

STUDENT'S DECLARATION

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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Date: 23 November 2009

ABSTRACT

This thesis is concerning on the role and effectiveness of Project Management Consultant (PMC) in Malaysia's construction industries. The objectives of this study is to identify the role of PMC and their effectiveness in managing construction projects. The thesis describes that there is misunderstanding about the general importance concepts in project management and the main objective that need to be achieved in management in the PMC's view. The lack of knowledge on the principles and techniques in project management also contribute to the problems already occurred. There are many parties that still confuse with the true meaning of the Project Management and Project Management Consultancy. The involvements of the Project Management Consultant in construction project often related to dissatisfaction and produce a low quality product of construction. This study focused on the scopes which is project management consultant firms that operates professionally, construction firms such as contractors, and individual professional such as civil engineers and project managers. When the objectives and scopes of study is set, then the data collection are made through two methods which is through literature review and a questionnaire survey. The data gained were then turned into results and analysis. From the analysis, the objectives of this study are achieved. This study has suggested roles need to be served by PMC and it found that PMC is very effective in managing construction project. The results of this study maybe able to correct the perception of PMC.

ABSTRAK

Tesis ini menekankan ke atas peranan dan keberkesanan Perunding Pengurusan Projek (PMC) dalam industri-industri pembinaan Malaysia. Objektif-objektif kajian ini adalah untuk mengenalpasti peranan PMC dan keberkesanan mereka dalam mengurus projek-projek pembinaan. Tesis ini menjelaskan bahawa terdapat fahaman yang salah tentang konsep-konsep penting umum dalam pengurusan projek dan objektif utama yang perlu dicapai dalam penurusan pada pandangan PMC. Kekurang pengetahuan terhadap prinsip-prinsip dan teknik-teknik dalam pengurusan projek juga menyumbang kepada permasalahan yang telah sedia ada. Terdapat banyak pihak yang masih keliru dengan erti sebenar Pengurusan Projek dan Perunding Pengurusan Projek. Penglibatan Perunding Pengurusan Projek dalam projek pembinaan selalu dikaitkan kepada ketidakpuasan dan menghasilkan produk pembinaan yang berkualiti rendah. Kajian ini menumpukan ke atas skop-skop iaitu firma-firma perunding pengurusan projek yang beroperasi secara professional, firma-firma pembinaan seperti firma kontraktor, dan individu professional seperti jurutera-jurutera awam dan pengurus-pengurus projek. Apabila objektif-objektif an skop-skop telah ditetapkan, kemudian pengumpulan data dibuat melalui dua kaedah iaitu melalui tinjauan literasi dan penyelidikan borang pertanyaan. Data yang dikumpulkan ditukar kepada keputusan dan analisa. Daripada analisa, objektif-objektif kajian ini telah dicapai. Kajian ini mencadangkan beberapa peranan yang perlu disediakan oleh PMC dan telah mendapati PMC amat berkesan dalam mengurus projek pembinaan. Keputusan-keputusan kajian ini mungkin dapat membetulkan pandangan terhadap PMC.

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CHAPTER I

INTRODUCTION

1.1 Introduction

This chapter will introduce to the readers, the topic which is The Importance and Roles of Project Management Consultant (PMC) in Construction Industry.

1.2 Background of study

Project management is the discipline of planning, organizing, and managing resources to bring about the successful completion of specific project goals and objectives. It is often closely related to and sometimes conflated with program management. A project is a temporary endeavor, having a defined beginning and end (usually constrained by date, but can be by funding or deliverables), undertaken to meet particular goals and objectives, usually to bring about beneficial change or added value. The temporary nature of projects stands in contrast to business as usual (or operations), which are repetitive, permanent or semi-permanent functional work to produce products or services. In practice, the management of these two systems is often found to be quite different, and as such requires the development of distinct technical skills and the adoption of separate management. The primary challenge of

project management is to achieve all of the project goals and objectives while honoring the preconceived project constraints. Typical constraints are scope, time, and budget. The secondary and more ambitious challenge is to optimize the allocation and integration of inputs necessary to meet pre-defined objectives. (http://en.wikipedia.org/wiki/Management_consulting)

