

The client under design bid build procurement system construction essay



Procurement system of Construction project is broad in scope because it involve the gathering and organizing of innumerable of separate individuals, firms and companies to design, manage and build construction product such as commercial building, residential building, Infrastructure, bridges, factory for specific client. (Rosli Abdul Rashid et al, 2006)

The procurement literally means “ to obtain by care”, “ to acquire” While, system in literally mean “ organized method, approach, technique, process or procedure” (Rosli Abdul Rashid et al, 2006).

(The Aqua Group, 1999) described procurement system s the process obtain goods and services from another for some consideration.

Project Procurement is the organization structure needed to design and build construction projects for a specific client (Masterman, 1996).

2. 2 Design Bid Build Procurement system (Traditional Procurement system)Client

Architect/Engineer

Contractor

Sub-Contractor

Design Bid Build Procurement system is describe as the statute for delivering public owner improvement project (Marion Country Board of Commissioner, 2011).

Design and Bid Build Procurement system is a separation of design from Construction, the system is harder integration & coordination of various design. The coordination is multiple responsibilities and allocation of design and construction responsible are not always clear (K. C . Lam, n, d).

The Design Bid Build Procurement system has been identified as the slowest project delivery approach (Rosli Abdul Rashid er al, 2006).

Traditional system is better cost control as such cost increase due to variation minimized, but works were often disrupted when there are too many variations (due to unforeseeable problem) and it tend to cause the cost to inflate (Masterman, 1996).

Design Bid Build provid high degree of quality certainty and functional standard because it provide opportunities for client to combine the best design, management and construction expertise between consultants and contractor . Moreover, it also provide more time for client and consultants to review and fully develop the design and specification thus allowing better documentation preparation (Rosli Abdul Rashid er al, 2006).

In traditional procurement system, Architect is the lead designer, but coordination of services is passed to M&E consultant and Main contractor and Site Coordination by all sub-contractor managed and prepared by Main Contractor (K. C . Lam, nd).

Design and build procurement system are the process where the client deals directly with the contractor for the complete building and it is the contractor who is not only responsible for but also coordinate the separate design and

construction process, including engagement of the design team, therefore contractually linked with the contractor and not the client(The Chartered Institute of Building (CIOB-1983), n. d).

2. 2. 1Role of the Client under Design Bid Build Procurement System

Under a traditional Procurement system, the client employs plans and specification by the way of bidding format to obtain tender bid and select the select the suitable contractor. This means the client warrants the sufficiency of the plans with full disclosure of the information and assumes any liability for defects and the plans and specification that he provides to the contractor. (Bryan S. Shapiro, 1994).

2. 2. 2 Role of Consultant and Contractor under Traditional Procurement system

Normally the architect or engineer will prepare the plan and specifications for the owner prior to tendering. Which mean the architect or engineer legally responsible to the owner for the design defects according his professional services. Generally, the design professional has no liability for the construction defects, other than for the defects that should observe from field services & inspection which he has carried out. Most important of all, the designer has contractual obligations to protect the owner The consultants act as the agent for the owner during the construction phase (Bryan S. Shapiro, 1994).

The Contractor is has liability for defective construction and workmanship, but he has no responsible for design defects (Bryan S. Shapiro, 1994).

2. 2. 3 Advantages of Traditional Procurement system

The Design Bid Build Procurement system is known quantity to client, designers and constructors. This is the greatest strength for this procurement system. For so many years, this delivery system was the predominant one for the construction in United State. The Procedure and contractual rules of conduct have been worked out and well understood by all the construction parties. Most of the professionals prefer this well define relationship, which reduces their level of risk because this procurement reduces uncertainty. Under the right circumstance, this means that a project more likely to proceeds smoothly from the beginning stage until the end of the project (Frederick E. Gould & Nancy E. Joyce, 2003).

