framework. In *1st International Symposium on Computing in Informatics and Mathematics (ISCIM 2011)* (pp. 111-124).
- Davis, F. D. (1985). *A technology acceptance model for empirically testing new end-user information systems: Theory and results* (Doctoral dissertation, Massachusetts Institute of Technology).
- De Ascaniis, S., Gravari-Barbas, M., and Cantoni, L. (2018). Tourism Management at UNESCO World Heritage Sites. Università della Svizzera italiana
- De Jong, M. D., and Wu, Y. (2018). Functional Complexity and Web Site Design: Evaluating the Online Presence of UNESCO World Heritage Sites. *Journal of business and technical communication*, 32(3), 347-372.
- De Witte, K., and Rogge, N. (2014). Does ICT matter for effectiveness and efficiency in mathematics education?. *Computers and Education*, 75, 173-184.
- DeBerry- Spence, B., Dadzie, K. Q., Saffu, K., Walker, J. H., and Hinson, R. (2008). Strategic value and electronic commerce adoption among small and medium- sized enterprises in a transitional economy. *Journal of Business and Industrial Marketing*. 23 (6). 395-404.
- Dhakai, C. P. (2017). Dealing with outliers and influential points while fitting regression. *Journal of Institute of Science and Technology*, 22(1), 61-65.
- Diamantopoulos, A., Siguaw, J. A., and Siguaw, J. A. (2000). *Introducing LISREL: A guide for the uninitiated*. Sage.

- Dieck, C. T., and Jung, T. (2018). A Theoretical Model of Mobile Augmented Reality Acceptance in Urban Heritage Tourism. *Current Issues in Tourism*, 22 (2), 154-174.
- Ervasti, M., and Helaakoski, H. (2010). Case study of application-based mobile service acceptance and development in Finland. *International Journal Information Technology and Management*, 9 (3), 243-259
- Fan, X., Thompson, B., and Wang, L. (1999). Effects of sample size, estimation methods, and model specification on structural equation modeling fit indexes. *Structural equation modeling: a multidisciplinary journal*, 6(1), 56-83.
- Field, A. (2009). *Discovering statistics using SPSS*, 3rd Ed., London SAGE Publications.
- Filieri, R., and McLeay, F. (2014). E-WOM and accommodation: An analysis of the factors that influence travelers' adoption of information from online reviews. *Journal of Travel Research*, 53(1), 44-57.
- Forth, J., and Mason, G. (2004). *Information and Communication Technology (ICT) Skill Gaps and Company-Level Performance: Evidence from the ICT Professionals Survey 2000-01*. National Institute of Economic and Social Research.
- Fotis, J. N., Buhalis, D., and Rossides, N. (2012). *Social media use and impact during the holiday travel planning process* (pp. 13-24). Springer-Verlag.
- Fuchs, M., Höpken, W., Föger, A., and Kunz, M. (2010). E-Business Readiness, Intensity, and Impact: An Austrian Destination Management Organization Study. *Journal of Travel Research*, 49 (2), 165-178.

- Garau, c. (2014). From Territory to Smartphone: Smart Fruition of Cultural Heritage for Dynamic Tourism Development. *Planning Practice and Research*, 29 (3), 238-255.
- Garbelli, M., Adukaite, A., and Cantoni, L. (2015). Communicating Tourism Sustainability Online. The Case of Victoria Falls World Heritage Site. Università della Svizzera italiana (USI Lugano, Switzerland).
- Gastelú, C. A., Kissb, G., and Domínguez, A. L. (2014). Level of ict competencies at the university. *Elsevier*, 174, 137 – 142 .
- Gatignon, H. and Xuereb, J.M. (1997). “Strategic orientation of the firm and new product performance”. *Journal of Marketing Research*, 34 (1): 77-90.
- Gavrea, C., Ilies, L., and Stegorean, R. (2011). Determinants of organizational performance: The case of Romania. *Management and Marketing*, 6(2).
- Gefen, D., Karahanna, E., and Straub, D. W. (2003). Trust and tam in online shopping: An integrated model. *MIS Quality*, 27 (1), 51-90.
- Gelter, H. (2017). Digital tourism—An analysis of digital trends in tourism and customer digital mobile behaviour. *Report, Visit Artic Europe, Finland, May*.
- Ghobakhloo, M., and Hong, T. S. (2014). IT investments and business performance improvement: the mediating role of lean manufacturing implementation. *International Journal of Production Research*, 52(18), 5367-5384.
- Gikundi, Z. A. K. A. Y. O. (2016). Factors Influencing Integration of Information Communication Technology in Learning and Teaching in Public Secondary Schools: A Case of Tigania West Sub County, Meru County, Kenya. *Retrieved on December, 14, 2017*.

- Gorondutse, A. H., and Hilman, H. (2014). Effect of business social responsibility (BSR) on the performance of SMEs: Data Screening and Preliminary Analysis. *Asian Social Science*, 10(8), 103 – 115.
- Gratzer, M., and Winiwarter, W. (2003, June). The role of the internet in the SME hotel sector in Austria. In *International Conference Human Society@Internet* (pp. 85-95). Springer, Berlin, Heidelberg.
- Greener, S. L., and Martelli, J. (2015). *An Introduction to Business Research Methods, 2nd ed.* Copenhagen: Ventus Publishinh Aps.
- Hair, J. F., Babin, J.B., Anderson, R. E., and Black, C. W. (2010). *Multivariate Data Analysis*, 7th Ed, Upper Saddle River: Pearson Prentice Hall
- Hair, J. F., Black, W. C., Babin, B. J., and Anderson, R. E. (2013). *Multivariate data analysis: Pearson new international edition*. Pearson Higher Ed
- Hamid, M.R., Sami, W. and Sidek, M.H.M. (2017). Discriminant Validity Assessment: Use of Fornell and Larcker criterion versus HTMT Criterion. *Journal of Physics, Conf. Series* 890.
- Hannif, Z., Cox, A., and Almeida, S. (2014). The impact of ICT, workplace relationships and management styles on the quality of work life: insights from the call centre front line, Labour and Industry. *A journal of the social and economic relations of work*, 24 (1), 69-83.
- Hashim, H. (2015). SME development framework: The Malaysian case. Online available: <https://icsmee.org/wp-content/uploads/2016/01/CairoSMEConferenceJan2015Session3DatoHafsahMalaysi.pdf> .Retrieved January, 12, 2017.

