

**CRITICAL SUCCESS FACTORS FOR DIGITAL
INNOVATION AND ORGANIZATIONAL
PERFORMANCE : A CROSS INDUSTRY ANALYSIS
FROM SRI LANKA**

E S I Senaratne

199129H

**Degree of Master of Business Administration in Information
Technology**

Department of Computer Science and Engineering

University of Moratuwa

Sri Lanka

June 2021

**CRITICAL SUCCESS FACTORS FOR DIGITAL
INNOVATION AND ORGANIZATIONAL
PERFORMANCE : A CROSS INDUSTRY ANALYSIS
FROM SRI LANKA**

By

E S I Senaratne
(199129H)

Supervised by:

Dr. K M S D Kulathunga

The dissertation was submitted to the Department of Computer Science and
Engineering, University of Moratuwa in partial fulfillment of the
requirement for the Degree of Master of Business Administration in
Information Technology

Department of Computer Science and Engineering

University of Moratuwa

Sri Lanka

June 2021

Declaration, copyright statement and the statement of the supervisor

I declare that this is my own work, and this thesis does not incorporate without acknowledgement any material previously submitted for a degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

Also, I hereby grant to University of Moratuwa the non-exclusive right to reproduce and distribute my thesis/dissertation, in whole or in part in print, electronic or other medium. I retain the right to use this content in whole or part in future works (such as articles or books).

UOM Verified Signature

26/06/2021

Signature of the candidate

Date

Name of the candidate: E S I Senaratne – 199129H

This is to certify that the Master's dissertation submitted by E S I Senaratne is a record of the candidate's own work carried out by her, under my supervision. In my capacity as supervisor of the candidate's dissertation, I certify that the above statements are true to the best of my knowledge.

UOM Verified Signature

.....

26/06/2021

Signature of the supervisor

Date

Name of the supervisor: Dr. K M S D Kulathunga

Abstract

Despite the growing importance of digital innovation driving organizations towards digital transformations and improved performance, empirical studies examining the determinants of digital innovation and the relationship between digital innovation and organizational performance are scarce, leading to a knowledge gap within the context. In prior studies, it was observed that the findings were inconsistent, and that researchers have primarily examined digital innovation from a technical perspective. Hence, this research focused on identifying the critical success factors affecting digital innovation and examining the relationship between digital innovation and organizational performance from technological, managerial, and organizational perspectives.

Past literature between 2010 and 2020 revealed the existence of six factors affecting digital innovation. Dynamic Capabilities Theory was used to classify managerial and organizational factors and Resource Based View was used to identify technological factors. Managerial factors included transformational leadership and top management support. Organizational factors included open communication, organizational culture, and organizational learning. Technological factors included digital capability. Based on the literature review, the conceptual framework and hypotheses were developed. A self-administered online survey questionnaire was used for the data collection. The conceptual model was empirically tested by analyzing the data collected from managerial-level employees of organizations belonging to industry, trade, and services sectors within the Western province, that are engaged in digital innovation processes within their organizations. A single organization was the unit of analysis, and the sample was 135 respondents. Data were primarily analyzed using PLS-SEM.

The findings revealed that amongst the six factors identified, digital capability and organizational learning had a positive and significant effect on digital innovation. Further, the study could establish a positive and significant effect of digital innovation on organizational performance.

The study has some important theoretical contributions. Since there is a dearth of research in the context of digital innovation, this study helps to fill the existing knowledge gap in this context. Especially, this study could reveal six factors classified under technological, managerial, and organizational perspectives, while the previous studies had primarily focused on the technical perspective. In addition, the study has some practical implications as well. Since the study revealed that digital innovation has a significant effect on organizational performance, organizations could explore the possibilities for improving their digital innovation processes to enhance organizational performance. As per the findings of the study, the organizations need to focus more on digital capability and organizational learning to improve on digital innovation within organizations, which in turn will help them to enhance their organizational performance.

Keywords: Sri Lanka, Digital innovation, Organizational performance, Dynamic Capabilities, Digital capabilities

Acknowledgement

I would like to express my sincere gratitude to my supervisor, Dr. K M S D Kulathunga, Senior Lecturer, Department of Information Technology, Faculty of Management Studies and Commerce, University of Sri Jayewardenepura for the invaluable support and guidance provided to me at each step of the way. It is with a deep sense of thankfulness that that I acknowledge his expertise, constant motivation, and enthusiasm, which immensely contributed to the successful completion of this research thesis.