The mood also contains contractual protection for the client. The allocation of the risk for the construction performance rests almost completely on the contractor and subcontractors. The Client was insulated from many of the risk of cost overruns, such as nonperforming sub-contractors, labour inefficiencies, inflation and etc. In most instances, the client knows the final cost at the beginning of the construction cost, and the risk of cost overruns is borne by the contractor. However, the risk of cost increases depends to large extent on the accuracy and completeness of the contract documents (Frederick E. Gould & Nancy E. Joyce, 2003).

Last, the client has not to be involved in the construction process. But, he must involve in design stage to make the decision about accept or not accept the design. Once the construction process start the client is represented by the consultants empowered to act in his name to make recommendation (Frederick E. Gould & Nancy E. Joyce, 2003).

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2. 2. 4 Disadvantages of Traditional Procurement system

The contractor does not enter the process until the design complete, which mean the design not usually reviewed for constructability before it is finish. Design features could have been built more effectively and economically often result in higher costs. Some of the design firm solving this problem by hiring preconstruction consultants or having construction professional. Although this is bring benefit to the project but it is not effective as having design reviewed by the contractor. (Frederick E. Gould & Nancy E. Joyce, 2003).

Next, the traditional procurement system is difficult to reduce the time required by both design and construction. The process is sequential and linear from design stage to procurement stage then last construction stage. There is no chance to overlap tasks and thus reduce overall time. This will cause the raise of interest expenses on construction loan and other costs and can expose the project to risk of inflation. The time element problem always is the primary reason client refuse in use of the Design Bid Build method (Frederick E. Gould & Nancy E. Joyce, 2003).

Subsequently, unforeseen conditions on a job also be source of the conflict and may lead changes in the contract. A through design process complete set of drawings attempt to minimize these conditions. Conduction additional soil borings or opening walls in renovation work can help to properly identify actual conditions and avoid future conflicts. Unfortunately, not every condition can be identified and when unforeseen events occur the contract may have to be renegotiated between client and contractor. This may take

away advantage to the client in terms of knowing the cost when the beginning stage of construction (Frederick E. Gould & Nancy E. Joyce, 2003).

2. 3 Design and Build Procurement System Client

Architect/Engineer

Contractor

Sub-Contractor

Term “ Design and Build” refer to the procurement strategy that entail the contractor carry out the work; design work as well as the construction completion of the work . Design and build procurement system is define as an integrated procurement system. This system was first launch at Malaysia in 1983, the first project handle by design and build was the Kuala Terengganu Hospital complete at 1985. (Ng Weng Seng and Aminah Md Yusof, 2006).

The main characteristic of the Design and build system are single responsibility to a particular organization which mean the fox price lump sum and the project is designed and built specially to meet needs of the client (Ng Weng Seng and Aminah Md Yusof, 2006).

According (Mladen Radujkovic etl, n. d.) the Design and build procurement system is a single point contract between client and Contractor.

(Turner, 1990) and (Jansen, 1991) supported that D&B contractor is supplying option of ‘ buying’ a finished building.

(Masterman, 1992) state that the term Design and Build has almost been identical interpreted and defined as being an arrangement where one contracting organization takes sole responsibility.

Design and build having a better integration & coordination of all member work under one umbrella and consultant works with contractor, second coordination after design is not necessary, and both will be involved for the design stage. In D&B procurement system, D&B consultant must be provide workable drawing and both Architect and engineers will provide coordinated design and solve coordination problem quickly (K. C. LAM, n. d).

D&B procurement system is a fast tracking delivery system, because it allow process of detail of design and construction to run parallel and concurrently to each other, therefore if any problem occur consultant can contractor can solve immediately and reducing overall project development period. Cost of D&B procurement system is more higher than traditional procurement system because it lack of design and specification detailing during tender, this cause uncertainties to contractor for pricing. D&B procurement also are allow contractor utilize his knowledge and experience to develop much compacted and coherent work program and to develop more efficient design and project control. (Rosli Abdul Rashid er al, 2006)

This D&B procurement system is used extensively in certain industries, particularly industrial construction. The complexity of the industrial projects such as oil refineries and power plants makes them a good candidate for D&B. Before the traditional method become popular, D&B was actually the preferred mode of delivery for almost all projects, although it was not named

as such. An owner hired a master builder, who designed the project, acquired the materials, and hired and supervised the craft workers on the site. This mode of delivery became less popular as professional tasks became more specialized (Frederick E. Gould & Nancy E. Joyce, 2003).

