A STUDY OF THE IMPLEMENTATION OF PROCUREMENT MANAGEMENT SYSTEM TO A PROJECT SUCCESS IN MEGA PROJECT CONSTRUCTION IN MALAYSIA: A CASE STUDY OF KUALA LUMPUR INTERNATIONAL AIRPORT 2(KLIA2)

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Thesis submitted in fulfillment of the requirements for the award of the degree in Bachelor of Project Management with Honours

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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 with Honors.

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Dedicated to my family

STUDENT'S DECLARATION

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

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ABSTRACT

Procurement management system is very important in any industries area especially in construction area. Procurement is a highly skilled profession. It is focuses on people the knowledge, skills and capabilities either both of the public and private sector. It is because to implement procurement to innovation and ensure that these are required level of achievement. By managing a success project, it can help to minimize the risk of a project. The purpose of this study is to the implementation of procurement management system to a project success in mega project construction in Malaysia. Procurement management systems were examined to see the related between Project Management Body of Knowledge (PMBOK) and procurement management system in KLIA2. This study also identified the failure factors in procurement management in KLIA2. In conducting the research, questionnaires were collected in interview with forth respondents in Malaysian Airport Holdings Berhad (MAHB), UEM Construction Berhad and LKHDM Sdn. Bhd. The data already recorded, then analyzed through breaking down the point. The data also collected from secondary data which adhered from website journal and Jabatan Arkib Negara and is essential in narrow down the process. The result shown the process of procurement management system in KLIA2 fail based on three aspects that is human management factor, process factor and contract and technical factor. In conclusion, procurement management system is important to project successes. Once procurement management system in KLIA2 have a problem and make the project are delays. Then it will improve the procurement process in mega project construction. The information of this study will be useful in managing procurement management system.

ABSTRAK

Pelaksanaan sistem pengurusan perolehan adalah sangat penting di mana-mana kawasan industri terutama kawasan pembinaan. Perolehan memerlukan kemahiran yang tinggi. Ia adalah tertumpu kepada sikap manusia yang berpengetahuan, berketrampilan dan berkemampuan samada dalam sektor awam dan sektor swasta. Ini adalah kerana bagi melaksanakan perolehan yang berinovasi dan memastikan bahawa ia mencapai tahap prestasi. Dengan pengurusan projek yang berjaya, ia dapat membantu mengurangkan risiko bagi sesuatu projek. Tujuan kajian ini adalah untuk melaksanakan sistem pengurusan perolehan kepada kejayaan sesebuah projek dalam pembinaan mega projek di Malaysia. Sistem pengurusan perolehan telah diperiksa untuk melihat kaitannya diantara Pengurusan Projek Badan Pengetahuan (PMBOK) dan sistem pengurusan perolehan di KLIA2. Kajian ini mengenalpasti faktor-faktor kegagalan dalam pengurusan perolehan di KLIA2. Dalam menjalankan kajian ini, soal selidik telah dikumpul dalam proses temubual dengan empat orang responden di Malaysia Airport Holdings Berhad (MAHB), UEM Construction Berhad dan LKHDM Sdn. Bhd. Data telah direkodkan, dianalisis memalui penulisan semula isi penting. Data juga dikumpul melalui data sekunder yang didapati dari laman web, jurnal dan juga dari Jabatan Arkib Negara dan dianalisa melalui isi penting. Hasil penelitian menunjukkan faktor kegagalan proses sistem pengurusan perolehan di KLIA2 dikaji berdasarkan tiga aspek iaitu faktor pengurusan manusia, faktor proses dan faktor kontrak dan teknikalnya. Kesimpulannya, pengurusan sistem perolehan adalah sangat penting bagi memastikan keberjayaan sesuatu projek. Setelah dikaji sistem pengurusan perolehan yang dilaksanakan di KLIA2 adalah bermasalah dan membuatkan projek tersebut kelewatan. Kemudian, ia akan meningkatkan proses perolehan dalam pembinaan projek mega. Maklumat kajian ini diguna dalam menguruskan sistem pengurusan perolehan.

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LIST OF ABBREVIATIONS

PMBOK	Project Management Body of Knowledge
ILO	Internal Labour Organization
MAHB	Malaysian Airport Holdings Berhad
D&B	Design & Build
BOT	Build,
PMC	Project Management Contractor
ETP	Economic Transformation Programme
MRT	Mass Rapid Transit
CCC	Certificate of Completion and Compliance
ORAT	Operational Readliness and Airport Transfer
ICAO	International Civil Aviation Organization
FAA	Federal Aviation Administration
LCCT	Low Cost Carrier Terminal
PBES	Performances Based Evaluation System
M&E	Mechanical & Electrical
JV	Joint Venture
MTB	Main Terminal Building
BHS	Baggage Handling System

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

This chapter is given that an overall introduction on this dissertation consisting research background, statement of the research problem, the objectives of the research, the scope of the study, the research question and research methodology framework this dissertation. The last part of chapter 1 will explain the expected result of the research. All information in this chapter will help reader understand on what this research is all about.

1.2 PROBLEM BACKGROUND

This research intended to carry out because the intention and curiosity of the significant relates the procurement activity in Kuala Lumpur International Airport 2 (KLIA 2) within the procurement process in Project Management Body of Knowledge (PMBOK) and also the failure factor of procurement management in Kuala Lumpur International Airport 2. (KLIA2) Procurement management is a purchase process the products, services or results needed from outside the organization to perform the work. Procurement management also includes administering any contract issued by the buyer that is acquiring the organization from the seller performing and administering contractual obligations placed on the organization by the contract. (George Belev, et al., 2004).

Procurement management processes from Project Management Body of Knowledge (PMBOK) involve plan procurements, conduct procurements, administer procurements and close procurements. Procurement means acquiring a goods and service from outside sources include purchasing and outsourcing. The three items include from procurement that is procurement service, project procurement and contract management.

However in this recent arena, the Government procurement process is to minimize delays and to obtain financially the most advantageous and qualitatively the best services, (Daya Liyanage, 2006). The registration of suppliers will be mitigating interruption and unnecessary delay in procurement. The bidding process is encounter the delivery delays and failure to provide the supplies where and when they are needed, (International Labour Organization (ILO) and World Bank).

A research is needed in Procurement Management because of several deficiencies observe in the Procurement Management system existing in the Public Sector Organizations. Wherever the construction work or purchasing is done, it was not completely accepted by the client or requirement is not satisfactorily competed. Hence the beneficiaries make repeated requests. The fund used also does not being in best product or service due to lack of knowledge, lack of present technology development and inadequate capacity of the public sector staff etc.

1.3 PROBLEM STATEMENT

Procurement is a highly skilled profession. Hence, both of the sectors public and private managers to be focuses on people the knowledge, skills and capabilities. They need to implement procurement to innovation and ensure that these are required level of achievement. The successful of procurement activities depend on both supply and demand side capabilities.

Kuala Lumpur International Airport 2 (KLIA2) is one of others Malaysian's largest constructions and low cost air terminal. The planned for completion date in September 2010 but the KLIA2 launch in Mei 2014. Since, the process is delays more than one year make many departments are involved in this project have responsible to manage it. The delay has been mainly to changes the design and the size of the airport. Malaysia Aiport Holdings Berhad (MAHB) as a government agencies start to point the finger at AirAsia Bhd as a main contractor. (The edge Malaysia, July 2013) The airport size has been change from the volume of 30 million up to 45 million. The project is delay and higher the cost of completing KLIA2, a terminal dedicate to low cost carriers.

The process of procurement management system has fourth stage in PMBoK 4th Edition which is plan procurement, conduct procurement, administer procurement and close procurement. Malaysia Holdings Airport Berhad (MAHB) is responsible for the construction as instructed by the Government of Malaysia in order to suffice to the overwhelming demands on low cost carrier airlines. MAHB point out the claiming that it is not on fault to finding the mission but that is clarifying things because the company has been slammed for supposedly not managing the project well. The contractor underestimated the difficulties to solve the problems earlier in making the building especially watertight. (Business News, May 2013) Based on this situation, the process of planning procurement is it not clears from the two parties.

In the earlier days, traditional procurement system was practiced by both the public and private sectors to develop their projects. Beginning from 1990s, Malaysia adopted a new procurement system to cope with the increasing number of project implementation, complexity of building requirement and mega infrastructure projects to support the country's growth (Rashid, et. al., 2006). He added that the introduction of different 'fast-tracking' project procurement systems is an effort by the industry to offer better deals to its clients or customers, as they start realizing the importance of 'value for money' for their projects in terms of cost, time, and quality. The new procurement practices which were said to be 'fast tracking' are D&B, BOT and PMC. However, the PMCs, which supervised and managed a majority of government projects, failed to control costs, design and scope of those projects, resulting in higher costs (Ibrahim, et.al. (2010).

According to the idea mentioned above, this research aims to identify the significant relates of the procurement activity in KLIA 2 with the process in PMBOK and the failure factors procurement management of KLIA 2. This research can help of some other case study of construction project in the Malaysia and can be improve the project performance for the next mega project construction.

1.4 AIM AND OBJECTIVES OF STUDY

1.4.1 Aim

The aim of this research to identify the significant relate the procurement activity within procurement process in PMBOK and failure factor procurement management of Kuala Lumpur International Airport 2 (KLIA 2) to achieve the project success in mega project construction in Malaysia.

1.4.2 Objectives

i. To relate between the procurement activity in Kuala Lumpur International Airport 2 and procurement process in PMBOK.
ii. To identify the failure factors in procurement management in Kuala Lumpur International Airport 2.

1.5 RESEARCH QUESTION

i. What are the relations between the procurement activity in KLIA 2 and procurement process in PMBOK
ii. What are the failure factors in procurement management in Kuala Lumpur International Airport 2.(KLIA 2)

1.6 RESEARCH METHODOLOGY FRAMEWORK

This part reviews the methods to apply in collecting the data to identify the relations between the procurement activities in KLIA 2. Research start by having preliminary study, secondary study, data collection and followed by analysis findings, conclusion and recommendation. Overall, there are included 5 stages:

i. Preliminary study

The preliminary study is a stage to develop idea on decided topic. The data can be collected from books, journals, articles for the purpose of deciding the title of research objectives and problem statements.

ii. Theoretical study

The theoretical study is more focus on the literature review and deeply understanding about the research. The reviews come from various sources such as journals, books reports, newspapers, student thesis and websites. The ideas will be defined to write the aim and objectives of the research.

iii. Data collection

Collection of data is important stage to towards accomplishing the aim and objectives of the dissertation paper. The primary data is compiled from the semi-structured interview on the manager and procurement department and secondary data is obtained from books, journals, newspapers in Jabatan Arkib Negara and student thesis etc.