I would also like to convey my gratefulness to Dr. A. R. Ajward, Senior Lecturer, Department of Accounting, Faculty of Management Studies and Commerce, University of Sri Jayewardenepura for the support rendered by providing far-sighted advises to further improve this thesis with his expert opinions. My sincere thankfulness is also extended to Dr. Adeesha Wijayasiri, Coordinator, MBA in IT (Batch of 2019), Department of Computer Science and Engineering, University of Moratuwa, Prof. Aruna Shantha Gamage, Coordinator for MBA/MSc in Management, Faculty of Management Studies and Commerce, University of Sri Jayewardenepura, Dr. T.C. Ediriwickrama, Senior lecturer, Department of Finance, Faculty of Management and Finance, University of Colombo and Dr. Nilakshi Galahitiyawe, Head, Research Centre, Postgraduate Institute of Management for facilitating the data collection process of this study by providing me access to respondents as required for the study.

Moreover, I would like to thank all the lecturers of the MBA in IT programme for sharing their wealth of knowledge with, and all my MBA colleagues for making the MBA journey pleasant and enjoyable. I should also thank all the respondents of this study, who willingly participated and whose valuable contribution, in no doubt, have contributed to the success of this study. Lastly, and most importantly, my affectionate and deeply felt gratitude to my parents, my brother, and my husband Yujith, for believing in me, encouraging me, understanding and being supportive all throughout, especially when I had to spend a lot of time away from them while engaged in this study.

Table of contents

Declaration, copyright statement and the statement of the supervisor	i
Abstract	ii
Acknowledgement	iii
Table of contents.....	iv
List of Figures.....	vii
List of Tables.....	viii
List of Abbreviations	ix
List of Appendices	ix
1. INTRODUCTION	1
1.1 Background	1
1.2 Problem Statement, research questions and research objectives.....	3
1.3 Significance / contribution	5
1.3.1 Theoretical significance	5
1.3.2 Practical significance.....	5
1.3.3 Empirical significance.....	6
1.3.4 Methodological significance.....	6
1.4 Chapter organization.....	7
2. LITERATURE REVIEW.....	8
2.1 Introduction.....	8
2.2 Definition of major concepts.....	8
2.2.1 Innovation.....	8
2.2.2 Digital innovation	9
2.3 Theoretical background	10
2.3.1 Resource-based view (RBV)	10
2.3.2 Dynamic capabilities theory (DCT).....	13
2.4 Empirical studies on factors affecting digital innovation	19

2.5 Empirical studies on the impact of digital innovation on organizational performance	30
2.6 Overall summary of past research	33
2.7 Identification of the existing research gap	39
2.8 Chapter Summary	39
3. METHODOLOGY	40
3.1 Introduction	40
3.2 Overall design of the study	40
3.2.1 Research philosophy	40
3.2.2 Research approach	41
3.2.3 Research design	42
3.2.4 Research strategy	43
3.2.5 Research choice	43
3.3 Conceptualization	44
3.4 Development of Hypotheses	47
3.4.1 The effect of transformational leadership on digital innovation.....	48
3.4.2 The effect of top management support on digital innovation.....	49
3.4.3 The effect of open communication on digital innovation	50
3.4.4 The effect of organizational culture on digital innovation	51
3.4.5 The effect of organizational learning on digital innovation	52
3.4.6 The effect of digital capability on digital innovation.....	52
3.4.7 The effect of digital innovation on organizational performance	54
3.5 Population of the study, sample selection and sampling procedure.....	55
3.5.1 Population and sample selection.....	55
3.5.2 Unit of analysis	57
3.5.3 Sampling method	57
3.6 Questionnaire design and development.....	59
3.6.1 Measurement scales used	59
3.6.2 Item generation and operationalization of the constructs.....	61
3.6.3 Pilot testing the questionnaire.....	72
3.7 Methods of data collection.....	76

3.8 Methods of data analysis.....	77
3.8.1 Descriptive statistics.....	77
3.8.2 Common method bias.....	78
3.8.3 Testing Multivariate assumptions.....	78
3.8.4 Analysis of the Structural Equation Model	81
3.8.5 Testing the reliability of the constructs and indicators	82
3.8.6 Testing the validity of the constructs and indicators.....	83
3.8.7 Evaluation of the structural model.....	84
3.9 Summary	88
4. DATA PRESENTATION, ANALYSIS AND DISCUSSION	89
4.1 Introduction.....	89
4.2 Preparation of data.....	89
4.2.1 Data cleaning	89
□ Relevance of responses	90
□ Missing values	90
□ Outliers.....	90
4.3 Demographic Data.....	91
4.3.1 Sector analysis of organizations	92
4.3.2 Size of the organizations	92
4.3.3 Profiles of the respondents	93
4.4 Descriptive statistics	94
4.4.1 Common method bias.....	95
4.4.2 Normality.....	96
4.4.3 Homoscedasticity and linearity.....	97
4.4.4 Multicollinearity	100
4.5 Analysis of the Structural Equation Model.....	101
4.5.1 Reliability of the constructs and indicators	101
4.5.2 Validity of the constructs and indicators.....	107
4.6 Evaluation of the structural model	113
4.6.1 Multicollinearity	113

