

**DEVELOPMENT OF CONTRACTOR'S PROPOSAL PROCESS MODEL IN
DESIGN-BUILD PROCUREMENT**

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To my beloved mother and father

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ABSTRACT

Design-build procurement has been dramatically increased recently and has taken over conventional delivery system in both government and private sectors in our construction industry. Despite the advantages of design-build procurement system, there is a great potential for dispute and claim at the construction stage due to the client's requirement and contractor's proposal not being well defined at the early stage. Therefore, a process model of dominant contents is developed to guide and assist design-build contractor in preparation of proposal. Essentially, the objectives of this research are to study the concept of design-build system, to study the dominant contents of design-build contractor's proposal, to identify the degree of importance of the dominant contents and to develop a process model in determining contractor's proposal in design-build procurement. The scope of the study is only focusing on the typical contents of contractor's proposal, such as design proposals, financial details, alternative proposals, details on assumptions made, fabrication / construction proposals, contract administration details, details on qualifications / deviations and miscellaneous matters. This study was carried out by going through literature reviews, semi-structured interview and questionnaire survey exercises. The target respondents are developers, architects, contractors, quantity surveyors and design consultants working in the state of Wilayah Persekutuan and Sarawak. Through the process of data collection and analysis, the degrees of importance of the dominant contents have been determined. The results obtained form a basis for the development of a design-build contractor's proposal process model, by using Data Flow Diagram (DFD) approach. It has been developed to well formulate effective strategies, in order to minimize contractual conflicts and improve project performances in design-build projects.

ABSTRAK

Perolehan projek reka-bina telah meningkat dengan ketara kebelakangan ini dan telah menggantikan sistem perolehan tradisional dalam sektor kerajaan dan swasta dalam industri pembinaan kita. Walaupun kaedah reka-bina ada kelebihannya, terdapat kecenderungan berlakunya perselisihan dan tuntutan bayaran pada peringkat pembinaan disebabkan oleh keperluan klien dan kertas kerja cadangan kontraktor tidak ditafsirkan dengan jelas pada peringkat awalnya. Oleh itu, satu model proses bagi isi kandungan penting dibangunkan untuk membimbing dan membantu kontraktor reka-bina dalam penyediaan kertas kerja cadangan. Pada dasarnya, objektif kajian ini adalah untuk mempelajari konsep sistem reka-bina, mempelajari isi kandungan penting bagi kertas kerja cadangan kontraktor, mengenalpasti darjah kepentingan isi kandungan penting tersebut dan membangunkan satu model proses bagi kertas kerja cadangan kontraktor dalam perolehan projek reka-bina. Bidang kajian ini pula adalah ditumpukan ke atas isi kandungan yang khusus dalam kertas kerja cadangan kontraktor, iaitu cadangan rekabentuk, perincian kewangan, cadangan pilihan, perincian anggapan, cadangan pembuatan / pembinaan, perincian pelaksanaan kontrak, perincian kelayakan / deviasi dan perkara sampingan. Kajian ini dijalankan melalui pembacaan bahan-bahan literatur, temubual separa berstruktur dan soal selidik. Sasaran responden kajian ini ialah pemaju, arkitek, kontraktor, jurukur bahan dan perunding-perunding rekabentuk yang berkhidmat di Wilayah Persekutuan dan Sarawak. Melalui pengumpulan dan analisis data, darjah kepentingan bagi isi kandungan penting telah ditentukan. Keputusan yang diperolehi digunakan sebagai asas untuk membangunkan satu model proses bagi kertas kerja cadangan kontraktor reka-bina, dengan menggunakan cara diagram aliran data (DFD). Ianya telah dikembangkan untuk memformulakan strategi yang berkesan dengan tujuan untuk mengurangkan konflik kontrak dan meningkatkan prestasi projek reka-bina.

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LIST OF ABBREVIATIONS AND SYMBOLS

A/E	-	Architect / Engineer
CPM	-	Critical Path Method
QA	-	Quality Assurance
QC	-	Quality Control
RFP	-	Request For Proposal
RFQ	-	Request For Qualification

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Construction is considered as one of the largest and most challenging industry in the world. It touches all aspect of human lives by providing factories, airports, roads, hospitals, schools, canals, bridges, houses and all sorts of structures and facilities to be used for the comfort of man and the betterment of life.

