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**THE HONG KONG POLYTECHNIC UNIVERSITY
DEPARTMENT OF BUILDING AND REAL ESTATE**

**A VALUE MANAGEMENT FRAMEWORK FOR SYSTEMATIC
IDENTIFICATION AND PRECISE REPRESENTATION OF
CLIENT REQUIREMENTS IN THE BRIEFING PROCESS**

by

YU Tit Wan (Ann)

**A thesis submitted in partial fulfilment of the requirements
for the Degree of Doctor of Philosophy**

February 2006



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CERTIFICATE OF ORIGINALITY

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ABSTRACT

The briefing process is a procedure by which client requirements are identified, clarified and articulated during the early design process of a construction project. The briefing process is critical to the successful delivery of construction projects and many limitations inhibit its effectiveness. The importance of effective briefing has been emphasised in many research studies during the past two decades. Although many initiatives have been taken to investigate and improve the briefing process, current briefing practice is still considered “inadequate”. This inadequacy is largely attributed to the lack of a comprehensive framework for identifying and clarifying the requirements of clients. A more holistic approach to tackle the problems is required.

This research project aims to investigate whether a practical framework utilising the Value Management (VM) approach can lead to a systematic identification and clarification of client requirements, and the precise and explicit representation of these requirements in the briefing process. This approach is facilitated workshop based to improve communication amongst stakeholders. The research objectives include the identification of problems and difficulties faced by clients and designers in the briefing process; evaluation of current practices in identifying and clarifying client requirements for building projects, analysis of existing approaches to represent functional requirements at the briefing stage and the development of a new framework using VM to systematically identify/clarify client requirements and explicitly represent these requirements.

The choice and adequacy of a research approach embodies a variety of assumptions regarding the nature of knowledge and the methods through which that knowledge can be obtained, as well as a set of root assumptions about the nature of the phenomena to be investigated. In this study, the qualitative approach was adopted supported by quantitative approaches. The research objectives were achieved by the literature review, questionnaire survey, focus group meetings, experimental study and desktop case studies.

The VM framework for briefing, which contains answers to the questions What, Why, When, Who, Where and How, has been successfully developed in this study. It was incorporated into two briefing guides entitled “A How-To Guide to Value Briefing” and “A Concise Guide to Value Briefing”, published in January 2006. The VM framework embraces thirteen briefing variables, ‘Projects’, ‘Stakeholder Management’, ‘Teams and Team Dynamics’, ‘Client Representation’, ‘Change Management’, ‘Knowledge Management’, ‘Risk and Conflict Management’, ‘Post-Occupancy Evaluation and Post-Project Evaluation’, ‘Critical Success Factors and Key Performance Indicators’, ‘Types of Business and Organisational Theory’, ‘Decision Making’, ‘Communication’, and ‘Culture and Ethics’. A two stage briefing process, which encompasses Strategic Briefing and Project Briefing Study, is recommended. It was found that the most important critical success factor of briefing was open and effective communication as agreed by the respondents of a questionnaire survey conducted in Hong Kong, the UK and the USA. This supports the contention that VM is a solution to enhance the briefing performance in that it can improve communication of clients and stakeholders.

PUBLICATIONS ARISING FROM THE RESEARCH

Research Monograph

1. Yu, A.T.W., Shen, G.Q.P., Kelly, J. and Hunter, K. (2006) A How-To Guide to Value Briefing, The Hong Kong Polytechnic University, ISBN: 962-367-510-0.
2. Yu, A.T.W., Shen, G.Q.P., Kelly, J. and Hunter, K. (2006) A Concise Guide to Value Briefing, The Hong Kong Polytechnic University, ISBN: 962-367-509-7.

Refereed Journal Papers

1. Yu, A.T.W., Shen, Q.P., Kelly, J. and Hunter, K. (2007) An Empirical Study of the Variables Affecting Construction Project Briefing/Architectural Programming, International Journal of Project Management, 25(1), 198-212.
2. Yu, A.T.W., Shen, Q.P., Kelly, J. and Lin, G.B. (2006) A Value Management Approach to Strategic Briefing: An Exploratory Study, International Journal of Architectural Engineering and Design Management, in print.
3. Yu, A.T.W., Shen, Q.P., Kelly, J. and Hunter, K. (2006) An Investigation of the Critical Success Factors in Construction Project Briefing by way of Content Analysis, Journal of Construction, Engineering and Management, ASCE, 132(11), 1178-1186.
4. Yu, A.T.W., Shen, Q.P. and Chan, E.H.W. (2005) An analytical review of the briefing practice in Hong Kong's construction industry, The International Journal of Construction Management, 5(1), 77-89.
5. Yu, A.T.W., Shen, Q.P., Kelly, J. and Hunter, K. (2005) Application of Value Management in Project Briefing, Facilities, 23(7/8), 331-342.
6. Kelly, J., Hunter, K., Shen, G. and Yu, A.T.W. (2005) Briefing/Architectural Programming from a facilities management perspective, Facilities, 23(7/8), 356-367.

Referred Conference Papers

1. Yu, A.T.W., Shen, Q.P., Kelly, J. and Hunter, K. (2006) A Value Approach for Project Briefing, CD-Rom of CIB W89 – International Conference on Building Education and Research, BEAR 2006 – Construction Sustainability and Innovation, 10-13 April, Kowloon Shangri-La Hotel, Hong Kong.
2. Yu, A.T.W., Shen, Q.P., Kelly, J. and Hunter, K. (2005) Towards a Value Management Framework for Strategic and Project Briefing, Proceedings of ICCREM 2005: International Conference on Construction and Real Estate Management “The Challenge of Innovation”, 12-13 December, The Bayview Beach Resort, Penang, Malaysia, Vol. 1, 706 - 710.
3. Yu, A.T.W. and Shen, Q.P. (2005) Managing multiple stakeholders in the briefing process, Proceedings of CRIOCM 2005 International Research Symposium on Advancement of Construction Management and Real Estate, 30 October – 2 November, Hangzhou, China, 46-55.
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6. Kelly, J., Shen Q.P., Hunter, K. and Yu, A.T.W. (2003) The Development of A Theoretical Framework for Briefing using a Value Management Approach, Proceedings of Construction and Building Research Conference (COBRA), 1-2 September, University of Wolverhampton, 328-337.

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CHAPTER 1

INTRODUCTION

❖ Background to the research

- The construction industry
- Briefing and Value Management in the construction industry

❖ Research aim and objectives

❖ Research design and methodology

- Methodological approach, ontological and epistemological issues
- Research methods
- The research framework

❖ Organisation of the thesis

1.1 Background to the research

1.1.1 The construction industry

The construction industry is an important sector of the economies of all industrial countries. It contributes a significant portion to gross domestic product (GDP). In the UK, the construction industry contributed 10% of the UK's GDP (DTI, 2006). In the USA, the construction industry contributed 4.7% of the USA's GDP in 2004 (BEA, 2006). In China, the construction industry contributed 6.9% of the national GDP in 2003 (NBS, 2006) whilst in Hong Kong the figure was 3.2% in 2004 (Census and Statistics Department, 2006).

The delivery of a construction project is a highly complex process, involving multi-disciplinary inputs provided by a vast number of participants from tradesmen, technicians, supervisors, professionals, consultants, contractors and subcontractors, to client organisations and the regulatory authorities. The construction industry is therefore characterised by a high degree of fragmentation, with numerous individual participants each pursuing his singular interests on a project-by-project basis. Unlike manufacturing, construction has little repetition or standardisation, as each project is different in geographical location, layout, design, construction methods and materials. Every project is delivered under a unique combination of physical, political, social, economic and environmental conditions. The successful completion of a project from the conceptual design stage through construction to occupancy normally spans several years. In the great majority of cases, the undertaking of a construction project involves a substantial financial commitment. As a result of the complex and dynamic

nature of construction projects, problems, risks and uncertainties frequently do rise in all phases of a construction project.

Every construction project has its life cycle, which usually includes inception, feasibility, design, construction and operation. The inception is the stage of establishing the client's brief and making the 'decision to build'. Feasibility depends on a number of issues such as budget, outline of time table and implications from government statutes. Such information should be presented in a structured way so that the client can conveniently make sound decision. In the design stage, the designers produce and communicate information in order to translate the goals and objectives of the clients established during the feasibility stage into a set of drawings, instructions and specifications to the contractor who build the project. The construction stage is the process of producing the end product mobilising materials, labour and plant. Finally, the operation stage is the use of the end product after construction, and includes maintenance and rehabilitation.

1.1.2 Briefing and Value Management in the construction industry

Briefing (also known as architectural programming in the United States) is the first and most important step in the design process, where client requirements for a building project are defined and the major commitment of resources are made. The briefing process is critical to the successful delivery of construction projects (O'Reilly, 1987; McGeorge and Palmer, 2002). Problems in buildings can often be traced back to the briefing process. The famous Pruitt Igoe project in the USA, which solved the financial and image problems of public housing, was demolished in

1976 because it did not respond to the behavioural and social needs of the users (Duerk, 1993). This incident illustrates well that a systematic identification of the client requirements during the briefing process is a prerequisite to project success. The importance of this initiation phase stands out relative to the other phases in the project life cycle (King and Cleland, 1988; Meyer and Utterback, 1995). Dvir et al. (2003) indicated that the origination and initiation phase, in which major decisions are made, such as deciding the project objectives and planning the project's execution, has the most influence on the project's success.

Previous studies conducted by Graham (1983), Hudson et al. (1991), and Barrett et al. (1996) indicated that, due to the complexities in identifying and conveying clients' actual needs and requirements accurately to the project team, and the immense magnitude of project information that needs to be considered during the briefing process, project briefs are often inadequate and not sufficiently explicit, and thus may not truly reflect client requirements. This problem has been tackled in a number of studies with the objective of developing briefing guides for inexperienced clients (e.g. Newman et al., 1981; O'Reilly, 1987; Pena et al., 1987; Duerk, 1993; Kelly et al., 1993; CIB, 1997; Salisbury, 1998). Despite these early attempts, the current briefing practice is still considered inadequate by many researchers (e.g. Barrett and Stanley, 1999; Kamara et al., 2002; Yu et al., 2005b). As concluded in the Latham Report (1994), "more effort is required to understand client needs". The report by the Construction Industry Review Committee (2001) has also recommended clients to "set out the requirements of their project clearly, systematically and comprehensively".

According to Kelly et al. (1992), in a comprehensive review of briefing studies for construction, the major weaknesses of the current briefing guides were too general and implicit to offer real assistance to clients and designers. These guides show what should be done without explaining how things can be done. They concluded by suggesting the use of Value Management (VM) for the future development of the briefing guide.

VM is a structured and analytical process that seeks to achieve value for money by identifying all the necessary functions at the lowest cost consistent with required levels of quality and performance (AS/NZS 4183:1994). It enables organisations to adopt a consistent approach towards decision-making, taking into account the needs of business, the environment within which it is operating, and the people who may be involved (BS EN 12973, 2000). VM has been widely adopted in many countries over several decades as a very effective tool to meet the increasing demands for value enhancement by clients (Dell’Isola, 1982; Kirk and Spreckelmeyer, 1988; Barton, 2000). The US Government requires the entire executive branch and federal agencies to establish and maintain cost-effective VM procedures and processes in all programmes and projects (SAVE International, 1997).

In Hong Kong, a technical circular has been issued by the Environment, Transport and Works Bureau, which sets out the requirements and guidelines on the application of VM to Public Works Programmes (ETWB, 2002). The Construction Industry Review Committee (2001) also recommended that VM should be used more widely in local

construction to enable a client and the project team to focus on the objectives and needs of the project and all stakeholders, both long and short term.

Using VM at the briefing stage, as a means of formulating the brief, is the most beneficial type of application (NSW Government, 1993). It enables clients to fully participate in the briefing process, and facilitates communication between clients and other stakeholders. An essential element of the VM methodology is the expression of client requirements as functions where a function is the specific purpose or intended use of a project that makes the project sell, produce revenue, or meet requirements. This approach enables a systematic identification and clear definition of client requirements, an improved understanding of various stakeholders' objectives, and the effective accomplishment of these functions (Shen, 1993). It also acts as a common language among stakeholders of the project so that they can work together harmoniously to identify opportunities available for development and to highlight any potential problems at the very beginning of the project (Gray et al., 1994; Lawson, 1997).

However, the briefing model using VM has not been much developed during the past decade. The existing models are simplistic, and whilst focused on the two stage briefing (strategic/project) commonly accepted today are not sophisticated, either in their input of the wider considerations of those factors such as stakeholder, change, knowledge and risk management which have themselves developed during the same time frame. In order to improve the briefing process and promote VM, it is necessary to investigate the application of VM to briefing and develop a practical framework for systematic identification and precise representation of client requirements in the briefing process.

1.2 Research aim and objectives

The aim of this research project is to investigate the briefing process in the construction industry and whether a framework using the VM approach can systematically identify and clarify client requirements, and represent these requirements precisely and explicitly to facilitate the design process.

The specific objectives of the study are:

- 1) to identify problems and difficulties faced by clients and designers in the briefing process,
- 2) to evaluate current practices in identifying, clarifying and representing client requirements for building projects,
- 3) to develop a new approach using VM to systematically identify/clarify client requirements and explicitly represent these requirements.

In order to achieve these objectives, major tasks to be undertaken include establishing, evaluating, and improving the framework for identifying and clarifying client requirements; exploring mechanisms for precise and explicit representation of the requirements; and validating and verifying the approach and framework by actual implementation in the briefing process of construction projects.

