IMPLEMENTATION OF INDUSTRIALISED BUILDING SYSTEM (IBS) IN CONSTRUCTION INDUSTRY MALAYSIA: A STUDY IN PERLIS

WONG NG NI

BACHELOR OF SCIENCE (HONS) IN QUANTITY SURVEYING

FACULTY OF ENGINEERING AND QUANTITY SURVEYING

INTI INTERNATIONAL UNIVERSITY

(2021)

IMPLEMENTATION OF INDUSTRIALISED BUILDING SYSTEM (IBS) IN CONSTRUCTION INDUSTRY MALAYSIA: A STUDY IN PERLIS

BY

WONG NG NI

This report is submitted as a partial requirement for the degree of

BACHELOR OF SCIENCE (HONS) IN QUANTITY SURVEYING

FACULTY OF ENGINEERING AND QUANTITY SURVEYING

INTI INTERNATIONAL UNIVERSITY

(JANUARY, 2021)

ACKNOWLEDGEMENT

I would like to express my appreciation to those who supported and provided significance guideline to me in completing this research project. Ms. Farhana Binti Mohd. Zaini will be the first person that I felt grateful to her. She is my project supervisor and she was provided a very functional guidance and advices throughout the process of this project. I am appreciated that she is very patient when I ask her a lot of things that I did not understand, she will explain one by one to me. Other than that, before any of the submission such as proposal and progress report, she will spend her time in checking and comments on my work so that I can amend it before submitted. Sometimes she also will spend her time to meet me virtually when it is necessary. Based on her guidance and advises, I had successfully completed my final year project smoothly. Actually, I was learned a lot of things from her not only just on the studies, but also the truth of dealing with people. Besides that, I would like to thank to Mdm. Zetty Pakir Mastan and Ms. Siti Azira Abd Rahim who being my examiners during the proposal presentation. When my computer suddenly hanged during presentation, they are patient in waiting me to fix the problem. After the presentation, they found out my mistake and then provided me with the professional advices which is very useful in improving my research project. Then, their comments and suggestion also to be grateful as it make my research project more comprehensive and become better. Meanwhile, they also give the support to me at the end which make me become more effort in completing this research project. I would also like to thank to my friends and classmates who give me support and sharing me the related information about my research. Then, I also appreciate to the respondents who provided me the importance information during data analysis which made me to complete the project successfully. Lastly, thanks to all my family members who give motivation to me when I faced the challenges and felt sad during carrying out this project. Without them, I will be failed in completing this project. Therefore, the involvement and cooperation of all these parties are appreciated.

DECLARATION BY THE CANDIDATE

I (Wong Ng Ni, I16011185) confirm that the work in this report is my own work and the appropriate credit has been given where references have been made to the work of other researchers.

Student Name: Wong Ng Ni
Student ID: I16011185
Date: 26/03/2021

ABSTRACT

In Malaysia, the implementation of IBS still can be improved by giving encouragement among the developer in construction industry as there are still many states in Malaysia has very low IBS implementation such as Perlis. Therefore, it is importance for the government to have a plan to find out the way in increasing the IBS implementation. On the other hand, government must not only focus on encouraging the companies to implement IBS, but also need to focus on the percentage of the IBS manufacturer exist in Malaysia. If a lot of companies implement IBS but there is lack of IBS manufacturer also no point for the companies to implement it. The implementation of IBS will actually bring a lot of benefits to the companies such as faster completion for a project, waste reduction on site and reduce pollution on site. These will ensure the project that come out is more valuable. However, there are some barriers which cause a lot of developer companies not to implement this IBS such as high initial cost, available of cheap foreign labour, lack of technical knowledge, lack of creativity in design, etc. All these barriers cause the percentage of IBS implementation in Malaysia still need to be improved. Therefore, some strategies were figure out which can be used to enhance the implementation of IBS such as raising awareness, benchmark of IBS technology or maximize value of IBS. Lastly, all the data will collecting by literature review and quantitative research method. Then, will analyzed by quantitative data analysis.