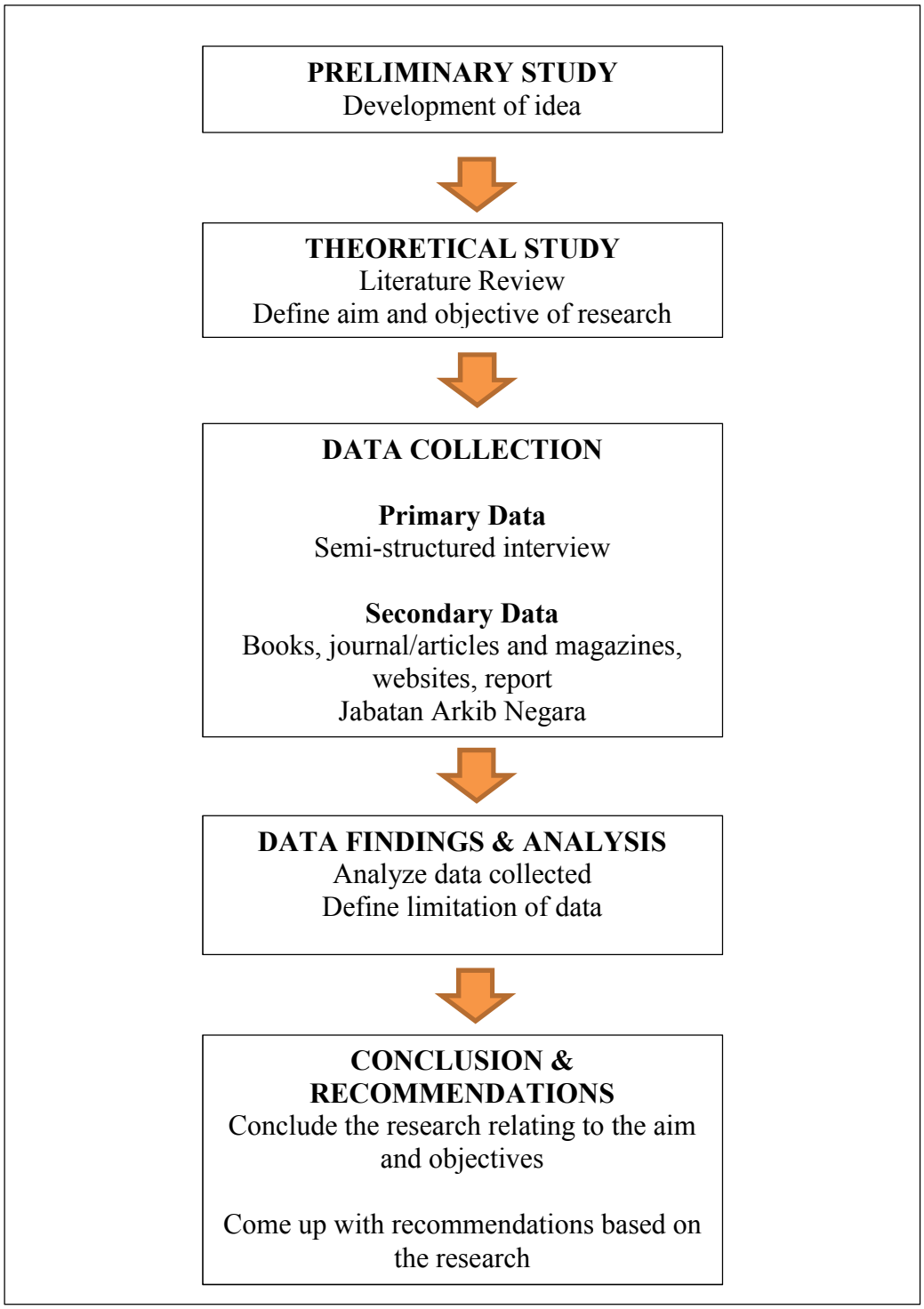
iv. Analysis findings

All the data collection from the first and second stage will be analyze in order to conclude with the finding that can achieve the objectives of the research. The failure factors on KLIA 2 will be found out and proper plan and recommendation as a final outcome of the research paper.

v. Conclusion and recommendation

In the last stage of the research is findings would be able to show the result of the research. Conclusions need to be writes based on the objective of the study. At the same time, some appropriate recommendation related to the problems and as a better solution or further research purposes.

Figure 1.1: Research Methodology Framework



1.7 SCOPE OF STUDY

Due to this research is carrying the procurement management systems in mega project construction, so, this study will focus on Kuala Lumpur International Airport 2 (KLIA 2). This study will focused on procurement activity and failure factor in procurement management in achieving a project success by relate with PMBOK. The research confined limited to Kuala Lumpur International Airport 2 (KLIA 2) only. Semi structured interview were conducted with targeted respondents of from Contract Manager and Assistant Manager from UEM Construction Sdn. Bhd.(UEMC), senior manager from Malaysian Airport Holdings Berhad (MAHB) as a client and also the project director as a consultant for client, Ar. Hisham Ali.

1.8 SIGNIFICANT OF THE STUDY

The important of the study for this research is to identify the failure factors of procurement management and related procurement activity within the procurement process in PMBOK. Since Malaysia is still new in constructing mega project construction, therefore the understanding on procurement management and procurement process is essential for future development. Therefore, the awareness regarding the process of procurement systems can be organized with clearly with both side whether supplier or buyer.

Meanwhile, the result of study can be applied into variety of industry as guideline and assist project manager and team member to managed procurement management systems effectively because the result is explain the failure factors of procurement process in mega project construction, Kuala Lumpur International Airport 2 (KLIA 2) able to improve the project performance for the next mega project construction.

1.9.1 OPERATIONAL DEFINITION

1.9.2 Project Procurement Management Process

According to PMBOK 4TH Edition, project procurement management process is defined the interaction with each other and the process can involve effort from a group of person, based on the requirement of the project. Each project occurs at least once in every project and occurs in one or more of the project phases. The process is included that is plan procurements, conduct procurements, administer procurements and close procurements.

1.9.3 Mega Project Construction

Mega project constructions are defined as the cost of the project having multi million or even billion dollars and the time frame measured in years. The term procurement are related with the mega project construction, the procurement concept are used to cover the process ranging from establish the requirements, global sourcing, placing contract, overseeing execution and in some cases dealing with through-life support (Hall & Khan, 2006).

1.10 EXPECTED RESULTS

Expected result will focus on get the much and the best information as possible on the research questions. Another expectation is can get the information about the key failure factors of the procurement management in Kuala Lumpur International Airport 2. Furthermore, expectation to receive back sufficient responds to help in collects data and analyses and then determine the relations procurement activity in KLIA 2 and the procurement process in Project Management Body of Knowledge. (PMBOK) The processes of procurement management in KLIA 2 have positive relates within the procurement process in PMBOK. That is plan procurement, conduct procurement, administer procurement and close procurement.

The failure factors of procurement management in KLIA 2 can be expect the problems arise from lack of communicating and managing expectation with clients, team members and stakeholder. The flow of information was not structured to ensure the process of managing change was clear.

The second factors that will be happened in KLIA 2 poor of strategic project planning. This process to ensure the plans that are put in place effectively streamline and offer quick responses to any conflict and issues arising out of the competing demand from external and internal parties.

I also hope that this study provides positive result to improve the contract and procurement systems for another mega project in Malaysia. This study also can identify and see the causes of project construction in Malaysia will be delay. In this study also be able to add a little bit of improvement that should be added to achieve a quality of buildings in Malaysia.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The purpose of this chapter is to provide a more detail information and news about research. This chapter explains construction projects issues, construction mega project, procurement management overview, definition of procurements and procurement in the construction area. Last but not least, challengers arise in managing procurement will be fully explained in this chapter.

2.2 PROJECT MANAGEMENT BODY OF KNOWLEDGE

Project Management Institute was published the Project Management Body of Knowledge (PMBOK Guide) in 1996. PMBOK is a collection of process and knowledge area about the project management profession acceptance as a best practice. PMBOK that is the knowledge and practice describe the most of project and there is consensus their value as a good practice. Project Procurement Management includes for ten knowledge areas contains. The procurement process are interact each other and this process include the other ten knowledge areas.

Based on the PMBOK Guide 4th Edition Project Procurement Management processes which include the following:

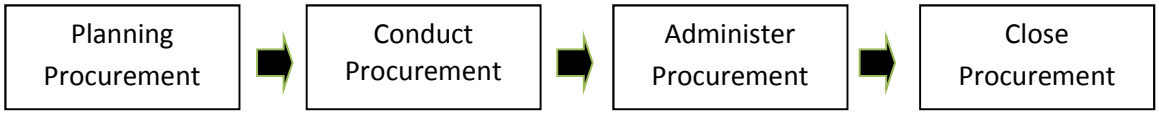
i. **Plan Procurement** - the process of documenting project purchasing decision, specify the approach and identify potential sellers. This process it's about what to require, how to require, how much is needed and when to require it. In this stage, planning process included some of other committer in the project for example, project manager and quantity surveyor.

ii. **Conduct Procurement** - the process of obtaining seller responses, selecting a seller and awarding a contract. The process to selecting the best of vendor, the project team should make the decision.

iii. **Administer Procurement -** the process managing procurement relationships, monitoring contract performance and making changes and correction as needed. In this stage, the project will be started like a schedule planning. Quantity surveyor can monitor the process order.

iv. **Close Procurement** - the process of completing every each project procurement. The last stage also important to make sure the buildings is saving to entrance**.** The organization can get the certificate.

Figure 4.2, Flow Procurement Process



2.3 CONTRACTING STRATEGY IN MEGA PROJECT

A contract is a key component of a procurement system and it is an essential element required between two parties collaborating for a project. Contract means a mutually binding agreement that obligates the seller to provide the specified products and services an obligate the buyer to pay for them. The main function of contract are to specify the work to be finish, the amount to pay, to assign responsibility to the concerned parties to finish the work and decide who takes charge for the unexpected events. Based on these, there are many different types of contract used in the construction industry. Types of contract are one of other element in procurement management system.

2.3.1 Types of contract

All legal contractual relationship generally fall into one of two broad either fixed-price or cost reimbursable According to PMBOK Guide 4th Edition 2008.

i. Fixed-price contract - this contract are involves setting a fixed total price for define the product or services to be provide. This category of contracts may also incorporate financial incentive for achieving selected project objectives such as schedule delivery date, cost and technical performance. Under this contract the buyers must precisely specify the product or service being procured.
ii. Cost reimbursable – this contract are involves payment to the seller for all legitimate actual cost incurred for finish the project, plus a fee representing seller profit.

2.4 PROCUREMENT MANAGEMENT OVERVIEW

2.4.1 Introduction and Definition Procurement Management

Procurement management means acquiring good products, services or results needed from outside sources. (PMBOK Guide 4th Edition, 2008). The procurement may include three components that are the procurement service, contract management and project procurement. The procurement included the contract management and develops the change control process and administers contract or orders issues. In addition, the process to administer contract and order issues comes from three types that is authorized from project teams and from the outside organization (the buyer) to acquiring the project performing organization (the seller) and contractor administer contractual obligation placed on the project team members.

2.4.2 Procurement Process

According to Guideline PMBoK (2004), project procurement includes all the process necessary to purchase or acquire the products, service or results needed from outside the project team to perform the work. There are several phases in project procurement process based on the PMBoK in Figure 2.2.