1.3 Research design and methodology

1.3.1 Methodological approach, ontological and epistemological issues

The approach to be adopted for conducting research depends on the nature of the investigation, the type of data and information required and available (Naoum, 1998). There are two types of research strategies, ‘quantitative research’ and ‘qualitative research’. The former uses numbers and statistical methods. It is based on numerical measurements of specific aspects of phenomena. Abstracting from particular instances to seek general descriptions or to test causal hypotheses, it seeks measurements and analyses that are easily replicable by other researchers (King et al., 1994). The latter is multi-method in focus, involving an interpretive, naturalistic approach to its subject matter. It involves the use and collection of a variety of empirical materials – case study, personal experience, introspective, life story, interview, observational, historical, interactional, and visual texts – that describe routine and problematic moments and meanings in people’s lives (Denzin and Lincoln, 1994).


The choice of research instrument also depends on critical skills of applied philosophical awareness rather than methods-level decision-making. The choice and adequacy of a method embodies a variety of assumptions regarding the nature of knowledge and the methods through which that knowledge can be obtained, as well as a set of root assumptions about the nature of the phenomena to be investigated (Morgan and Smircich, 1980). All approaches to social science are based on interrelated sets of assumptions regarding ontology, human nature and epistemology

(Burrell and Morgan, 1979). Table 1.1 provides a general overview of the relationships between ontology, human nature, epistemology and methodology in contemporary social science.

Ontology is a specification of a conceptualisation (Gruber, 2006). It has been described as ‘a theory which claims to describe what the world is like - in a fundamental, foundational sense – for authentic knowledge of it to be possible’ (Barnes and Gregory, 1997). It can be understood as assumptions about the nature of reality (Phillimore and Goodson, 2004).

Epistemology is the study of our method of acquiring knowledge. It answers the question “How do we know?” It encompasses the nature of concepts, the formulation of concepts, the validity of the senses, logical reasoning, as well as thoughts, ideas, memories, emotions, and all things mental. It is concerned with how our mind are related to reality, and whether these relationships are valid (Landaner and Rowlands, 2006). Epistemology in its general form is a study of knowledge through which ‘rules’ can be established to identify what is to be counted as ‘true’ (Barnes and Gregory 1997).

Table 1.1 Network of basic assumptions characterising the subjective-objective debate within social science
(Source: Morgan and Smircich, 1980)

	Subjectivist Approaches to Social Science				Objectivist Approaches to Social Science	
						
Core Ontological Assumptions	reality as a projection of human imagination	reality as a social construction	reality as a realm of symbolic discourse	man as an information processor	reality as a concrete process	reality as a concrete structure
Assumptions About Human Nature	man as pure spirit, consciousness, being	man as a social constructor, the symbol creator	man as an actor, the symbol user	Man as an information processor	man as an adaptor	man as a responder
Basic Epistemological Stance	to obtain phenomenological insight, revelation	to understand how social reality is created	to understand patterns of symbolic discourse	to map contexts	to study systems, process, change	to construct a positivist science
Some Favoured Metaphors	transcendental	language game, accomplishment, text	theater, culture	cybernetic	organism	machine
Research Methods	exploration of pure subjectivity	hermeneutics	symbolic analysis	contextual analysis of Gestalten	historical analysis	lab experiments, survey

In this study, reality is viewed as a social construction. The social world is a continuous process, created afresh in each encounter of everyday life as individuals impose themselves on their world to establish a realm of meaningful definition. They do so through the medium of language, labels, actions and routines, which constitute symbolic modes of being in the world. Social reality is embedded in the nature and use of these modes of symbolic actions. The realm of social affairs thus has no concrete status of any kind - it is a symbolic construction.

Human beings create their realities in the most fundamental ways, in an attempt to make their world intelligible to themselves and to others. They are not simply actors interpreting their situations in meaningful ways, but they also contribute through their own creative activities. Individuals may work together to create a shared reality, but that reality is still a subjective construction capable of disappearing the moment its members cease to sustain it as such.

The epistemology focuses on analysing the specific processes through which reality is created. Reality resides in the process through which it is created, and possible knowledge is confined to an understanding of that process. Thus, emphasis tends to be on the metaphors of text and accomplishment as means of generating insight regarding the methods through which individuals make sense of their situations, thus creating and sustaining a semblance of reality.

The case for qualitative research in social science begins as one departs from the objectivist extreme of the subjective-objective continuum as shown in Table 1.1. The quantitative methods used in social science are appropriate for capturing a view of the social world as a concrete structure. In manipulating data through sophisticated quantitative approaches, such as multivariate statistical analysis, social scientists are in effect attempting to freeze the social world into structured immobility and to reduce the role of human beings to elements subject to the influence of a more or less deterministic set of forces. They presume that the social world lends itself to an objective form of measurement, and that the social scientist can reveal the nature of that world by examining lawful relations between elements that, for the sake of accurate definition and measurement, have to be abstracted from their context. The large-scale empirical surveys and detailed laboratory experiments that dominate much social research stand as examples of principal types of method operating on assumptions characteristic of the objectivist extreme of the subjective-objective continuum.

Once the ontological assumption that the world is a concrete structure is relaxed and human beings, far from merely responding to the social world, may actively contribute to its creation, the dominant methods become increasingly unsatisfactory, and indeed inappropriate. For if one recognises that the social world constitutes some forms of open-ended process, any method that closes the subject of study within the confines a laboratory, or merely content itself with production of narrow empirical snapshots of isolated phenomena at fixed points in time, does not do complete justice to the nature of the subject. The very nature of the phenomena under investigation

challenges the utility of such methodological closure. Historical change, contextual fields of information, and processes through which human beings engage in symbolic modes of discourse to create their reality, can be captured and measured only through means of static techniques and only in the most partial and limited ways. Quantitative techniques may have an important but only partial role to play in the analysis and understanding of the process of social change, and in defining the informational properties of cybernetic fields; however, their utility is much more restricted in the more subjectivist positions identified on the subjective-objective continuum. The requirement for effective research in these situations is clear; scientists can no longer remain as external observers measuring what they see, they must move to investigate from within the subject of study and employ research techniques appropriate to that task.

Researchers should be flexible and therefore it is recommended to select a variety of methods rated appropriate to the research problem under investigation (Burgess, 1984). Modern-day scientific approach is inductive and deductive, as well as objective and subjective. Design validity is more likely to be built into the research study when the researcher is open to both paradigms than when one or the other is precluded. In this research study, quantitative approaches used include questionnaire survey while qualitative approaches adopted include content analysis, focus group meeting, action research and case study. The two approaches were used to complement each other. The research methods adopted in this study are detailed in the next section.

1.3.2 Research methods

Questionnaire survey

Questionnaire is probably the most widely used data collection technique for surveys. It is most suitable in which the survey purpose is clear enough to be explained in a few paragraphs of print. Questionnaires have been widely used for descriptive and analytical surveys in order to find out facts, opinions and views on what is happening, who, where, how many or how much. In this study, multi-methods were used to distribute the questionnaire to the subjects in Hong Kong, the UK and the USA. In Hong Kong, postal and emailed questionnaires are certainly a quick and economic method of conducting a survey. Telephone interviews were used to obtain missing data and clarify ambiguous answers. In the UK and the USA, personal e-cards and web-based questionnaire were used to obtain data from the targeted subjects in areas with vast geographical spread. Convenient sampling was used because contact addresses or emails were available in these areas. Further account of the questionnaire survey for this study can be found in Chapter 6, Section 6.2.

In addition, feedback questionnaire were used to obtain comments on the proposed VM framework from construction practitioners. The details of the feedback questionnaire survey are provided in Chapter 7, Section 7.4.

Content Analysis

Content analysis is defined as ‘a method of studying and analysing communications in a systematic, objective and quantitative manner for the purpose of measuring variables’ (Kerlinger, 1973). Krippendorff (2004) defined content analysis as ‘a

research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use'. It is a technique for examining information or content in written materials of descriptive research. In this study, content analysis was used to analyse responses of the open-ended question of the questionnaire. A system for recording specific aspects of the questionnaire was created. The system included counting how often certain words or phrases occurred. Findings of the questionnaire were then recorded and presented as tables. The details of this method are further provided in Chapter 6, Section 6.2.3.2.

Focus group meeting

Focus groups are carefully planned discussions stimulated within a predefined group environment to obtain perceptions about a defined area of interest in a permissive, non-judgemental environment (Sink, 1991; Krueger, 1994). They are designed to promote interaction and self-disclosure among participants who can share their perspectives provided by the researcher. One of the strengths of focus groups is their ability to collect data about similarities and differences in participants' opinions and preferences in a flexible environment (Morgan, 1997). In this study, focus group meeting allowed the researcher to respond to and explore participants' attitudes, beliefs and feelings about the VM framework developed for briefing. The limitation of focus groups lies in the way in which highly unstructured and qualitative data are analysed. To facilitate this, the focus group discussions were transcribed and then analysed using content analysis. This is a technique particularly useful for highly unstructured data, and involves categorising communication content into its

component parts (Berg, 1989). The use of the focus group meeting is further detailed in Chapter 7, Section 7.3.

Experimental study

Since real-life projects were not available for this research study, an experimental study was carried out to investigate the application of VM approach in Strategic Briefing which resulted into development of the VM framework for briefing. A hypothetical project which based on the information of an existing residential development was used to form the scenario of the study for testing the VM framework. The details of the experimental set up are attached in the Appendix G. The process and evaluation of the Strategic Briefing Study are detailed in Chapter 7, Sections 7.5.2 and 7.5.3 respectively. This experimental study can produce significant insight from investigating the application of VM in briefing. It has the advantage of linking theory with practice, for without this link the research may end up with theoretical discussions and even no practical validation and testing of the research findings. Thus it is one of the few methods that can be used in this research study to validate the proposed VM framework.

Case study

Case study research consists of a detailed investigation, often with data collected over a period of time, of phenomena, within their context. The aim is to provide an analysis of the context and processes to illuminate the theoretical issues being studied (Hartley, 2004). Case study is particularly suited to research questions which require detailed understanding of social or organisational processes because of rich

data collected in context. It is used when the researcher intends to support his/her argument by an in-depth analysis of a person, a group of persons, an organisation or a particular project (Naoum, 1998). Case study is also designed as a learning vehicle with specific objectives in mind. It is an exploratory research technique to investigate one or a few situations that are similar to the researcher's problem situation. The typical rationale for using the case study method is the availability of a special case that seems merit intensive investigation (Rubin and Babbie, 1997). In this project, case study was used to compare two relevant real-life projects using VM approach in briefing with the proposed VM framework so as to validate and refine the framework. The details of the two case studies are provided in Chapter 7, Sections 7.6 and 7.7.

1.3.3 The research framework

Having identified the aim and objectives of the research project and clarified the ontological and epistemological issues, a research framework was developed with which to carry out the research project. Figure 1.1 illustrates diagrammatically the research framework.

A comprehensive literature review was undertaken to obtain an overall understanding of briefing, VM and the application of VM to briefing. Thirteen briefing variables were elicited, identified and clarified in a brainstorming session held by three researchers while comprehensive literature review was conducted to confirm, add or reject the variables. A theoretical framework for briefing was developed with the recommendations to incorporate VM into the briefing process to

address these 13 variables. A questionnaire survey was used to validate the variables identified in this study as in Low and Chuan (2006). The critical success factors for the briefing process were also identified, categorised and prioritised in this survey.

The 13 briefing variables were generally accepted by the survey respondents and a VM framework for briefing which embraces these 13 variables was drafted. This framework was incorporated in a document entitled “A How-To Guide to Value Briefing”. Comments on the guidebook were first obtained in a focus group meeting. The guidebook was also sent to those who could not attend the focus group meeting together with a feedback questionnaire to enable the collection of further comments on the guidebook. The VM framework was then tested in an experimental study with a group of professional practitioners to check for any problems concerning the implementation of the VM framework in the briefing process.

The VM framework was subsequently improved by the findings from a desktop study on two overseas case studies using VM approach in briefing because a real-life case study on which to apply the proposed VM framework was not available. In addition, two training seminars were held to obtain further comments and thus the framework was refined. The development and validation process of the VM framework is further detailed in Chapter 7, Section 7.2.