Project management has been practiced since early civilization. Until 1900 civil engineering projects were generally managed by creative architects and engineers themselves, among those for example Vitruvius (1st century BC), Christopher Wren (1632–1723), Thomas Telford (1757-1834) and Isambard Kingdom Brunel (1806–1859) It was in the 1950s that organizations started to systematically apply project management tools and techniques to complex projects. As a discipline, Project Management developed from several fields of application including construction, engineering, and defense activities. Two forefathers of project management are Henry Gantt, called the father of planning and control techniques, who is famous for his use of the Gantt chart as a project management tool; and Henri Fayol for his creation of the 5 management functions which form the foundation of the body of knowledge associated with project and program management. Both Gantt and Fayol were students of Frederick Winslow Taylor's theories of scientific management whose works were the forerunner to modern project management tools including work breakdown structure (WBS) and resource allocation.

The 1950s marked the beginning of the modern Project Management era. Project management was formally recognized as a distinct discipline arising from the management discipline. In the United States, prior to the 1950s, projects were managed on an ad hoc basis using mostly Gantt Charts, and informal techniques and tools. At that time, two mathematical project-scheduling models were developed. The "Critical Path Method" (CPM) was developed as a joint venture between DuPont Corporation and Remington Rand Corporation for managing plant maintenance projects. "Program Evaluation and Review Technique" or PERT, was developed by Booz-Allen & Hamilton as part of the United States Navy's (in conjunction with the Lockheed Corporation) Polaris missile submarine program; These mathematical techniques quickly spread into many private enterprises. PERT network chart for a

seven-month project with five milestones. At the same time, as project-scheduling models were being developed, technology for project cost estimated, cost management, and engineering economics was evolving, with pioneering work by Hans Lang and others. In 1956, the American Association of Cost Engineers (now AACE International; the Association for the Advancement of Cost Engineering) was formed by early practitioners of project management and the associated specialties of planning and scheduling, cost estimating, and cost/schedule control (project control). AACE continued its pioneering work and in 2006 released the first integrated process for portfolio, program and project management (Total Cost Management Framework).

The International Project Management Association (IPMA) was founded in Europe in 1967, as a federation of several national project management associations. IPMA maintains its federal structure today and now includes member associations on every continent except Antarctica. IPMA offers a Four Level Certification program based on the IPMA Competence Baseline (ICB). The ICB covers technical competences, contextual competences, and behavioral competences. In 1969, the Project Management Institute (PMI) was formed in the USA. PMI publishes A Guide to the Project Management Body of Knowledge (PMBOK Guide), which describes project management practices that are common to "most projects, most of the time." PMI also offers multiple certifications. (http://en.wikipedia.org/wiki/Management_consulting)

A consultant (from the Latin *consultare* means "to discuss" from which we also derive words such as *consul* and *counsel*) is a professional who provides advice in a particular area of expertise such as management, accountancy, the environment, entertainment, technology, law (tax law, in particular), human resources, marketing, medicine, finance, life management, economics, public affairs, communication, engineering, sound system design, graphic design, or waste management. A consultant is usually an expert or a professional in a specific field and has a wide knowledge of the subject matter. A consultant usually works for a consultancy firm or is self-employed, and engages with multiple and changing clients. Thus, clients have access to deeper levels of expertise than would be feasible for them to retain in-house, and may purchase only as much service from the outside consultant as desired. It is

generally accepted good corporate governance to hire consultants as a check to the Principal-Agent problem. (<http://en.wikipedia.org/wiki/Consultant>)

1.3 Problem statement

Among the problems that occur in the construction industry in Project Management Consultancy view, is the misunderstanding about the general importance concepts in project management and the main objectives that need to be achieved in management. Besides, the lack of knowledge on the principles and techniques in project management also contribute to the problems already occurred. There are many parties that still confuse with the true mean of the Project Management and Project Management Consultancy. The involvements of the Project Management Consultant in construction project often related to unsatisfaction and produce a low quality product of construction. By taking the example of the construction of computer labs in schools all over Malaysia a few years ago, this situation has changed the impression and trust of many parties on the ability and role played by the Project Management Consultancy in managing and consulting projects. Many parties did not know and understand the role contributed by the Project Management Consultant in Malaysia's construction industries.

