

**IMPLEMENTATION OF PROJECT CRASHING
AMONG CONTRACTORS
IN PAHANG**

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Thesis submitted in fulfilment of the requirements
for the award of the degree of
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SUPERVISOR'S DECLARATION

I hereby declare that I have checked this project and in my opinion, this project is adequate in terms of scope and quality for the award of the degree of Bachelor of Project Management.

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I hereby declare that the work in this project is my own except for quotations and summaries which have been duly acknowledged. The project has not been accepted for any degree and is not concurrently submitted for award of other degree.

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ABSTRACT

This study seeks to identify the implementation of project crashing among contractors in Pahang. Project crashing is to shorten the actual project duration. The process that needs to accelerate the construction projects completion is called schedule compression. Project crashing is also to reduce the completion time of a project by sharply increasing manpower or other expenses. The objectives of this study are (1) to identify the factors that drive the organization to implement project crashing in construction project and (2) to study the challenges faced by the organization during the implementation of project crashing. There are two types of data collections used which are primary data and secondary data. For this research, the secondary data are from journals, books, articles and websites. The primary data is questionnaire survey that is considered as quantitative data. The questionnaire had been distributed to the respondents which are G7 class Construction Company in Pahang. The questionnaires are distributed to 100 companies and the data obtained are 72 respondents. From the findings, the most gender that becomes the respondents is female. The results shows that most of the respondents agree that adverse weather become the factor to implement the project crashing. From the results, the most significant challenges faced by organization also are exposed. The most significant challenge is require additional work hours in crashing the project. It is conclude that project crashing is important method to complete the project early from the actual schedule. As a recommendation, the future researcher can expand the scope of study from one class of contractors to two class of contractors.

ABSTRAK

Kajian ini bertujuan untuk mengenal pasti pelaksanaan pemampatan projek diantara kontraktor di Pahang. Pemampatan projek adalah untuk memendekkan tempoh sebenar projek. Proses untuk mempercepatkan tempoh siap projek pembinaan adalah pemampatan jadual. Pemampatan projek juga untuk mengurangkan tempoh siap dengan menaikkan tenaga kerja atau perbelanjaan lain-lain secara mendadak. Objektif kajian adalah (1) untuk mengenal pasti faktor-faktor yang mendorong organisasi melaksanakan pemampatan projek dan (2) untuk mengkaji cabaran-cabaran yang dihadapi oleh organisasi semasa pelaksanaan pemampatan projek. Terdapat dua jenis koleksi data yang digunakan ialah data primer dan data sekunder. Untuk kajian ini, data sekunder adalah daripada jurnal, buku, artikel dan laman web. Data primer ialah soalan kaji selidik yang dianggap sebagai data kuantitatif. Soalan kaji selidik telah dihantar kepada responden yang daripada syarikat pembinaan kelas G7 di Pahang. Soalan kaji selidik telah diedarkan kepada 100 syarikat dan data yang diperolehi adalah 72 responden.. Daripada penemuan, jantina yang paling ramai menjadi responden adalah perempuan. Keputusan menunjukkan kebanyakan responden bersetuju bahawa cuaca yang buruk menjadi kepada faktor untuk melaksanakan pemampatan projek. Daripada penemuan, cabaran yang paling utama adalah memerlukan tambahan waktu bekerja dalam memendekkan projek. Kesimpulannya, pemampatan projek adalah penting untuk menyiapkan projek awal daripada apa yang dirancang. Sebagai cadangan, pengkaji akan datang boleh meluaskan skop kajian daripada satu kelas kontraktor kepada dua kelas kontraktor.

CHAPTER 1

INTRODUCTION

1.1 Introduction

This study focuses on the implementation of project crashing among contractors in Pahang. The goal of this chapter is to outline and provide briefing on the background of study, to explain and give understanding on the project crashing. This chapter also include the problem statement, the research objectives, research questions, scope of study, research methodology, operational definition, and the last one is the significance of study.

1.2 Background of Study

The process that needs to accelerate the construction projects completion is called schedule compression(Moselhi and Roofigari-Esfahan, 2013). That process can also be referred as project time reduction, least-cost expediting, project compression or schedule compression, least-cost scheduling, optimized scheduling, scheduling with time constraints, project acceleration and project time crashing or schedule crashing (Moselhi, 1993; Evensmo and Karlsen, 2008).

Project crashing is a method for shortening the project duration by reducing the time of one or more on the critical project activities to less than its normal activity time (Feng-Tse, 2008). The objective of crashing is to reduce the project duration while minimizing the cost of crashing. Project crashing is also reducing the completion time of a project by sharply increasing manpower or other expenses. Rosenau and Githens (2005) state that crashing is spending more money on the project in order to speed up accomplishment of scheduled activities. However, the implementation of project crashing is not mostly use by Construction Company. As Chang et al. (2007) state that the owner is unusual to have the contractor to complete the project in a short time less than original duration with an extra work.

Project managers use this method to compress project schedule in order to meet deadlines. According to Mohan (2008), if an owner require a contractor to complete all or certain work in a specified date as in contract, acceleration or compression of schedule will occurs.

The goal of crashing is to reduce project duration at minimum cost. To reduce project duration while minimizing the cost of crashing, the project team should estimate require time, require the cost, crash time, crash cost for each activities. After that the team can estimate total crash time, total crash cost, the crash cost per week to reduce project duration at minimum cost. It aims to shorten the project schedule without changing the project scope of work, to meet schedule constraints and objectives (Moselhi and Roofigari-Esfahan, 2012).

It is the process by which duration of project is reduced by increasing the amount of resources allocated. Wei and Wang (2003) say that some measures can be consider in reducing the project duration are add extra personnel, additional equipment and overtime work. It is important to note that crashing is done only to critical activities. While allocating resources to critical activities, one needs to take into consideration the slack available in non-critical activities. This will help to make sure that crashing is not affecting the other activities of the project nor the project's scope.

1.3 Problem Statement

Project crashing is used to reduce the project duration by assigning more resources to project activities. Project crashing are good and beneficial for the project to be completed in the shortest time. Despite the advantage provided by project crashing, the contractors agree that implementation of the schedule compression will cost more on money (Chang et al., 2007). This is in lieu with Thomas R. (2000), schedule acceleration and compression is a serious problem for contractors.

The strategies to compress project time frame might include adding more staff or personnel, investing in development tools, improving hardware, or improving development methods. Addition to the resources is usually the first come in thought to accelerate the project. According to Mohan (2008), the resources might be equipment such as crane, labor which addition of an employee or doing a shift will be needed for work to be completed.

In addition, project crashing can be considered as a scheduling technique that purposely used to accelerate or fasten the project in order to accomplish the main target of the project. This schedule compression method, also known as project time reduction, least-cost expediting and time-cost trade-off, is somehow a challenging task in management (Moselhi and Roofigari-Esfahan, 2012). Although these methods provide the optimum solution, it is difficult to apply and involve considerable computational effort (Moselhi, 1993; Que, 2002).

According to Kuhl and Tolentino-Pena (2008), managing and make a decision on cost in an effective must be done since crashing a project represents additional costs. Every crashing could cost more money and resources which serve as the main problem faced by a construction company. The duration may decrease but it takes more number of people working on those activities. New resources are not going to be familiar with the tasks at hand, so they will probably be less productive than the current team members.