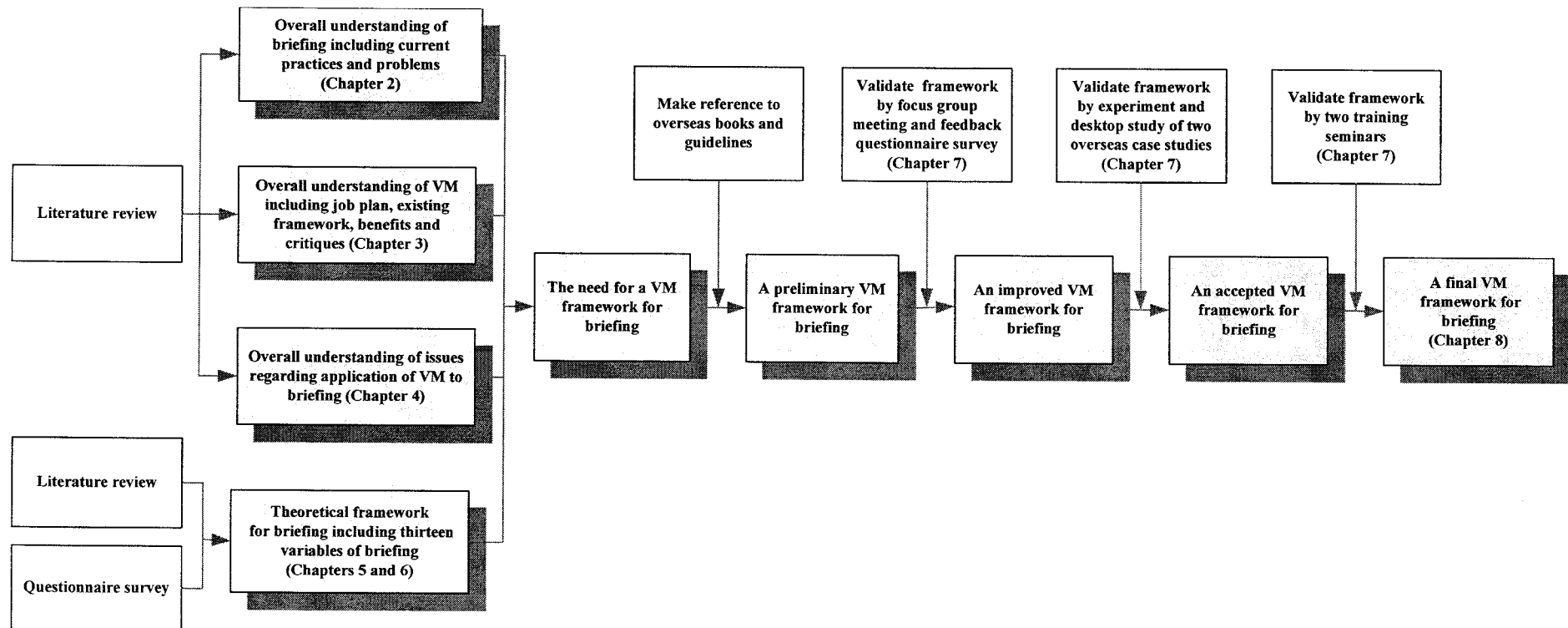


Figure 1.1 The research framework

1.4 Organisation of the thesis

1.4.1 Structure of the thesis

Chapter 1 introduces the research area investigated. It includes the background of the study, the aim and objectives of the research, the research design and methodology, and the organisation of the thesis.

Chapter 2 presents the findings of literature review on briefing. The definitions, problems, current practices, guidelines, improvement areas and IT applications to briefing are reviewed.

Chapter 3 presents the findings of literature review on VM. The background and history, definitions, components, Job Plans, existing framework, benefits and critiques of VM in construction are provided.

Chapter 4 examines previous works and the issues concerning the application of VM to briefing. Issues include timing of VM study in briefing, the use of Function Analysis and Functional Performance Specification in briefing, and the need of facilitation in briefing.

Chapter 5 presents the theoretical foundations for developing the practical VM framework of briefing. The 13 variables of briefing, the theoretical framework and rationales for the input of VM into briefing are discussed.

Chapter 6 follows with the validation of the theoretical framework established for briefing. The methodology using a questionnaire survey as well as the results and implications to the proposed VM framework are presented.

Chapter 7 concerns with the development and validation of the proposed framework for briefing. The development and validation process of the VM framework and the details of the focus group meeting, feedback questionnaire survey, the experimental study on the implementation of the VM framework, two overseas case studies and two training seminars are presented.

Chapter 8 presents the final version of the proposed VM framework for briefing. The framework which contains answers to the questions What, Why, When, Who, Where and How are provided.

Finally, Chapter 9 presents the conclusions with a review of the objectives, research contribution, significance and limitations of this research study, and recommendations for future research studies.

1.4.2 Rationale for the structure of the thesis

The thesis was structured in way mentioned in the above section by following the logical sequence of developing the VM framework. Firstly, briefing and VM were investigated separately to get familiar with the areas in literature. Secondly, the issues for the application of briefing in VM were examined. Thirdly, it was necessary to develop a theoretical framework for briefing before production of the

practical VM framework for briefing. Fourthly, the theoretical framework needed to be validated before it could be applied. Fifthly, the development and validation of the VM framework for briefing were described and explained. Finally, the final VM framework for briefing was presented.

CHAPTER 2

LITERATURE REVIEW – BRIEFING/ ARCHITECTURAL PROGRAMMING

- ❖ **Introduction**
- ❖ **What is briefing?**
- ❖ **Briefing practices**
- ❖ **Problems associated with briefing**
- ❖ **Improvement areas in briefing**
- ❖ **Guidelines for briefing**
- ❖ **IT applications to briefing**
- ❖ **Summary and conclusions**

2.1 Introduction

This chapter presents a summary of the literature review relating to briefing. The definitions and characteristics of briefing are first provided and discussed. In particular, the interrelationship between project requirements and client requirements is reviewed. This is followed by the description of the briefing practices in the UK, the USA and Hong Kong, and explanations to the problems encountered in the briefing process together with the improvement areas of briefing. Guidelines that have been developed for briefing are also examined. Finally, IT applications to briefing are briefly outlined.

2.2 What is briefing?

2.2.1 Definition of briefing/ architectural programming

Firstly, it is essential to define two different terms; ‘briefing’ and ‘brief’ (used in Hong Kong and the UK), which are synonymous with terms ‘architectural programming’ and ‘program’ (used in the USA).

In the UK, briefing is defined as the process by which a client informs others of his or her needs, aspirations and desires, either formally or informally, whilst a brief is a formal document which sets out a client’s requirements in detail (CIB, 1997). According to Kelly and Duerk (2002), briefing is the process of gathering, analysing, and synthesising information needed in the building process in order to inform decision-making and decision implementation. The purpose of briefing is to identify and clarify the objectives and requirements of the client. A brief is a formal

document containing the written instructions and requirements of a client in a construction project. It enables the client to inform all concerned parties of his statement of need and requirement.

In the USA, Hershberger (1999) defines architectural programming as the first stage of the architectural design process in which the relevant values of the client, users, architect, and society are identified; important project goals are articulated; facts about the project are uncovered; and facility needs are made explicit. It follows that the architectural program is the document in which the identified values, goals, facts, and needs are presented.

There are basically two schools of thought relating to briefing. One considers the brief as an entity in itself, which should be frozen after a critical period; and briefing becomes a stage or stages in the design process (Hershberger, 1999; RIBA, 2000; Hyams, 2001; Yu et al., 2005b). The other regards the brief as a live and dynamic document that develops iteratively from an initial global brief in a series of stages; and briefing is deemed as an ongoing activity that evolves during the design and construction process (Barrett and Stanley, 1999; Blyth and Worthington, 2001; Kamara et al., 2002; Othman, et al., 2004 and 2005).

2.2.2 Client requirements and project requirements

A requirement is a statement identifying capability, physical characteristics, or quality factor that bounds a product or process need for which solution will be pursued (IEEE, 1995). According to Alexander and Stevens (2002), requirements

exist either because the type of product demands certain functions or qualities, or the client wants that requirement to be part of the delivered product. Good requirements are complete, unambiguous, consistent, feasible, solution neutral, traceable, necessary, concise, correct, verifiable and also requirements are not used for wrong purpose (Haumer et al., 2000; Kamara and Anumba, 2001b; Jarke, 1998; Lin et al., 1996; Kar and Bailey, 1996; Kott and Peasant, 1995).

In the construction industry, there are different types of project requirements (Kamara et al., 2002):

1. Client requirements – Requirements of the client which describe the facility that satisfies his or her business need. These incorporate user requirements, those of other interest groups (stakeholders) and the life cycle requirements for operating, maintaining and disposing of the facility.
2. Site requirements – These describe the characteristics of the site on which the facility is to be built (e.g. ground conditions, existing services, history, etc.)
3. Environmental requirements – These describe the immediate environment (e.g. climatic factors, neighbourhood, environmental conservation, etc.) surrounding the proposed site for the facility.
4. Regulatory requirements – Building, planning, health and safety regulations, and other legal requirements that influence the acquisition, existence, operation and demolition of the facility.
5. Design requirements – Requirements for design, which are a translation of the client needs, site and environmental requirements.

6. Construction requirements – Requirements for actual construction derived from the design activities.

The interrelationship between these project requirements is illustrated in Figure 2.1. Client requirements combine with site, environmental and regulatory requirements to produce design requirements, which, in turn, generate construction requirements. Other project requirements are generated from the business needs of the client to be satisfied by the proposed facility. The end product of the building construction, the building, should fulfill the needs and requirements of all stakeholders in a comprehensive manner (Karama et al., 2002).

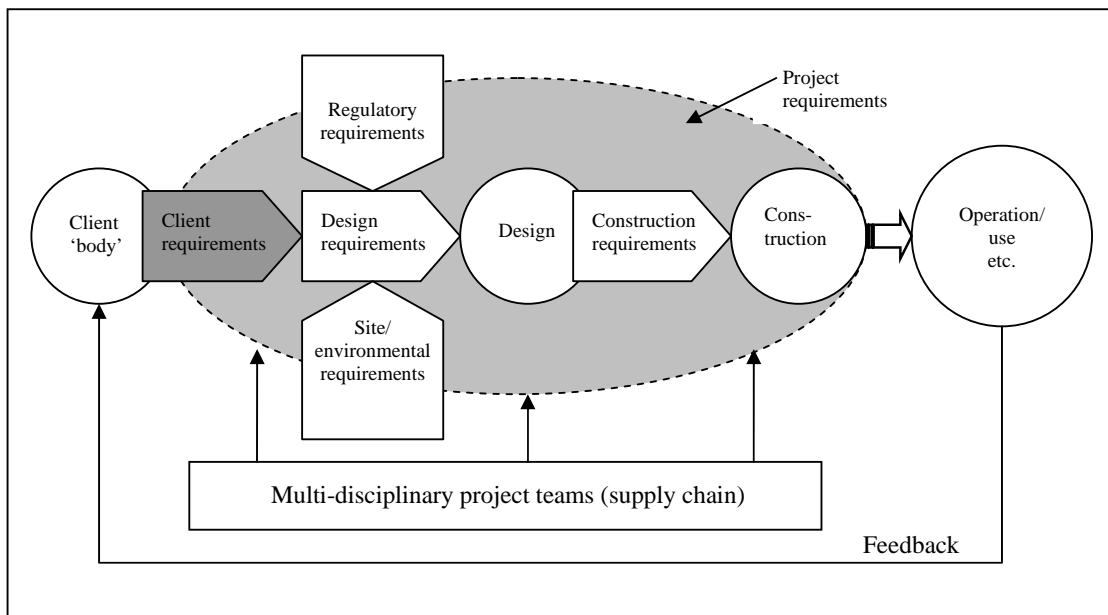


Figure 2.1 Interrelationship between project requirements
(Source: Kamara et al., 2002)

2.2.3 Characteristics of briefing

Previous literature shows that the briefing process includes the following major characteristics:

Briefing and Clients

Briefing involves informing the project team of the client's intentions for the project and documenting the objectives, needs and requirements in a brief. The client can be a single person or multi-headed client. Multi-headed client may be an organisation, or group of stakeholders, made up of individuals with different wants and desires. It is difficult to find the right path that satisfies the diverse goals of a multi-headed client (Potter, 1995). The situation is even complicated by the existence of the gap between the 'user clients' and 'paying clients' (or demand-supply gap) (Zeisel, 1984). However, it is important that the briefing process should adequately capture the requirements of all stakeholders making up the 'Client' (Cheong et al., 2003).

Dynamic and iterative process

Briefing is a complex and iterative process which may even contain disjunctures. It requires a shared understanding and commitment among a group of stakeholders of the project, including the client, the end users, and the project team in interviews, work sessions as well as workshops. It is also a dynamic process that continues through the early design stage of a project (Barrett and Stanley, 1999).

Extensive information possessing

Briefing involves a huge and wide range of initial/preliminary but crucial data/information/knowledge from different independent sources. It also involves concurrent and collaborative works by different non co-located parties over the same information (Rezgui et al., 2001). Therefore, coordination and communication among client's representatives, stakeholders and project team are of vital importance.

Critical decision making

Briefing involves making numerous critical decisions where the major commitment of resources is made. In this stage, the potential to influence cost is great. All possible options should be comprehensively examined at this stage to ensure that no potential alternatives have been missed. Many changes and revisions would occur during the briefing stage. All justified decisions throughout the briefing process should be properly documented in a formal manner (Cheong et al., 2003).

2.3 Briefing practices

Since most publications of briefing were originated in the UK and the USA, a brief account of the briefing practices in these two countries was summarised. In addition, the briefing practices in Hong Kong were also described in this section based on the results of a focus group interview and a questionnaire survey conducted by previous researchers.

2.3.1 Briefing practices in the UK

The development of brief is influenced by various factors related to the information required, the nature of the project, type and size of client, and the skills of those involved in the process (Newman et al., 1981; Worthington, 1994).

In the UK, the RIBA Plan of Work (2000) lists ‘Strategic Briefing’ as Stage B. It is described as “preparation of strategic brief by or on behalf of the client confirming key requirements and constraints, identification of procedures, organisational structure and range of consultants and others to be engaged for the project”. The evolution of briefing documents and their interaction with the design activities are shown in Figure 2.2.

As indicated in Figure 2.2, the client’s ‘statement of need’ is the starting point which sets out the client’s mission, objectives and needs. On a small project it will be very informal. On a larger one, and especially on a public sector project, it will take the shape of a formal report (Hyams, 2001). The strategic brief is a document covering the strategic, managerial and design intentions, and showing how these requirements are to be met. It will be the outcome of activities such as feasibility studies; site or building survey and studies; research into functional needs; accessibility audits; environmental impact considerations; statutory constraints and cost appraisal studies. The project brief defines all design requirements. It is prepared by the architect in collaboration with the client, and with coordinated contributions from all consultants and specialists. The project brief is the last stage in the briefing process and may be equated with the end of Plan of Work Stage D. The CIB report ‘Briefing the Team’

states in detail what should be included in the statement of need, strategic brief and project brief.