4.6.2 Coefficient of determination (R^2)	114
4.6.3 Testing of hypotheses.....	115
4.6.4 The effect size f^2	119
4.6.5 Predictive relevance (Q^2).....	120
4.7 Discussion of findings	121
4.7.1 Objective 1: To identify the critical success factors for digital innovation... 122	
4.7.2 Objective 2: To assess the impact of identified critical success factors on digital innovation.....	123
4.8.3 Objective 3: To assess the impact of digital innovation on organizational performance.....	127
4.8 Summary	129
5. CONCLUSION	130
5.1 Summary of the study.....	130
5.2 Theoretical implications	132
5.3 Practical implications	134
5.4 Limitations of the study	135
5.5 Future research directions	136
REFERENCES	139

List of Figures

Figure 2. 1: Evolution of the DCT	18
Figure 3. 1: Conceptual Framework	47
Figure 3. 2: Sample size calculation	58
Figure 3. 3: Path diagram of the pilot study	75
Figure 4.1: Sector-wise composition of the responses	92
Figure 4.2: Size of the organizations – sector wise classification	93
Figure 4.3: Profiles of the respondents	94
Figure 4.4: Relationship between the independent variables and Digital Innovation	98
Figure 4.5: Relationship between Digital Innovation and Organizational Performance	98

Figure 4.6: Normal PP – Plot for residual of independent variables and Digital Innovation.....	99
Figure 4.7: Normal PP – Plot for residual of Digital Innovation and Organizational Performance.....	99
Figure 4.8: Bootstrapping output of the final model	116

List of Tables

Table 2. 1: Evolution of the RBV	11
Table 2. 2: Definitions of dynamic capability and contributions to DCT.....	14
Table 2. 3: Frequency of usage of each variable as a factor affecting digital innovation	34
Table 2. 4: Frequency of a variable becoming significant or non-significant.....	38
Table 3. 1: Classification of SME groups based on economic sector.....	56
Table 3. 2: Operationalization of constructs	63
Table 3. 3: Organization of question items under each variable	71
Table 3. 4: Coding of variable names and measurement items.....	72
Table 3. 5: Reliability and validity of constructs – pilot study	74
Table 3. 6: Discriminant validity – pilot study.....	74
Table 3. 7: Rewording of the measurement items	76
Table 4. 1: Descriptive statistics for variables	95
Table 4. 2: Multicollinearity.....	100
Table 4. 3: Cronbach’s Alpha and composite reliability	102
Table 4. 4: VIF values for Digital Capability.....	104
Table 4. 5: Reliability analysis for DC	104
Table 4. 6: Outer loadings of DC.....	105
Table 4. 7: AVE values of the constructs.....	108
Table 4. 8: Fornell Larcker criterion.....	110
Table 4. 9: HTMT ratio.....	110
Table 4. 10: Collinearity statistics	114
Table 4. 11: Coefficient of determination (R^2).....	115
Table 4. 12: Path coefficients and hypotheses testing	117
Table 4. 13: The effect size f^2	120
Table 4. 14: The predictive relevance (Q^2)	121

List of Abbreviations

RBV - Resource Based View
COM – Open Communication
CUL – Organizational Culture
DCT – Dynamic Capabilities Theory
DC – Digital Capability
DI – Digital Innovation
HTMT- Heterotrait-Monotrait
IS – Information Systems
OL – Organizational Learning
PLS – SEM – Partial Least Squares – Structural Equation Modelling
SEM – Structural Equation Model
TL – Transformational Leadership
TMS – Top Management Support
VIF- Variance Influence Factor

List of Appendices

APPENDIX I : Questionnaire	178
APPENDIX II : Descriptive statistics for measurement items.....	188
APPENDIX III : Exploratory factor analysis.....	190
APPENDIX IV: Missing values, Kurtosis and Skewness	192
APPENDIX V: Indicator loadings.....	194
APPENDIX VI: Cross loadings	196