- Hasnaoui, A., and Freeman, I. (2010). Diffusion and implementation of corporate social responsibility (CSR): the role of information and communication technologies (ICT). *Management Avenir*, (9), 386-406.
- Hassan, H., and Ogundipe, A. (2017). ICT adoption by micro and small scale enterprises in Nigeria: A case study of the Federal Capital Territory, Abuja. *Abuja (April 12, 2017)*.
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication monographs*, 76(4), 408-420.
- Hengst, M. D., and Sol, H. (2001). The impact of information and communication technology on interorganizational coordination. In *Proceedings of the 34th Annual Hawaii International Conference on System Sciences (HICSS-34)-Volume 7-Volume 7* (p. 7006). IEEE Computer Society.
- Hennessy, S., Onguko, B., Ang'ondi, E. K., Harrison, S., Namalefe, S., Naseem, A., and Wamakote, L. (2010). Developing use of ICT to enhance teaching and learning in East African schools: a review of the literature. *Cambridge, UK and Dar es Salaam, TZ: Faculty of Education, University of Cambridge and Aga Khan University Institute for Educational Development-Eastern Africa*.
- Hoe, S. L. (2008). Issues and procedures in adopting structural equation modeling technique. *Journal of applied quantitative methods*, 3(1), 76-83.
- Hooft, S. V. (2010). *Towards an ICT framework for sustainable tourism* (Doctoral dissertation, Master Thesis submitted to Radboud University, Nijmegen).
- Hooper, D. (2012), 'Exploratory Factor Analysis', in Chen, H. (Ed.), *Approaches to Quantitative Research – Theory and its Practical Application: A Guide to Dissertation Students*, Cork, Ireland: Oak Tree Press.

- Hoti, E. (2015). The technological, organizational and environmental framework of IS innovation adaption in small and medium enterprises. Evidence from research over the last 10 years. *International Journal of Business and Management*, 3(4), 1-14.
- Hoyle, R. H. (1995). The structural equation modeling approach: Basic concepts and fundamental issues. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (p. 1–15). Sage Publications, Inc.
- Hsieh, H. F. and Shannon, S. E. (2005). Three Approaches to Qualitative Content Analysis. *Qualitative Health Research*, 15(9), 1277-1288.
- Hu, L. T., and Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55.
- Hung, S. Y., Liang, T. P., and Chang, C. M. (2005). A meta-analysis of empirical research using TAM. *Journal of Information Management*, 12 (4), 211-234.
- Iacobucci, D. (2010). Structural equations modeling: Fit indices, sample size, and advanced topics. *Journal of consumer psychology*, 20(1), 90-98.
- Iacovone, L., Pereira-López, M., and Marc, S. (2016). *ICT use, competitive pressures and firm performance in Mexico*. The World Bank. Policy Research Working Paper. 1(1).
- Ibrahim, A. M., Ezra, G. S., and Mansurat, M. F. (2015). Perceived attributes of diffusion of innovation theory as a theoretical framework for understanding the non-use of digital library services. In *Information and Knowledge Management*. 5 (9). 82-87.

- Ichumbaki, E. B., & Mapunda, B. B. (2017). Challenges to the retention of the integrity of World Heritage Sites in Africa: the case of Kilwa Kisiwani and Songo Mnara, Tanzania. *Azania: Archaeological Research in Africa*, 52(4), 518-539.
- İlkan, M., Beheshti, M., Rahimi, S., and Atalar, E. (2017). The Role of Information and Communication Technology (ICT) in Tourism Education: A Case Study of Higher Education Students.
- Imre, Ö. (2016). Adopting Information Systems in a Small Company: A Longitudinal Study. *Journal of Applied Economics and Business Research*, 6(4), 269-283.
- Intan Salwani, M., Marthandan, G., Daud Norzaidi, M., and Choy Chong, S. (2009). E-commerce usage and business performance in the Malaysian tourism sector: empirical analysis. *Information Management and Computer Security*, 17(2), 166-185.
- Ioannidis, Y., Toli, E., Raheb, K. E., and Boile, M. (2014). *Using ICT in Cultural Heritage, bless or mess? Stakeholders' and practitioners' view through the eCultValue project*. Athena : Athena Research and Innovation Center .
- Ion, P., and Andreea, Z. (2008). Use of ICT in SMES management within the sector of services. *The Journal of the Faculty of Economics-Economic, University of Oradea, Faculty of Economics*, 4(1), 481-487.
- Isaac, O., Abdullah, Z., Ramayah, T., Mutahar, A. M., and Alrajawy, I. (2016). Perceived usefulness, perceived ease of use, perceived compatibility, and net benefits: an empirical study of internet usage among employees in Yemen.

In *The 7th International Conference Postgraduate Education (ICPE7)* (pp. 899-919).

Ismail, S. (2016). Detailed Review Of Rogers' Diffusion Of Innovations Theory And Educational Technology-Related Studies Based On Rogers' Theory. *The Turkish Online Journal of Educational Technology – TOJET*, 5 (2), 14-24.

Ismail, W., and Mokhtar, M. (2016). Application of a Framework in Examining. The Factors influencing Pre-and Post-Adoption of Cas in Malaysian SMES. *International Journal of Information Technology and Business Management*, 49 (1), 26-39.

Ismail, W. N. S. W., & Ali, A. (2013). Conceptual model for examining the factors that influence the likelihood of computerised accounting information system (CAIS) adoption among malaysian SME. *International Journal of Information Technology and Business Management*, 15(1), 122-151.

Isote, L. G. (2013). *The Impact of information communication technology (ICT) on performance of Tanzania posts corporation (TPC)* (Doctoral dissertation, Mzumbe University).

Issa, I. S. S. (2013). State of affairs in ICT usage within tourist hotel operations: A case of Zanzibar. *Journal of Research in International Business and Management*, 3(6).

ITU News Magazine.(2017). ITU's approach to using ICTs to achieve the United Nations Sustainable Development Goals. Online available; <https://news.itu.int/icts-united-nations-sustainable-development-goals/>.
Retrieved; 22/02/2020.