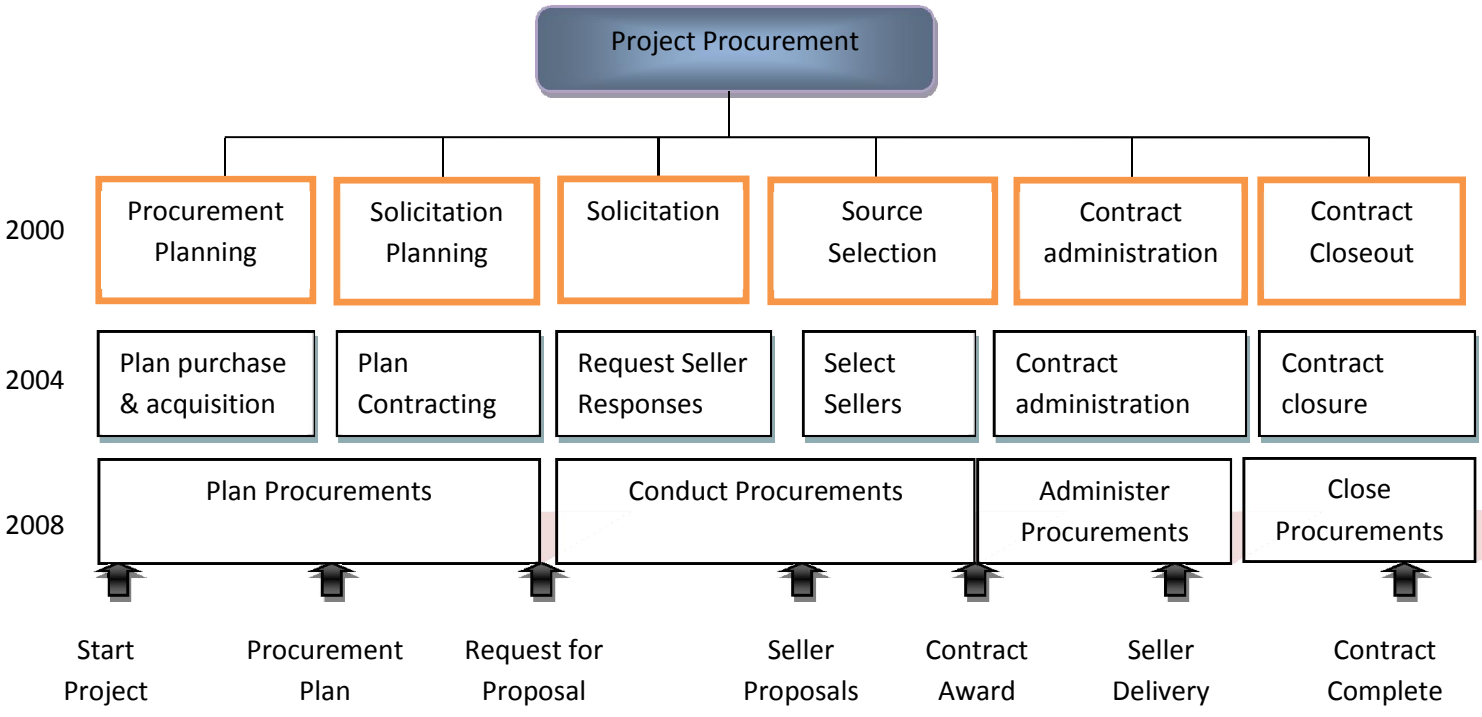


Figure 2.2: Project Procurement Phases cycle (Fleming, 2003 and Guth, 2009)

The decisions that are made in plan procurement will influence the project schedule and integrated with developing the schedule in future. According to PMBOK Government Extension (2006), the perspective government contractors decisions to maintain public trust, fully utilised government resources and to ensure open and fair competition it is challengers for them.

2.4.3 Contract and procurement activity

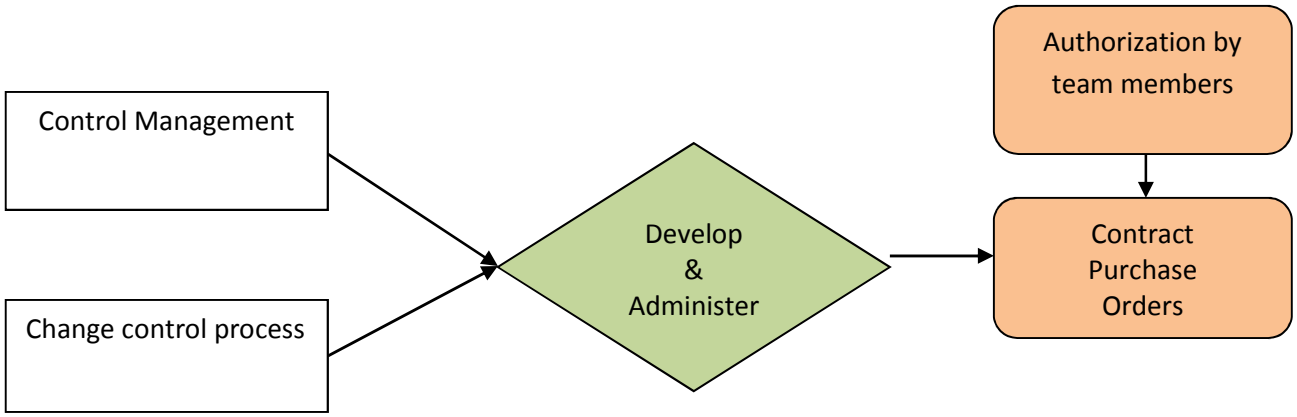


Figure 2.3: Contract and procurement management activity

2.4.4 Procurement method

Procurement method is used to describe about the complex network relationship between client, consultant and construction companies. This method is very important to make the procurement management systems easy to distinguish the contractual relationships especially in complex procurement. Some of situation the procurement method already has been decide before an architect will be assign. It is depends upon the nature and scope of the work proposed that is include with responsibility for design, work to be coordinate, the price is to be awarded and the risk that to be apportioned. The important things it is the contract form cannot be settled until the procurement method and type of contract not establish yet. The procurement method can have three types which are:-

i. Traditional method or conventional method
ii. Design and build method
iii. Management Oriented System

2.4.5 Procurement System

The different procurement system is the attempt by company to provide better deal with the clients or customers. The procurement system can be classified into several categories based on the relationship and critical interaction between the detail design and construction responsibilities. (Refer Figure 2.4)

i Separated and Cooperative System
ii Integrated System
iii Management Contracting

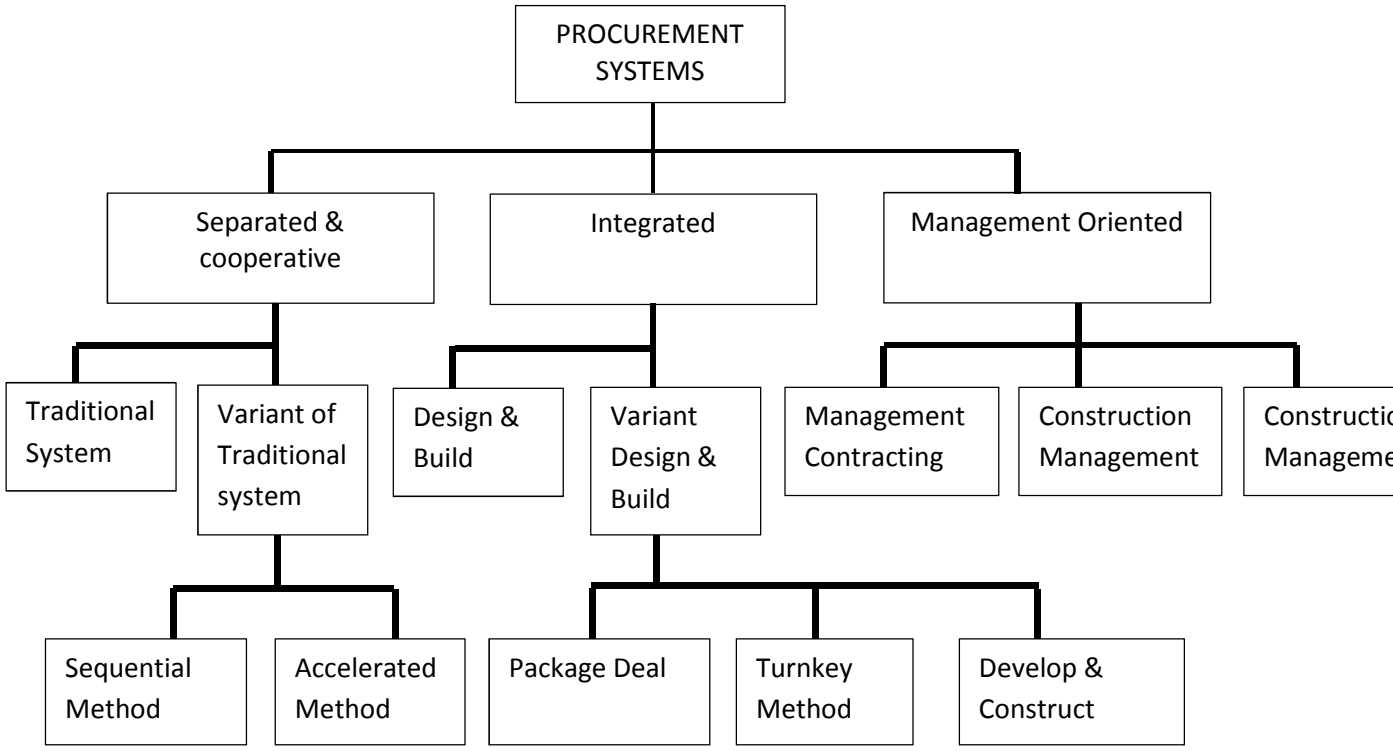


Figure 2.4, Category of Building Procurement System
Source: Masterman J W E (1996) Building Procurement Systems: An Introduction

a) Separated and Cooperated System

The separated system it is about the responsibilities of detail design and construction of the project. This system will be separated between the organizing the namely of designers and contractors. It is also can called as linear or sequential contracting system and multiple responsibilities contracting approach. The process design has been prepared first by designer before submit tender and construction activities. It can be divided into two categories under this system which is traditional system and variants of Traditional Systems. The variant of traditional system is divide into two sub-categories which is sequential method and accelerated method.

The sequential method or a single stage tendering, the client will appoint a team consultant to proceed his behalf construction drawings, specification and tender document and administer the tendering process to select the best contractor. The accelerated method or innovative approach to speed up the process of selecting contractor and the construction activities.

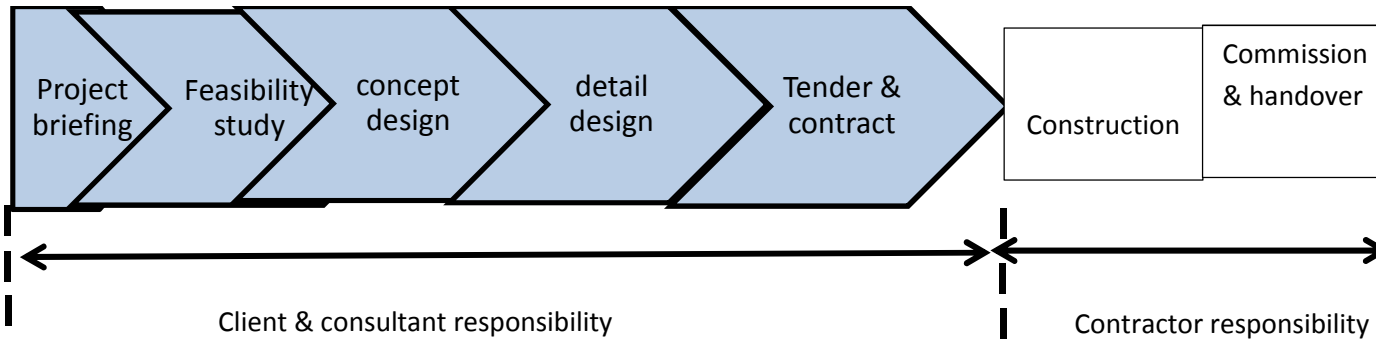


Figure 2.5, Flow Sequential of the Traditional Procurement System

b) Integrated System

The integrated system or combines process of the responsibilities of design and construction of the project. Responsibilities between the client and contractor are contracted out to a single contracting organization. The client should deal with single organization for both the designing and constructing activities. The contractor it is responsible to design and construction committee. Design and Build system it is process the client together with their consultant will prepared the tender and bidding document that was include the project brief and client requirement and invite the contractor to bidding process.

