CHAPTER 2
BIM EXECUTION PLAN PROCESS IN PUBLIC PROJECTS

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2.1 INTRODUCTION

Building information modelling (BIM) is a model with information based on digital data for buildings and structures. It is a parametric modelling encompassing exact and related information essential to support project stage activities (Hadzaman et al., 2016). An interesting feature of the BIM method is that it inclines to make the management process more straightforward. For instance, a three-dimensional (3D) model quickly displays what has been achieved and has not been achieved in any particular area (Kymmel, 2008). BIM execution plan (BEP) is a key business and management concern for BIM projects. The need of BEP has become a priority for every BIM project (Hrdina & Matějka, 2016). It has been perceived as a practical solution to the execution of the BIM platform to enhance project delivery in construction. Hence, this research aims to determine the common features integrated in BEP and the obstacles experienced by employers in developing BEP.

Generally, BIM projects frequently entail massive, complex, detailed, and information-rich collections of data that are accessible to and collaboratively developed by numerous stakeholders and

participants. As our buildings and business process become progressively complex, the requirements for efficiency and profitability of owners, designers, and contractors are challenged (Kymmel, 2008). To enable the construction of a project, the cooperation of numerous individuals with a diverse variety of skills and interests is required.

Information needs to be appropriately managed to guarantee that all parties in construction projects get the correct information and the use of BIM is one of the few platforms to achieve this goal (Kaner et al., 2008). One problem is that the majority of Malaysian construction practitioners have limited BIM knowledge and are unsure of how, when, or where to begin using BIM. Besides, one of the respondents from the study conducted said that, they developed their own BEP based on the research from various external parties that have experience in implementing BIM technology. Given the variety of BEP being used in the industry, this research aims to determine the common components that should be integrated into BEP at the pre-contract stage, and to identify the challenges that the employer faced while working on public projects. This research has been carried out based on two main objectives:

(1) To determine the common elements which are incorporated in the BEP.

(2) To identify the challenges faced by employers in developing BEP.

The discussion in this chapter is based on research that was primarily concerned with documentation analysis of BEP samples used in BIM-enabled projects from Malaysian construction projects. In order to accomplish the first objective of the research, pre-contract BEP for public projects have been gathered. Five public building projects have been randomly selected from PWD's Office and the personnel in charge of these projects have become the respondents for this research.

2.2 OVERVIEW OF BIM EXECUTION PLAN

The astonishing paradigm known as BIM in Malaysia has recently transformed the construction business globally and is progressively advancing and altering the construction industry as general. Despite being a significant sector, construction has been identified as having the lowest levels of economic productivity among all industries (MPC, 2016). To encourage the implementation of BIM in Malaysia, Construction Industry Development Board (CIDB) has organised a number of awareness programs among industry players (CIDB, 2016). According to the Public Works Department (PWD), BIM is a technique that uses technology to provide and utilise 3D parametric models that contain information to enhance delivery methods throughout the course of a project (JKR, 2014).

A reference document for the BIM project's execution by contracting parties, according to CIDB (2016), is the BIM execution plan (BEP) For a BIM project, BEP specifies the process and strategy for delivering community-oriented working practices. In addition, McAdam (2010) asserts that a BEP is an effective tool to illustrate how to use BIM for a particular project during project stages, such as the workflow and user compliance data input.

The development of BEP may promote industry practitioners' interaction with BIM processes while creating legal and organisational challenges relating to the conceptual clarity of the processes, and the relative messiness of those processes in practice (Hadzaman et al., 2016). Thus, BIM is an instrument used to deal with BEP process and BEP simply deals with method and guidelines, but products like Revit®, Bentley®, and Tekla® Structures are just a collection of toolkits to distribute information among project stakeholders. In Malaysia, there are two (2) types of BEP implementation, namely, pre-contract BEP and post-contract BEP (CIDB, 2016). Pre-contract BEP offers techniques and procedures to provide the information for BIM modelling activities at the design stage, while post-contract BEP is meant to coordinate and