Keywords: Implementation of IBS, Raising awareness, Benefits of IBS implementation, Barriers of IBS implementation, Strategies to enhance the implementation of IBS.

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

IBS	Industrialised Building System
CITP	Construction Industry Transformation Programme
CIDB	Construction Industry Development Board
MMC	Modern Method of Constructionad
R&D	Research and Development
CREAM	Construction Research Institute of Malaysia
GIBS	Gamuda Industrial Building System
GoM	Government of Malaysia

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 Introduction

Based on the research shown that the population of Malaysia had reached 32.7 million in 2021 from 2020 and it is estimated to grow 2 million every five years. The housing market was increased followed by the increase in the population. A system architecture that takes the advantage of new technology could change the entire construction industry. This is because the new technology will help the construction more efficient which fulfill the increasing requirement for housing. Nowadays, there are many construction industry has moved their attention to mass production and prefabrication construction methods to fulfil the high demand for housing. This strategy motivated the construction industry in Malaysia to analyze the industries that have achieved the implementation of prefabrication technology from various countries such as the United Kingdom (UK), United States (US), Australia, Hong Kong and Singapore. Prefabrication is not merely focused on mass production but also delivers a unique product using a systematic approach (Rahim and Qureshi, 2018).

By understanding the benefits and potential of IBS, the Malaysian government steering the local construction industry to shift from traditional practices to IBS based production. The CITP 2016-2020 stated that the strategies of the government in ensuring the faster and higher adoption of IBS application in the local industry. Despite acknowledging its benefits and top-level advocacy, the construction industry should consider to adopt IBS. Arditi, Ergin and Gunhan had highlighted that most of the stakeholders do not realize the significant cost savings in the IBS application through speedy erection and long term investment. Moreover, there are many developing countries are depending on technology from industrialised countries. It was highlighted that effective communication and higher financial capital are required to accelerate technology transfer (Yunus, Hamid and Noor, 2019). Then, the agenda of IBS has been duly highlighted in the Malaysian Construction Industry Master Plan (2005-2015) as being of significance to the Malaysian construction industry. Malaysia government committed that not only addressing the IBS agenda but also to meet its target and adopt innovation in future (Kamaruddin *et al.*, 2013).

This study is set out to investigate the implementation of IBS at Perlis. Based on the research, the researchers had found out from which source do they know about this IBS. The researcher found that the highest percentage is the printed media which is 28% followed by the mass media and others, which is 27 %. Lastly, the Internet is the source from which they find out about the system, as claimed by 18 % of the population. The printed media such as newspapers, magazines, articles in brochures was contributed a higher percentage than the others because it is easily accessible in the state. Then, the mass media and other sources are second higher because most of them are the information which able to obtain from the television, radio, from friends during conversations, and maybe from their experiences when visiting other states or places. The Internet is the last to contribute as the source of knowledge about the IBS because most of the Perlis population rarely use it. This is because they lack the knowledge to use it. However, this is different for teenagers, the government and computer-savvy groups who tend to use the Internet to get information for work and other particulars purposes (Kassim, 2012). Finally, by research, the overall percentage for the project which is using the IBS in Perlis is the lowest compared to the other state in Malaysia. The percentage of the IBS project at Perlis only occupy 1% compared to other states. Therefore, shall find out why there is a low implementation of IBS in the construction industry Perlis (Hung *et al.*, 2015).

1.2 Problem Statement

The low implementation of IBS is the problem that are facing by the construction industry Malaysia now. There are a lot of developer companies in Malaysia are still using the conventional method instead of implementing the IBS to construct the building (Ali *et al.*, 2018).

On the other hand, a lot of developer companies was lack in technical knowledge which cause the developer companies not to implement the IBS. Therefore, they reject to try this modern construction technology as they worry it will cause the company loss money (Ali *et al.*, 2018).

Last but not least, the oversupply of cheap foreign labour in Malaysia construction industry also caused many companies not to implement the IBS. They felt the cheap foreign labour will save more money as compared to implement the IBS that need high initial cost (Akmam Syed Zakaria and Amtered El-Abidi, 2020).