- Januszewska, M., Jaremen, D. E., and Nawrocka, E. (2015). The effects of the use of ICT by tourism enterprises. *Zeszyty Naukowe Uniwersytetu Szczecińskiego. Scientific Journal. Service Management*, 16, 65-73.
- Jöreskog, K. G., and Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language*. Scientific Software International. Lawrence Erlbaum Associates, Inc.
- Jovanović, S., and Ivana, I. L. I. Č. (2016). Infrastructure as important determinant of tourism development in the countries of Southeast Europe. *Ecoforum journal*, 5(1).
- Kachchhap, S. L., and Mishika, A. (2015, October). Theoretical Contributions of Graduate Research: An Investigative Study in the Philippines. In *International Forum* (Vol. 18, No. 2).
- Kalbaska, N. (2015, 06 11). *eTourism and Online Communication Management of UNESCO World Heritage Sites: new trends and research perspectives*. Retrieved 07 12, 2017, from United Nations University Operating Unit on Policy-Driven Electronic Governance (UNU-EGOV) : <https://i.unu.edu/media/egov.unu.edu/event/1611/Slides.pdf>
- Kamuzora, F. (2006). Enhancing Human Resource Productivity Using Information and Communication Technologies: Opportunities and Challenges for Tanzania. In *Mzumbe University-CAFRAD Regional Conference, Arusha, Tanzania, February* (pp. 26-28).
- Kamuzora, F. (2016). Enhancing Human Resource Productivity Using Information and Communication Technologies: Opportunities and Challenges for Tanzania. (pp. 1-18). Arusha: CAFRAD Regional Conference.

- Kante, M., Chepken, C. K., Oboko, R., and Hamunyela, S. (2017). Farmers' Perceptions of ICTs and its Effects on Access and Use of Agricultural Input Information in Developing Countries: Case of Sikasso, Mali. (pp. 1-8). Windhoek, Namibia: IST-Africa .
- Kaplan, D. S., Liu, Xiaoru, and Kaplan, H. B. (2000). Family structure and parental involvement in the intergenerational parallelism of school adversity. *The Journal of Educational Research*, 93, 235-245
- Kazoba, H., Massawe, D., and Msavange, M. (2016). Assessment on the Role of Internet in Tourism Marketing A Case Study of Mwanza City-Tanzania. *Journal for Studies in Management and Planning* , 2 (11), 97-136.
- Kenny, D.A. and McCoach, D.B. (2003), "Effect of the Number of Variables on Measures of Fit in Structural Equation Modeling," *Structural Equation Modeling*, 10 (3), 333-51.
- Kessi, E. (2016). *Information and Communication Technology (ICT) Policy*. Moshi: Kilimanjaro Christian Medical University. Online available: <http://kcmuco.ac.tz/wp-content/uploads/2018/05/ICT-Policy-last-VERSION-DUBI-PDF.pdf>. Retrieved; 14/8/2018.
- Khuja, M. S. A. A., and Mohamed, Z. B. (2016). Investigating the adoption of E-Business Technology by Small and Medium Enterprises. *Journal of Administrative and Business Studies*, 2(2), 71-83.
- Kijo-Ringo, N. D. (2005). "Impact of Investment in and Utilization of Information and Communication Technologies on Market Extension: Overview of Small and Medium Enterprises in Tanzania", Unpublished Research, University of Dar es Salaam

- Kilangi, A. M. (2012). *The Determinants of ICT Adoption and Usage among SMEs: The Case of the Tourism Sector in Tanzania*. . De Boelelaan : Vrije Universiteit .
- Kim, D., and Kim, S. (2017). The role of mobile technology in tourism: Patents, articles, news, and mobile tour app reviews. *Sustainability*, 9(11), 2082.
- Kiriama, H. O. (2014). The Role of the African World Heritage Fund in the Conservation of African World Heritage Sites. In S. Makuvaza, *The Management of Cultural World Heritage Sites and Development in Africa History, nomination processes and representation on the World Heritage List* (pp. 17-30). Melbourne, Australia : Springer.
- Kline, R. B. (2005). Principles and practice of structural equation modeling. New York: Guildford Press
- Kline, R. B. (2011). Principles and Practice of Structural Equation Modeling, 3rd Ed., New York: The Guilford Press
- Kothari, C.R. (2004). Research Methodology: Methods and Techniques, 2nd Ed. New Delhi: New Age International (P) Ltd
- Ladokun, I. O., Osunwole, O. O., and Olaoye, B. O. (2013). Information and communication technology in small and medium enterprises: factors affecting the adoption and use of ICT in Nigeria. *International Journal of Academic Research in Economics and Management Sciences*, 2(6), 74.
- Lama, S., Pradhan, S., Shrestha, A., and Beirman, D. (2018). Barriers of e-Tourism Adoption in Developing Countries: A Case Study of Nepal. (pp. 1-12). Sydney, Australia: Australasian Conference on Information Systems.

- Lassnig, M., Markus, M., and Strasser, A. (2006). ICT and e-business in the tourism industry ICT adoption and e-business activity in 2006.
- Law, R., Leung, R., and Buhalis, D. (2009). Information technology applications in hospitality and tourism: a review of publications from 2005 to 2007. *Journal of travel and tourism marketing*, 26(5-6), 599-623.
- Leask, A. (2006). World heritage site designation. In *Managing world heritage sites* (pp. 31-45). Routledge.
- Lee, H., Chung, N., and Jung, T. (2015). Examining the cultural differences in acceptance of mobile augmented reality: Comparison of South Korea and Ireland. In *Information and communication technologies in tourism 2015* (pp. 477-491). Springer, Cham.
- Leong, C. (2018). Application Of Ict For Promoting Sustainable Development In World Heritage Sites: Case Of Luang Prabang, Lao Pdr . (pp. 11-15). Tokyo: Tokyo Institute of Technology.
- Lippert, S. K., & Govindarajulu, C. (2006). Technological, organizational, and environmental antecedents to web services adoption. *Communications of the IIMA*, 6(1), 14.
- Leung, D., Lo, A., Fong, L. H. N., and Law, R. (2015). Applying the Technology-Organization-Environment framework to explore ICT initial and continued adoption: An exploratory study of an independent hotel in Hong Kong. *Tourism recreation research*, 40(3), 391-406.
- Liebenau, J., and Kärrberg, P. (2009). Enterprise efficiency in the use of ICT in China, France, Germany, Great Britain, India, Japan and the USA: first interim report on LSE-Dell research.