The process of submitting tenders, the contractor should proposed their design, construction and best cost. The best contractor could be selecting and a contract based on lump sum price and a fixed duration. The process of delivery project can be categories into three which is

i Package deal – can call "all in". The contractor responsibility to settle everything included the design, construction activities and delivery of the project. Contractor also provide the service such as the preparation of project brief, cost, construction, commissioning of all equipment and accessories and handling over the project to the client.

ii Turnkey system – can call as package contract. The contractor arrange the commissioned to undertake the responsibilities for everything necessary included the construction, completion project, commission and hand over. The planning stage, the client given the key and then enter the project by "turning the key". The contractor responsible to do everything from prepared project brief until hand over project completing and ready to use.

iii Develop and construct – In this category, the contractor still give their commitment about the project especially about the design and construction project. The purposed it is the client design and consultant prepared the concept sketches and detailed

working drawings pass to contractor. The contractor will complete it the project based on the process that is provided.

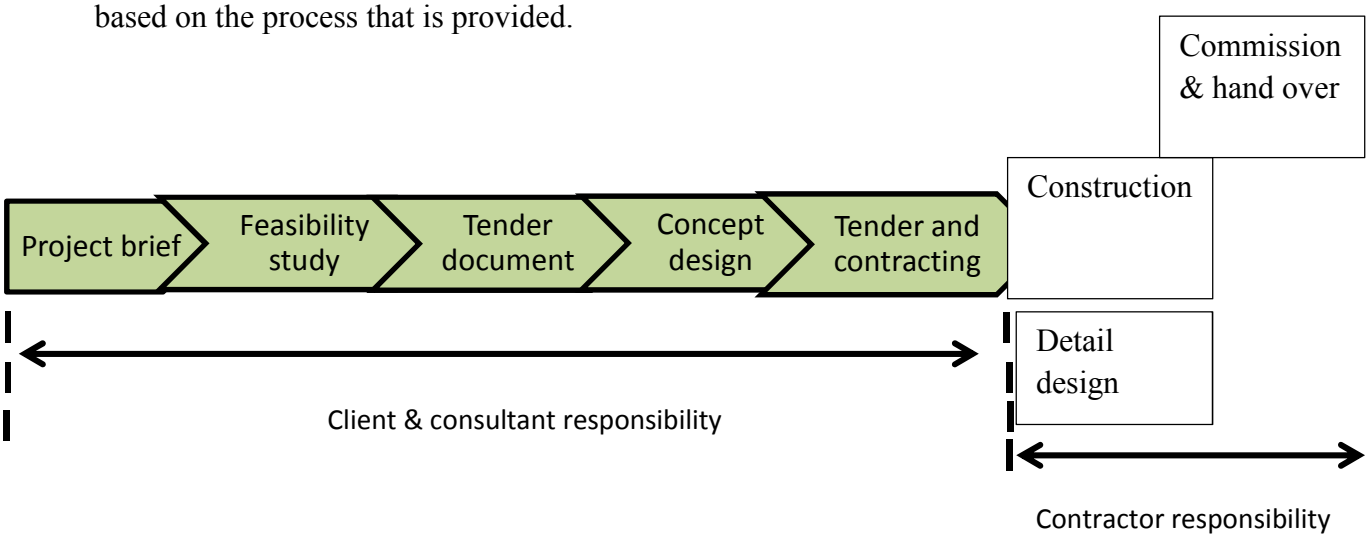


Figure 2.6, Flow Integrated Process of Design and Build Procurement System

c) Management Contract

In this system, the management gives greater emphasis and integration of the design and construction project. It is also contracted out to a contractor to point the management consultant on behalf of the client. The contractor has more expertise about the design and construction project. The management consultant, it is responsible to manage the design and construction project. The three types of procurement method under the management contracting systems they are:

i Management contracting – "fast tracking" procurement approach. The contractor is contracted and paid a fee to manage, procure and supervise the construction of project rather than build. The management contractor as contract management that also one of other client team.

ii Construction management – Construction management same like concept contract management but the package contractors are in contract with the management contractor. The package contractor or specialist sub-contractor are in contract with the client.

iii Design and manage – The single organization is commissioned to responsible for designing and construction of the project. The organization does carry out the work itself but the contracted out the number of sub-contractor, who enter the contract with building owner.

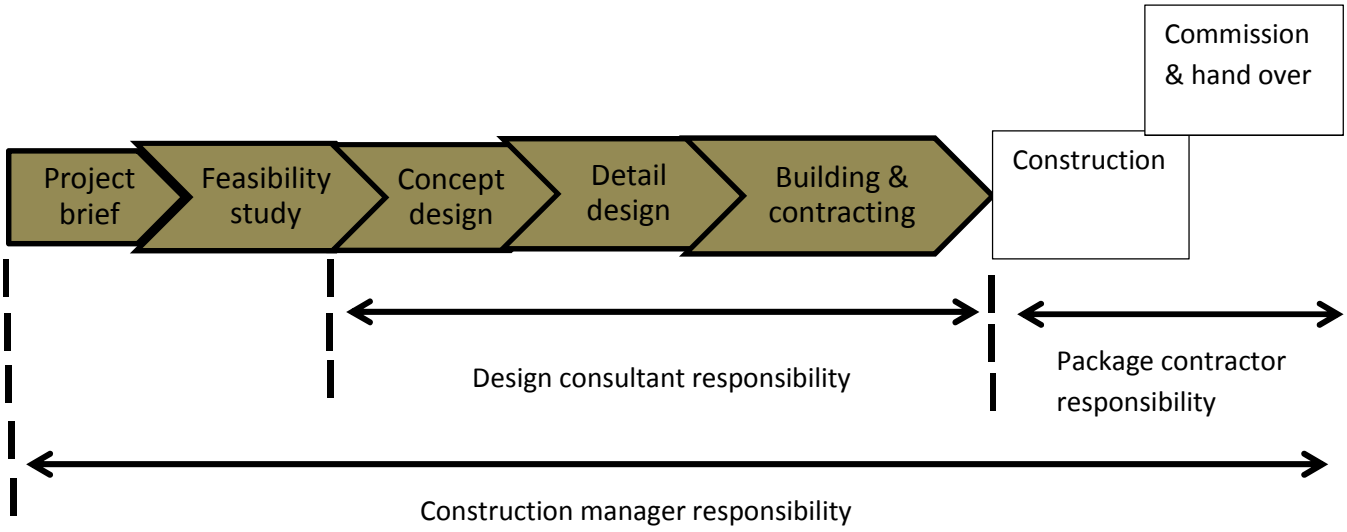


Figure 2.7, Flow Process of Management Procurement System

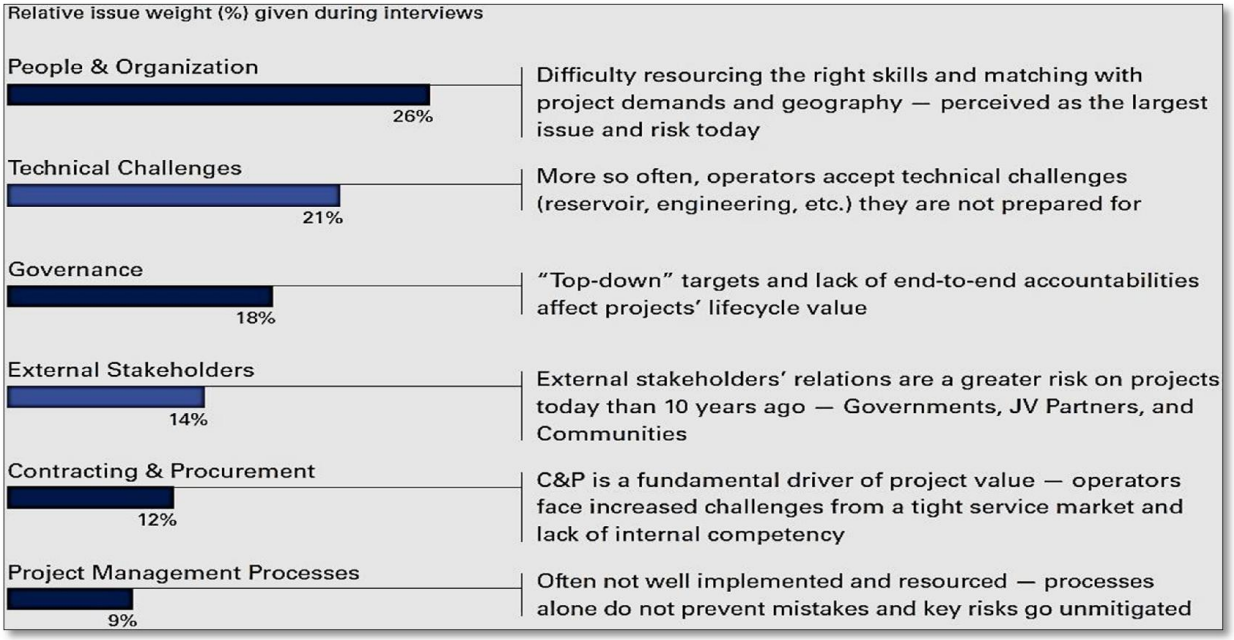
2.5 MEGA PROJECT CONSTRUCTION ISSUES

Mega project construction are huge undertakings that could cost more than US$1 billion, a time to complete of 5 years or more and attract a lot of public attention because the related with the impact on communities, environment and budgets. In addition to the huge amount of money invested on the project many other sources are also involved. Different people from different organizations are grouped together to form the project team who coordinate all the efforts to execute the project to become successfully. According to Ali Abdullah Al-Salem (2011) the people are involved in mega construction projects include:

- Owner who will finally live with the project and operate the facility built.
- Contractors or Subcontractors who directly execute the project.
- Suppliers or Vendors who provide the equipment and materials required by contractors to built the project.

- Bank which will finance the project
- Many other organizations.

Table 2.1: The most common root causes of capital project issues



Source: SBC Capital Project Research, 2012

One of other group of issues (Figure 3, above) is related to the contacting and procurement of equipment and services and the planning and management of the project phases. Project schedule, cost and the quality depends on the successful project delivery. Project construction team in KLIA 2 lack the internal capacity to manage multiple vendor relationship, framework agreement and flexible forms of contract. The normally accompanied by the award of large work package that are mostly base on lump sum contract. However, issues in KLIA 2 are related to the technical challengers because the project teams change the new designs and facilities upgrade. The cases are cracks in the building considered as a technical challenge.

Mega project include the project bridges, tunnels, highways, railways, airports, seaport, power plant and waste water projects. Recently, many mega construction projects have been or more being built example, Kuala Lumpur International Airport cost is $2.36 billion, Government Building Putrajaya cost is $5.26 Billion, Petronas Twin Towers cost is RM 1.8 billion. Another mega project in Malaysia includes Stadium Shah Alam, Information Technologi Cyberjaya, MRT-Mass Rapid Transit and Penang bridges.

There are current mega construction project arise in Malaysia. The most recent issue by public was Warisan Merdeka project and the anti-Warisan Merdeka page on facebook called "1M Malaysian Reject 100-storey Mega Power". This construction cost 5billion. This construction was plan in Oktober, 2015. This construction project was planned in budget 2011 and the Economic Transformation Programme (ETP). This mega construction project instead of key reforms in its economic plans and it will hamper the countries goal of becoming a high income nation. According to Chin, a Monah University professor called the government to develop a service and knowledge economy in a bid to achieve Vision 2020. This mega construction project not help to get a high income economy but refocused on the service and knowledge for example bringing back talented people from overseas.