Construction projects are completed following a tight schedule by a unique and temporary collection of people. The entire organizational structure of the group is constructed of multiple social interdependencies and much of the project's ultimate success is also reliant on these relationships. It is through the joint effort of all key players that the construction of a facility can come to fruition. To construct a structure, project requires a great number of materials, equipments and people, and the organization of all resources in a manner that the progress follows a natural progression. Project delivery systems are mean to ensuring this progression; from conceptual plans to drawings to the physical construction of a facility. In essence, this term refers to this temporary group of people that form the construction team and the contractual ties that bind them.

Basically, there are three common delivery systems in our construction industry, namely traditional or design-bid-build, design-build and construction management. In the traditional design-bid-build delivery system, owner bears the entire responsibility and risk for any design related issues. All responsibility for

design decisions and conformance to standards rests with the owner. Traditional design-bid-build is a segmented and sequential process in which the owner first contracts with a design professional to prepare detailed, suitable-for-construction plans and specifications (or sometimes prepared by its in-house engineers), then uses the detailed plans and specifications to solicit competitive bids for construction and finally awards the construction contract to the low bidder.

The term of “Design-Build” refers to a range of alternatives to the traditional project delivery system. It differs from traditional design-bid-build system in two ways. First, the design and construction components are packaged into a single contract. Second, the single contract is not necessarily awarded to the low bidder after competitive bidding.

In design-build, one entity performs both design and construction under a single contract. Usually, the design-build contract is awarded by some process other than competitive bidding. Award shall be made to the design-build entity whose proposal is judged as providing the best value in meeting the interest of the department and complying with the objectives of the project. “Best Value” is hereby including “price, features, functions and life-cycle costs.”

As for design-build system, several of these responsibilities shift to the design-builder. Client is still responsible for establishing the scope, project definition, design criteria, performance measurement and existing conditions of the site (initial site investigation, geotechnical investigation, subsurface-condition, etc.). As the designer of record and plan accuracy, conformance with established standards and constructability rest with the design-builder.

1.2 Problem Statement

Design-build procurement has dramatically increased and recently taken over conventional delivery system in both government and private sectors in our construction industry nowadays. It incorporates entire construction teams including designers, subcontractors and suppliers, provides input into the design and engineering details to make sure the project is workable, cost-effective, safe and minimizes the time required.

As for the current design-build approach, there are some limitations between client and contractor. Normally client incurs extra cost in retaining a set of consultants or architect at the early stage of the project. Then the outline design which forms the basis of tender is based on the initial consultant's interpretation of client requirement and thus the result may be distorted and could mislead the tendering consortia.

Furthermore, design-build system inhibits the ingenuity and creativity of the tendering consortia by the initial consultant's vision of the desired facility. There is a significant amount of rework and duplication inherent in existing procedures, particularly. The expertise of the successful consortium is not fully exploited in the most influential stage of the design process. Subsequently, delay often arises due to the initial time spent developing the outline design, time spent by the successful consortium in clarifying client requirements and liaising with the initial consultants and time spent seeking approval for the alternative materials and design.

This is great potential for dispute and claim at the construction stage due to the client's requirement and contractor's proposal not being well defined at the early stage. Quality, value for money, delivery time, performance and client satisfaction are not guaranteed by existing procedure. Consequently, it could result in contractual conflict, which may leads to time, cost and quality impacts as well as harm to our working environment. Other than that, it also creates some uncertainties and threats in a very root manner.

1.3 Research Objective

The aim of this study is to develop a suitable process model for design-build contractor's proposal. In achieving this aim, four objectives are delineated as below:

1. To study the concept of design-build system in construction industry;
2. To study the dominant contents in determining design-build contractor's proposal;
3. To identify the degree of importance of dominant contents in design-build contractor's proposal; and
4. To develop a process model for design-build contractor's proposal.

1.4 Research Methodology

Figure 1.1 shows the flow chart of research methodology. This research title and objective are created based on the problem statement. Research scope and limitation of research are then identified. First of all, several literature reviews are studied to consolidate the knowledge and skills in attainment of accurate results. Subsequently, data collection through questionnaire surveys and semi-structured interview are conducted. The data obtained are then analyzed and assimilation is made to develop a process model of design-build contractor's proposal. Eventually, conclusion is made to express the results of research.