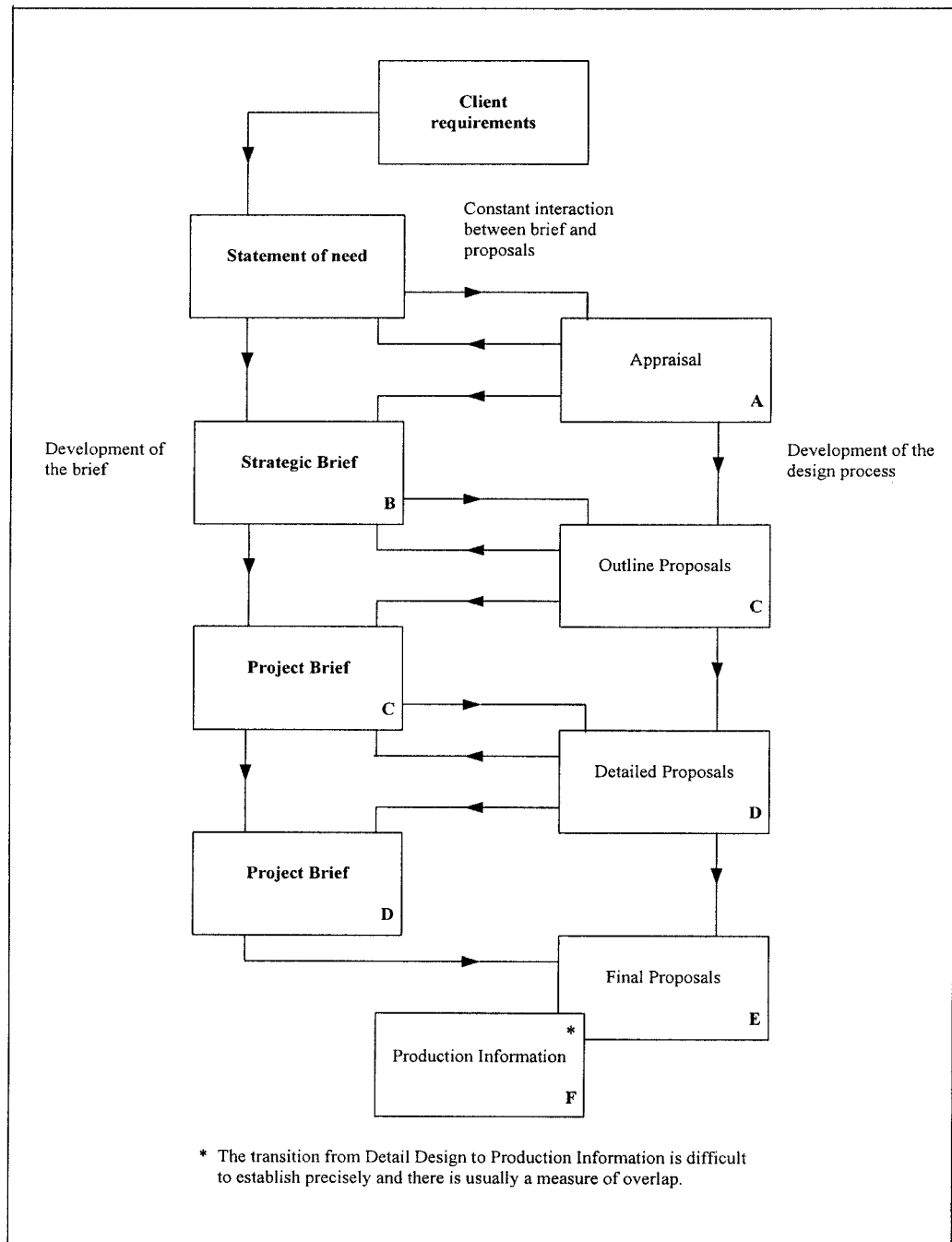


Figure 2.2 The process of brief and design development
(Source: RIBA, 2000)

Kamara et al. (2002) also investigated into the current process of briefing in the UK construction industry. Their appraisal was based on a detailed study of the briefing process that was carried out through literature reviews, cases studies and a questionnaire survey of a sample of clients and consultants in the construction industry. The study revealed that briefing is combined with conceptual and scheme design. The brief is layered and becomes focused as the design gets progressively fixed. Even the stages in the progress can be quite blurred, there are at least two clear stages: an initial (strategic) brief evolving into a detailed (project) brief. This coincides with Kelly, MacPherson and Male's conclusions (1992) of two major stages for briefing process in their review and critique.

2.3.2 Briefing practices in the USA

In the USA, various programming methods have been developed and used over the years and these methods range from informal discussions between client and architect to specifically planned research studies resulting in a comprehensive and detailed program. Most programming approaches fall between the two extremes. The current approaches include: Design-Based Architectural Programming, Knowledge-Based Architectural Programming, Agreement-Based Architectural Programming and Value-Based Architectural Programming (Hershberger, 1999).

- 1. *Design-Based Architectural Programming*** – This programming method occurs simultaneously with the design process. In most cases, a minimum amount of time and effort are expended in generating the program, and the design proceeds at the first meeting when the architect begins to sketch design

ideas based on the client's brief and/or the discussion with the client. The programming process then continues over a number of meetings as the client reacts to designs generated by the architect in the drawings.

2. ***Knowledge-Based Architectural Programming*** – This programming method is especially useful for large, complex, or innovative projects when research methods, techniques, and tools developed by social and behavioural scientists are used to collect information and develop knowledge for the design problem. Information gained from various research approaches is assembled, statistically analysed, and summarised in a program document. Indeed, program sheets are developed for every space in the proposed facility. Such a systematic approach to programming provides highly reliable information of considerable value to facilitate the designer in preparing plans to meet the needs of the client.

3. ***Agreement-Based Architectural Programming*** – This approach relies on the knowledge of several key participants of the client's organisation, where a planning or building committee is formed to generate the required programming information. The programmer works with this committee to arrive at a mutually acceptable set of design requirements in assembling the program. The most notable example of this approach is the work of CRS of Houston, Texas under the guidance of William Pena, which is known as the Problem Seeking method (Pena and Parshall, 2001). They proposed the completion of a predetermined information matrix which the firm believed to be capable of providing a complete definition of the design problem. The

completion of such a matrix and agreement on its content in work session environments are the fundamental tasks in each programming situation. Table 2.1 shows Pena et al.'s matrix relating five procedural steps to four design considerations.

Table 2.1 CRS Programming Matrix (Source: Pena and Parshall, 2001)

	Goals	Facts	Concepts	Needs	Problems
Function					
Form					
Economy					
Time					

Each category of information (goals, facts, concepts, needs, and problems) falls in a five-step chronologically linear process. Each step is defined in terms of function, form, economy and time:

- Step 1 Establish **Goals**
- Step 2 Collect and analyse **Facts**
- Step 3 Uncover and test **Concepts**
- Step 4 Determine **Needs**
- Step 5 State the **Problems**

Another example is Duerk's matrix which includes the same goals, facts, and concepts, but adds values and performance requirements and explores and defines all these factors in terms of design issues. Table 2.2 ties the five information categories to an infinite number of design issues.

Table 2.2 Duerk's Matrix (Source: Duerk, 1993)

Issues	Privacy	Security	Territoriality	Image	Maintenance	Physical Comfort	Audibility	Visibility	Etc.
Facts									
Values									
Goals									
Performance Requirements									
Concepts									

- 4. Value-Based Architectural Programming** – This approach tries to incorporate the best aspects and avoid the worst problems of the programming approaches discussed above. First, it relies heavily on the type of interviewing and discussion sessions held between architect and client to uncover the strong belief, values and goals of the client early in the programming process. Second, it adopts the systematic procedures used in knowledge-based programming such as literature search, questionnaire development and administration, and various sampling and statistical methods to establish values and goals; to collect, organise, and analyse facts; and to establish needs. However, limited budgets and tight schedules normally allowed for programming activities can be major constraints. Third, it incorporates the objective of being comprehensive of defining the complete architectural problem and relies on a similar matrix format of the agreement-based approach. However, it uses the eight value categories as the starting point and seeks to discover the unique set

of values applicable to each design project. A Value-Based Programming Matrix is shown in Table 2.3.

Table 2.3 Value-Based Programming Matrix (Source: Hershberger, 1999)

Values	Goals	Facts	Needs	Ideas
Human				
Environmental				
Cultural				
Technological				
Temporal				
Economic				
Aesthetic				
Safety				

2.3.3 Briefing practices in Hong Kong

In 2002, a questionnaire survey was conducted by a group of MSc students to investigate the briefing practices of both the public and private sectors in Hong Kong (Kwok et al., 2002). According to the survey respondents from the public sector, the client brief was given either in written format (58%) or a combination of written and verbal format (42%). There was no communication of client brief purely in verbal form. Whereas in the private sector, 77% of the client brief was issued in a combination of written and verbal format. Only 13 % of client brief was given in written format and 10% in purely verbal form.

Having reviewed the client brief format, it was investigated ‘who are involved in the client briefing process’. In both public and private sectors, 68% of the survey respondents replied that the client project manager and client in-house consultant were involved in most cases, whereas external adviser, end-user and major stakeholder were less frequently involved. This was also confirmed by the results of the focus group interview. Details of parties participated in the briefing process is shown in Table 2.4.

Table 2.4 Parties participated in the briefing process

	Public (%)	Private (%)
Client project manager	41	44
External advisor	4	6
Major stakeholder	12	10
Client in-house consultant	27	24
End user	14	12
Others	2	4

The briefing process described in eight stages adopted by Atkin et al. (1996) was put in the questionnaire to review the survey respondents’ involvement at each stage in the briefing process. Table 2.5 indicates the involvement of the respondents in each stage. From the survey, the two most frequent stages involved in both the public and private sector were concept design and scheme design. This coincided with Kamara and Anumba’s findings that briefing was combined with conceptual and scheme design and usually the stages in the process were blurred (Kamara and Anumba, 2001a).

Table 2.5 Stages that have involved in the briefing process

	Public (%)	Private (%)
Strategic analysis	7	9
Client analysis	8	6
Facilities analysis	8	9
Statement of need	12	9
Confirming the need	7	10
Functional brief	14	14
Concept design	22	22
Scheme design	22	21

Table 2.6 shows the major requirements/concerns in the briefing process. In public sector, the three most frequent requirements and concerns were “project identification”, “programme for the development” and “budget of development”. Whereas in the private sector, they were “programme for the development”, “design requirement” and “budget of development”.

Table 2.6 Requirements/concerns considered in the briefing process

	Public (%)	Private (%)
Project identification	22	13
Design requirement	16	19
Budget of development	16	18
Procurement of contract	7	4
Resources	6	8
Programme for the development	18	19
Quality requirement	7	14

For techniques used in the briefing process, “cash flow forecast and financial plan”, “issue related to environmental protection” and “value management” were the three most frequent analysis and assessment adopted in the public sector. “Cash flow

forecast and financial plan” received the highest frequency with an overall percentage of 20%. Survey in the private sector had similar findings. However, “issue relates to environmental protection” received the highest percentage with an overall percentage of 19%. Table 2.7 indicates the analysis/assessments carried out in the briefing process.

Table 2.7 Analysis/assessments carried out in the briefing process

	Public (%)	Private (%)
Value management	17	12
Life cycle costing	10	13
Risk management	11	13
Issue relates to health and safety	16	16
Issue relates to environmental protection	17	19
Cash flow forecast and financial plan	20	16
Facilities management	9	11

In the public and private sectors, the percentages of survey respondents (comprised the “agree” and “slightly agree” columns in the questionnaire) who considered briefing was comprehensive enough for design team to proceed with design works were only 40% and 25% respectively. Similar situation was found in the survey conducted in the UK construction industry that 34% of the respondents were fully satisfied with the briefing process in the project (Kamara and Anumba, 2001a). It reflects the need to investigate problems in the current practice and ways to improve the briefing process.

The survey respondents were also requested to rate the barriers for preparing a comprehensive client brief. In the public and private sectors, the total percentage of

survey respondents on the “agree” and “slightly agree” columns was higher than that of “disagree” and “slightly disagree” columns. In public sector, the five main barriers to prepare a comprehensive client brief were “clients change requirement and design frequently”, “needs of end-users not clearly stated”, “poor communication”, “insufficient resources and financial support” and “lack of an experienced professional as the brief leader”. Whereas in the private sector, the barriers were “clients change requirement and design frequently”, “needs of end-users not clearly stated”, “lack of time”, “lack of a systematic approach in clarifying and representing requirements” and “lack of review and feedback to the client brief”. The percentages are shown in Figure 2.3 and 2.4 for public and private sectors respectively.