In the past, it could be true that PMCs were once labeled as “nothing-to-do consultants”. The reason is that just about seven years ago, the local project management profession was unheard of, yet many who are not qualified about their professional roles and scopes were masquerading as project manager without understanding the fundamentals of being one. Thus, they mismanaged their projects and created lots of problems for other project team members. At other times, they misuse and abuse their authority by erroneously thinking that they are effective and efficient by making the lives of other team members, both design consultants and contractors and in the process made lots of adversaries and constant rework and redesign. Indeed they are misguided, thus they have earned themselves the title. (Andrew A.L. Tan, 2004)

1.4 Objectives of study

The objective of this study is to study the importance of Project Management Consultant in Malaysia's construction industries. To achieve this main objective, some objectives are set and there are as follows:

1. To identify the role of Project Management Consultant in Malaysia's construction industry; and
2. To identify the effectiveness of the Project Management Consultant in managing construction projects.

1.5 Scope of study

The study on the Importance of Project Management Consultant in construction industries in Malaysia focused on the following scopes:

1. Project management consultant firms that operates professionally
2. Construction firms such as contractors firm
3. Individual professional such as civil engineers and project managers

CHAPTER II

LITERATURE REVIEW

2.1 Role of Project Management Consultant

One of the main aspect need to be considered in this study on project management is the importance of the project management consultant in managing the construction project. This chapter will discuss about the project management consultant in general.

In general, the roles of project manager are:

1. Specification of project objectives and plans including delineation of scope, budgeting, scheduling, setting performance requirements, and selecting project participants.
2. Maximization of efficient resource utilization through procurement of labor, materials and equipment according to the prescribed schedule and plan.
3. Implementation of various operations through proper coordination and control of planning, design, estimating, contracting and construction in the entire process.

4. Development of effective communications and mechanisms for resolving conflicts among the various participants. (http://en.wikipedia.org/wiki/A_Guide_to_the_Project_Management_Body_of_Knowledge)

The Project Management Institute focuses on nine distinct areas requiring project manager knowledge and attention .

1. Project integration management to ensure that the various project elements are effectively coordinated.
2. Project scope management to ensure that all the work required (and only the required work) is included.
3. Project time management to provide an effective project schedule.
4. Project cost management to identify needed resources and maintain budget control.
5. Project quality management to ensure functional requirements are met.
6. Project human resource management to development and effectively employ project personnel.
7. Project communications management to ensure effective internal and external communications.
8. Project risk management to analyze and mitigate potential risks.
9. Project procurement management to obtain necessary resources from external sources.

These nine areas form the basis of the Project Management Institute's certification program for project managers in any industry. (http://en.wikipedia.org/wiki/A_Guide_to_the_Project_Management_Body_of_Knowledge)

The responsibilities of the project management consultant hired by the client generally are to create a specific final product by counting the technical specification, cost and schedule using the organizations sources that already have. Project manager also responsible to achieve the benefit objectives for the project as stated in contract

by the client. Project manager will make a fair final decision and conclusion to ensure that the project objectives achieved along the completion of the project. Besides that, project manager also will suggest the end or alternative solutions if the project objectives cannot be achieved. Working as the main point alongside the client, higher management and the functional manager, a consultation on the workforce by many functional position for the work implementations according to specification set earlier and follow the time limit and cost are also the role of project management consultant. (Md Nasir Bin Mat Ali, 2004)

2.2 The importance of project management in Malaysia nowadays

Table 2.1 shows some of the infrastructure project that consume expensive budget that has been spent by the government. The list of the project not including the government's mega project that has been constructed and in construction such as SMART Tunnel that costs about RM 1.2 billion, Middle Ring Route II (MRR II) about RM 240 million, Second North-East Highway, Lebuhraya Pantai Timur Fasa Ke 2 (LPT) that costs RM 1.2 billion and many more.