- Lupiyoadi, R., Tjiptadi, A. P., and Syah, D. O. (2016). Analysis Of Factors Affecting The Use Of E-Commerce On Small and Medium Enterprises (SMEs) Creative Industries in Jabodetabek-Indonesia. In *International Conference on Business and Information* (p. 30).
- MacCallum, R. C., and Hong, S. (1997). Power analysis in covariance structure modeling using GFI and AGFI. *Multivariate Behavioral Research*, 32(2), 193-210.
- Malaysia, S. C. (2015). SME Development Framework: The Malaysian Case. (pp. 14-15). Cairo: Paper presented at Cairo AMCCBE-WBG SME Conference.
- Marchiori, E., and Cantoni, L. (2015). Studying online contents navigation: A comparison between Eye-tracking technique and self-reported investigation. In *Information and communication technologies in tourism 2015* (pp. 349-359). Springer, Cham.
- Mgaya, K. (1994). Development of information technology in Tanzania. In E. P. Drew & F. G. Foster (Eds.), *Information technology in selected countries*. Tokyo, Japan: The United Nations University
- Martelli, J., and Greener, S. (2015). *An Introduction to Business Research Methods*, BookBoon. com, 2015: *An Introduction to Business Research Methods* (Vol. 1). Bukupedia.
- Martín-Gutiérrez, J., Fabiani, P., Benesova, W., Meneses, M. D., & Mora, C. E. (2015). Augmented reality to promote collaborative and autonomous learning in higher education. *Computers in human behavior*, 51, 752-761.

- Matambalya, F., and Wolf, S. (2001). *The role of ICT for the performance of SMEs in East Africa: empirical evidence from Kenya and Tanzania* (No. 42). ZEF Discussion Papers on Development Policy.
- McIntosh, C. N. (2007). Rethinking fit assessment in structural equation modelling: A commentary and elaboration on Barrett (2007). *Personality and Individual Differences*, 42(5), 859-867.
- McQuitty, S. (2004). Statistical power and structural equation models in business research. *Journal of Business Research*, 57(2), 175-183.
- Melville, N., Kraemer, K., and Gurbaxani, V. (2004). Information technology and organizational performance: An integrative model of IT business value. *MIS quarterly*, 28(2), 283-322.
- Mihalič, T. and Buhalis, D. (2013). ICT as a new competitive advantage factor – case of small transitional hotel sector. *Economic and Business Review*, Vol. 15, No. 1, pp. 33-56
- Minami, C., and Dawson, J. (2008). The CRM process in retail and service sector firms in Japan: Loyalty development and financial return. *Journal of Retailing and Consumer Services*, 15(5), 375-385.
- Ministry of Works, T. A. (2016). *National Information And Communications Technology Policy*. Dar Es Salaam: The United Republic Of Tanzania: Ministry Of Works, Transport And Communication.
- Miraz, M. H., and Habib, M. M. (2016). ICT Adoption in Small and Medium Enterprises: An Empirical Evidence of Service Sectors in Bangladesh. *Journal of Economics, Business and Management*, 4(8), 482-485.

- Mndzebele, N. (2013). The Effects of Relative Advantage, Compatibility and Complexity in the Adoption of EC in the Hotel Industry . *International Journal of Computer and Communication Engineering*, 2 (4), 473-476.
- Mndzebele, N. (2018). Factors Affecting ICT Adoption By Smes in Swaziland. *Proceedings of 95th The IRES International Conference* (pp. 57-61). Kuala Lumpur, Malaysia: The IRES International Conference.
- Mokua, C. M. and Memba, F. (2015) Effect of Progressive Lending Mechanism on Access to Finance in Rural Kenya: A Survey of Masaba North District The International Journal Of Humanities and Social Studies (ISSN 2321 - 9203)
- Monko, G. J., Kalegele, K., and Machuve, D. (2017). Web Services for Transforming e-Cultural Heritage Management in Tanzania. *I.J. Information Technology and Computer Science*, 12, 52-63
- Morais, E. P., Cunha, C. R., and Gomes, J. P. (2013). The Information and Communication Technologies in Tourism degree courses: the reality of Iberian Peninsula. In *Proceedings of The 21st International Business Information Management Association Conference* (pp. 832-840). International Business Information Management Association.
- Moses, P., Bakar, K. A., Mahmud, R., and Wong, S. L. (2012). ICT infrastructure, technical and administrative support as correlates of teachers' laptop use. *Procedia-Social and Behavioral Sciences*, 59, 709-714.
- Moya, M., and Engotoit, B. (2017). Behavioural Intentions: A Mediator Of Performance Expectancy And Adoption Of Mobile Communication Technologies By Ugandan Commercial Farmers. *ORSEA Journal* , 7 (1), 1-20.

- Msuya, C. A., Mjema, E. A., es Salaam, D., and Kundi, B. A.(2016) Assessment of ICT Adoption and Use in Tanzania SMES.Conference Paper:The 4th International Conference for Mechanical and Industrial Engineering, At Arusha International Conference Centre (AICC) in Arusha, Tanzania
- Mtweve, S. (2013, 05 18). *Tanzania now challenged to invest in ICT infrastructure*. Online available: <http://www.thecitizen.co.tz/magazine/1840564-1856372-6m89fyz/index.html>. Retrieved 05 12, 2018, from The citizen:
- Mukamanzi, F., and Ndikubwimana., P. (2018). The effects of ICT adoption on Small and Medium sized enterprises in Rwanda: A Case study of Kigali City. *East Africa Research Papers in Business, Entrepreneurship and Management*.
- Mulaik, S.A., James, L.R., Van Alstine, J., Bennet, N., Lind, S., and Stilwell, C.D. (1989), "Evaluation of Goodness-of-Fit Indices for Structural Equation Models," *Psychological Bulletin*, 105 (3), 430-45.
- Munar, A. M., and Ooi, C. S. (2012). The truth of the crowds: Social media and the heritage experience.
- Mupfiga, P. S. (2015). Adoption of Ict in the Tourism and Hospitality Sector In Zimbabwe. *The International Journal Of Engineering And Science (IJES)*, 4 (12), 72-78.
- Musa, A., Khan, H. U., and AlShare, K. A. (2015). Factors influence consumers' adoption of mobile payment devices in Qatar. *International Journal of Mobile Communications*, 13(6), 670-689.