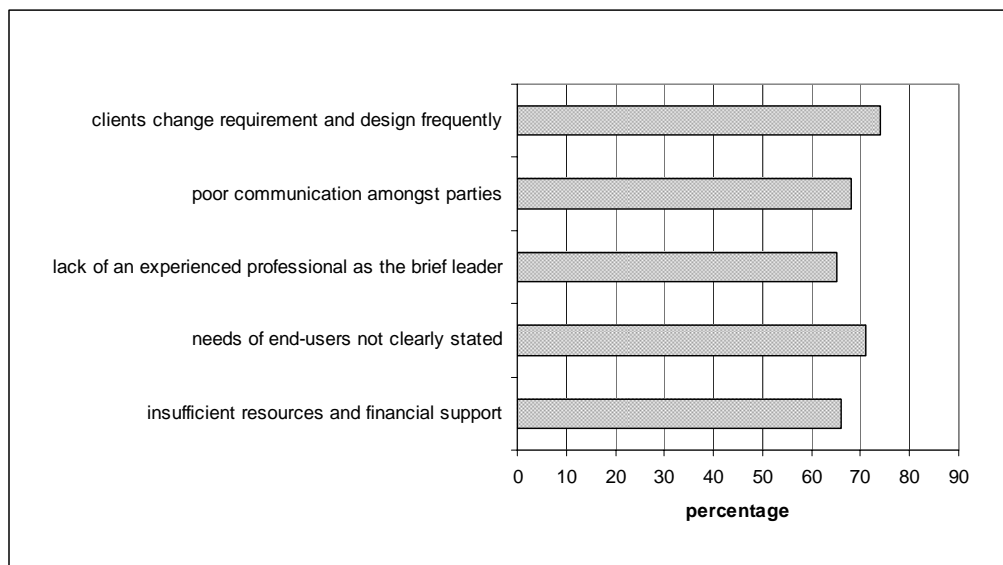


Figure 2.3 Barriers in preparing a comprehensive brief in Hong Kong (Public Sector) (Source: Yu et al., 2005a)

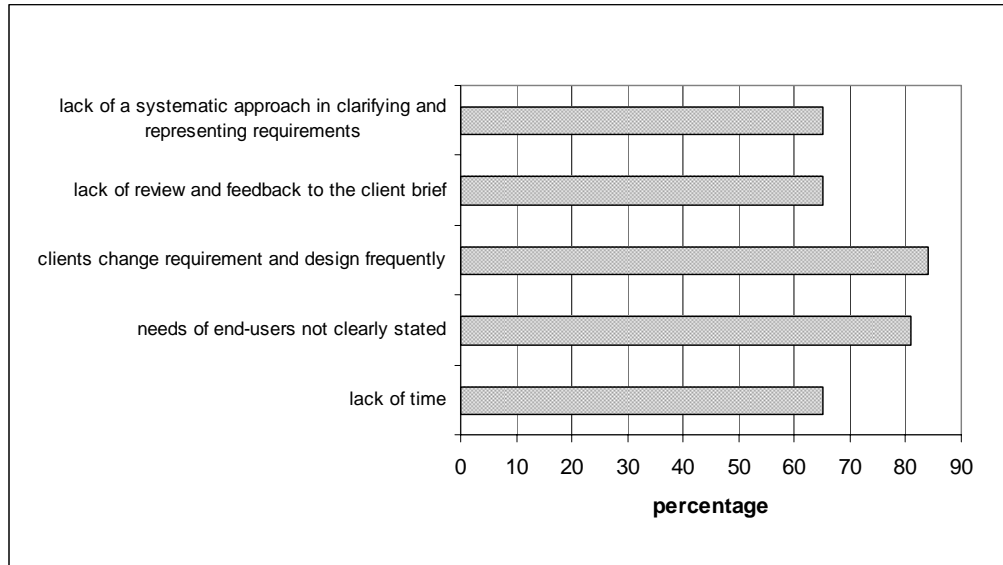


Figure 2.4 Barriers in preparing a comprehensive brief in Hong Kong (Private Sector) (Source: Yu et al., 2005a)

2.4 Problems associated with briefing

Table 2.8 summarises a list of problems encountered in the briefing process from the literature review. In 1992, Kelly, MacPherson, and Male examined the problematic areas in briefing. Out of the five identified problematic areas, four are related to the client. Firstly, they pointed out that inexperienced clients often did not understand the structure of the building industry and the technicalities of buildings. This lack of understanding frequently led to the inappropriate selection of sites, unrealistic expectation of project costs, and a failure to appreciate the roles of the various parties in the design and construction process. Secondly, a typical problem in the representation of client interest groups was an incomplete identification of all the interest groups and how they should be represented in the decision making unit. Thirdly, the identification of the true needs of these groups could be problematic.

Clients were generally assumed to have investigated quite thoroughly the need to build, but this might be a dangerous assumption. The statement of a need also tended to be overridden by the envisaged solution. User groups tended to maximise their 'wish list' in anticipation of being bargained down from this. Furthermore, changes usually occurred in the client organisation and the environment during the briefing and design process. Fourthly, it was also common for the expression of needs to be modified as possible design solutions were developed. User representatives changed their mind during the design process because through visualising designs they came to a fuller understanding of what is possible in construction (Lawson, 1997). Finally, insufficient time was allowed for most briefing stage because the client group was anxious to proceed as quickly as possible. As a result, the client decision making unit and the designers might be forced to act without sufficient consultation simply for the sake of making some tangible progress.

Barrett and Stanley (1999) investigated into briefing and highlighted common problem areas and presented alternative improvement approaches. A comprehensive list of problems was presented, where most of which are self-explanatory. Apart from the problems related to client, problems related to design consultants and contractor were also introduced, for instance, underemployment and inappropriate timing of consultants, and contractor lack of real understanding of client objectives. A further examination of the reasons to the problems of briefing failure showed that human nature was often the root of these failures. Although there was often a desire to follow good practice ideas, in very few examples were the methods fully implemented as people tended to overrule part of the processes. Notably, the human

dimension is critical and the impact of people's thinking upon the briefing process needs to be considered in more detail.

In 2001, Kamara and Anumba conducted case studies and an industrial survey to investigate the briefing process and to identify limitations in current practice. Such limitations, which support previous studies on briefing (Kelly et al., 1992; Barrett and Stanley, 1999), may partly be due to the attitude or inefficiencies of those involved, but they also suggested the general framework for briefing is inadequate. In current practice, there is a tendency for project requirements (e.g. those of the site) to overshadow client requirements when they are considered together. Besides, current briefing practice tends to be solution-focused. The solution, in the form of sketches and drawings, is used to define the problem. It was commented that a solution-based approach tends to shift the focus from the requirements of the client to that of the designer(s). The use of sketches and drawings to re-state and record changes to client requirements can make it difficult for requirements to be traceable to the true needs of the client. Furthermore, within the current framework for briefing, the rationalisation and prioritisation of client requirements is done subsequently as the brief evolves with the design. Without a structured methodology, it is less systematic to establish the relative importance of the requirements, or take account of the relative importance of the various interest groups in a project. All these limitations in the existing framework for briefing can shift the focus away from the requirements of the client, and can result in problems in briefing practice.

Kelly and Duerk (2002) modified the problem list of briefing based on the work of Kelly, MacPherson and Male (1992). They added the following notable points.

Mandatory design guides – There were well-defined design guides and standards that tend to be used by design team without careful considerations in the public sector and amongst large corporate organisations. The design guides stand in place of the brief for large parts of the project. Outdated or irrelevant design guides may lead to inappropriate or even incorrect design decisions.

Lack of iteration in briefing – Briefing is not a linear process. Regular summarising and checking should be characteristics of the process.

Hidden agendas – These are features of the inception stage of construction projects. Client representatives and the design team members can all withhold their agenda from the group. Exposing hidden agendas by clear representation and recording of project goals are important functions of the brief writer.

Table 2.8 List of major problems encountered in briefing

Problems encountered in briefing	Kelly, MacPherson, and Male (1992)	Barrett and Stanley (1999)	Kamara and Anumba (2001a)	Kelly and Duerk (2002)
Inexperienced client	•	•		•
Client organisation not set up to deal with project or consultants		•		
Unstructured approach/ lack of focus for project		•		
Focus of feasibility studies is limited mainly due to financial consideration		•		
Confusion over direction and aims of project within client organisation		•		
Confusion over responsibility		•		
Lack of management interest		•		
Inability of client to read drawings		•		
Identification of client needs	•		•	
Interpretation of client needs in building term	•			
Unstructured approach to collecting client's requirements		•		
Insufficient information on requirements		•		
Definition by solution				•
Lack of iteration in briefing				•
Incorrect representation of client interest groups	•			•
Inadequate involvement of all relevant parties			•	
Inadequate communication between those involved in briefing			•	
Irrelevant information collected about users		•		
Difficulties trying to accommodate various needs of all users		•		
Hidden agendas				•
The wish-list syndrome				•
Briefing information still being given during late design and construction stage		•		
Inadequate management of change in requirements		•	•	•
Underemployment and inappropriate timing of consultants		•		
Contractor has no real understanding of client objectives		•		
Mandatory design guides				•
Insufficient time for briefing	•		•	

2.5 Improvement areas for briefing

There were quite considerable efforts to improve the identified problems of briefing. Barrett and Stanley (1999) suggested five key areas for improvement in the briefing process based on their observations on empirical results undertaken between 1995 and 1997. These areas include empowering the client, managing the project's dynamics, appropriate user involvement, appropriate team building and satisfactory visualisation techniques (Barrett and Stanley, 1999). It was also pointed out that such best practice advice over the last thirty years appears to have made little impact on improving the briefing process.

Another study for improving the briefing practice is the LEAF project (Learning From Experience: Applying Systematic Feedback to Improve the Briefing Process in Construction). This project aimed to improve the client briefing and evaluation process by systematising the gathering of feedback from completed projects to improve the construction productivity, building performance and user satisfaction. Bassanino et al. (2001) concluded that communication, continuity of relationships, the ability to respond to changes, the ability to balance conflicting demands, mechanisms that implement feedback, and effective management are factors that facilitate feedback with the client briefing system.

In Hong Kong, Kwok et al.'s survey (2002) mentioned in Section 2.3.3 also investigated improvement areas for briefing. The top five improvement areas for both sectors are “full understanding of client's need”, “allowing sufficient time to prepare the brief”, “the end-user to participate in the briefing”, “good

communication skill” and “regular review and providing feedback to client’s need” for both sectors (Figure 2.5). These findings are also well supported by other studies on the briefing practice (Kelly et al., 1992; Barrett and Stanley, 1999; Kamara and Anumba, 2001a).

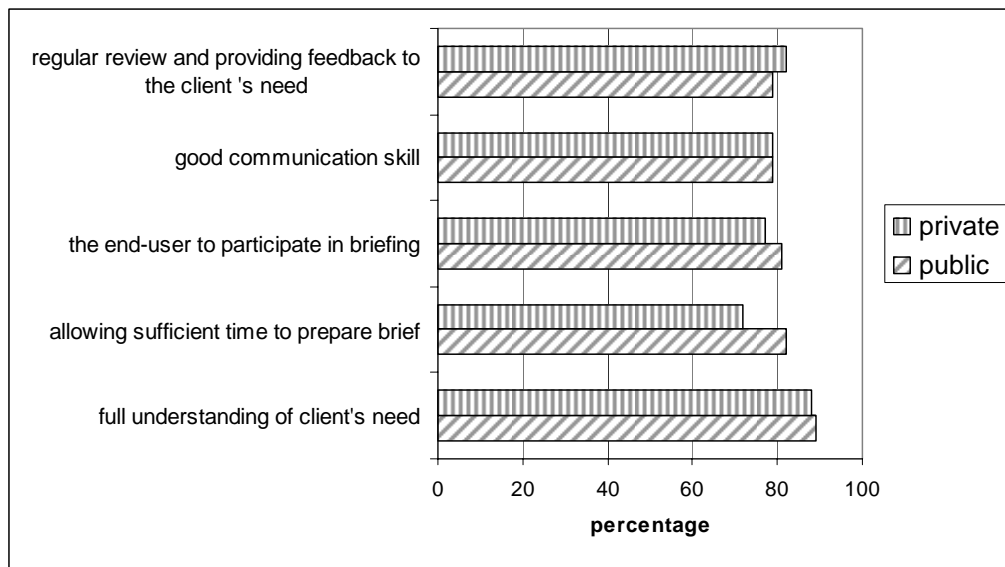


Figure 2.5 Improvement areas for the briefing process
(Source: Yu et al., 2005a)

2.6 Guidelines for briefing

Due to the problems associated with briefing, various initiatives were staged to provide guidelines on briefing for the client and/or the designers. These guides range in coverage from a general overview of the construction industry to detailed descriptions of the activities which should be carried out at various points in the design process based on a certain procurement method and even a specific building type. Table 2.9 summarises the major briefing guides in the public domain.

Kelly et al. (1992) criticised that the information contained in conventional briefing guides in the UK were inadequate because they could not go beyond the very general level, giving rise to the attempts at developing computer-based client guides. It was admitted even by their most fervent proponents that it would be some considerable time before expert systems were capable of providing a complete substitute for component human experts. In addition, they commented that the advice contained in the guides was inexplicit, centering on what should be done without explaining how things could be accomplished. For example, all guides urged the client to analyse his needs and question the presumption that a building was the correct solution to his perceived problem, but none offered explicit advice on how this analysis could be carried out. I agree with this observation very much.

