

The influence of client brief and change order in construction project

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Abstract. Construction briefing is a statement of needs about intentions and projects objectives. Briefing process is the preliminary stage in the design process and successful briefing can achieve project delivery right on target time, cost and quality of project confidently. Although there are many efforts to approach client's requirement and needs for a project, it is still not collected adequately to make proper solutions in design. Thus, these may lead the client to include change orders during the construction phase. This paper is concerned toward the influence of client's briefing of a construction project that impact on the change order on the construction works. The research objective is to identify the influence of client's brief on change orders, therefore, the aims of the research is to reduce change orders in project delivery. This research adopted both qualitative and quantitative data collection methods which are content analysis and semi structure interview. The findings highlight factors contributing to change orders and the essential attributes of clients during the briefing stage that may help minimise them.

1. Introduction

The briefing is a process whereby client explains and notifies others of his goals, requirement and desires. The process is intended as a channel to convey decision and information of client requirements on the projects to the consultant. Literature revealed that briefing as a problem of formulation and solving process, which identifies the projects objectives and missions. According to [1] and [2], briefing process is crucial to the project's success delivery, as well as to the satisfaction of clients. Inadequate client briefs could result in inaccurate designs that fail to fulfil the clients' expectations. Literature revealed that inaccurate or inadequate brief is the main causes of time and cost overrun of construction projects [3] and [4]. As most clients depend on their consultant team for assistance, it is vital that the team could interpret the client's requirements into a design, which stipulates technical characteristics, functional performance criteria, and quality standards.

2. Client Brief and Change Order

2.1 Problem in the Client's Brief

The conception of construction briefs is a topical issue in the construction industry as unproductive preparation of briefs significantly rises the total cost of building. Lack of knowledge in briefing process triggered some clients incapable to describe their requirements that resulting in uncertain project objective [5] and [6]. Poor practices during briefing include inadequate involvement of projects participants and insufficient time for briefing. Completeness of information about the client's



requirement is most pertinent to reduce the risk of miss-interpretation by the designer and delivery of the wrong kind of building to the client [6] and [5]. Conformity during briefing process is observed highly depending on client's attributes that translated into practices during briefing. Changing need by the client caused by the inability of clients to provide the required information during briefing due to lack resources during formulation of the brief [17]. This shortcoming can manifest itself in the ultimately poor performance of the resultant building. Due to this, client often instructs for change order to accommodate their requirement that resulting in cost overrun [18]. Most of the variations were made through direct instructions by the architect to fulfil the client's requirements.

2.2 Change Order

Change orders are among the most significant sources of cost growth and disruptions to field productivity on building construction projects. There are also cases where the renovation works are carried out prior to moving-in by the user to the newly completed building to rectify the design of the building, to ensure that the building meets the client's requirement. Such renovation works and change order are a wasteful of resources in term of time and money thus reduces the level of client satisfaction on the project [16]. Hence, completeness of information in the client's brief is essential to avoid the risk of change order. In the Malaysian construction industry, [18] discovered the key factors that contributed to changes were due to belated clients' instructions, ambiguous briefs and requests from end users. The most frequent type of change met in constructing capital projects are changes to the original scope of work or those that a rise from unexpected conditions in the field. The nature and impact of change orders on overall project performance were investigated by [12], and the result notable that clients were identified as the most predominant sources of change orders due to unclear briefing and changing requirement.

3. The research

This paper deliberated the research findings carried out in Universiti Teknologi MARA (UiTM) which is involved in constructing projects for all its campuses nationwide. Seventeen (17) completed projects were examined including construction of academic buildings and mixed development projects. The aim of the research is to decrease the client influences contributing to change orders, thus the objective is to recognize the client's attributes during briefing which may affect change orders.

4. Research methodology

A triangulation approach is applied throughout the research activities, which began with multiple research method of qualitative and quantitative. A combine research approach engaged in this research is based upon the principle of triangulation in which it attempts to look at things from different angles. The investigations begin with the examination of content analysis. Content analysis is a quantitative method in nature that is perceived as hard data, which is reliable, countable, and purely based on evidences and records. The primary objectives of conducting content analysis are to identify and to measure the success level of project delivery in regard to time and cost achievement. It is also to analyze the number of change orders and to the grounds of change orders issued by the client. The primary data collected which involved an intensive examination the content of archival documents of the projects. Relevant documents and information such as contract documents and final accounts of the projects were inspected.

The second stage of data collection is through a semi-structured interview with client representatives. Semi-structured interviews involve a series of open-ended questions based on the topic areas. The open-ended nature of the question defines the topic under investigation but provides opportunities for both interviewer and interviewee to discuss some topics in more detail. The objective of the interview is to investigate the briefing practices in UiTM, thus to identify problems associated with the briefing practice, which later influence the issuance of change order. Fifteen (15) project manager / client representative who was involved in the chosen projects were interviewed.

4.1 Value of change order

Majority of the project inspected in the study are found with low level of project achievement in term of cost in which, cost overrun occurred in most of the projects. As presented in the Fig. 1, only 6% of the projects with omission from projects cost, though, majority of the project suffered with cost overrun with highest group of cost overrun value is an additional of 10% of project cost. Cost overruns need a constructive analysis. Once the project is completed, a inquest meeting with significant individuals of the project team to discuss what went right and what went wrong is highly recommended.