Table 2.1: *Projects planned and constructed by Malaysia Government. (Kementerian Kewangan Malaysia)*

Project billion)	Predicted cost (RM)
Sewerage Treatment Plant	0.4
Kuala Lumpur International Airport Phase II	2.0
KTM Double Rail	14.4
Various Road Contracts	3.8
Lebuhraya Pantai Timur (LPT)	2.0
Projek Gerbang Selatan	2.38
Stesen Pusat Brickfield	3.5
Program Pembentungan Utama	6.2

Related to the construction project management, those projects must be seen from these aspects:

1. High-technology and the way of implementing it. This necessitate sure require a modern and sophisticated project management, expertise, integrated, stable and professional.
2. Project cost and value. The failure of project management sure does contribute to the failure of project. From the perspective of project value, this situation is considered wasting and the project suffer a financial loss. In that case project management cannot fail.
3. The fast duration of project completion and the effort to quicken the completion. The suitable and appropriate must be adapted in every construction project because our country need a rapid development, fast and organized. The weakness, lack and unskilled in managing a construction project will finally lead to late completion of the project.
4. The effects of construction project to other projects. A certain constructor project developed sometime are related to other activities such as concrete production, cast in-situ material, financial institution development, insurance and many more. The failure of the project will affect other industry significantly.
5. Image of country generally. The failure of project will give bad perception to the country especially for those who involved directly in construction project industries. So, the failure must be avoided at any cost to prevent the disgrace to our country which leads to suffocation from financial loss. (Andrew A.L. Tan, 2004)

2.3 The Role of Project Management Consultant in Private Concept in Malaysia

The concept of privatization is defined as transferring activities and functions of public sector or government into private sector. This is including making part of government position into private company. In project management, the concept of project privatization is referred to the privatization or the delivery method of the government projects to a company or concession to implement it such as Projek Lebuhraya Utara Selatan (PLUS). The delivery methods include Management Contract, Build-Operate Transfer, Build-Operate Own, Build and Operate, Build and Transfer, and Build-Operate-Own and Transfer. The delivery of the project not only concern on the increase of service and materials, but also the process where the source and usage of modern and sophisticated technologies, the increment of skill and expertise are among the importance term and condition. A project management consultant is best appointed to lead the entire design and construction team. There are two versions of such a system of procurement. In the local version of turnkey design and build, most bidders are required to submit their design proposals together with cost and method of financing construction. In certain design and build arrangement, the client will have a design team who conceptualizes the overall design concept that is fixed. In this case, the bidders merely have to submit their cost proposal. Once contract is awarded, the successful can implement the project almost immediately and proceed with detail developed drawings and specifications writing. For certain prestigious project like KLIA, this was the practice. In the concept of land properties and consultancy service, the ISO 9000 Certification accreditation board alongside with the Construction Industry Development Board (CIDB) has stated that the concept of privatization is more effective in increasing the productivity value either in the aspect of time or process. In project management and consultancy, the concept of overall project management are important to proof the successful in any project field and as one of the term and condition to achieve the mission and objective of the privatization. (Andrew A.L. Tan, 1996)

2.4 Effectiveness of Project Management Consultant in Managing a Construction Project

As stated earlier in this study, the project management consultant plays an important role in ensuring the effectiveness of project management for the construction project. In this case, the scope, time, cost and quality factor are prominent. All of these aspects will be the core for the project management. This is because project management alone is no guarantee for project success. For example, the Sydney Opera House is a classic example of project management success in terms of architectural design excellence yet it is classic project failure in terms of time and cost over-run. The French-British Chunnel is classic engineering feat, yet financially its viability and implementation have been seriously questioned. Thus, the effectiveness of project management consultant leads to the success of both the project success and project management success. (Andrew A.L. Tan, 2004)