Table 2.9 List of the briefing guidelines

Briefing Guide	Intended for	Characteristics of the guide
Better briefing means better buildings (O'Reilly, 1987)	All members of project teams	<ul style="list-style-type: none"> • provides a framework, in form of a checklist to aid briefing • suggests ways in which the early stages of building projects might be set up
Value Management – A Proposal Practice Manual for the Briefing Process (Kelly et al., 1993)	Clients, briefing team and VM facilitator	<ul style="list-style-type: none"> • proposes application of value management to the briefing process
Construction Industry Project Initiation Guide for Project Sponsors, Clients & Owners (CIDA, 1993)	Project Sponsors, Clients & Owners	<ul style="list-style-type: none"> • provides a flow chart of processes needed to ensure proper decision making at the project initiation stage.
BS 7832: 1995 (ISO 9699: 1994)	Clients and architects	<ul style="list-style-type: none"> • provides a reasonably comprehensive checklist for preparing a brief
Pre-Project Planning Handbook (CII, 1995)	Clients	<ul style="list-style-type: none"> • defines the functions involved in pre-project planning and to provide an outline that can be used in pre-planning of capital projects.
Thinking About Building (NEDO, 1995)	Clients and owners	<ul style="list-style-type: none"> • is intended to help shape early discussions with client's advisors • identifies priorities of requirements and procurement route
Briefing the Team (CIB, 1997)	Clients and potential clients	<ul style="list-style-type: none"> • highlights how the brief develops during the course of a construction project • provides checklists of questions for clients at key decision points
Briefing Your Architect (Salisbury, 1998)	Clients, architects and consultants	<ul style="list-style-type: none"> • tries to simplify the procedures and methods when setting out to compile a brief • provides checklists, flow diagrams and charts for ease of reference
A clients' project definition tool – implementation guide (CRC, 2000)	Clients	<ul style="list-style-type: none"> • provides a compilation of issues and techniques relevant to the definition of building users, identification of their needs, prioritising and structuring the collected information into an accessible format
Problem Seeking: An Architectural Programming Primer (Pena and Parshall, 2001)	Clients, architects and students	<ul style="list-style-type: none"> • sets out as a primer on programming • provides an appendix with examples and techniques that expands upon the principles explained in the primer

2.7 IT Applications to briefing

The complex and iterative nature of briefing process in the construction industry has called for the use of information technology (IT) in the early stages of the construction process. Computer-based tools can be used to assist in the creation, documentation, communication and management of vast amount of briefing information for large and complicated projects. Some of these new attempts are listed as follows.

SEED-Pro – a module of SEED (an automated design system for the early phases of architectural design), is a computer assisted tool for creating a brief or an architectural program (Akin et al., 1995). However, such computerised system of existing practices was commented as automation of flawed briefing processes leading to automation of existing problems and increase of inefficiencies (Kamara and Anumba, 2001b)

BriefMaker – a software support system based on a hypermedia model with external connection to the Internet and World Wide Web (WWW) to assist in the compilation of a design brief using information from past projects (Hansen et al., 1996). The design brief establishes what advisory clients will need and anticipates functionally, project costs, construction schedules, quality, etc. It also sets the tone for communication among project participants.

ClientPro – a prototype software for client requirements processing in construction (Kamara and Anumba, 2000; 2001b). It is based on a new methodology for client

requirements processing, which is represented by a Client Requirements Processing Model (CRPM) to eliminate the limitations of existing practice. ClientPro was evaluated by four industry practitioners and relatively rated low in areas such as the facilitation of communication among members of the processing team, the usefulness of the software to the overall construction process, and the ease to use the system (Kamara et al., 2002)

CoBrITe – the aim of the CoBrITe project is to improve the briefing process through more efficient and effective use of existing and emerging information technologies that can support client and design teams (Rezgui et al., 2001). Five key areas for technologies improvement are proposed, which include communication, information capture, information referencing, information representation and change management.

Although many researchers have attempted to use information technology to assist clients in identifying their needs and to examine the impact of their decisions on the design of project, these applications can only be successful if they are developed based on proven methodologies, which means getting and processing correct information.

2.8 Summary and conclusions

Based on the findings of the literature review, briefing is a complex and dynamic process in which the client's needs and requirements are identified, clarified and conveyed to the project team. There are two schools of thought concerning briefing.

One considers briefing as an early stage of the design process in which the brief should be frozen. The other regards briefing as an on-going process throughout the construction project by which the requirements of the client and other relevant stakeholders are progressively captured, developed and translated into effect (Barrett, 2004).

Current briefing practices in the UK, the USA and Hong Kong are also examined. These methods range from informal discussions between client and architect to specifically planned research studies towards a comprehensive and detailed brief. However, there are still many limitations in the current practices. Most problems and improvement areas associated with briefing have been identified by Kelly et al., 1992; Barrett and Stanley, 1999; Kamara and Anumba, 2001a; Kelly and Duerk, 2002). There are also many guidelines for briefing in the public domain intended to improve the briefing process. Despite these early attempts, the current briefing practice is still considered inadequate by many researchers (e.g. Duerk, 1993; Barrett and Stanley, 1999; Kamara and Anumba, 2001a). Most briefing guides show what should be done without explaining how things can be done explicitly. In Hong Kong, there is no guideline developed for briefing, nor do much research in this area. It seems that briefing has been much well developed in the UK and the USA than Hong Kong.

Since clients normally allow very little time for brief development, researchers have attempted to use information technology to assist clients in identifying their needs and to examine the impact of their decisions on the design of the project. The several

attempts outlined in this chapter, however, can only be successful if they are developed based on proven methodologies, getting the correct information and processing it accordingly. In addition, it is admitted even by their most fervent proponents that it will be some considerable time before expert systems are capable of providing a complete substitute for component human experts.

In short, it is necessary to investigate and develop other methodologies such as VM approach in order to achieve successful briefing.

CHAPTER 3

LITERATURE REVIEW –

VALUE MANAGEMENT (VM)

- ❖ **Introduction**
- ❖ **The background and history of VM**
- ❖ **Terminology and definitions**
- ❖ **Components of VM**
- ❖ **Job plan of VM**
- ❖ **A review of existing framework for VM**
- ❖ **Benefits and critiques of VM in construction**
- ❖ **Summary and conclusions**

3.1 Introduction

This chapter presents a summary of the literature review relating to Value Management (VM). The background and history of VM are first outlined. Key terminologies and definitions relating to VM are provided. Components and approaches of VM are described and explained, followed by a review of existing frameworks for VM. Finally, benefits and critiques of VM in construction are discussed and summarised.

3.2 The background and history of VM

3.2.1 The origins of VM in the USA

Value Management (VM) evolved from Value Analysis (VA) first developed by Lawrence Miles of the General Electrical Company (GEC) in the 1940s. At that time, the manufacturing industry in the United States was running at maximum capacity which resulted in the shortages of raw materials. GEC was forced to use alternatives and Miles found that many of the substitutes delivered same or even better performance at a lower cost. Based on these observations, he proposed a system called Value Analysis.

In 1954, the US Department of Defense adopted VA when Navy's Bureau of Ships set up a formal programme "Value Engineering (VE)" for cost improvement during design. Since then, the term Value Engineering came into common use in North America. After the Society of American Value Engineers was established in 1959,

VE spread to many US federal, state and local government agencies following the cost reduction programme of Secretary McNamara in 1964.

VE was first applied to building industry by Dell’Isola when he introduced VE to the navy’s Facilities Engineering Command. The application of this technique in the construction industry expanded quickly as it became a mandatory requirement in many public projects in USA. While the scope expanded and the approaches to VE were developed continually, a number of terminologies such as value control, value planning and value management were evolved. The term Value Management was first used by the General Services Administration in 1974 to reflect that value techniques were not confined to technical issues but had evolved into more management activities and company policy (Macedo et al., 1978). VM has become a blanket term covering all value techniques previously entitled value control, value planning, value engineering or value analysis. The difference and relationship between VA, VE and VM are discussed in Section 3.3.2 of this chapter.

3.2.2 VM in Australia

VE came to Australia in mid to late 1960s through the activities of multinational companies such as Hawker Siddley and the marketing activities of US value engineering practices such as Value Analysis Inc. In Australia, it was recognised that VM activity was more management than engineering in orientation and the Institute of Value Management (IVMA) became the value society. VM in Australian manufacturing and in the defense sector has maintained activity but the IVMA went into decline and by the mid 1980s there was little activity (Male et al., 1998a).

In the mid 1980s, Roy Barton, a construction academic at the University of Canberra, undertook a study tour of value engineering practitioners in USA. He returned to Australia with the message that VE was applicable to Australian construction although some changes to US system were necessary to reflect cultural differences. At the same time the US practice of Smith Hinchman and Grylls was undertaking value engineering for Leighton Construction. This led to the development of two strands of the same VM message.

In parallel with these activities, the New South Wales Government was determining a strategy for reducing borrowing and securing across-the-board gains in productivity. The strategy in respect of construction is embodied in the Total Asset Management System Manual (NSW Government, 1993), which incorporated a 28-page section on VM. The manual stated that the Ministerial Capital Works Committee will maintain a panel of private sector VM specialists for New South Wales public sector agencies. Members of the panel are required to have successfully undertaken a facilitation course offered by the University of Canberra (Male et al., 1998a).

3.2.3 VM in the UK

VE came to the UK in the early to mid 1960s. It was presumed through the activities of multinational companies. Similarly to the Australian events, it was recognised that the activity was more management than engineering in orientation and the Institute of Value Management (IVM) was formed in 1966. VM in manufacturing went

largely underground as those companies which maintained activity drew their VM teams within their organisation and concentrated upon identifying a competitive edge.

VM in construction was also slow to take root. Government agencies in the main did not take on board the ideas nor recognise any benefits. One London quantity surveying practice was offering a value engineering service during the 1980s to a limited number of clients. Certain major construction companies were also bringing value engineering into the UK through their links with North American construction organisations. Expansion in construction came from the newly privatised organisations, such as BNFL, BAA, Railtrack, BA and the water companies, particularly Yorkshire Water and Southern Water. London Underground, in the public sector transport industry, has been actively promoting the use of VM. However, there has been no compulsion by government to require agencies and departments to use VM as in the USA and Australia (Male et al., 1998a).

3.2.4 VM in Hong Kong

Value Management was introduced to Hong Kong in 1988. Although it is still in its early stage today, there has been an increasing awareness of its merits and tremendous potentials in value enhancement and cost savings. In recent years, VM has been increasingly applied to public construction projects. Most of them were initiated by the Architectural Services Department (ArchSD), one of Asia's largest multi-disciplinary professional offices in the public sector, who has played a leading role in promoting and using VM in Hong Kong.

In 1995, The Hong Kong Institute of Value Management was established. International conferences on VM were organised by HKIVM at 18 months intervals since 1996. In 1998, the Works Bureau and the Planning, Environment & Lands Bureau jointly issued a technical circular which demands VM studies for major projects in the subordinate departments (Works Bureau, 1998). The Construction Industry Review Committee (2001) has also recommended that VM should be used more widely in local construction. Under government promotion, VM was increasingly applied to more construction projects.

3.3 Terminology and definitions

3.3.1 Value

It is widely believed that VM differs from traditional cost control as it, rather than focusing on simple cost, concentrates on achieving value for clients/users (Kelly and Male, 1988; Green and Popper, 1990; Shillito and Marle, 1992). Value is one of the most fundamental concepts in value techniques, but it is also a term with different interpretations with different situations. It is therefore important to obtain a clear understanding of the term in the context of VM.

Value has both objective and subjective qualities. It is presented in terms of (i) use, qualities which accomplish a use, work or service; (ii) esteem, features which make ownership of an object desirable; (iii) cost, the sum of the labour, material, overhead and other costs required to produce it; (iv) exchange, properties enabling us to exchange it (Mudge, 1976; SAVE International, 2001). Fundamentally, the

definition of value is dependent on whether one is looking from the producer's or user's side (Miles, 1961).

Miles (1989) stated 'product or service is generally considered to have good value if that product or service has appropriate performance and cost'. He pointed out the two ways to increase value: 1) by decreasing costs and maintaining performance; 2) by increasing performance if the customer needs, wants, and is willing to pay for more performance. He argued what the customer wants in products or services are functions and in this respect, value is a relationship between function and cost.

Mathematically, value is written as the ratio of function to cost (Burnside, 1964; Shillito and Marle, 1992; Maramaldo, 2000).

$$value = \frac{function}{cost}$$

The equation above suggests the value of a product or service can be theoretically increased either by:

- Increasing the function with the same cost;
- Decreasing the cost with the same function;
- Increasing the function with reduction of cost;
- Increasing the function significantly with slight addition of cost;
- Decreasing the cost significantly with slight reduction of function.

The equation only illustrates the relationship of value with cost and function, but cannot be really used to measure value due to the different unit of function and cost. Cost can often be measured by the monetary amount paid by the customer/user, but function is hard to be measured objectively due to its inherent subjective quality as well as value.

Value has been closely associated with the user's purpose, requirements and perception by a number of gurus of VM. Mudge (1976) defined value as “the lowest cost to reliably provide the required functions or services at the desired time and place and with the essential quality”, where functions are explained as the specific purposes or uses intended for. In order to stress the user's influence and reflect the various features of value, SAVE international (2001) added “... and other performance factors to meet user requirements” to Mudge's definition. Fowler (1990) presented value as a ratio of worth to cost, where worth is the lowest cost to obtain the basic function. He also put forward measuring the true worth of an item should reflect the perception of the actual users/customers.

$$value = \frac{worth}{cost}$$

Dell'Isola (1997) interpreted value as the relationship among function, quality and cost. Therefore, he defined “value is the most cost effective way to reliably accomplish a function that will meet the user's needs, desire and expectation”.

$$value = \frac{function + quality}{cost}$$

Ellegant (1989) further advocated the importance to retrospect the user's requirements for defining and enhancing value. The total interlink between the definition of value and the end user requirements was in line with Stylianopulos (1989) as he stated "... in all instances, value is determined by the owner/ user".

Summing the above, it can be elicited that value in VM is the relationship between the user-required functions and cost. Essentially, it is the ability of a product or service to satisfy the user's requirements for the cost paid. In this respect, value is determined by the judgment, expectation and perception of the users.

3.3.2 VA, VE and VM

There are considerable and confusing terminologies being used surrounding the management of the value process internationally. The terms 'value analysis' (VA), 'value engineering' (VE) and 'value management' (VM) are still largely used interchangeably in the literature and it is not possible to isolate one area for investigation without reference to the others.

Value analysis (VA)

Value analysis is a philosophy implemented by the use of a specific set of techniques, a body of knowledge, and a group of learned skills. It is an organised creative approach, which has for its purpose the efficient identification of unnecessary cost, i.e. cost that provides neither quality nor use nor life nor appearance nor customer features (Miles, 1961).