- Mwai, E. (2016). Factors Influencing Adoption of ICT by Small and Medium Enterprises in the Hospitality Industry in Kenya. *Journal of Mobile Computing and Application (IOSR-JMCA)* , 3 (2), 12-19.
- Mwikoko, G., and Elly, T. The Impact of ICT investment on Tourism Export in Tanzania (1995-2010). In *proceeding of the Eighth operations research society for eastern Africa (ORSEA) International conference* (p. 140).
- Mwita, M. (2014). Opportunities and Challenges in ICT Adoption in Tanzania's Tourism Industry: Case study of tour operators. *E-review of Tourism Research*, 11.
- Naarmala, y. (2017). *ICT and Teachers in Higher Education* . Sweden: u n i v e r s i t a s w a s a e n s i s.
- Nachtigall, C., Kroehne, U., Funke, F., and Steyer, R. (2003). Pros and cons of structural equation modeling. *Methods Psychological Research Online*, 8(2), 1-22.
- Nazari, F., Khosravi, F., and Babalhavaeji, F. (2013). Applying Rogers' Diffusion of Innovation theory to the acceptance of online databases at University Zone of Iran. *Malaysian Journal of Library and Information Science*, 18(3), 25-38.
- Nchunge, D. M., Sakwa, M., and Mwangi, W. (2013). Assessment of ICT infrastructure on ICT adoption in educational institutions: a descriptive survey of secondary schools in Kiambu county Kenya. *Journal of Computer Science and Information Technology*, 1(1), 32-45.
- Ndivo, R. M., and Cantoni, L. (2016). The efficacy of heritage interpretation at the Lalibela rock-hewn churches in Ethiopia: exploring the need for integrating

- ICT-mediation. *International Journal of Religious Tourism and Pilgrimage*, 4(3), 17-28.
- Ntshakala, T., and Eyono-Obono, S. (2013). A Framework of the Factors Affecting the Adoption of ICT for Physical Education. *International Journal of Social, Behaviour, Educational Economic, Business and Industrial Engineering*, 7(7), 2175-80.
- Nulty, D. D. (2008). The adequacy of response rates to online and paper surveys: What can be done? *Assessment and Evaluation in Higher Education* 33(3), 301–314.
- Nwegbu, M. U., Eze, C. C., and Asogwa, B. E. (2011). Globalization of cultural heritage: issues, impacts, and inevitable challenges for Nigeria. *Library Philosophy and Practice*. (E-journal). 674.
- Nyambura, M. T. (2018). *Moderating Effect of Information Communication Technology on Supply Chain Risks and Firm Performance among Manufacturing Firms in Kenya* (Doctoral dissertation, JKUAT).
- Obonyo, G. O., Kambona, O. O., and Okeyo, D. O. (2016). Determinants of ICT Adoption among Hotels in Kenya: A Multiple Case Study Approach. *International Journal of Business and Social Science*, 7(1), 130-138.
- Ofori-Dwumfuo, G. O., and Kommey, R. E. (2013). Utilization of ICT in knowledge management at the Ghana Volta River Authority. *Current research journal of social sciences*, 5(3), 91-102.

- Oliveira, T., and Martins, M. F. (2011). "Literature Review of Information Technology Adoption Models at Firm Level. *The Electronic Journal Information Systems Evaluation*, 14 (1), 110-141.
- Osborne, J.W. (2015). What is Rotating in Exploratory Factor Analysis? Practical Assessment, Research, and Evaluation, 20(2), 150-159.
- Osorio-Gallego, C. A., Londoño-Metaute, J. H., and López-Zapata, E. (2016). Analysis of factors that influence the ICT adoption by SMEs in Colombia. *Intangible Capital*, 12(2), 666-732.
- Otieno, A. P. (2015). *Factors influencing ICT adoption and usage by small and medium sized enterprises: the case of Nairobi based SMEs* (Doctoral dissertation, United States International University-Africa).
- Otiso, K. N., Chelangat, D., and Bonuke, R. N. (2012). Improving the quality of customer service through ICT use in the Kenya Power and Lighting Company. *Journal of Emerging Trends in Economics and Management Sciences*, 3(5), 461-466.
- Pai, F. Y., and Huang, K. I. (2011). Applying the Technology Acceptance Model to the introduction of healthcare information systems. *Technological Forecasting and Social Change*, 789 (4), 650-660.
- Pallant, J. (2010). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS for Windows (Version 12)*. Sydney: Allen and Unwin.
- Parham, D. (2017). *Australia: Getting the Most from ICTs*. Canberra: Productivity Commission.
- Pedersen. (2002). *Managing Tourims at World Heritage Sites: A Practical Manaaual for World Heriatge Site Managers*. Paris: UNESCO World Heritage Centre.

- Pekkanen, K. (2012). The impact of communication technologies on individual workers' productivity.
- Pereira Roders, A., and Van Oers, R. (2011). World Heritage citiemanagement. *Facilities*, 29(7/8), 276-285.
- Permatasari, A. P., Adukaite, A., and Cantoni, L. (2016). *The online prensence of Unesco World Heritage Sites in East, Southand South East Asia*. Lugano: United Nationas Educational, Scientific and Cultural Organization.
- Petti, C., and Passiante, G. (2009). Getting The Benefits Of ICTs In Tourism Destinations: Models, Strategies And Tools. *Int. Arab J. e-Technol.*, 1(1), 46-57.
- Polo Pena, A. I., Frias Jamilena, D. M., and Rodríguez Molina, M. Á. (2013). Impact of customer orientation and ICT use on the perceived performance of rural tourism enterprises. *Journal of Travel and Tourism Marketing*, 30(3), 272-289.
- Poong, Y. S., Yamaguchi, S., and Takada, J. I. (2016, October). Development of mobile learning application to promote world heritage site preservation awareness: Case of Luang Prabang, Lao PDR. In *2016 IEEE Global Humanitarian Technology Conference (GHTC)* (pp. 78-84). IEEE.
- Prescott, C. (2015). Internet access—households and individuals: 2015. *London: Office for National Statistics*.
- Ramos-Soler, I., Martínez-Sala, A. M., and Campillo-Alhama, C. (2019). ICT and the Sustainability of World Heritage Sites. Analysis of Senior Citizens' Use of Tourism Apps. *Sustainability*, 11(11), 3203.