In general, it can be concluded that D&B procurement system provides single point responsibility for the whole design and construction. Contractor, who is responsible for the implementation of the project, has right control all over the project. This nonetheless does not deter the involvement of the client. The client's requirement and specification always been taken in to priority consideration, which consequently present uniqueness of the system (Frederick E. Gould & Nancy E. Joyce, 2003)

2. 3. 1 Role of clients under Design and Build procurement system

The difficulty with the preparation of the client's requirements does not end at the preparation stage. Most of the clients do not realise that the requirements only amount to schematic design of the product. In traditional procurement system, the supervising consultant would prepare the detail design before issuing the instruction to the contractor. In D&B procurement system the contract assume that the contractor take care of the detail design and is conferred a relatively wide mandate when interpreting the client's requirements (Tan, Daniel, 1997).

Disputes as to whether and instruction constitutes a variation often revolve around the client's requirements. Has there been non-compliance of the requirements or otherwise? It would be appear that the new client tat wish to

have more in the end of the product would have more detail client's requirement prepared. Inevitably higher cost to the client will result in preparation of client's requirements which defeat one of the benefit of adopting a design and build procurement system (Tan, Daniel, 1997).

When the clients providing too much detail may realise that they are doing what their contractor is being paid to do. But, some may not realise that they may also be prejudicing their contractual position by assuming responsibility for parts of the design, particularly so if the detail design is on their contractor. (Tan, Daniel, 1997).

2. 3. 2 Role of Contractor under D&B procurement system

Under D&B contract the contractor is assumes that to responsible for the design. It is incumbent on the contractor to engage a design team to come up with a design which comply the client's requirements (Tan, Daniel, 1997).

For those inexperienced D&B contractor the selection of the designer for project design team is vital. Not only should the contractor select the team member that know how to integrate their portion of work into overall design intended by contractor, it is imperative that each team member knows how to receive instructions from the contractor (Tan, Daniel, 1997).

There are vast number of the consultants in Malaysia are not accustomed to receiving the instruction from the contractor. Irrespective of the terms and conditions of the contract at hand, some consultants either consciously attaches more weight to the requirement of the client rather than contractor.

Consultants appear to be entrenched in the traditional form arrangement

and area inflexible, so it seems when taking instruction from contractor. The <https://assignbuster.com/the-client-under-design-bid-build-procurement-system-construction-essay/>

selection process for the design consultants must be exercised with great care to ensure that they are able and willing to receive instruction from contractor (Tan, Daniel, 1997).

2. 3. 3 Advantages of D&B procurement system

The reason for most of the clients choosing D&B procurement system is this system provide good communication that can occur between the design team and construction team. Many large size D&B companies specialize in particular areas and have developed a smooth flow between design and construction phase of the project. This collaboration allows the project be easily fast tracked, cutting down and overall schedule for the project (Frederick E. Gould & Nancy E. Joyce, 2003).

Good communication between design team and construction team are allows construction input early in the design phase. Such input includes constructability analysis, value engineering and subcontractor pricing. Cost estimating, master programme, long lead item identification, and ordering all become part of the overall project planning (Frederick E. Gould & Nancy E. Joyce, 2003).

This arrangement allows easier incorporation of changes due to scope of unforeseen conditions since their coordination occur within the same contractual entity. The client is less heavily involved and sits outside the direct day to day communication between designer and constructor. This keep owner staffing to a minimum and puts the full responsibility for good communication, problem solving , and project delivery on D&B team (Frederick E. Gould & Nancy E. Joyce, 2003).

2. 3. 4 Disadvantages of D&B procurement system

Although D&B procurement system give the owner a fixed, firm price before the project start, this generally does not happen in a D&B arrangement.