Value engineering (VE)

Value engineering is a proven management technique using a systematic approach to seek out the best function balance between the cost, reliability, and performance of a product or project (Zimmerman and Hart, 1982).

Value management (VM)

Value management is a structured, organised team approach to identifying the functions of a project, product, or service with recognised techniques and providing the necessary functions to meet the required performance at the lowest overall cost (SAVE International, 2001).

In many circumstances, VM is an embracing term for any application. VE is increasingly being viewed as a subset of the VM process, where the focus is on improving value in the design and construction stages of a project. In addition, ‘value planning’ (VP) is the term being used to describe the front end of the VM process. ‘Value review’ (VR) is the term being used to describe the post-project audit stage where the completed facility is assessed in terms of its fitness for purpose against the original brief and design.

3.4 Components of VM

Five components essential to the success and advancement of VM methodology have been identified (Shen, 1993). They are: job plan, functional approach, function-cost approach, team approach, and environment for creative thinking.

Organised Job Plan

The VM job plan is a sequential approach to implementing the core elements of a value management study. It outlines specific steps to effectively analyse a product or services, and develops the maximum number of alternatives to achieve the product's or service's required functions (SAVE International, 1998). Dell'Isaola (1997) suggested that the job plan is an organised problem-solving approach, which distinguishes VM from other cost-cutting exercises.

The most commonly used job plans include:

- SAVE 40-hour Job Plan
- Charette
- Value Engineering Audit
- Contractor's Change Proposal

Based on these job plans, various VM studies can also be categorised into different groups (Kelly and Male, 1991). The job plans of VM are described and discussed in more detail in Section 3.5.

Functional Approach

As an essential element of the VM methodology, functional approach has a relatively long history of evolutionary development. It embodies a group of techniques which makes it different from traditional cost reduction and cost planning efforts. The objective of the functional approach is to forget the product as it exists and concentrate only on its necessary functions required by the client. This approach

leads to a systematic identification and clear definition of client requirements, an improved understanding of the design problem, and an effective accomplishment of those functions.

Function-Cost Approach

In the VM methodology, worth is defined as the lowest cost to perform a function without regard to criteria or code. Comparing function cost to function worth is the primary technique to help study teams identify areas for the greatest potential value improvement.

The function-cost analysis makes it possible for costs per function to be established, giving a true picture of the product. Normally, a monetary parameter is used to estimate the cost of functions. Other parameters such as life cycle may also be used.

Organised Team Approach

VM studies organised all relevant disciplines together as a team to explore the overall optimisation of the system, instead of seeking sub-optimisation within each individual domain. This group thinking process enables a number of people to work and think together on the project as a whole. The participation of clients and users makes the process of design sufficiently visible.

Environment for Creativity

In VM studies, each member's ideas can be stimulated by others in the team under a specially-designed environment for creating large amounts of ideas. A multi-

disciplinary group can work out 65% to 93% more ideas than that from an individual working alone. Better ideas can therefore be derived from the large number of ideas generated. The European Community sees VM as a potentially-useful tool for innovation and technology transfer.

3.5 Job plan of VM

The VM job plan is a sequential approach to implementing the core elements of a value management study. It outlines specific steps to effectively analyse a product or services, and develops the maximum number of alternatives to achieve the product's or service's required functions (SAVE International, 1998). Dell'Isola (1997) suggested that the job plan is an organised problem-solving approach, which distinguishes VM from other cost-cutting exercises. There is a variety of VM job plans, such as SAVE 40-hour Job Plan, Charette Job Plan, VE Audit and Contractor's Change Proposal. The SAVE 40-hour Job Plan is the most widely accepted formal approach in the US construction industry. The workshop usually follows an organised and systematic job plan, which is strongly emphasised by VM methodology.

The following discusses about a typical job plan and the Charette Job Plan which are more relevant to this study.

3.5.1 Typical job plan

Whilst the precise number of stages and specific names of the job plans often vary, the general process is always similar. Typically, a job plan comprises the following phases:

Pre-workshop phase

The pre-workshop phase aims to provide an opportunity for all parties to understand project issues and constraints, therefore, to exchange information before VM workshops. The preparatory tasks involve six areas:

- Collecting user/customer attitudes
- Completing the data files
- Determining evaluation factors
- Defining the scope of the study
- Building data models
- Determining team composition

Client can employ VM facilitators to organise and facilitate the briefing studies for them. Facilitators can also assist clients to define the scope and objectives of the study. The list of information drawn up ensures sufficient materials are available for the VM study (SAVE International, 1998).

Information phase

The objective of the information phase is to complete the value study data package in order to produce an information base in VM studies. It also confirms the objectives,

clarifies the assumptions and reviews the scope of the studies. This phase ensures that all members of the team can fully understand the background, constraints, and limitations of the study so as to broaden perspectives beyond their particular area of expertise. An introductory presentation is usually followed by a description of objectives for the project by a client representative, and then by descriptions of the project requirements and constraints by various stakeholders. Stakeholders involved should present their views in turn. Conflicting views are expected to occur and consensus would only arrive after the analytical phase. In addition, the objectives of the study are finalised at the end of the information phase.

Function Analysis phase

The objective of this phase is to develop the most beneficial areas for continuing study. In this phase, the functions of the project are identified and analysed. They may be represented in a hierarchical format and displayed on a function diagram. Key questions asked during the analysis phase are: “what is it?”, “what does it do?”, “what must it do?”, “what does the function cost (life cycle cost)?” and “what is the value of the function?”

Creativity phase

The objective of the Creative Phase (sometimes referred to as Speculation Phase) is to develop a large quantity of ideas for performing each function selected for study. This is a creative type of effort, should be totally unconstrained by habit, tradition, negative attitudes, assumed restrictions and specific criteria. No judgement or

discussion should occur during this activity. The bulk of ideas creatively generated are refined their qualities in the next phase.

Evaluation phase

The objective of the evaluation phase is to explore ideas and concepts generated in the creativity phase, and to select those feasible ideas for development into specific value improvement. The collected ideas are examined according to both economic and non-economic factors, which are defined during the pre-study or evaluation phases, in order to highlight the best ideas for further studies (Norton and McElligott, 1995). Using the evaluation criteria established during the pre-study effort, ideas are sorted and rated as to how well they meet those criteria.

Development phase

The objective of the development phase is to select and prepare the “best” alternatives(s) for improving value. It investigates the selected ideas in sufficient depth and develops them into written recommendations for implementation. The data package prepared by the champion of each of the alternatives should provide as much technical, cost, and schedule information as is practical so the designer and project sponsor(s) may make an initial assessment concerning their feasibility for implementation (SAVE International, 1998).

Presentation phase

The objective of the presentation phase is to obtain concurrence and a commitment from designers, project sponsors, and related stakeholders in order to proceed with

implementation of the recommendations. The recommendations are summarised in a final proposal and presented to all decision-making bodies and related interest parties for approval. Through the presentation and its interactive discussions, the team obtains either approval to proceed with implementation, or direction for additional information needed. The written report documents the alternatives proposed with supporting data, and confirms the implementation plan accepted by management.

Post-workshop phase

The objective of the post-workshop phase is to assure the proper implementation of the approved value study change recommendations. During this stage, the action plan is implemented and a report of the workshop is prepared and circulated. A post-evaluation is recommended to be conducted for collecting feedback of the study. The responsibility for ensuring the implementation of action plan is allocated to an appropriate person.

3.5.2 Charette Job Plan

It is specially used in the meeting following the compilation of the client's brief, attended by the full design team and by those members of the client's organisation who have contributed to the brief. This meeting is conducted under the chairmanship of the value engineer or facilitator. The Charette Job Plan attempts to rationalise the client's brief primarily through the identification of the function of key elements and the space specified (Kelly et al., 2004). If time is allowed for the study, this plan could be broadened to include other issues concerning the client requirements. The main focus is to ensure the designers can fully understand the client requirements.

The Charette is organised along the traditional job plan lines, with its first stage to gather as much information as available on the function of the spaces defined in the brief. The next stage is to be creative in activities such as arrangement, adjacency, timetabling. Ideas generated are recorded, analysed and prioritised before the final decisions are incorporated into the brief (Kelly et al., 2004).

Kelly and Male (1991) commented such job plan is considered by many clients to be an inexpensive and effective method of briefing the design team and clarifying their own requirements, as it can be completed in less than 2 days, compared with the 40-hour job plan. By so doing, abortive design work can be avoided. Such study carried out in the very early design stage can also bring benefits in controlling the cost and enhancing the value of a project.

3.6 A review of existing frameworks for VM

3.6.1 The nature of a framework

According to the definition in Oxford dictionary, a framework is “an essential supporting or underlying structure”. A framework for implementing VM therefore can be defined as a structure consisting of essential factors for guiding the implementation of VM study. Basically, a framework should provide answers to four fundamental questions as follows (Liu, 2003):

- When a VM study should be carried out?
- Who should participate in the study?
- Where the study should be conducted?
- How the study should be processed?

According to the above criteria, a variety of guidance notes, standards, manuals and papers in literature for instructing the application of VM can be regarded as frameworks. The next section summarises the frameworks in extant literature for guiding VM applications in various contexts.

3.6.2 Summary of frameworks for implementing VM

There is a long list of publications on the application of VM produced by the academics, practitioners community, government, professional bodies and influential VM gurus in the form of guidance notes, standards, manuals, books and papers. The main literature is highlighted as follows:

- Value Engineering: The Search for Unnecessary Cost, The Chartered Institute of Building, Green and Popper, 1990.
- A SMART Methodology for Value Management, The Chartered Institute of Building, Green, 1992.
- Australian/New Zealand Standard – Value Management: AS/NZS 4183, Joint Technical Committee OB/6, 1994.
- Value Management in Construction: A Practical Guide, Norton and McElligott, 1995.
- Value Management Handbook, European Commission, 1995.
- Creating Value in Engineering: Design and Practice Guide, Institution of Civil Engineers, 1996.
- Value Management in Construction: A Client's Guide, Connaughton and Green, Construction Industry Research and Information Association, Special Publication 129, 1996.

- Value Management Practice, Thiry, 1997.
- Fact Sheet on Value Management, Construction Industry Board, 1997.
- The Value Management Benchmark: A Good Practice Framework for Clients and Practitioner, Male et al., 1998.
- Value Methodology Standard, SAVE International, 1998.
- Value from Construction: Getting Started in Value Management, Building Research Establishment, 2000.
- European Standard – Value Management, European Committee Standardisation, 2000.
- British Standard – Value Management: Practical Guidance to Its Use and Intent, BS EN 12973, 2000.
- The Value Workshop: Concise Guidance on the Value Management Workshop, Building Research Establishment, 2000.
- Value Engineering: A How To Manual, New Age International Publishers, 2000
- Value Management of Construction Projects, Kelly et al., 2004.

The implementation frameworks of VM described in the above publications address the following key issues:

- Terminologies and definitions
- Composition of a VM team
- Timing for using VM
- Management of a VM workshop
- Job plan

- Techniques and tools used for VM studies

Although these frameworks contain many similar components, the variety of these frameworks reflects the fact that the approach to the implementation of VM should be tailored according to the different purposes, perspectives, users and contexts (Liu, 2003). The review also reveals that little work has been done to develop a framework especially for the implementation of VM in the briefing process of construction industry and therefore ascertains to the necessity of this research study.

3.6.3 Critical success factors for VM studies in construction

Critical success factors (CSFs) are the statements of how improved business practice must be achieved if an organisation is to be able to attain its mission (McCabe, 2001). The identification of the CSFs enables those limited resources of time, manpower and money to be allocated appropriately (Chua et al., 1999). Through an international benchmarking study, Male et al. (1998b) highlighted ten CSFs for VM studies, given as follows:

- 1) a multidisciplinary team with an appropriate skill mix;
- 2) the skill of the facilitator;
- 3) a structured approach through the “VM process”;
- 4) a degree of VM knowledge on the part of the participants;
- 5) the presence of decision makers in the workshop;
- 6) participant ownership of the VM process output;
- 7) preparation prior to the VM workshop;
- 8) the use of functional analysis;

- 9) participant and senior management support for VM;
- 10) a plan for implementation of the workshop outcome.

The list of CSFs was not only associated with how VM studies should be carried out, but also differentiated VM from other group decision-making approaches (Woodhead, 2000). However, the importance degree of each factor was not evaluated.

Shen and Liu (2003) compiled a list of CSFs for VM studies from extensive literature review and asked 200 VM researchers and practitioners to assess their importance. The ranking of these critical success factors is listed in Table 3.1.

**Table 3.1 Ranking of critical success factors for VM studies
(Source: Shen and Liu, 2003)**

Factors	Ranking
Client's support and active participation (CSF 1)	1
Clear objective of VM study (CSF 2)	2
Multidisciplinary composition of VM team (CSF 3)	3
Qualified VM facilitator (CSF 4)	4
Control of workshop (CSF 5)	5
Preparation and understanding of related information (CSF 6)	6
Plan for implementation (CSF 7)	7
Function analysis (CSF 8)	8
Timing of study (CSF 9)	9
Interaction among participants (CSF 10)	10
Professional experience and knowledge of participants in their own disciplines (CSF 11)	11
Personalities of participants (CSF 12)	12
Adequate time for VM study (CSF 13)	13
VM knowledge and experience of participants (CSF 14)	14
Cooperation from related departments (CSF 15)	15

By using the factor analysis technique, the 15 identified CSFs were grouped into four clusters, in the order of importance being VM team requirements, client's influence, facilitator competence, and relevant departments' impact. The results revealed that the VM team, client, facilitator, and other related departments directly or indirectly involved in studies all carry significant influence to the success of VM studies.