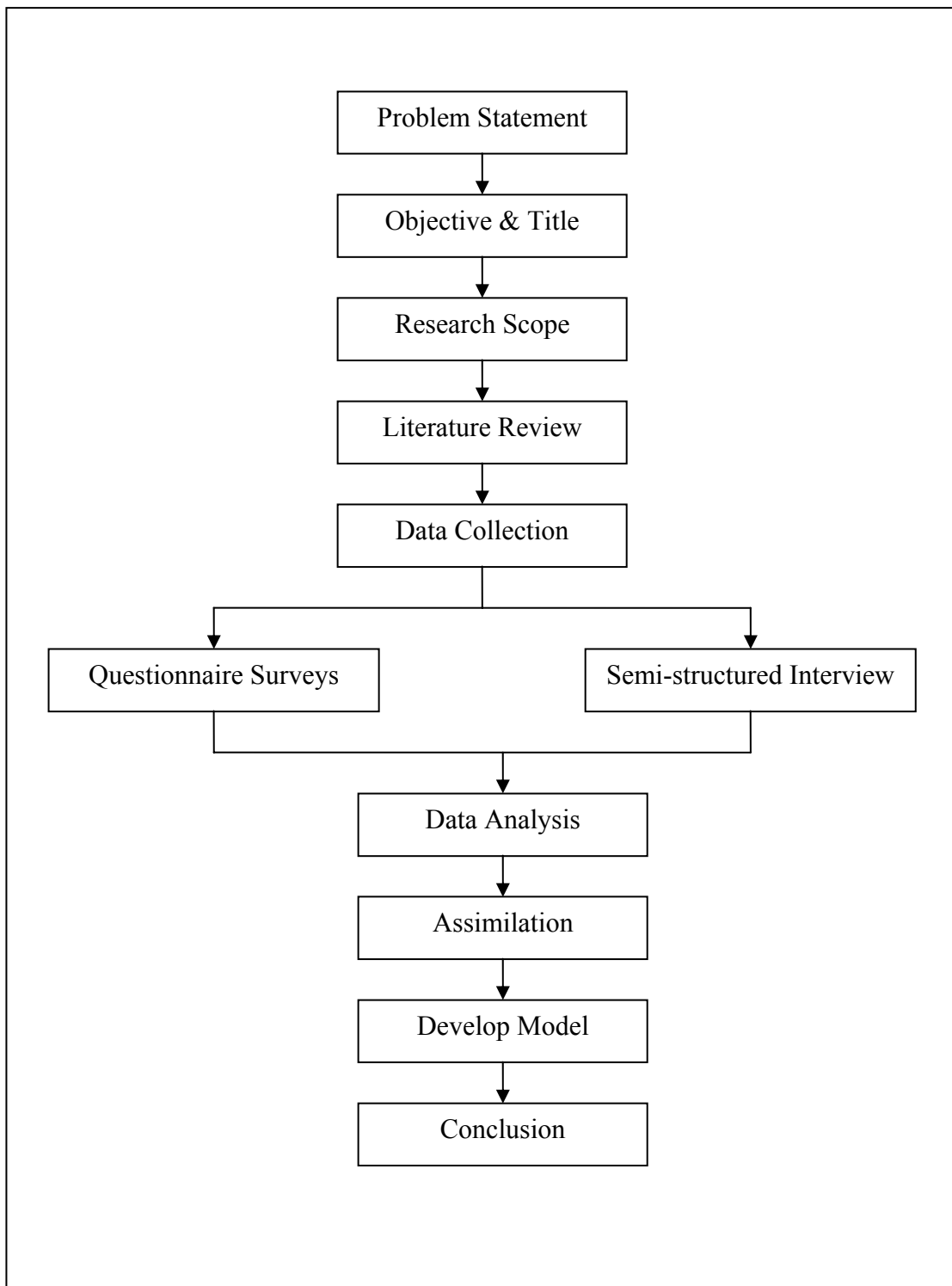


Figure 1.1: Flow Chart of Research Methodology

1.5 Scope of Research

In design and build project, contractor's proposal essentially consists of definition or nature, proposal preparation, typical contents, pre-awarded modifications, ambiguities or discrepancies and status. As for this thesis, scope of research only emphasizes on contractor's proposal typical contents, which are design proposals, fabrication or construction proposals, financial details, contract administration details, alternative proposals, details on qualifications or deviations, details on assumptions made and miscellaneous matters.

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