

UNIVERSITI TEKNOLOGI MARA

**A CONSTRUCTION MANAGER'S
TECHNICAL KNOWLEDGE
COMPETENCY MODEL FOR THE
MALAYSIAN CONSTRUCTION
INDUSTRY**

HAIRUDDIN BIN MOHAMMAD

Thesis submitted in fulfilment
of the requirement for the degree of
Doctor of Philosophy

Faculty of Architecture, Planning and Surveying

March 2018

ABSTRACT

Malaysian construction industry (MCI) is regarded as one of the significant industry that drives the country forward. Although having recorded 7.4% of positive growth in 2016, the progression of MCI was hampered by a considerable number of recurring problems such as delays, wastages, cost overruns, and disputes. Consequently, contractors' faults are to be blamed, through their incompetent construction manager (CM) to deliver construction projects. Even though there are provisions of education and training for CM, continuous critiques on its ineffectiveness were reported. Eventually, it was observed that lack of term of reference on the technical knowledge competency for CM is became the major setback. Therefore, the research aims to establish generic technical knowledge competency model for CM through three objectives that were outlined by the research, namely; (1) to identify the generic technical knowledge competency of Malaysia's construction managers, (2) to analyse the importance of the generic technical knowledge competency of construction managers towards categories and grades of Malaysia's contractors, and (3) to analyse the corroboration level of the existing CM education and training offered compared to the generic technical knowledge competency. Pragmatic mixed methods research was selected by employing qualitative and quantitative approaches. In short, multi-layered thematic (MLT) analysis was embedded into literature analysis to maintain reliability, before proceeded to validity as in semi-structured interviews towards related academicians and practitioners in construction. Later, to analyse, validate and generalise the findings to the masses, questionnaire surveys were distributed to contractors around the peninsular of Malaysia. The findings from the critical quantitative analysis identified that construction manager requires vast numbers of generic technical competency which further grouped into several levels. It is then simplified into sixteen broad variables; (1) managing staff, (2) materials, (3) labour, (4) plants, (5) subcontractors, (6) safety, (7) money, (8) quality, (9) time, (10) environment, (11) administration, (12) pre-construction, (13) closeout and handover, (14) responsibility to other parties, (15) computer literacy, and (16) administration of construction contract. Additionally, all technical competencies are observed to be significant, notwithstanding contractors' categories and grades, except for Lean Construction. Last but not least, by corroborating the technical competency for construction managers towards other related competency documents, there is solid evidence that the former have substantial edges among its counterparts. Finally, the identified technical competency for Malaysia's construction managers is believed to be exhaustive and holistic in singling out the appropriate technical knowledge and skills, and bring about numerous advantage towards technically competent Malaysia's construction managers. The above conclusion is also has been supported by the research's final validation through open-ended interviews towards several distinguished individuals.

ACKNOWLEDGEMENT

In the name of Allah, the Most Gracious and the Most Merciful. May the blessing and peace of Allah be upon the Messenger of Allah, Muhammad S.A.W, his family and his companions. Alhamdulillah, all praises to Allah for the strengths and His blessing in completing this humble thesis.

Firstly, sincere gratitude to my lovely parent, my adorable wife and kids, my kind siblings, and the rest of my families for their utmost understanding, patience, and wholehearted support throughout this educational endeavour. This thesis will not be materialised without all of you behind my back. To Allahyarham Atuk, thank you for your moral support, I wish you were here.

Apart, a sincere appreciation to my PhD supervisor, Assoc. Prof. Dr. Sr. Padzil@Fadzil Hassan. You are responsible for the positive changes within me. To be frank, I do miss our critical discussions together. On the other hand, I do felt indebtedness to the Faculty of Architecture, Planning and Survey (FSPU) - especially to the Centre of Postgraduate Studies, Institute of Research Management and Innovation (IRMI, UiTM), Construction Industry Development Board Malaysia (CIDB), all respondents, all my postgraduates' students, and everyone involved directly or indirectly towards the completion of this thesis. I sincerely wished that our collaborations will go strong beyond this thesis, Inshaallah.

Additionally, to my previous educators, from primary to secondary schools, and from diploma to master, thank you for the great path that all of you had rendered to me. I couldn't wish for more. Last but not least, to my esteemed circle of colleague and friends, thanks for your presence beside me towards the end of this journey. Alhamdulillah.

TABLE OF CONTENTS

	Page
CONFIRMATION BY PANEL OF EXAMINERS	ii
AUTHOR'S DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	xi
LIST OF FIGURES	xv
LIST OF SYMBOLS	xviii
LIST OF ABBREVIATIONS	xix
CHAPTER ONE: INTRODUCTION	1
1.1 Background of The Research	1
1.2 Problem Statement	4
1.3 Objectives of The Research	6
1.4 Scope of The Research	6
1.5 Significance of The Research	7
1.6 Guides for The Thesis	8
1.7 Summary of The Chapter	10
CHAPTER TWO: MALAYSIA'S CONSTRUCTION INDUSTRY	11
2.1 Influence of The Construction Industry to The National Economy	11
2.2 Malaysia's Construction Characteristics	17
2.3 Impeding Issues in Malaysia's Construction Industry	20
2.3.1 Issues Impacting the Contractors and the Construction Managers	21
2.4 Summary of The Chapter	23
CHAPTER THREE: CONSTRUCTION PROJECT MANAGEMENT	24
3.1 Management In Construction Project	24

3.2	Management	26
3.2.1	Project Management (PM)	33
3.2.2	Construction Management (CM)	40
3.2.3	Site Management (SM)	47
3.2.4	Key Differences Between Project Management, Construction Management, and Site Management	52
3.3	Summary of The Chapter	55
CHAPTER FOUR: COMPETENCY		57
4.1	Competency	57
4.1.1	Technical Competency and Non-Technical Competency	68
4.1.2	Knowledge and Skills	72
4.2	A Perspective: Importance Of Competency In Construction Management Education And Training	75
4.3	Summary of The Chapter	80
CHAPTER FIVE: THE CONSTRUCTION MANAGER		82
5.1	Construction Manager (CM)	82
5.2	CM's Technical Competency	83
5.2.1	Construction Resources	85
5.2.2	Construction Objectives / Responsible	89
5.2.3	General Construction Management Tasks	93
5.2.4	Overall Essential Competency	100
5.3	Literature Chapters Summary	103
CHAPTER SIX: RESEARCH METHODOLOGY		104
6.1	Methodological Approaches	104
6.2	Research Process	106
6.3	Conceptualisation Of The Methodology Framework	109
6.4	Research Methods	120
6.4.1	Research Method: First Phase	120
6.4.2	Research Method: Second Phase	122
6.4.3	Research Method: Third Phase	124