Because the firm is hired before the design has start, any real pricing is not possible. Instead, client usually enters this arrangement with conceptual budget but without guarantee of a firm price. Firming up the price too soon puts the D&B team in the position of making the scope of fit the price, which carries the risk of sacrificing quality to protect profit. If the project is fast-tracked, the client may not have a good idea about the final price until parts of the project complete (Frederick E. Gould & Nancy E. Joyce, 2003).

Next, the Client ability to remain marginally involve can be both and advantage and disadvantage. When D&B Company has an organization that is efficient at performing work, the project can move very fast. If the client does not stay consistently involve throughout the process, he may have to make decision without fully understanding the issues. Once the project develops a rhythm, the project is difficult to change that rhythm. If the client is not moving to the same rhythm, the project may take a direction that he does not want but is not aware of until too late (Frederick E. Gould & Nancy E. Joyce, 2003).

Last, is the lack of check and balances. In the traditional contract, the designer prepares a complete set of documents, which is used to measure and evaluate the performance work done at the site. The client often hires the consultant to oversee the work of the contractor to ensure that the deficient work is identified and correct. But the in Design and Build

procurement system the designer works for Contractor Company. Similarly, <https://assignbuster.com/the-client-under-design-bid-build-procurement-system-construction-essay/>

during construction the contractor sometimes uncovers the certain design deficiencies and error on missions. The designer is contract bound by the contractor to correct these deficiencies without additional cost to the client. In Design and build the designer and builder are put in position of critiquing their workers and perhaps affecting their bottom line by that critique. The client must rely more heavily on the quality and ethics of the firm since most of the checks and balances will likely take place behind the company's door (Frederick E. Gould & Nancy E. Joyce, 2003).

2. 4 Contractor Risk and Problem

Some of the problems unfortunately only surface after commencement of a project and in not expected, it will pose real problems to unsuspecting clients and contractors. (Tan, Daniel, 1997).

The unsuspecting client may find that he still has to engage his own consultants for technical guidance and preparation of the material setting out the client's requirement. The trustful contractor may find that his costs and effort for tendering would be quite high especially if he is unsuccessful in the tender exercise. Contractor liability assumed for design could be much wider than anticipated (Tan, Daniel, 1997).

The most of the problem face by contractor was, delays in the construction industry are a global phenomenon and the construction industry Malaysia is no exception (Muraili Sambasivan & Yau Wen Soon, 2005).

Delays and disruption to contractor's progress are major source of claims and disputes in construction industry. The matter often in dispute concern the dichotomy in responsibility for delays (Clients and Contractors) partly <https://assignbuster.com/the-client-under-design-bid-build-procurement-system-construction-essay/>

because of the multifarious nature of the sources of delays and disruption. With increased project complexity and requirements coupled with multiple parties all subject to their performance exigencies, the resolution of such claims and disputes has become a matter difficulty (Nuhu Braimah & Issaka Ndekugri, 2008)

The factor adversely affecting the cost performance of project are conflict among project participants, ignorance and lack of Knowledge, presence of poor project specific attributes and non-existence of cooperation, hostile socio economic and climatic condition, reluctance in timely decision, aggressive competition at tender stage and short bid preparation time (K. C. Iyer & K. N. Jha, 2005).

Late and non-payment from the client will cause cash flow problems to the project especially to contractors (M. S. Mohd Danuri, M. E. Che Munaaim, H. Abdul Rahman & M. Hanid, 2006)

Some common type of problem faced by the contractors who was a bumiputra in Malaysia Construction industry such as

Lack of expertise and experience

Over-optimistic estimation in tender bids

Material price escalation

Financial problems

Material supply networking

Lack of skilled worker

Lack of construction material and machineries

Inefficient and ineffective planning and management

Communication problems

(Abdul Rahman Ayub & Janidah Eman, 2006)

Delays of deliveries, sub-standard workmanship and materials, poor safety management on sites and cost over-run of government's project are some of the issues that have been seriously discussed by the government. (Abdul Rahman Ayub & Janidah Eman, 2006)

Sub-contractors failure to perform to the quality expectations (Abdul Rahman Ayub & Janidah Eman, 2006)

Delays of project causes are financing of and payment for completed works, poor contract management, changes in site condition and shortages in materials (Mansfield NR, Ugwu OO & Doran T, 1994).

