

**UNIVERSITI TEKNOLOGI MARA**

**INTER-ORGANIZATIONAL  
INTEGRATION FRAMEWORK TO  
REDUCE INTER-ORGANIZATIONAL  
CONFLICT IN BUILDING  
REFURBISHMENT PROJECTS**

**ADEL NOORI**

Thesis submitted in fulfilment  
of the requirements for the degree of  
**Doctor of Philosophy**  
**(Built Environment)**

**Faculty of Architecture, Planning and Surveying**

**January 2018**

## ABSTRACT

Refurbishment sector is becoming one of the most important sectors in the construction industry. In many developed countries, refurbishment sector contributes nearly half of the construction industry output. In Malaysia, 22 percent of construction output was related to refurbishment works in 2015. However, refurbishment projects are more uncertain than new-build projects. Thus, inter-organizational conflicts are likely to happen, due to the uncertainty and the involvement of many organizations in building refurbishment projects. This suggests that refurbishment projects require inter-organizational integration to reduce the inter-organizational conflict. Therefore, the aim of this study is to develop an inter-organizational integration framework to reduce inter-organizational conflict in building refurbishment projects in Malaysia. This aim is achieved through the following four objectives: (1) to measure the level of uncertainty in building refurbishment projects; (2) to measure the level of inter-organizational conflict in building refurbishment projects; (3) to measure the degree of inter-organizational integration in building refurbishment projects; and (4) to investigate the relationship between uncertainty and inter-organizational conflict and inter-organizational integration as a mediator in building refurbishment projects. The respondents of this study are boundary role persons who represent construction or architectural firms in dealing with other organizations in building refurbishment projects (e.g., project managers, architects, contract managers) from construction and architectural firms in Malaysia. This study adopted the quantitative method of data collection. The data collection started with a pilot study on twenty (20) respondents, followed by a Web-based final questionnaire survey on 1050 construction firms and 733 architectural firms. One-hundred-eighty-eight (188) refurbishment projects formed the database for this study. The Exploratory Factor Analysis (EFA) was conducted to validate and refine the data collected. The Statistical Package for Social Science (SPSS) was used in both the descriptive and inferential statistics. The overall relationship of the theoretical framework was analysed by using Structural Equational Modelling (SEM) based on Partial Least Square (PLS). The study found that refurbishment projects are moderately uncertain. The top three factors that contribute to the uncertainty in refurbishment projects are 'difficulty of access to the site', 'inadequate space for storage material and working', and 'unclear scope of the work'. The inter-organizational conflicts in refurbishment projects are also at a moderate level. Furthermore, the findings show that inter-organizational integration partially mediates the effect of the uncertainty on the inter-organizational conflict in building refurbishment projects. The study recommends that inter-organizational integration mechanisms should be used to reduce the inter-organizational conflict in building refurbishment projects.

## **ACKNOWLEDGEMENT**

Firstly, I wish to thank God for giving me the opportunity to embark on my PhD and for completing this long and challenging journey successfully.

My gratitude and thanks go to my supervisor Assoc. Prof. Dr Masran Saruwono, and co-supervisors, Prof. Dr Ismail Bin Rahmat and Prof. Datin Dr Hamimah Adnan. Thank you for the support, patience, and ideas in assisting me with this research.

I would like to thank my parents for their everlasting belief, support, and pride in my undertaking the doctoral project and beyond. They are the most important people in my world, and I dedicate this thesis to them.

Finally, but by no means least, thanks go to all staff of the Faculty of Architectural, Planning & Surveying (FSPU), and all my friends for their utmost unbelievable help and support.

# TABLE OF CONTENTS

	<b>Page</b>
<b>CONFIRMATION BY PANEL OF EXAMINERS</b>	<b>ii</b>
<b>AUTHOR'S DECLARATION</b>	<b>iii</b>
<b>ABSTRACT</b>	<b>iv</b>
<b>ACKNOWLEDGEMENT</b>	<b>v</b>
<b>TABLE OF CONTENTS</b>	<b>vi</b>
<b>LIST OF TABLE</b>	<b>xi</b>
<b>LIST OF FIGURES</b>	<b>xiii</b>
<b>LIST OF SIMBOLS</b>	<b>xiv</b>
<b>LIST OF ABBREVIATIONS</b>	<b>xv</b>
<b>CHAPTER ONE: INTRODUCTION</b>	<b>1</b>
1.1 Introduction	1
1.2 Background of Study	1
1.3 Problem Statement	3
1.4 Aim and Objectives	9
1.5 Research Hypotheses	10
1.6 The Scope and Limitations of the Study	10
1.7 Significance of the Research	11
1.8 Reseach Organization	12
1.9 Structure of the Thesis	12
<b>CHAPTER TWO: LITERATURE REVIEW</b>	<b>14</b>
2.1 Introduction	14
2.2 Building Refurbishment Projects	14
2.3 Uncertainty Factors of Building Refurbishment Projects	16
2.3.1 Archived Documents of Existing Buildings	17
2.3.2 Utilities Information of the Existing Building	19
2.3.3 Material and Structural Information of Existing Buildings	20
2.3.4 Building Inspection Results	22

2.3.5	Building Site Survey Results	23
2.3.6	Design Information During the Design Stage	24
2.3.7	Design Information During the Constructing Stage	25
2.3.8	Access to the Site	27
2.3.9	Inadequate Space	28
2.3.10	Unforeseen Site Condition	30
2.3.11	Scope of Work in Refurbishment Projects	31
2.3.12	Clear Contractual Obligations	32
2.3.13	Matching New Materials with the Existing Materials	33
2.3.14	Obtainability of Construction Materials	34
2.3.15	Client's Skill and Knowledge	35
2.3.16	The Client's Needs	36
2.3.17	Design Changes Made by Client	37
2.3.18	Summary on Building Refurbishment Projects Uncertainties	39
2.4	Inter- Organizational Conflict	41
2.4.1	Introduction	41
2.4.2	Basic Responsibilities	44
2.4.3	The Project Goals	45
2.4.4	Task Expectations	47
2.4.5	Interference of Other Projects Organizations in Their Works	48
2.4.6	Ethical Standards of Behaviours	49
2.4.7	Conflict Over Final Cost	50
2.4.8	Conflict Over Final Duration	52
2.4.9	Conflict Over Final Quality	54
2.4.10	Inter-Organizational Conflict Between the Client and the Contractor	56
2.4.11	Inter-Organizational Conflict Between the Client and the Consultants	57
2.4.12	Inter-Organizational Conflict Between the Contractor and the Consultants	59
2.4.13	Inter-Organizational Conflict During the Design Stage	59
2.4.14	Inter-Organizational Conflict During the Construction Stage	61
2.4.15	Summary of Inter-Organizational Conflict Factors	62
2.5	Inter-Organizational Integration	64
2.5.1	Introduction	64
2.5.2	Appropriate Type of Contract	66