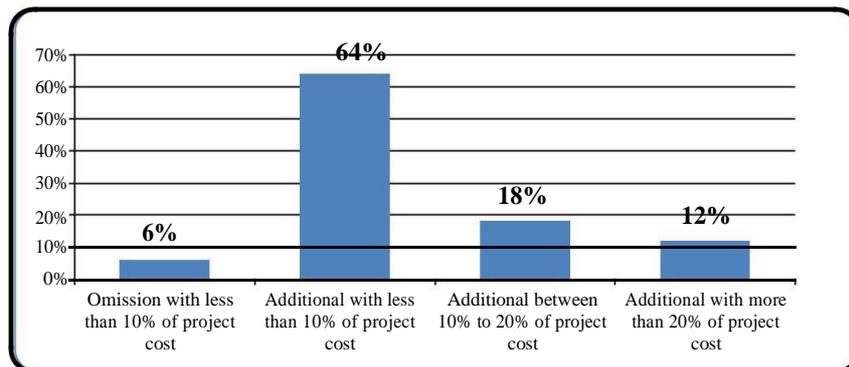


Figure 1. Value of Change Order

4.2 Cause of change order

The ranking of the ground of change order are based on the mean rank of the data. The higher the mean rank means the more significant the causes are. In this study, the author considers mean rank of 2.00 and above as the selected value for the significant cause of change order. Based on Table 1, Change in decision making is the highest rank, followed by Construction changes and site condition and natural incidents.

Table 1. Cause of Change Order

No.	Cause of Change Order	Mean Value	Rank
1.	Change in decision making	4.45	1
2.	Construction changes	3.55	2
3.	Site Condition and natural incidents	2.09	3
4.	Planning & design error	1.64	4
5.	Local Authority Requirement	1.54	5

4.3 Sources of change orders

A change may be initiated from any source: a contractor's, clients or project consultant. Fig. 2 presents the origins or sources of change orders. It is found that majority (83%) of the change order is due to client request, in which the clients are recognise as the parties involved in the briefing process. This result narrates to the cause of change order, whereby, the pertinent cause of change order is due to the changes is decision making, decided by the client it-self.

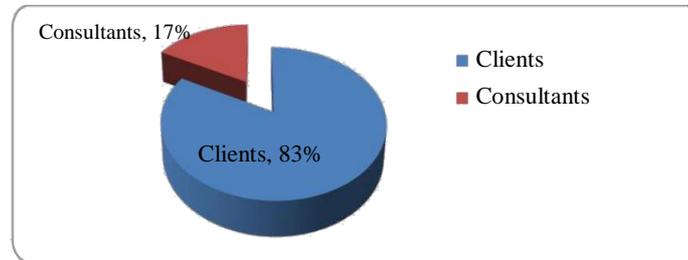


Figure 2. Origins of Change Order

4.4 Problems during briefing

Based from semi-structured interview, respondent revealed that inadequate management changes to client requirement as well as insufficient time allocated for briefing were the main problems during the briefing process. Though the participation of management is significant during the process, lesser efforts were given in incorporate managing of changes to meet the client requirement. This condition may be the cause of imprecise strategic brief as the process that deals with variations and uncertainty. Table 2 show the results of the problems during briefing process.

Table 2. Problem during briefing

No.	Problem During Briefing	Mean Value (N=15)
1.	Inadequate involvement of the relevant parties	2.83
2.	Insufficient time allocated for briefing	3.38
3.	Lack of communication	2.22
4.	Inadequate management changes to client requirement	4.12
5.	Lack of quality client representative	3.33
6.	Lack of commitment of client organization	2.83

4.5 Commitment of client organization

Table 3 signify the commitment level of management through briefing process. It is mystifying result when management set less commitment on the confirmation of scope of works, and confirmation of project cost. Based from the interview session, the confirmation on project cost is outside management control and it will only be decided at final phase of briefing. As the budget remained uncertainty, the probable of changing the design to meet the final cost will later influence the client to issued change order in the project.

Table 3. Commitment of Client Organization

No.	Client Organization Commitment in	Mean Value (N=15)
1.	Confirmation of the client objectives	4.33
2.	Confirmation of the scope of works (size, function, users of the project)	2.66
3.	Confirmation of the site location of the project	4.67
4.	Confirmation of the budget/estimated cost	2.22
5.	Confirmation on the project milestone	3.78
6.	Confirmation on project priority (cost, functionality, time)	3.67

4.5.1 *Management efforts in managing brief development.* Briefing process is iterative in nature that required shared understanding and commitment from the management. The effort in managing brief development is crucial to ensure the successful completion of project. In UiTM, the efforts in managing brief development were carried out by Bahagian Pembangunan. The result from the interview session shows that the efforts in organizing of client's project team scored highest (4.45) mean followed by effort on developing, documenting, and communicating clear brief (3.35). The results indicate that the management was very concern on the development of their project team, hence, the communication within their management is significant to clarifying the project requirement.

Table 4. Level of Management Efforts in Managing Brief Development

No.	Management Efforts in Managing Brief Development.	Mean Value (N=15)
1.	Organizing of the client's project team	4.45
2.	Allocating adequate time for briefing	1.64
3.	Planning for brief development	1.64
4.	Coordinating user group for brief development	2.09
5.	Developing, documenting and communicating clear brief	3.55
6.	Coordinating and monitoring of brief	2.09
7.	Communication within client organization	3.18
8.	Ensuring changes are evaluated and taken consideration	2.00

5. Conclusion

Briefing is the process of expressing the objectives and necessities of a project. The clients should understand of user needs and ensure that the final product meets project goals. The complexity of building projects requirements has increasing the difficulty of client organisations to prepare the client brief. Problems in briefing process range from various issues, hence, this will later lead to the issuance of change order in construction stage. The cause of change order not only significantly gives financial impact to the project, but also to the overall project performance. Project success is concern about the efficiency of the process that refers to completion on time, within allocated budget and builds quality as stipulated in contract. Therefore, clear project goal shall be define clearly at early stage of construction and accurate decision making during briefing are vital toward achieving success in construction projects.

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