The complexities in managing mega construction projects can be categories in three aspects which is technical, social and managerial aspects. The technical complexities of mega project construction are determined by the design and technologies in construction process. The social complexities of mega project construction from the inadvertent within their location of implementation. The managerial complexities are caused by the business and government aspects including the financial arrangement, scheduling, and resources deployment and decision management. Heng Li and H.L.Guo (2011) share the complexities in managing mega construction projects.

2.6 INTERNATIONAL AIRPORT

2.6.1 Berlin Brandenburg Airport

The international mega construction project issues it is Berlin Brandenburg Airport. The project Brandenburg may wind up costing upward of $5.8 billion, $1.6 billion more than originally planned, according to Mr. Kunkel the airport spokesman (Berlin Journal, April 2014). This Airport could begin in March or April of this year, 2014. However will remain closed until 2016, the major causes this project are delay because of the technical complexities. The unplanned reconstruction of the northern runway owing to stricter rules for noise protection is a one of other causes this mega project construction are delay. (Australian Business Traveller, Feb 2014)

2.7 Kuala Lumpur International Airport 2 (KLIA 2) Issues: case briefing

According to Transport Ministry, Datuk Nur Jazlan Mohamed many issues were brought up to justify the increase in the construction cost, which has hit the staggering RM 4 billion mark. The one of other key reason the costs are increase because the size of the terminal to be expanded. The changes in the aviation industry occur fast. For example, Kuala Lumpur International Airport 2 (KLIA 2) was designed for 25 million passengers in the first planned but after a forecast by the International Air Transport Association Industry (IATA) that the plans have changed to cater for 45 million passengers through its 64 gates.

In addition when the changes of size the terminal may happen, the other parts must be changes such as the aerobridge and baggage handling system had to be enlarged. According to the joint venture (JV) of UEM Construction Sdn. Bhd and Bina Puri Sdn Bhd would be complete by the deadline of January 2013. However, they need to work rigorously to ensure the physical changes are complete of the work package and obtain the Certificate of Completion and Compliance (CCC). The work package may include the project construction of the main terminal building, satellite building, sky bridged and piers and the cost of RM 997 million.

The opening of the KLIA 2 are set May 2, 2014 according to Malaysia Airport Holdings Berhad (MAHB). The dates include the process for discussion between Malaysian's airline industry and National Aviation Policy. Operational Readliness and Airport Transfer (ORAT) should be test and the time for the process testing at the KLIA 2 for three months. According to Transport Minister Datuk Seri Hishamuddin Hussein, the receipt from ORAT certification includes the rectification work on crack, the cooling systems and renovations (The Malaysian Insider, January 2014)

The issues of that minor cracks structure on the taxiway, apron and runway be repaired as per International Civil Aviation Organisation (ICAO) and Federal Aviation Administration (FAA) guidelines and focused on safety aspects. However the new budget terminal could be delayed because of the building did not comply with fire and safety standard after an inspection (MAHB, January 2014). There were the cracks in a sewerage pipe outside the building and parts of the road and drainage are not fit to use. (The Malaysian Insider, April 2014)

2.8 Challengers and Problems Arise in Managing Procurement

A well written procurement is an important element to establish this cooperative relationship since it the pattern behaviour of the project participant. The contract should define clearly the legal, financial and technical aspect based on that project because may conflict interest between the project parties. Each professional organization has their own professional code of conducts and policies to guide the ethical behaviour among the project teams.

2.8.1 Conflict owner and contractor

The top management also should deeper concern and not consider it as just a technical issue. Of course, the management need to shape the business derivers upon which the project will be executed. Main root of mega construction project facing these problems was because of ethical issues in project procurement. According to Malaysian former Prime Minister, Datuk Seri Abdullah Ahmad Badawi, the existing procurement process and

awarding of government contracts is full of opportunities for corruption (Berita Harian, 2007).

2.8.2 Lack of Accountability and Transparency Mechanisms

The issue of corruption can increase substantially without appropriate mechanisms for accountability and transparency. The organizations fail to maintain their reputation, for example decision made in evaluating offers.

2.8.3 Close Relationship with Suppliers

The officer can work together with contractors and suppliers, those with whom they have good relationship. If they are fail to retest the market, it can be effect the decision made by the organization and cause it to lose value for money. Supplier relationship is a business process for managing all contracts between an organization and its suppliers (Kroenke , 2012). Both parties need to establish close collaboration to build the trust, engaged in a long term relationship and high commitment through developing joint products and sharing cost reductions to maximize mutual benefits.

2.9 Summary

Based on the findings of the study as summarized it can be concluded that the procurement management system in mega construction project have a challengers. The issues in KLIA 2 can be classified as a technical challenge but how the organization managing their procurement from that issues.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

Research methodology is path to finding the answer to the research questions. This chapter consists of few sections that explained in detailed the participant of this study, how this study was conducted and how to collect the data and how the data will be analyze. This chapter describes the survey procedure employed, including data collection procedure sampling and unit of analysis of the study. It includes a discussion on two important analyses of measure, reliability and constructs validity on the instrument employed. Next it presents the results of the analysis. It describes demographic characteristics of the respondents. This chapter also explained conceptual framework, research design, research methods, population and sampling, instrument development and design the questionnaires. Apart from achieving the primary aim and the objective of study, this research is involving case study to find out the sample contract procurement form for Airport Industry.

3.2 THEORETICAL FRAMEWORK / RESEARCH OBJECTIVE

As I mention before earlier in chapter 1, the purpose of this study is to assess the procurement management system in Kuala Lumpur International Airport. (KLIA2) Attainment of this study is based on following research objectives:

i. To relate between the procurement activity in KLIA2 and procurement process in PMBOK.
ii. To identify the failure factors in procurement management in KLIA2.

3.3 RESEARCH DESIGN

Qualitative research is a strategy to collect the data. In order to complete research strategies will be implemented to gain comprehensive and reliable result.

3.3.1 Qualitative Research

The qualitative measure is corresponding with respondent's opinion, experience, view and their perception. This study is more subjective to evaluate the opinions and views of personnel regarding procurement management status in mega construction project in Malaysia, the issues arise in procurement management in Airport Industry and the types of procurement management systems. Several questions that measure respondent views and opinion are as follows:

i. How do you see the development of procurement management system in mega construction project in Malaysia?
ii. What your opinion on types of procurement that is used to manage the mega construction project?
iii. From your point of view, what are major problems KLIA 2 is delay?

3.4 DATA COLLECTION

There are two types of data collection that is primary data and secondary data. This part is using both approaches to gain complete and get the information.

3.4.1 Primary data

The primary data is concept to collect the data directly from first hand experienced. For this study, there are focused on the one case study was conducted in KLIA 2. The primary data regarding airport industry procurement process and the procurement management systems requirements is required for the purpose of this research. Semi structure interview is carried out to obtain truth information especially on costing implication in terms of construction and operation project.

3.4.2 Secondary Data

The secondary data is a process of published data and the collected from other parties. The secondary data is used to collect the information about the procurement process, the contract types, mega construction project issues and the challengers in managing procurement management system. The sustainable construction concept and understanding also obtained through this method. The data are collected from the books, journals, periodicals, conference papers, act and regulation and sources from internet. This information also collected by Jabatan Arkib Negara.

3.5 INSTRUMENT DEVELOPMENT

This research using the semi structured interview as a data collection method because the process is more flexible and less formal which allow for new question to be brought up during the interview. In addition, semi structured question are more detail information can be drawn out during the interview session. Therefore, comprehensive data regarding design and cost aspect can be obtained. For KLIA 2 airport building, the person being interviewed was Puan Fadzida which is the Contract Manager, Department of Procurement & Contract and Encik Rosli as Assistant Manager of UEM Construction, Encik Rashid the engineer Malaysia Airport Holdings Berhad (MAHB) and Ar. Hisham Ali a Project Director of LKDM Sdn Bhd. Sample interview question and answer are provided in the **Appendix 1**. Below the sample questions that were used in the interview:

i. First of all, it is project KLIA2 used Project Management Body of Knowledge (PMBOK) as a guideline?
ii. If the not, what is the project guideline that is used in managing procurement process KLIA 2?
iii. In PMBOK guideline 4th Edition, process of procurement that included planning procurement, conduct procurement, administer procurement and close procurement. What is the procurement process that is used in KLIA 2, explain every phases.
iv. What are the failure factors in procurement management in KLIA 2 that causes the project to be delay? The factor can be categorized by
    1. Human management factor
    2. Process factor
    3. Contract & technical factor
v. KLIA 2 project is currently opening in May 2, 2014 what are the challengers in managing procurement management regarding the project issues?
vi. Based on that issue, what are the effects to the project procurement management in KLIA 2?
vii. From your point of view, what are major problems KLIA 2 will be delay?
viii. How do you see the development of procurement management system in mega construction project in Malaysia?

3.6 DATA ANALYSIS

In this stage, all findings upcoming from case study and interview will be analyzed and some interpretation works will be done come with precise conclusion. This is an essential stage where all recorded information and data compile will be summarized and the objective will be answered.

3.6.1 Recording the Information

After compile all the information derived from interview, observation and desk study, all data collected need to be translated into writing report, form, tables and charts. This is the early procedure to ensure the data are collect is comprehensive and complete to start the analyzing process.

3.6.2 Analyzing the Data

All information which already recorded, then need to be analyzed. Through breaking down the point or fact into part by referring to research aims and objectives will provide clear path for data interpretation. The information collected from secondary data which adhered from website, journals and books is essential in narrow down the process of procurement and the failure factor of the procurement management systems in KLIA 2. The requirement will be analyzed and the credit with ability in procurement process design of the airport industry is analyzed. Meanwhile, the primary sources will help on case study analysis especially in project construction cost.

3.7 SUMMARY

Research methodology is purposely adhered to guide author in their handling research. Therefore clearing research methodology part is essential to monitor researcher towards achieving all aims and objectives. All data need to be precise and interpreted properly to the other readers more understand about this research.

CHAPTER 4

CASE STUDY, DATA ANALYSIS AND FINDINGS

4.1 Introduction

This chapter consists of data collected from the case study and a series of interview sessions. Data gathered from both methods is compiled and in depth analysis of the data is done. The facts and statements collected are assembled and discussion is drafted through writings, charts and tables. The data must be presented in well arrangement manner to ensure better understandings. Therefore, the detailed data breakdown, summarized information and final conclusion are compiled in this chapter.

4.2 Case study

The case study analysis will explain on the case for airport buildings which is KLIA 2. KLIA2 is a one of other mega construction project in Malaysia. KLIA 2 project is an expansion airport to cater for the rapid growth on low-cost air travel which KLIA terminal is unable to entertain the overwhelming traffic demands. On 11th September 2014, a case study has been done on KLIA2 project by having an in depth discussion with Ar. Hisham Ali, Project Director in LKMD Architecture Sdn. Bhd. Few Data collected from Encik Abd.Rashid Daud, Senior manager in Malaysia Airport Holdings Berhad and her Assistant Manager, Encik Rosli Yusof from UEM Construction. Another perspective to get the information about the contract and procurement part, the data collected from Puan Fadzida Ahmad as a Contract Manager of UEM Construction (UEMC) for KLIA2 project. Detailed interview of the three personal are provided in **Appendix 5.1, 5.2 and 5.3.**

4.3 Kuala Lumpur International Airport 2

The Kuala Lumpur International Airport 2 (KLIA2) is built with connectivity for both local and international low-cost. It can call as International Airport Hub. The KLIA2 it is designed to cater 45 million passengers a year, it is replacing the Low Cost Carrier Terminal (LCCT) once it's ready and the building is bigger capacity and superior facilities. KLIA2 project is current construction airport project. The new KLIA2 terminal is measured to be least 257,000 sqm with 60 gates, 8 remote stands, 80 aerobridges, plus a retail space of 32,000 sqm to accommodate 225 retail outlets. The costing to build this project around 4 billion and the first estimate to be opened on 28 June 2013. Due the construction is delay, the new official date opened on 2 May 2014. Malaysian Airport Holdings Berhad (MAHB) is an instructed by the Government of Malaysian and it is responsible for a construction.