2.4.1 Scope Management

The determination and definition of scope of a particular project is one of the most difficult but also most importance stages in project management. Basically it is answering the questions ‘What is this project which about to undertake? What is included and excluded? What standard performance is required?’. In determining the scope of a project, a project management should run a feasibility study. These usually form the first stage of the design process. In the case of a small project, it is likely that only one design solution will be proposed, and provided that is acceptable that solution will be refined to become the adopted design. On a large project, it is possible that several different outlines are drawn up and comparisons made between them, in term of cost, feasibility, durability and general appearance. Before moving to the next stages of construction, the project management consultant will select one of the alternatives that are necessary to take the decision on whether or not to proceed at all, and this is likely to be done with the agreement from the client for the particular project. This show that an effective project management consultant will need the

ability to adopt the components in the scope management of a construction project such as project definition, project budgeting, project planning, project scheduling, project tracking, project control and project closed-out. (Andrew A.L. Tan, 2004)

2.4.2 Time Management

The duration of the whole construction starting from the first phase till the completion is very crucial. The ability of planning the activities of the construction is very important in order to avoid the delay of the completion. This is because any delay that occurs during any phase of the construction will give a big impact to all the parties involved in the project including the client. Thus, hiring the project management consultant is the best way to prevent the financial loss due to the delay. Project management consultant with the expertise of the management of time will organize and plan the best possible schedules for the project progress. The ability of project management consultant in estimating the activity duration and forecasting the activity will make the progress of the project goes smoother. The usages of milestone planning by the project management consultant contribute to the time efficiency of the project. By using the milestone and conducting milestone planning, result oriented thinking takes the place of activity-oriented thinking. It covers the end-results as well as the intermediate results. It is a logical sequence of arranging, various important tasks that need to be achieved. As it is impossible to visualize all activities at the beginning stage of the project, milestone planning has an advantage over activity planning. Furthermore, the implementation of 'Fast Tracking', which is a technique to compress and shorten the time required for each project activity and overall project time, primarily in decision making, design, approval and construction will lead into the saving of time. This means that an effective project management consultant can decrease or prevent suffer in financial loss of a project. (Andrew A.L. Tan, 2004)

2.4.3 Cost Management

Throughout the construction industry, there has been a very strong tendency to measure everything in terms of cost. Thus, the wise controlling of total project cost is very prominent. Cost that has been spent during a certain construction project also will measure the progress of the construction itself. Cost managing is a part of project management consultant role. The efficiency of the project which is defined as measuring and comparing the percentage of management cost with total project cost is depend on the effective management of the project management consultant. The cost and project duration are two things that related and depend to each other. For example, if a project is really needed at earliest possible time then it would be expected that it will be operated 24-hour day schedule, with enough manpower available, and stand-by equipment to cover for any plant breakdowns. This can be done but will consume additional cost of overtime work and surplus labor and equipment. One more thing that needs a concern from project management consultant is the project total cost. If the project appears to exceed the funds that can be made available for it, then the project management consultant will reduce or modified the scope of work in some way. This shows that project management consultant will lead the project according to the cost estimated to avoid cost over-run of the project that sure end up with the financial loss for many parties involved. Not forgetting the individual item cost, the consultant will try to get the best possible individual item cost to prevent the wastage to the project. In fact, many project managers are only involved with the client's interest cost without the client/contractor relationship. Instead of cost and time, there is one more aspect that relate to both of those aspect which measure the project success, the quality of the project itself. (Andrew A.L. Tan, 2004)

2.4.4 Quality Management

A project can be defined as a failure in its management if the cost and duration of the project meet the goals specified but the quality of the construction are at the bad

condition. The quality of the project must be monitor in every phase of construction so that it will fulfill the standard specification predicted by the client. (Andrew A.L. Tan, 2004)

Given that true project management can cover the whole of a project's life 'from concept to commissioning'; it is the responsibility of the project manager or project management consultant to ensure that the quality of management system is appropriate to the project. To do this they must perform the following duties:

1. Instill quality concepts in all who are concerned with the project, including the client.
2. Set up quality procedures for purchases, i.e. materials and components.
3. Undertake training programs for designers, and carry out design-audit.
4. Provide training in quality procedures for site managers and other supervisors.
5. Seek ways of relating payment to all aspects of performance, in particular quality as well as speed.
6. Ensure that the work program itself is of high quality, make efficient and effective use of resources, and has been well thought out, questioned and discussed by all concerned. Having a good initial program is only part of the approach; it is essential to ensure that as work on the project advances the program is used to aid the control process and is itself kept up to date with the work. It is also valuable to carry out project audits from time to time, preferable at significant project stages rather than simply at arbitrary calendar interval.
7. Remember that time, cost and quality are all interact. It is not possible to have the shortest construction time, lower cost, and highest quality at the same time,

and decisions must be taken at the outset of the project. (John Frank Woodward (1997)

In some case, project management consultants use their professionalism reputation to achieve that purpose. The project management consultant who has the overall power in the project managed by them will take this advantage to ensure that all the project planning and implementation run smoothly without any interference. The power to make a decision is very important for project management consultant to do their role effectively and this contribute to the effectiveness of the project management itself. In using the power entrusted for them as the source of their influence in project effectiveness, this power should be used with very caution and suitable and support from the higher management and client also important. Figure 2.1 illustrates triangulation of all 3 factors.

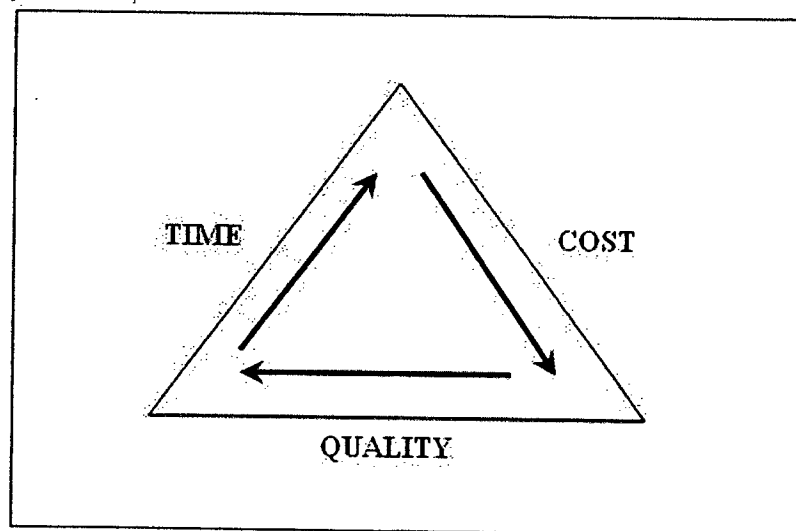


Figure 2.1: *Relationship between Time, Cost and Project quality*

2.5 Ideal Project Manager

In our country, PMCs or project managers come in various professional disciplines yet none is the “ideal top-flight project manager” par excellence. It is a tall order to locate such a person, who is highly effective and efficient in managing projects for success. Can we find such a person who has a continuous, successful track record of successfully handling innumerable projects? This is because the project management profession is so demanding. At the same time, the definition of a project success goes beyond mere time, cost and quality. (Andrew A.L. Tan, 2004)

The criteria of such an “ideal” project manager can be summarized but not limited to the following:

1. Self-assured leader
2. Focused on result
3. Energy and initiative
4. Problem-solving ability
5. Communication ability
6. Negotiation ability
7. Coordinating and integrative ability
8. Perspective - the helicopter mind

The ideal project management consultant is the person who has many qualifications and expertise in architectural, civil engineering, mechanical structure, electrical, quantity survey, town planning, interior design, landscaping, financing, personal management, traffic engineering and many other expertise related to construction directly or indirectly. If client need all the experts to be involved in order to complete his project, it sure consume a lot of additional cost for the project. Thus,