- Reisinger, Y., and Turner, L. (1999). Structural equation modeling with Lisrel: application in tourism. *Tourism Management*, 20(1), 71-88.
- Rhoads, C. H. (2012). Problems with tests of the missingness mechanism in quantitative policy studies. *Statistics, Politics, and Policy*, 3(1), 1-19.
- Rishi, C. (2013). *Creating an ICT-based marketing tool: a case of Lammasguru Ky*. Laurea Leppävaara: Laurea University of Applied Sciences.
- Rogers, E. M. (2003). *Diffusion of Innovations* 5th.
- Rondović, B., Djuričković, T., and Kaščelan, L. (2019). Drivers of E-business diffusion in tourism: a decision tree approach. *Journal of theoretical and applied electronic commerce research*, 14(1), 30-50.
- Salem, H. (2003). Organizational performance management and measurement. *Innovation of Public Administration in the Euro-Mediterranean Region, Economic and Social Commission for Western Asia. E/ESCWA/SDPD/2003/WG*, 5(16), 1-36.
- Sapprasert, K. (2007). The impact of ICT on the growth of the service industries. (20070531).
- Saunders, C., Wiener, M., Klett, S., and Sprenger, S. (2017). The Impact of Mental Representations on ICT-Related Overload in the Use of Mobile Phones. *Journal of Management Information Systems*, 34 (3), 803-825 .
- Saunders, M., Lewis, P., and Thornhill, A. (2009). *Research Methods for Business Students*, 5th ed., Edinburgh Gate: Pearson Education Limited.
- Saunders, M., Lewis, P., and Thornhill, A. (2012). *Research Methods for Business Students: 5th ed*. Prentice : Prentice Hall .

- Saxena V. K. and Kehar Singh. (2011). Innovation, Non-Expertise and Inabilities of Developing Countries E-Banking and ECommerce. *SHARE Journal of Multi-disciplinary Research and Studies*. Vol.2 No.3
- Schieder, T. K., Adukaite, A., and Cantoni, L. (2013). *Mobile Apps Devoted to UNESCO World Heritage Sites: A Map*. Ticino: Univeristy of Lugano.
- Scotland, J. (2012). Exploring the philosophical underpinnings of research: relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms. *English Language Teaching*; 5(9), 9-16
- Setiowati, R., Daryanto, H. K., and Arifin, B. (2015). The effects of ICT adoption on marketing capabilities and business performance of Indonesian SMEs in the fashion industry. *Journal of Business and Retail Management Research*, 10(1).
- SimilarWeb LTD. (2020).State of Digital Report. Online available; <https://www.similarweb.com/corp/reports/2020-digital-trends-lp/>. Retrived; 17/02/2020.
- Shaharudin, M. R., Omar, M. W., Elias, S. J., Ismail, M., Ali, S. M., and Fadzil, M. I. (2012). Determinants of electronic commerce adoption in malaysian smes furniture industry. *African Journal of Business Management*, 6(10), 3648-3661.
- Shamim, S., Gang, S., and Yu, H. (2016, December). Influencers of information system usage among employees for knowledge creation. A future research agenda. In *2016 10th International Conference on Software, Knowledge, Information Management and Applications (SKIMA)* (pp. 134-141). IEEE.

- Shanker, D. (2008). ICT and Tourism: Challenges and Opportunities . (pp. 50-58).
Conference on Tourism in India – Challenges Ahead,.
- Shiue, Y. M. (2007). Investigating the sources of teachers' instructional technology use through the decomposed theory of planned behavior. *Journal of Educational Computing Research*, 36(4), 425-453.
- Statista Research Department. (2019). Mobile internet user penetration in Japan from 2017 to 2023. Online available;
<https://www.statista.com/statistics/309013/japan-mobile-phone-internet-user-penetration/>. Retrived; 17/02/2020.
- Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate behavioral research*, 25(2), 173-180.
- Tabachnick, B. G. and Fidell, L. S. (2007). Using multivariate statistics, 6th ed, Boston, Massachusetts: Pearson/Allyn and Bacon
- Tan, K. S., and Eze, U. C. (2008). An Empirical Study of Internet-Based ICT Adoption Among Malaysian SMEs . *Communications of the IBIMA* , 1, 1-12.
- Tarawneh, S. A., and Allahawiah, S. (2014). Factors Affecting Information and Communication Technology (ICT) Use by Southern Colleges Teachers in Balqa Applied University. *INTERNATIONAL JOURNAL OF COMPUTERS and TECHNOLOGY*, 12(10), 3983-3989.
- Taylor, R. S. (2017). *Exit left: Markets and mobility in republican thought*. Oxford University Press.
- Tharenou, P., Donohue, R., and Cooper, B. (2007). Management Research Methods, New York: Cambridge University Press.

- Tom Dieck, M. C., and Jung, T. (2018). A theoretical model of mobile augmented reality acceptance in urban heritage tourism. *Current Issues in Tourism*, 21(2), 154-174.
- Tornatzky, L., and Fleischer, M. (1990). *The process of technology innovation*. Lexington, MA: Lexington Books.
- Trinkowsky, R. S. (2015). Interpretative phenomenological analysis of accessibility awareness among faculty in online learning environments. *Nova Southern University*.
- UNCTAD (2007). United Nations Conference on Trade Development. Online available: https://unctad.org/en/Docs/dom20073_en.pdf. Retrieved; 6/06/2019
- UNESCO. (2014). *Information And Communication Technology (Ict) In Education In Asia: A comparative analysis of ICT integration and e-readiness in schools across Asia*. Canada: UNESCO Institute for Statistics.
- UNESCO. (2018). *Convention Concerning the Protection of The World Cultural And Natural Heritage*. Paris: UNESCO.
- Usluel, Y. K., Askar, P., and Bas, T. (2008). A structural equation model for ICT usage in higher education. *Educational Technology and Society*, 11(2), 262-273.
- US Commercial Service. (2018). 2018 Country Commercial Guide for U.S. Companies. Online available; https://tz.usembassy.gov/wp-content/uploads/sites/258/Tanzania_CCG_2018.pdf. Retrieved; 29/01/2020.
- Vargas, H. C., Estrada, S., and Gómez, E. L. (2016). The effects of ICTs as innovation facilitators for a greater business performance. Evidence from Mexico. *Elsevier*, 91, 47 – 56 .

