

UNIVERSITI TEKNOLOGI MARA

**THE IMPACT OF
INFORMATION TECHNOLOGY
INFRASTRUCTURE FLEXIBILITY ON
STRATEGIC UTILIZATION OF
INFORMATION SYSTEMS**

NORIZAN BINTI ANWAR

Thesis submitted in fulfillment
of the requirements for the degree of
Doctor of Philosophy

Faculty of Information Management

October 2017

AUTHOR’S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution for any degree or qualification.

I, hereby acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student : Norizan Binti Anwar
Student I.D. No. : 2013211622
Programme : Doctor of Philosophy – IM950
Faculty : Information Management
Thesis Title : The Impact of Information Technology Infrastructure
Flexibility on Strategic Utilization of Information Systems

Signature of Student :
Date : October 2017

ABSTRACT

The strategic benefits of computer based information systems (IS) have been well documented in the literature. In the same light, the researcher has also unveiled various factors that promote the strategic utilization of computer based IS. Among the identified factors are information technology (IT) infrastructure flexibility. However, previous studies focusing on the contribution of IT infrastructure flexibility towards strategic utilization of IS is limited in terms of scope and coverage. Defining IT infrastructure flexibility as the composite variables, namely, (1) human IT infrastructure with dimensions such as business knowledge/skills, management knowledge/skills, technical knowledge/skills, and technology knowledge/skills, (2) technical IT infrastructure with dimensions such as IT modularity, IT compatibility, IT connectivity, and IT continuity, and (3) process IT infrastructure with dimensions such as range of physical capabilities, and range of managerial capabilities, this study has developed a conceptual framework linking the relationship of IT infrastructure flexibility on the strategic utilization of IS. To further investigate the relationship between both concepts, a fully quantitative exploratory research was conducted using a questionnaire to collect the necessary data. Two sets of questionnaire were utilized, one on the strategic utilization of IS for respondents in the business development division/unit managers, and the other one on IT infrastructure flexibility was given to IT or IS division/unit managers. The questionnaires were distributed to selected Multimedia Super Corridor (MSC) status companies located within Cybercities and Cybercentres in Klang Valley, Malaysia. 249 questionnaires were used for further analysis out of 258 that were returned. The descriptive results revealed that the responses were mostly 'sometimes high' in overall strategic utilization of IS and 'sometimes agree' in overall IT infrastructure flexibility. SPSS version 22 was used to analyze research questions 1 and 2, and SmartPLS version 3 for research questions 3 to 7. The analysis of measurement of the model led to the removal of IT continuity as a construct because the value obtained did not meet the recommended cut-off value. Thus, the variable of technical IT infrastructure was reduced to three dimensions. The structural model analysis indicates that human IT infrastructure and process IT infrastructure were significant predictors of the strategic utilization of IS. Moreover, the study has also proved that process IT infrastructure is a full mediator between human IT infrastructure and strategic utilization of IS and partial mediator between technical IT infrastructure and strategic utilization of IS. The study has contributed to the body of knowledge from three perspectives namely the provision of a theoretical based framework substantiated by empirical evidence, and the development of an instrument to measure strategic utilizations of IS and its corresponding determinants. The theoretical framework developed should enable IS researchers to investigate strategic IS utilization and its corresponding antecedents in diverse IS implementation settings. Additionally, the instrument can be used by IS practitioners to measure the level of strategic IS utilizations in MSC status companies and other companies in Malaysia.

TABLE OF CONTENTS

	Page
CONFIRMATION BY PANEL OF EXAMINERS	ii
AUTHOR’S DECLARATION	iii
ABSTRACT	iv
AKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	xiii
LIST OF FIGURES	xvii
LIST OF ABBREVIATIONS	xx
CHAPTER ONE: INTRODUCTION	
1.1 Overview	1
1.2 Background of the Research	1
1.3 Problem Statement	3
1.3.1 Theoretical Gap	3
1.3.2 Empirical Gap	5
1.3.3 Practical Gap	6
1.4 Research Questions	6
1.5 Research Objectives	7
1.6 Context and Scope of the Study	7
1.7 Assumption of the Study	8
1.8 Research Methodology	9
1.9 Significance of the Research	10
1.10 Structure of the Thesis	11
CHAPTER TWO: LITERATURE REVIEW	
2.1 Overview	12
2.2 Definition of the Terms	12
2.2.1 Information Systems (IS)	12

CHAPTER ONE

INTRODUCTION

1.1 OVERVIEW

This chapter is consists of ten sections and the outline of the content is shown in Table 1.1. Section 1.1 provides the overview of Chapter One while the research background and problem statement of this study are discussed in Sections 1.2 and 1.3 in this chapter. Sections 1.4 and 1.5 list the research questions and research objectives. In the subsequent sections from 1.6 to 1.9, the basic research model, research context and scope, research assumption, and research methodology are explained. Section 1.10 presents the significance of the research, while the structure of the thesis is explained in Section 1.11.

Table 1.1:
The Chapter 's Content Outline

Content Outline	
1.1	Overview
1.2	Background of the Research
1.3	Problem Statement
1.4	Research Questions
1.5	Research Objectives
1.6	Context and Scope of the Study
1.7	Assumption of the Study
1.8	Research Methodology
1.9	Significance of the Research
1.10	Structure of the Thesis

1.2 BACKGROUND OF THE RESEARCH

Information systems (henceforth IS) strategies have become the current buzzword among researchers and scholars for its benefits, namely: (1) enable the organization to save resources, (2) to create and sustain a successful change process, (3) to create new and improved products or services, (4) for continuous improvement in decision making through decision support, (5) to weaken competition, (6) to extend global services, and much more (Adrian-Cosmin, 2015; Berisha-Shaqiri, 2015). To remain competitive, organizations have utilized IS according to their different management operations, for example, in a typical organizational setting, the operational level would use the Transaction Processing System (TPS); the tactical level would use the Management Information System (MIS), and the