Table 4.1: The comparison between LCCT, KLIA & KLIA2

	LCCT	KLIA	**KLIA2**
Passanger Capacity (yearly)	15 million	25 million	**45 million**
Passanger Comfort (capacity/floor space)	234 pax per sqm	52 pax per sqm	**124 pax per sqm**
Terminal Size (sqm)	64,067	479,404	**257,000**
Cost	RM300 Million (terminal cost only)	About RM10 Billion	**RM4 Billion**
Runway Access	Runway 1 and 2 at KLIA	Runway 1 and 2 at KLIA	**4Km runway 3 with a 2.2Km separation from Runway 2**
Car Park (lots)	3,000 (uncovered) with expansion	6,208 (covered) & 5,509 (uncovered)	**6000 (covered)**
Retailed space (sqm)	8,898	19,425	**32,000**

Source: Malaysian Airport Info (2014)

4.3.1 Key Players

The main idea having this airport expansion comes from Air Asia which is a remarkable Low Cost Currier company in Malaysia. KLIA 2 forecasted with further rise in airline business demand. They also believe that the current airports are unable to bear the future needs. Malaysian Airport Holdings Berhad (MAHB) who owns this airport has appointed KLIA Consultancy Service Sdn.Bhd. as a Project Manager in order to monitor and manage all the tasks starting from the initial stage until project will finish.

The airport construction which is one of the biggest projects in Malaysia has been planned to be divided into several packages in order to encourage builders in term of developing their construction experiences. Until now, one tendered package involving deliverance of Main Terminal Building (MTB) and Satellite Buildings has been awarded to join Venture Company which is Bina Puri Holdings Berhad and UEM Group Berhad on july 2010.

MAHB employed consultants to assist them in monitoring project progress to ensure the requirements are fulfilled. The project committee agreed to use Design & Build (D&B) systems and conventional system as a method to develop the contract and procurements. It is because the process becomes easier and to reduce the risk management plan. The design will be in charge of project planner from UEM Construction. The committee in project KLIA2 is not in the same company, the meeting with the team member is not easy to manage.

Procurement that project KLIA2 used is it Design and Build methods. This method is to deliver a project in design and construction services are contracted by a UEM Construction group. This process is used to minimize risks for the project owner and to reduce the delivery schedule by overlapping the design phase and construction phase of a project KLIA2.

4.3.2 Project details

KLIA2 is planning to start their operation on October 2010 will be consume the construction project complete 24 months. This project is aimed to be completed with RM3.4 billion budgeted development cost with a total GFA of 242,000m². This amount was include the associated cost that is consultants fee, design development etc. However, that amount increased to RM4.0 billion after the design were changes in August 2012.

The committee in project KLIA2 agreed to construct the project with Design and build (D&B) method and conventional method. In this mega construction project have 30 partial. Every partial were divide from every each development. The utility department are used the conventional method and the main development (Terminal Building) used Design and Build method. The main terminal building use this method because relatively low risk procurement, in terms of cost and time. Design and build method separate with two types of design and build method:-

Types of Procurement (D&B)

i. **Turnkey system or package deal** - The contractor is responsibility for design and construction of the project. The client only negotiated with just one contractor to do design and build agreements.

ii. **Develop and construct** - The consultant from client responsible to draw the concept design and site layout. The contractor can draw the detailed design from consultant and determine the material should use. The contractor will apply recommendation in bidding process.

The different of two types of procurement arrangement based on percentage the client and contractor involvements. Project KLIA2 used develop and construct system. See the figure 4.1, structured of contractual and functional relationships.

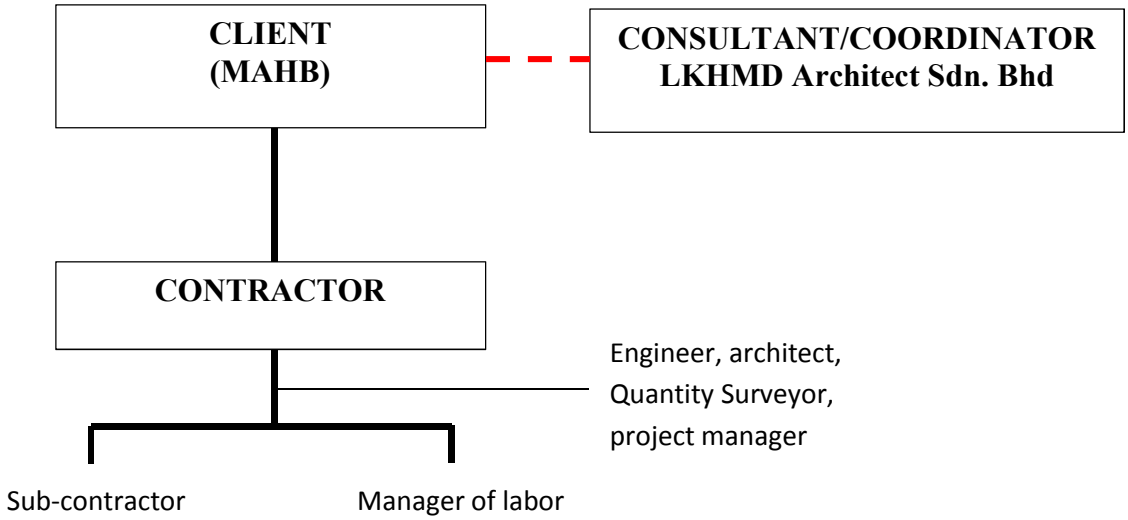


Figure 4.1 Structure of contractual and functional relationship

Based on the figure above, the consultant that client appoints responsibility to advises on design and requirement costs. In this case, Ar. Hisham Ali as a consultant that is MAHB appoint because the experience at construction site at lease more than 25years. Design and build system, the scope of consultant to make sure the contractor use the type of material and supplier fulfilled the requirement based on the right standard in contract.

4.3.3 Procurement Management Process

To relate the procurement activity in KLIA2 with PMBOK is the first aim and objective in this research. Data collection based on interview session with forth respondents. The data has been collected from the client and consultant. Project KLIA2 is not use PMBOK as their guideline but the process it is still the same. The committee has been chosen from the previous mega construction mega project that is Kuala Lumpur International Airport. (KLIA) Basically, procurement process should be use event the project is non-complex buildings. However, project KLIA2 is a complex building and that buildings can be categorize as a mega project construction.

4.3.3.1 Planning Procurement

Planning procurement process can be divided some of phase. The major phase it is between the consultant, client and contractor because it is more specific. The contractor should do the meeting with their committee. After this phase is clear between the contractor within their consultant, contractor can proposed the design to consultant (coordinator). This meeting can we call that as a Material Approval Committee, the client also attend this meeting. The consultant only performs with structure of the building and that system can be comply. The client comprising head of KLIA2, engineering head and so on. They are more expert with airport environment. After the Material Approval Committees will accept the design, contractor can start to appoint the right vendor.

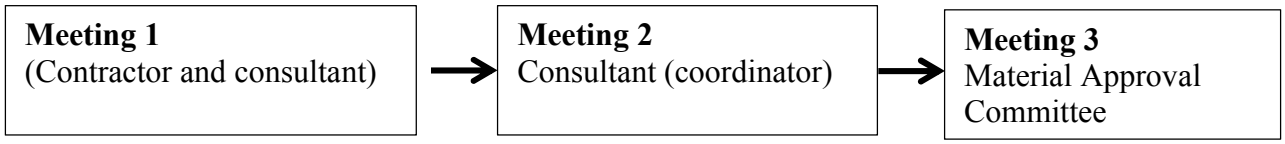


Figure 4.2, Planning procurement flow in KLIA2

4.3.3.2 Conduct Procurement

Bidding process will organize from UEM Construction to select the vendor. One of other vendor involve in previous project KLIA. Ten of companies name are short listed, then they should submit the best price to main contractor. The criteria can be selected a best vendor that is good price and company reputation.

After contractor already appoint the vendor. The project site can be start. The document contracts a guideline to start the project. The contract item also can make a conflict, the problems can resolve in meeting. In this stage, conduct process can categorize in two types that is physical and payment. The process payment, every 2 weeks the consultant makes evaluation process. The contractor will submit the claim to consultant. The consultant can approved and send the certificate to client. The client can approve within 60 days, the contractor can get the payment. In physical site, the progress report should report to consultant.

4.3.3.3 Administer Procurement

All the process of payment and physical should be administer by consultant. Manage the relationships, monitor performance and make changes of necessary and the last is close procurement. Project construction refers the project schedule, the project manager use primavera and Microsoft project as their Gantt chart. In this stage, the conflict incurred the client request to add the planning. (See table 4.3)

Table 4.2 KLIA2 Development Cost Details

Details	KLIA2
Development cost	RM 4,000,000,000.00
Total construction cost	RM 2,700,000,000.00
Development Cost per GFA	RM 14,049.39/M²
Construction Cost per GFA	RM 11,157.02/M²

KLIA2 construction site have additional amount, the process to clean up beforehand in order to entertain further expansion and to surely can reduce the cost on site preparation.

4.3.3.4 Close Procurement

All requirement from head technical especially rescue department (Bomba) is not required. The process simulation is conducting by Bomba to evaluate about the time event the fire situation occurs. The process can call as Performances Based Evaluation System. (PBES) The evaluation should consider with time, how long one person can run and go out site within 7 minute and public figure can go out site building in level 1 within 15 minute. Furthermore, the fire smoke can come out of the building without disturbing the human vision and cause suffocation. After the process simulation approved, the client can get the Certificate of Completion and Compliance (CCC) authority requirement safety of the building from Bomba.

4.4 FAILURE FACTORS OF PROCUREMENT

This the second research study, the result will be collected by interview and secondary data. Project failure factor can be measured based on three aspects that is human management factor, process factor, and contract and technical factor.

4.4.1 Human Management Factor

The human management factor is about the communication conflict among the team members. The project construction Kuala Lumpur International Airport 2 the organization that involve in this project that is Malaysian Airport Holdings Berhad (MAHB), joint venture (JV) of UEM Construction Sdn. Bhd and Bina Puri Sdn. Bhd. The communication conflict is a normal problem that can be occur every team project. The committee in project KLIA2 will be chosen based on their individual performance. Deeply understanding, the person should have a good experience and expert with their tasks. Thus, every person that involve in this project should built the good relationship among them.

The first conflict is between the consultants (coordinator) from LKMD Sdn. Bhd within consultant from contractor side. (See the figure 4.1) The issues within these two consultants have their own decision and perspective but same scope. Design and build method also has the disadvantage that is the contractor can't be control. The consultant concerned about the quality of the material but the contractor thinking how to gain profit.

Most of committee from UEM Construction for example project manager and contract manager. Normally, the project construction has a two project manager that is from side client and also contractor. The communication ways must be clear with both sides. The solution for this conflicting that is always remained everybody. Any information should get from firsthand. The important things it is that only one person to coordinate and that person should everybody trust, respect and he/she can make a decision.