- Varkaris, E., and Neuhofer, B. (2017). The influence of social media on the consumers' hotel decision journey. *Journal of Hospitality and Tourism Technology*, 8(1), 101-118.
- Vicky, K. (2011). The role of ICTs in regional tourist development. *Regional Science Inquiry*, 3(2), 95-111.
- Vogiatzi, M. (2015). The use of ICT technologies enhances employees' performance in the Greek hotel industry. *International Journal of Economics, Finance and Management Sciences*, 3(1), 43-56.
- Wachira, K. (2014). Adoption of E-Business by Small and Medium Enterprises in Kenya: Barriers and Facilitators.
- Wagaw, M., and Mulugeta, F. (2018). Integration of ICT and tourism for improved promotion of tourist attractions in Ethiopia. *Applied Informatics*, 5 (6).
- Wang, Y., Meister, D., and Wang, Y. (2008). Relative advantage and perceived usefulness: the adoption of competing ICTs. *DIGIT 2008 Proceedings*, 6.
- Wangwe, S. (2010). A Study on the Application of ICT in Improving Livelihood of the Poor and in Supporting Growth in General.
- Wanyoike, M. Daniel (2013). Determinants of ICT adoption by formal small enterprises in urban Kenya. JKUAT, Kenya
- Werner, C., and Schermelleh-Engel, K. (2009). Structural equation modeling: Advantages, challenges, and problems. *Introduction to Structural Equation Modeling with LISREL*.
- Wheaton, B., Muthen, B., Alwin, D., F., and Summers, G. (1977), "Assessing Reliability and Stability in Panel Models," *Sociological Methodology*, 8 (1), 84-136.

- Won, N. C., Wan, C. Y., and Sharif, M. Y. (2017). Effect of Leadership Styles, Social Capital, and Social Entrepreneurship on Organizational Effectiveness of Social Welfare Organization in Malaysia: Data Screening and Preliminary Analysis. *International Review of Management and Marketing*, 7(2), 117-122
- World Economic Forum. (2019). The Travel & Tourism Competitiveness Report 2019 Travel and Tourism at a Tipping Point. Online available; http://www3.weforum.org/docs/WEF_TTCR_2019.pdf. Retrived; 29/01/2020.
- Wuensch, K. L. (2017). Conducting a Path Analysis with SPSS/AMOS, East Carolina University, Greenville, NC
- Xiang, Z., and Gretzel, U. (2010). Role of social media in online travel information search. *Tourism management*, 31(2), 179-188.
- Yamaguchi, S., Takada, J., and Leong, C. (2009). Application of ICT and GIS use in sustainable development in Luang Prabang, Lao PDR. In *Conference proceeding, UNESCO-ICCROM 2nd Academy Asian Heritage Management (AAHM) Conference in Macau*.
- Yousaf, A. (2011). The Impact of ICT on the eyes of Hotel Managers (Cyprus). *It is submitted to Sodertorn University*.
- Youssef, A. B., and Dahmani, M. (2008). The impact of ICT on student performance in higher education: Direct effects, indirect effects and organisational change. *RUSC. Universities and Knowledge Society Journal*, 5(1), 45-56
- Youssef, A. B., and Mounir, D. (2008). The Impact of ICT on Student Performance in Higher Education: Direct Effects, Indirect Effects and Organisational Change. *Monograph e Economics of E-learning*, 5 (1), 45-49.

- Yunis, M., Tarhini, A., and Kassar, A. (2018). The role of ICT and innovation in enhancing organizational performance: The catalysing effect of corporate entrepreneurship. *Journal of Business Research*, 88, 344-356.
- Zhang, D., and Liu, L. (2016). How Does ICT Use Influence World heritage site achievements Over Time? Evidence from PISA 2000 to 2012. *Euroasia Journal of Mathematics, Science and technology education*, 12 (9), 2431–2449.

APPENDICES

APPENDIX 1: QUESTIONARE

Dear Sir/Madam

The bearer of this questionnaire is a student of the Open University of Tanzania, pursuing PhD in the department of Tourism and Hospitality Management. She is conducting survey of ICT adoption, usage in increasing sales, business and customer relationship in the Tanzania Seven UNESCO World Heritage Sites. Kindly respond to the following questions for the organization or department leaders. Your responses will be dully appreciated and treated with utmost confidentiality.

PART I : GENERAL BACKGROUND INFORMATION (100)

Please tick [√] where appropriate

1. Your gender: ☐ Male ☐ Female
2. Your age
 - ☐ Bellow 20 years ☐ 21 – 40 years ☐ 41 – 60 years ☐ 61 – 80 years
 - ☐ above 80 years
3. Education level?
 - ☐ Primary school ☐ Secondary/High school ☐ Certificate/Diploma ☐ Bachelor degree/Advanced
 - ☐ Diploma ☐ Master's degree ☐ other level (specify).....
4. Your position in this organization
 - ☐ Chief Park ☐ Park Warden ☐ Head of Department ☐ Head of Unit ☐ Others
5. Experience in your position
 - ☐ Less than a year ☐ between 1-5 years ☐ between 6-10 years
 - ☐ Between 11-15 years ☐ between 16-20 years ☐ More than 20 years
6. Size of your company
 - ☐ 40 – 60 employee's ☐ 60-80 ☐ 80 – 100 employees' ☐ More than 100 employees

PART II ICT USAGE DETERMINANTS OF WORLD HERITAGE SITES' PERFORMANCE IN TANZANIA

Please indicate the extent to which you agree or disagree with the following statements by applying a tick (✓) using the following guidelines:

1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

S/N	TECHNOLOGICAL FACTORS INFLUENCING ICT USAGE IN WHSs	1	2	3	4	5
Perceived Relative Advantage Characteristics (PR)						
I	In general, email and web-based applications are useful for marketing our site	1	2	3	4	5
Ii	Email and web-based applications will allow me to better communicate with customers, suppliers and trade partners	1	2	3	4	5
Iii	Email and web-based applications enable me to reach new markets	1	2	3	4	5
Iv	Email and web-based applications provide fast access to information	1	2	3	4	5
V	Email and web-based applications provide more objective recommendations on the site distribution channel	1	2	3	4	5
Vi	Email and web-based applications provide allow comparison of our service with that of our competitors	1	2	3	4	5
Vii	Email and web-based applications ensure effectiveness and efficiency of the site	1	2	3	4	5
Viii	Email and web-based applications increase job performance	1	2	3	4	5
Perceived Compatibility characteristics (PCT)						
I	ICT applications system is compatible with our business culture and values	1	2	3	4	5
Ii	ICT applications system is compatible with our	1	2	3	4	5

	customers					
Iii	ICT applications system is compatible with our existing system	1	2	3	4	5
Iv	ICT applications system is compatible with our supplier system	1	2	3	4	5
V	ICT applications system is compatible with our business partners	1	2	3	4	5
Vi	ICT applications system is compatible with our employees past experience	1	2	3	4	5
Vii	ICT applications is compatible with our organizational cultural	1	2	3	4	5
Viii	ICT applications is compatible with the current value system	1	2	3	4	5
<hr/>						
	Perceived less Complexity characteristics (PCL)					
I	ICT applications system requires new expertise	1	2	3	4	5
Ii	ICT applications system exploit the existing expertise	1	2	3	4	5
Iii	ICT applications system can easily be utilized by our employees	1	2	3	4	5
Iv	ICT applications system can easily be utilized by our customers	1	2	3	4	5
V	ICT applications system can easily be utilized by our suppliers	1	2	3	4	5
Vi	The value of ICT applications is still not known	1	2	3	4	5
Vii	ICT applications system is difficult to understand and use	1	2	3	4	5
<hr/>						
	ORGANIZATIONAL FACTORS INFLUENCING ICT USAGE IN WHSs					
	ICT Support infrastructure characteristics (INF)	1	2	3	4	5
I	The site had previous used ICT (email and web-based)	1	2	3	4	5
Ii	The site had already in house ICT(email and web-based) expertise	1	2	3	4	5

Iii	The site had enough financial resources to support ICT (email and web-based) usage					
Iv	The site had enough ICT hardware (computers, local area network, Internet)	1	2	3	4	5
V	The site has positively influence ICT (email and web-based) usage	1	2	3	4	5
Vi	The site technology readiness positively associate with ICT(email and web-based) usage	1	2	3	4	5
Vii	Availability of ICT hardware (types of computers, local area network, Internet connections, electronic whiteboards, etc.)influenced ICT (email and web-based) usage	1	2	3	4	5
Viii	Availability of ICT software (general and subject specific software, learning management systems, assessment tools, etc.)influence ICT(email and web-based) usage	1	2	3	4	5

ICT Support Skills characteristics (SS)

I	Our employees had positive experience with ICT usage (email and web-based)	1	2	3	4	5
Ii	Our employees are willing to bring innovative ideas through the use of ICT (email and web-based)	1	2	3	4	5
Iii	Our employees often risk doing things differently because of ICT(email and web-based)	1	2	3	4	5
Iv	Top management support ICT usage (email and web-based)	1	2	3	4	5
V	Our employees are eager to learn more on ICT applications (email and web-based)	1	2	3	4	5
Vi	Site manager positively influences ICT usage (email and web-based)	1	2	3	4	5

**ENVIRONMENTAL FACTORS INFLUENCING ICT
USAGE IN WHSs**

Perceived Competitive Pressure characteristics (PCP)

I	Our competitors applies ICT (email and web-based) to provide their service	1	2	3	4	5
Ii	Our suppliers demand ICT (email and web-based) opportunities to be offered to them	1	2	3	4	5
Iii	Through the applications of ICT (email and web-based) we can increase our competitive advantage	1	2	3	4	5
Iv	Using ICT (email and web technologies) is important to keep up with competition in the market	1	2	3	4	5
V	We respond quickly to other competitor actions in using email and web-based applications	1	2	3	4	5
Vi	We are faced with very intense competition	1	2	3	4	5
Vii	Our competitors can easily offer our services and products	1	2	3	4	5

Perceived Pressure from Customers characteristics (PPC)

I	Our customers demand e-mail and web-based applications services	1	2	3	4	5
Ii	Our customers demand compatible and accessible ICT applications system	1	2	3	4	5
Iii	Our customers demand safety and privacy ICT applications system	1	2	3	4	5
Iv	Our customers demand an online interaction	1	2	3	4	5
V	Our customers demand online information of our products and services	1	2	3	4	5
Vi	Our customers demand online booking	1	2	3	4	5
Vii	Our customers demand to became loyal to our organization	1	2	3	4	5
Viii	Our customers demand customized service	1	2	3	4	5

ICT USAGE IN WHSs (ICTU)					
I	Our site uses ICT (email and web-based) applications for displaying company information and products offered	1	2	3	4 5
Ii	Our site uses ICT (email and web-based) applications to communicate with my suppliers.	1	2	3	4 5
Iii	Our site uses ICT (email and web-based) applications to communicate with my employees.	1	2	3	4 5
Iv	Our site uses ICT (email and web-based) applications to communicate with my customers (where customers can submit various enquiries).	1	2	3	4 5
V	I regularly use ICT (email and web-based) applications to sell my product online.	1	2	3	4 5
Vi	Our site uses use ICT (email and web-based) applications to sell our services and receive payments	1	2	3	4 5
WHSs PERFORMANCE INDICATORSAS (PI)					
(Reflecting upon <i>performance</i> as a results of ICT usage in WHSs)					
I	ICT usage (email and web-based) increase in Sales of services and goods	1	2	3	4 5
Ii	ICT usage (email and web-based) improve business relationship characteristic	1	2	3	4 5
Iii	ICT usage (email and web-based) improved customer relationship	1	2	3	4 5
Iv	ICT usage (email and web-based) improve quality of service	1	2	3	4 5
V	ICT usage increased help to serve more tourists at once	1	2	3	4 5
Vi	ICT usage (email and web-based) improve social climate at work	1	2	3	4 5
Vii	ICT usage (email and web-based) help in identification of potential customers	1	2	3	4 5

APPENDIX 2: PATTERN MATRIX

[illegible]

PCP4		.756
PCP5		.773
PCP6		.763
PCP7		.776
PPC1	-.699	
PPC2	-.670	
PPC3		
PPC4	-.681	
PPC5	-.795	
PPC6	-.927	
PPC7	-.841	
PPC8	-.773	
ICTU1		-.454
ICTU2		-.488
ICTU3		-.413
ICTU4		-.497
ICTU5		-.521
ICTU6		-.499
PI1	-.735	
PI2	-.674	
PI3	-.909	
PI4	-.737	
PI5	-.841	
PI6	-.774	
PI7	-.727	

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 9 iterations.