Delay via project participants and extraneous factors (Odeyinka HA & Yusuf A, 1997).

The following are some risks faced by contractors.

Financial constraints

Late payment by clients

Relationship between emerging contractors and suppliers

Difficulties when running a business

(Wellington Didibhuku Thwala & Mpendulo Mvubu, 2008)

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2.5 Communication Channel

Many author identified communication as one of the core indicators in enhancing the practice of team integration in construction projects (Che Khairil Che Ibrahim et al, 2011)

Communication has been link to team effectiveness, the integration of work units across organisational levels, characteristic of effective supervision, job satisfaction and overall organisational effectiveness (Love et al, 1998)

The construction industry needs to communicate better not only with the public but also its distinct professions or we can call communication also is a professional practice (Cheng et al, 2001)

By establishing communication flows, involvement patterns and other behavioural responses to unexpected change events, the nature of any professional and cultural interfaces can be established (Moore, D. R. & Dainty, A. R. J, 2001)

In order to lower down the complexity of the design implementation process, high degree communication between the designer and builder must be established (Ochieng, E. G.& Price, A. D., 2009)

Lack of communication between all key member of the project in any construction project in a multi-disciplinary team has led to trouble in the development process for both project management and design implementation levels (Evbuomwana, N. F. O & Anumba, C. J., 1998).

The communication barriers between project team had left the construction team almost to the design changes. They further added that by having multi-disciplinary project team, communication system can be improved as they will encourage face to face between the design team and construction team. Developing effective communication systems throughout the construction supply chain will ensure good and dependable flows of information; establishing mechanisms for problem resolution and for generating added-value into project can be improved as they will encourage face to face relationship and interaction between team member (Briscoe, & Dainty, A. , 2005)

Construction organisation must form effective communication link in order to realise the benefits of partnership and alliances. Organisation that rely on co-operation and trust have been found to obtain lower costs for as long as network is maintain (Cheng et al, 2001)

2. 5. 1 Communication and Conflict

The construction project who communicate most often are the distinct professions such as client, contractor and designer. The highly differing professions and their multi-disciplinary skill often limit the scope of communication amongst the professions (Professor James Sommerville, Nigel Craig and Michael Mccarney, 2004).

Within construction project delays are almost inevitable and as a result of this conflict and claims situations will arise (Alkass et al, 1995). The construction industry is inherently burdened with conflict and disputes as a result of increasing complex projects by clients (Kangari, 1995)

Conflict within communication can be traced back to inadequate inaccurate, inappropriate, inconsistent and most important late information (refer Table 1) and this can occur despite the advancements made in document management system and information management techniques (Tam, 1999)

Factors that contribute to conflict

Information Factors

Human/organisational factors

Lack of adequate project information

Lack of integration amongst project parties

Lack of information from the client

Lack of competence and professionalism

Inadequate contract administration

Inappropriate contract/procurement type

Inadequate contract documentation

Adversarial culture of construction organisations

Inadequate design/tender information

Slow response from clients

Poor document transfer/communication

Unrealistic time, cost and quality targets

Table 1: Factors that contribute to conflict within the construction industry

2. 5. 2 Electronic Document Management Systems (EDMS)

EDMS has often been viewed as a non-value added component of the construction process. As a result of this view, most of the construction organisations suffer greatly from the consequences of poor information management systems (Kangari, 1995). Construction project begins the day first negotiations or network communication has taken place. A great problem of many projects and construction organisations is poor, unstructured record keeping the document control throughout the project. However, the use of system like EDMS can be called upon to provide structured document based evidence that can be used to settle a dispute (Ren et al., 2001)

Organisations that support the notion of structured EDMS keep the most sophisticated documentation records and will have a decide advantage in any dispute resolution proceeding (Kangari, 1995). EDMS encourages co-operative working environments and streamlines communication throughout the varying construction organisations although the huge quantities of project documentation created can result in information overload and can be attributed to the rise in use of general IT systems within the construction

industry (Professor James Sommerville, Nigel Craig and Michael Mccarney, 2004).