4.4.2 Process Factor

Process factor can divided in two parts which is payment process and physical process. The process payment is very important process. The claimed money to client should evaluate from consultant. If the amount that contractor submit is higher than consultant evaluate, the process can be delay and sub-contractor have been accept any payment. Some of the labor did not do the job if client didn't pay them.

The process is over estimate "Variation Order Technical Committee" and consultant present to client, how much the claim, why the special portfolio and what the consultant proposed. If the client disagreed, consultant should negotiation process to contractor again. When the client agreed, consultant need to do the paper "special port-procurement committee" then the contractor get their payment.

The first planning, the client (MAHB) used their own contractor (PMC) project management contractor. They are use the conventional system to develop their contract. The changes of procurement method after the additional requirement started. To make the process is run smoothly, client appoint the consultant as a coordinator. Thus, the consultant recommends changing another procurement method which is design and building system.

The Design and Build (D&B) method a types of contract that will use in project KLIA2. This method will minimize the risk. However, the issue in KLIA2 that involve more employee with different company make the process is difficult to organize. Al-Momani (2000) has come out with causes of delays from hundred thirty public project in Jordan. The main causes of delay highlighted were related to designer, user changes, weather, site conditions, late deliveries, economic conditions and increase quality. As shown in Table 4.3, the costs of construction for KLIA2 before and after the scope were increased.

In physical side, the process of meeting should have a lot of meeting. If some of other issues occur, the process solving with meeting. The process to make a decision and get the result is quite difficult. A lot of different forum or stages, in that process need the specific to administer. The purpose to decide information with meeting, start with

1) Client consultant meeting - client and all consultant
2) Progress meeting - cost, design direction, major issues, principle and strategy
3) Technical meeting - contactor and sub-contractor
4) Sub-issues meeting - electrical department. (small group)

4.4.3 Contract and technical factor

The issues of the minor crack structure on the taxiway, apron and runway would make the process to get the Certificate of Completion and Compliance (CCC) is difficult. The certificated as an approval the building are safe to use. Based on the figure 4.4, the additional work is start from execution phase. The process changed the design after the project already start and make some of other building need to break.

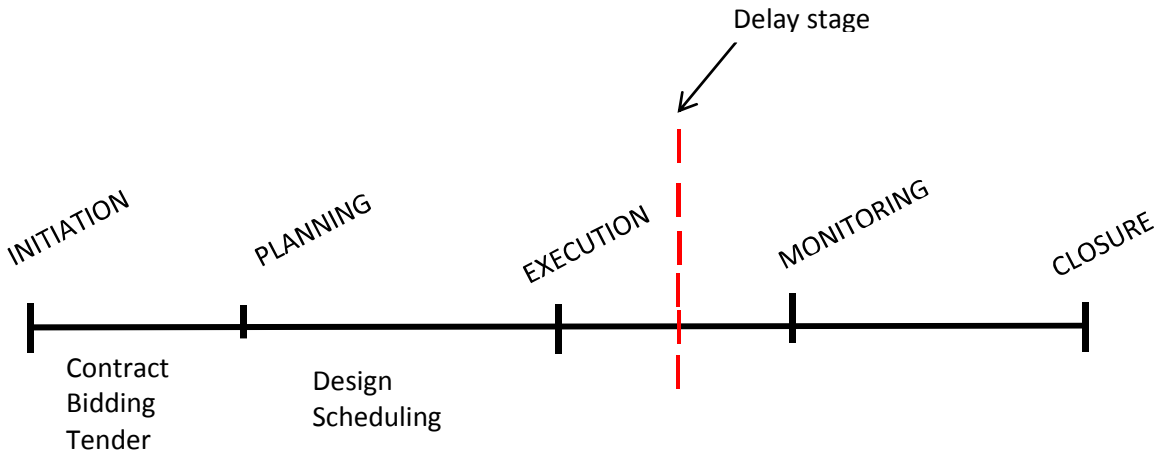


Figure 4.3 Project Life Cycles

i. Limited resources and political issues

The mega project construction is complex project involving more than 200 workers from Indonesian and Bangladesh. The contractor should seek foreign workers to complete the work. However, the labor was raided by Jabatan Imegresen due to legal issue. The process to contractor appointed the right labor take time because the procedure is quite difficult.

ii. Soil structure

The consultant contractor already research about the soil structure have a problems because the type of soil is clay. This types of soil constant a high volume of water. The consultant recommend to add more quantity of soil and do the surcharge process it make 2 years to make sure to structure of soil tight. However, after a year the soil structure still have problems. It is situation is unexpected or beyond control and it can make the project is over schedule.

iii. Additional requirement

The client start request the additional work in Main Terminal Building (MTB) in August 2012. The working process to construction can be estimate in 4 year that is include the construction work, detail design and planning phase. The major changes from manual check in to auto baggage handling system. (BHS) The additional requirement from client maybe about the commercial factor and the process save money in long term estimated.

Major Upgrades in Specifications

Items	Provisional (Feb' 2009) RM 2.0 Billion	Revised RM 3.6 - 3.9 Billion	Increase in Scope (%)
Terminal Building	GFA - 150,000 m^2	GFA - 257,000 m^2	71.3%
Aircraft Stands	Area - 500,000 m^2 50 semi contact stands	Area - 803,709 m^2 68 gates & 8 remote stands (80 aerobridges)	60.7%
Earthworks	Area - 4.85 mil m^2	Area - 11.19 mil m^2	130.7%
Runway 3, Taxiway Pavement & AGL System	Code C Length: 2.50 km Width: 45 m	Code E Length: 3.96 km Width: 60 m	64.7% (Area)
DCA Facilities	Apron Control Tower Height: 77 m	Air Traffic Control Tower Height: 93 m	20.8% (Height) 115.4% (Nav. Aids)
Public Infrastructure	Length : 8 km with 1.5 km elevated road	Length : 15 km with 5.4 km elevated road	87.5% 260.0%

Table 4.3 the major upgrades in specifications.

(Source: Malaysia Airport Holdings Berhad (MAHB) Power Point 2011)

iv. Site Engineering problems

A development of a new airport, the process of improvement the ground scheme is rare. The improvement discussed report consists of a wide area, unlike a highway construction that consists of strip area. Thus, the strict requirement of the residual settlement becomes a challenge in geotechnical engineering. The difficult part is to choose the appropriate treatment to overcome the issue that meet the cost and time will increase.

v. Poor Coordination

The engineers start the project physical work. The architect should maintain the design and the last it is mechanical and electrical (M&E) work. The flow is complicated and make conflict each other because mechanical and electrical work should start early same like engineers work. It is to make sure all the system can be built without any changes requirement.

4.5 Conclusion

From discussion above, it is found out the process of procurement management system and the failure factor on KLIA2. The procurement management system process is different with another mega project construction in Malaysia. They are used the design and build method in Main Terminal Building (MTB) and conventional system in Utility side to construct the KLIA2. The design and build method is used to minimize the risk of project. The design of the KLIA2 is manage by MAHB and the major factor in the procurement process about the planning process. The design is changes after the project already gone. The failure factor can be categorize in three types that is human management factor, process factor and contract and technical factor.

Human factor is about the organization, the information between departments must clear understanding. Based on the issue in the KLIA2, the process of communication is not very good. The designer need draw again after the owner request the new requirements. The major changes from manual check in into auto baggage handling system. (BHS) Process approve the design of location within the committee also take time to manage it. Puan Fadzida as a contract manager also have problem to explain with the sub-contractor. The process factor is about the payment and physical work. The process of payment also should to administer to make sure the contractor get their payment on time.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 INTRODUCTION

In this chapter, it will make some conclusion about this study and make some recommendation suggestion about the related to this study. Since the data resulted gather and being analyze in previous chapter and make some discussion then come out with overall conclusion and recommendation about the failure factors and process of procurement management system in Kuala Lumpur International Airport2. (KLIA2)

5.2 LIMITATION OF THE STUDY

The process to collecting data with respondents under committee in project KLIA2 it is so difficult because they are educated person. Some of other committee already resign and didn't give positive feedback. Therefore, the data collected from project planner in Malaysia Airport Holdings Berhad and contract and procurement manager in UEMC. The result may not significant enough to be generalized for the perception of the failure factor in KLIA2. The case about the MH370 and MH17 in this year make the respondent did not accept any researcher.

The unapproachability, inaccessibility and unavailability of sufficient resources are another limitation of the study. Although there are a lot of academic journals, articles that related to procurement management system available online, nevertheless there are not sufficient journals or statement that can be used in order to reinforce and support to the study. There are not many journal, information and articles which analyze on the failure factor in procurement management system. Jabatan Arkib Negara also one of other resource that has been collected but the information is limited. It is because Kuala Lumpur International Airport 2 is a new mega project in Malaysia. The process of documentation about this project did not done yet and the issue is private and confidential.

Other than that, a general problem that always faced by researcher which is unable to collect data of the interview. Take time to set a date with respondent for interview session and some of other respondent uncomfortable to interview with face to face. Some of the date received within calling interview. Thus, the document and evidences on researcher is limited. The data is private and confidential to share with public person.

Last but not least, limitation of time and financial for this research is also a constraint during process of this case study. Researcher had been only provided by limited time to do research however doing research is time consuming task. Besides that cannot fully devoted on conducting this research due to researcher need to fulfill responsibility as university student by completed the project assignment, quiz and so on that given by lecturers. The researcher would try to complete their research on time. Financial problems is the researcher should use own money in collecting data.

5.3 RECOMMENDATION FOR FUTURE RESEARCH

The first recommendation for future research should be prepared plan B or contingency planning. The research about case study and the process collecting data it is not easy. The appointment with interviewee take time and some of other company reject researcher because of student. Thus, researcher suggest future researchers should use the protocol method that is calling, send them email and confirmation date for make appointment with respondent. The confirmation date is very importance to get the right feedback from respondent. Some of other respondent change the time last minute and the appointment has been cancel. The contingency planning can be prepared for example, researcher should standby with new method such as Skype, calling interview and so on.

5.4 RECOMMENDATION OF THE STUDY

The following are some of recommendations that can be applied in by Malaysia construction if the same problems will be occurs.

i. Additional work must be completed earlier, to settle any problems.

The any changes in project planning must be completed earlier. The team member must sit down and clear understanding about the problems. The process to changes includes many departments in the organization especially designer. The problems that occur in project KLIA2 it is because the team work is fail in communication channel. Take time to get the solution because the committee involved with many company. For example, contract manager from UEMC, Project manager from Binapuri Holdings Berhad and Project Planner from MAHB. The process to set up meeting it is not easy. Thus, the sub-contractor should waiting until the committee gets the final result.

ii. Do not under estimate the difficulties of problems might be happened.

The process planning project should get the final result from all committee. If the problems might be happened, the next meeting should get the solution. Not only the one person to think about the solution because any changes the committee not clear understanding and makes a miscommunication within the committee.

5.5 DISCUSSION / CONCLUSION

The result of this study can be implements in next mega project or other industries. This is because procurement management system are quite familiar, widely and wisely applied in any company in order to manage their contract and procurement. The objectives of this study were twofold. First, it relate between the procurement activity in Kuala Lumpur International Airport 2 and procurement process in PMBOK. The second aim of this research was to identify the failure factor in procurement management system in KLIA2. All objectives of this study were successfully achieved and finish on time.