Managing project information with EDMS removes the onus on the individual to file information; this person in the past had been responsible for filing and other associated task (Sommerille and Craig, 2002). EDMS system should in essence control, store and transfer project information in systematic manner taking away the need to rely on individual of organisation to take the task. EDMS produce not only vast amounts of information but also better and more understandable structured information (Professor James Sommerville, Nigel Craig and Michael Mccarney, 2004).

Electronic Document Management System (EDMS) have provided the industry with great benefits in the consistency of document generation, accessibility and the exchange of project documentation and have now become crucial component for managing the construction project. The widespread adoption of Information Technology (IT) and EDMS has created a culture of openness and trust and one which allows all project participants to have instantaneous access to project documentation although the nature of the industry can also contribute to the lack of IT involvement in many construction organisations (El-Ghandour and AL-Hussein, 2004).

2. 3 Measurement of project performance

2. 3. 1 Contractor Effectiveness and efficiency

Every project can be evaluated by well performance or bad performance.

There are a lot of way can measure the performance of the project. Different country has a different way to measure the project performance.

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Performance basically measures by effectiveness and efficiency (Sinclair and Zairy, 1995). Effectiveness is mean the contractor produce the contingency plan before the construction start, which mean the contractor and his consultancies team alreadyv identify all the risk which will possible cause the project delay. However, Efficiency is contractor provide the good performance with complete the work within the time and within the budget. The most important is ensure the quality of the construction when handle the product to the Employer.

2. 3. 2 Improvement of the performance from previous project.

(Mbugua et al., 1999) define performance of the project is measured as an organized way of operation or construction activity and acts as tool for continuous improvements. Contractor can improve their performance base on the previous performance from the project which is same characteristic which the current project. Example, the current project is the contractor has to build the 30 storey high residential building under Design Bid build procurement system. Contractor can review the previous project which is same characteristic as current project. Contractor can improve the weakness and minor mistake which make in the previous project, so the contractor can ensure it would not happen again in this project. Next, is to maintain the strength to this project, the contractor understand their strength so they can carry the project with smooth flow and provide good performance during construct the building.

2. 3. 3 Iron Triangle

(Arazhi Idrus, Mahmoud Sodangi and Mohamad Haq Husin, 2011) state that in early of 1990s, the project success was measured by the project duration, monetary cost and project performance. Time, cost and quality are the basic criteria for to success complete the project, it also known as the ' iron triangle' as this feel element will always include in any project evaluation. Nowadays, most of the contractors are using this 3 element as the criteria for the success of the project. But, unfortunately most of the small firm size contractors at Malaysia just focus on the Cost. They do whatever they can to protect their profit, this will cause most of quality of the project did not meet the standard which state in the content of the contract document.

2. 3. 4 Construction Business Performance Measurement

(Love and Holt, 2000) discussed the criteria measure of the construction performance in United Kingdom (UK) in construction industry. They found 2 different type of the Construction Business Performance Measurement, which are Stakeholder Perspective Measurement (SPM) and Business Performance Measurement (BPM). BPM is a myopic thinking should rejected as it focusing short term, being specific, profit-oriented and neglecting broader ' stakeholder problem (Arazhi Idrus, Mahmoud Sodangi and Mohamad Haq Husin, 2011). This method of measurement only to meet client objectives and goals without consider the nature of business environment, structure of organization and level of technology employed (Love and Holt, 2000). Subsequently is SPM practice under three perspective which are stakeholders entity where they take account on interest of customers and shareholders; goal-orientated (profit centred) as a system that involve in

resource garnering, conversion and exchange with environment (Love and Hold, 2000).

2. 3. 5 Different Procurement with Different Performance

According to (Abdul Rashid et al, 2006) there are different procurement system are available for the Employer and effect of the differe