OBJECTIVE 1: RELATE BETWEEN THE PROCUREMENT ACTIVITY IN KLIA2 AND PROCUREMENT PROCESS IN PMBOK.

The first aim is to relate between procurement activity in KLIA2 and procurement process in PMBOK. This objective was done by using the interview session with respondent.

From the result in chapter 4, the researcher found that procurement activity is the positive related with PMBOK process. Although, the committee of project KLIA2 says that they are not using the PMBOK as guideline but the process also quite similar with PMBOK process. The process also include the forth stages in PMBOK which is planning procurement, conduct procurement, administer procurement and close procurement.

The committee in KLIA2 is using the Design and Build (D&B) as their contract method. This method will be the dominant method of the project delivery especially in construction industry. It is most prevalent in private sector and this method can be used with any project. It can be characterized by single contract with owner and by the overlapping of design and constructions phases. This method will be successful when the

owner is knowledgeable, vigilant and participates actively in project activities in all its phases from design development through construction and commissioning. Puan Fazida as a Contract Manager and should acting as an owner representative under direction from the owner.

This study demonstrated the process of procurement activity in KLIA2 between PMBOK. The paper presented the methodology and results of selecting the respondent from KLIA2 committee especially in contract and procurement department. It described the contract that are project KLIA2 used and the related with procurement process in PMBOK. Added benefits when used this type of contract can be optimized costs (for both owners and contractors).

OBJECTIVE 2: IDENTIFY THE FAILURE FACTORS IN PROCUREMENT MANAGEMENT IN KLIA2

The second research objective was to identify the failure factors in procurement management in KLIA2. This objective was also achieved by using interview session with the respondent and data collection with Jabatan Audit Negara, newspaper, books, journal and previous thesis. From the research, respondent agree the procurement process in project KLIA2 have a problems and they are make mistake. The failure factor can be categorized in three aspects which are human management factor, process factor and contract and technical factor.

KLIA2 project is delay not because of the contract but the system is poor. It can be classify with many reasons and some of other factor that is poor coordination, communication conflict, soil structure, engineering problems, limited resources and political issues. The costs are increases and sub-contractor need claim because the delay issue. Based on this case, the committee should set up the pre-tender meeting to clarification of doubts and ambiguities in the tender documents, resulting in a more accurate set of tender documents. It is because to ensure that the bidders understood the scope of the work, the design intent, technical requirements and other contractual terms and conditions of the contract very well, so that the tenders they submit are comprehensive and

accurate. The committee agreed to change the method from conventional system into design and build system. However, project committee in KLIA2 try to minimized that problem. Actually, project KLIA2 is not a failure project because event the project has a lot of conflict but the total complete project within 4 years.

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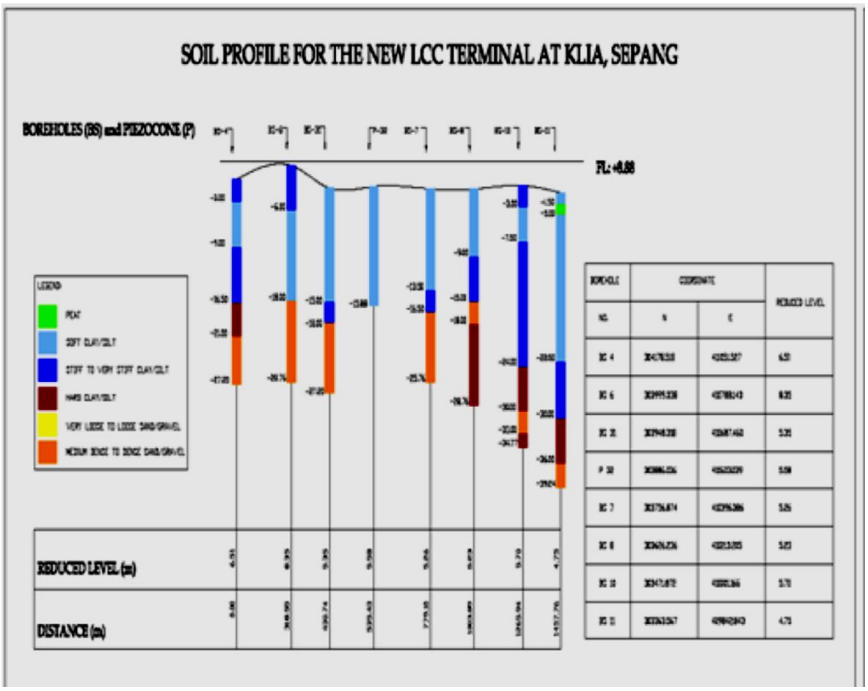
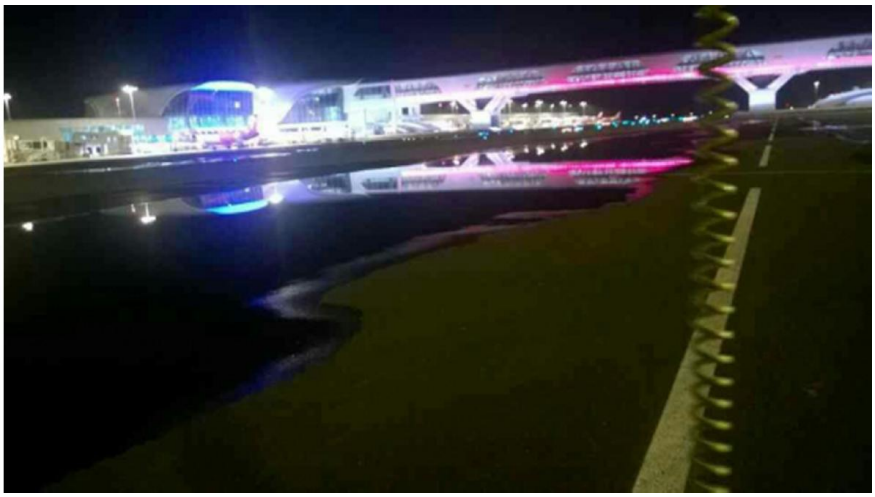
APPENDICES

The causes of project KLIA2 has been delay



Soil structure

Runway and Taxiway



Interview Session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Major Upgrades in Specifications

Items	Provisional (Feb' 2009) RM 2.0 Billion	Revised RM 3.6 - 3.9 Billion	Increase in Scope (%)
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DCA Facilities	Apron Control Tower Height: 77 m	Air Traffic Control Tower Height: 93 m	20.8% (Height) 115.4% (Nav. Aids)
Public Infrastructure	Length : 8 km with 1.5 km elevated road	Length : 15 km with 5.4 km elevated road	87.5% 260.0%

Sources: Malaysian Airport Holdings Berhad Report, 2011

APPENDICES

Gantt chart for FYP 1

No	Task	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
1	Confirmation supervisor and approved of research title and objectives									
2	Data collection for problem statement									
3	Preparation chap 1(Introduction)									
4	Preparation chap 2(Literature review)									
5	Preparation of chapter 3 (Research methodology)									
6	Develop research questionnaire									
7	Research the committee for the project									
8	Modify, finalize and submission of FYP1									

Gantt chart for FYP 2

No	Task	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
1	Finalize Questionnaires												
2	Company Appointment												
3	Interview Session												
4	Analyses Data												
5	Report												
6	Modifying, finalize and Submission of FYP 2												

STRUCTURED INTERVIEW QUESTIONNAIRE

Final Year Project, Bachelor of Project Management in Universiti Malaysia Pahang. The topic of this research to study of the implementation of the procurement management systems to a project success in Mega Construction Project in Malaysia: A case study of Kuala Lumpur International Airport 2 (KLIA 2)

Name	
Position	
Company name	
Location	

Questions:

iv. First of all, it is project KLIA2 used Project Management Body of Knowledge (PMBOK) as a guideline?

v. If the not, what is the project guideline that is used in managing procurement process KLIA 2?

vi. In PMBOK guideline 4th Edition, process of procurement that included planning procurement, conduct procurement, administer procurement and close procurement. What is the procurement process that is used in KLIA 2, explain every phases.

vii. What are the failure factors in procurement management in KLIA 2 that causes the project to be delay? The factor can be categorized by

i. Human management factor
ii. Process factor
iii. Contract & technical factor

viii. KLIA 2 project is currently opening in May 2, 2014 what are the challengers in managing procurement management regarding the project issues?

ix. Based on that issue, what are the effects to the project procurement management in KLIA 2?

x. From your point of view, what are major problems KLIA 2 will be delay?

xi. How do you see the development of procurement management system in mega construction project in Malaysia?

Comment's
_____ _____ _____

Thanks you for your commitment,

Interviewee
_____ Stamp & signature's

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Name	RAHO RASHID BHAND.
Position	SENIOR MANAGER
Company name	MAHB.
Location	CLIENT OFFICE

Questions:

1) First of all, it is project KLIA2 used Project Management Body of Knowledge (PMBOK) as a guideline? NO

2) If the not, what is the project guideline that is used in managing procurement process KLIA 2? REFER MAHB HQ (GUIDELINE)

3) In PMBOK guideline 4th Edition, process of procurement that included planning procurement, conduct procurement, administer procurement and close procurement. What is the procurement process that is used in KLIA 2, explain every phases. GUIDELINE

4) What are the failure factors in procurement management in KLIA 2 that causes the project to be delay? The factor can be categorized by

   i. Human management factor — DELAY WITH REASON
   ii. Process factor
   iii. Contract & technical factor

5) KLIA 2 project is currently opening in May 2, 2014 what are the challengers in managing procurement management regarding the project issues? MANAGING 52 PACKAGES.

6) Based on that issue, what are the effects to the project procurement management in KLIA 2? COORDINATION / INTERFACING.

7) From your point of view, what are major problems KLIA 2 will be delay? AS PER NO. 4

8) How do you see the development of procurement management system in mega construction project in Malaysia?

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Comment's

Thanks you for your commitment,

Interviewee
12/11/14
Stamp & signature's

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STRUCTURED INTERVIEW QUESTIONNAIRE

Final Year Project, Bachelor of Project Management in Universiti Malaysia Pahang. The topic of this research to study of the implementation of the procurement management systems to a project success in Mega Construction Project in Malaysia: A case study of Kuala Lumpur International Airport 2 (KLIA 2)

Name	HISHAM ALI
Position	PROJECT DIRECTOR
Company name	LICMD ARCHITECTURE SDN BHD.
Location	KLIA.

Questions:

1) First of all, it is project KLIA2 used Project Management Body of Knowledge (PMBOK) as a guideline?

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Comment's

Thanks you for your commitment,

Interviewee
AR. HISHAM ALI CDC ALTERNATE PROJECT DIRECTOR/TECHNICAL DIRECTOR LKMD ARCHITECTURE SDN. BHD.
Stamp & signature's

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STRUCTURED INTERVIEW QUESTIONNAIRE

Final Year Project, Bachelor of Project Management in Universiti Malaysia Pahang. The topic of this research to study of the implementation of the procurement management systems to a project success in Mega Construction Project in Malaysia: A case study of Kuala Lumpur International Airport 2 (KLIA 2)

Name	ROSLI YUSOF
Position	Assistant Manager, M.E
Company name	UEM Construction S/B.
Location	KLIA 2 Project.

Questions:

1) First of all, it is project KLIA2 used Project Management Body of Knowledge (PMBOK) as a guideline?

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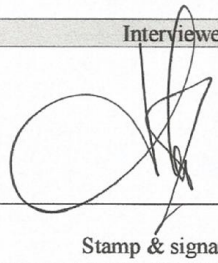
Comment's

Thanks you for your commitment,

Interviewee

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