3.6.4 Benchmarking VM in construction

Benchmarking

Benchmarking is a management tool to help managers improve their effectiveness and efficiency at work in order to achieve organisational targets. It is a relatively new concept developed in the late 1970s by Xerox Corporation. It was defined by Vaziri (1992) as “the process of continually comparing a company's performance on critical customer requirements against that of the best in the industry to determine what should be improved”. Different authors have suggested different numbers of stages for benchmarking (Fitz-enz, 1993). Fong et al. (2001) identified eight common stages of benchmarking:

- 1) Deciding what to benchmark, i.e. selecting a product, service or process to benchmark
- 2) Understanding your own performance, including identification of the critical success factors and key performance metrics.
- 3) Identifying the best performers for comparison, which may be direct competitors, best-in-class companies, or internal functional areas.
- 4) Collecting and analysing the data.

- 5) Determining the current performance gap and projecting future performance levels.
- 6) Gaining acceptance and establishing functional goals.
- 7) Developing action plans and implementing the best practices
- 8) Monitoring progress and re-calibrating the benchmarking measures.

The following paragraphs summarise two recent works on benchmarking VM in construction work which threw light into this research study.

Benchmarking VM: Male et al's work (1998a)

The aim of the project was to develop and implement a best practice framework for VM in construction from pre-concept to the post-occupancy stages of a project. The starting point for the research was the previous work conducted by Kelly and Male in North America to give the team a base to work from and aid in the initiation of a literature review. The Kelly and Male (K&M) methodology (Figure 3.1) was adopted as an arbitrary benchmark datum to which the literature, fieldwork and other data were referenced in order to highlight disparate views and approaches to practice, procedures, methodologies and techniques used at stages throughout the project life cycle. The fieldwork and data collection for the benchmarking exercise was across North America, Australia, the UK and Europe. Validation of the research results was undertaken through seminars comprised of experts from all sectors, including practitioners and clients. A number of important issues related to VM were discussed in the research report. The issues addressed by the report and their brief explanations are set out in Table 3.2.

Chapter 3 Literature Review – Value Management (VM)

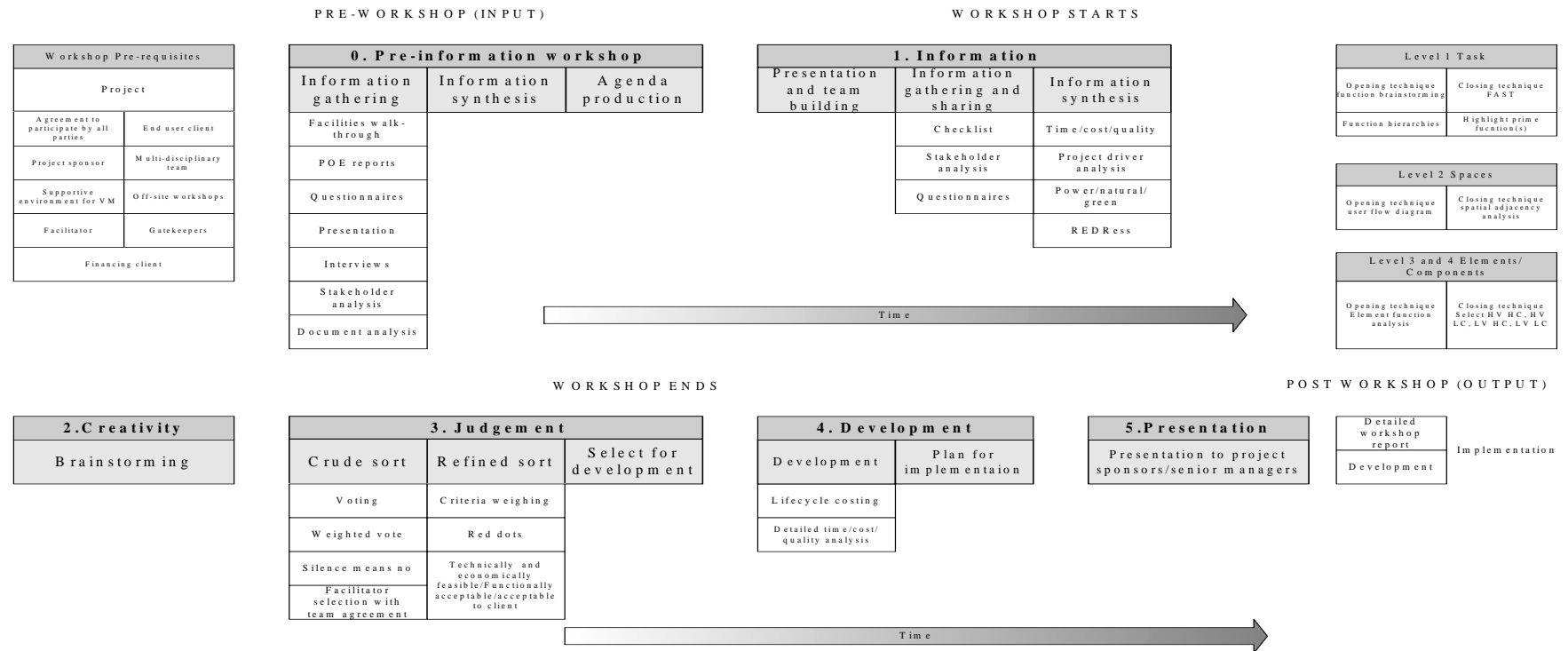


Figure 3.1 The Kelly and Male VM Methodology (Source: Male et al., 1998a)

Table 3.2 Issues addressed by Male et al.'s research (Source: Liu, 2003)

Issues	Explanations
The global development of VM	Mainly concerning the process of VM diffusion from manufacturing to construction
Terminology and definitions	Clarifying the terminology related to VM
Value opportunities	Six value opportunity points recommended by the research team
The process at each value opportunity point	Including: <ul style="list-style-type: none"> • VM pre-requisites • Senior management and participant support • VM team characteristics • Types of participants • The role of facilitator • The selection of facilitator • The number of facilitators • Large and small team facilitation • Pre-workshop issues
Workshop issues	Including: <ul style="list-style-type: none"> • The job plan and variants • Functional analysis and objectives hierarchies • Workshop environment
Post-workshop issues	Concluding that a post workshop study stage of implementation should be included as part of the VM workshop process
Individual value opportunity workshop structures	Introducing objectives, pre-requisites, timing, participants, duration and deliverables for six recommended individual workshops in the project life cycle. The workshops are: <ul style="list-style-type: none"> • The pre-brief workshop • The briefing workshop • The concept design workshop • The Charette • The detail design workshop • The operational study <p>The implementation workshop following each of above workshop specially stressed to ensure the implementation of the produced recommendations.</p>
The influences of the market place on the provision of VM service	Identifying the influence of clients of VM service on VM applications
Qualifications, standards and legislation	Discussing the influence of the certification of facilitators. Legislating for the use of VM and the development of standards.
The prospect of a new profession – the VM facilitator	This issue related to the definition of a profession, VM knowledge base, VM professional associations and professionalism, and education and training.

A good practice framework has also been developed through the international benchmarking exercise of VM process, procedures, tools and techniques used in construction and manufacturing. The framework illustrates a generic process for VM implementation on projects, primarily in the construction industry. It highlights essential pre-requisites to a successful VM study, illustrates and outlines the generic VM Process, and suggests six value opportunity points in the project life cycle and their associated tools, techniques, durations and participants. The proposed framework had gone through several rounds of revision before it was accepted.

Benchmarking VM: Fong et al's work (2001)

The aim of their study is to develop an analytical framework for benchmarking VM. The framework consists of some common key characteristics and CSFs perceived to be applied to different work processes, regardless of the type of industry or organisation. It was based on a review of the extant literature on VM, particularly the studies of Male et al. (1996, 1997a, b, 1998a, b) and VM process suggested by Webb (1993a, b). It is noted that key characteristics are major elements of the VM process, in which they represent a small part but have a large effect (Mitchell, 1995; Vaziri, 1992). As a result, some common key characteristics, CSFs and related performance metrics are identified and depicted in Table 3.3. The proposed framework provides a foundation for researchers to undertake further research on benchmarking VM.

Table 3.3 An analytical framework for benchmarking Value Management
(Source: Fong et al., 2001)

Key characteristics	CSF of VM process	Performance metric
<i>Orientation involves:</i>		
1. Management approval for the benchmarking project	1. Management support	1. Perception of management support*
2. Project team formation	2. Project team formation	2. Perception of team members' capability*
3. Budget setting	3. Budget setting	3. Cost variance/budget of VM
<i>Information and analysis involves:</i>		
4. Information gathered by the facilitator	4a. Facilitator efficiency in gathering information	4a. Time involved in gathering information compared with other projects
4b. Facilitator's skills	4b. Perception of previous experience of the facilitator*	
<i>Speculation involves:</i>		
5. Ideas/solutions generated within a time limit	5. Ideas' cost or value	5a. Number of ideas generated/number of people involved
	5b. Number of ideas generated/number of hours	
	5c. Number of feasible ideas/number of ideas generated	
6. Brainstorming	6. Brainstorming group effectiveness	6. Number of ideas generated/number of people involved
<i>Evaluation involves:</i>		
7. Screening of ideas	7. Skills of screening	7. Perception of the accuracy of the techniques employed for analysis*
8. Gaining acceptance from top management	8. Management commitment to the new best practice	8. Perception of the level of management commitment*
<i>Implementation involves:</i>		
9. VM plans implementation	9. VM performance	9. Actual savings/proposed savings
10. Quality for customers	10. Customer satisfaction	10. Customer satisfaction level on a proved measuring scale*
11. Surveillance maintenance	11. Surveillance regularity	11. Deviation from the number of surveillance checks scheduled per year
Note: * Measured by Likert-type scale		

3.7 Benefits and critiques of VM in construction

3.7.1 Benefits of VM in construction

Properly organized and executed, VM can achieve value for money and improved return on investment in the following manner.

Project cost savings

It can be expected that a fairly well administered VM programme should yield cost saving in the order of 5-10% of total construction project cost (Norton and McElligott, 1995) with an additional cost from VM estimated at only less than 1 % of the total construction project cost. VM literally pays for itself by elimination of unnecessary cost.

Time savings in design, construction, approvals

Early application of VM saves design time through clarified scope and reduced false starts to prevent redesign and reconstruction.

Improved project management structures and systems

VM improves the project management structures and systems. As the consultants are brought together in a workshop to discuss the project, the project manager communicates face-to-face to the design consultants and greatly improves the communication between the design consultants as well.

Consideration of options

The early application of VM will recognise the strengths, weaknesses, opportunities and threats created by the ‘build’ or ‘no build’ option. Any project should be initiated only after a careful analysis of need. Failure to do this will cause problems with subsequent design and construction. More importantly, it will cause problems with operation and use in the longer term.

Expediting decisions

There are a number of key points in every construction project at which the client must make important decisions. When VM is applied at these stages, it helps ensure these decisions are taken in a rational, explicit, accountable and auditable manner. Key project stakeholders are able to participate more fully and effectively in decision making, and increases their confidence in the process. It also means that they are more committed to a successful project outcome.

Minimising wastage

Clients are aware of the need to minimise wastage in their construction projects. By careful consideration of different options for achieving the agreed objectives, VM may eliminate duplicate effort and abortive work in both design and construction.

Forecasting risks

Risk Management is also an important part of VM, even though it may seem too early to identify and manage risks until the project objectives are confirmed. In fact, a strategic diagnosis of the risks may well influence how the objectives are set. A

consideration of project risks is likely to feature in outline design proposals during feasibility study.

Concentrating expenditure on adding value

VM works by making explicit stakeholders' objectives and value for money criteria. This helps investigate fully the need for a project before making any financial commitment. It provides a structured framework within which subsequent decisions can be taken in accordance with these objectives and criteria. In turn the project design can be developed and continuously evaluated against need so that value for money is achieved.

Improving communication and understanding

VM drives the team members beyond their habitual patterns and procedures. The basic physical limitations of an office set-up prohibits the free flow of information between various groups, whilst a VM programme provides a way of mobilising and uniting the individual talents of each member to achieve objectives designated to the project.

3.7.2 Critiques of VM in construction

Although VM has been applied in construction for about 40 years and obtained high reputation, critiques on it have never ceased. A number of articles such as “Too much value engineering” (Heitmann, 1989) in literature criticised and suspected the effect of VM exercises. US Navy reported 2% failed VM studies. Although it was

only a small proportion, it should not be ignored. Typical critiques of VM in the construction industry include (Liu, 2003):

Time consuming and interruption to the flow of design work

The 40-hour workshop is regarded as a standard approach for implementing VM studies in USA and is recommended by many VM organisations and societies. The main problem in implementing the 40-hour workshop is time. It is normally difficult to assemble key project participants for so long period and retain their undivided attention throughout this five days period. Moreover, considerable time is needed by the design team for reviewing VM proposals and re-designing after the workshop. Sometimes the time required for these processes is not allowed in a crowded design schedule (Kelly and Male, 1993).

Late VM intervention in practice

It is common practice that VM intervention takes place at 35% of the total design of a construction project, where changes to the original design can still be conveniently introduced (Kelly and Male, 1993). However, many researchers have advocated that VM should be implemented as early as possible to maximise its results (Green, 1994; Dell’Isola, 1997). This time seems too late to exert VM’s influence on project concept formulating and feasibility studying.

Adversative attitude of original design team

The traditional VM practice (it is carried out at 35% design by an external team) essentially is a design audit (Palmer et al., 1996). Any adversative attitude of original

design team to the external team is likely to occur. Many designers argued that in a short period of time the VM team could not be expected to better or fully understand the project than the existing design team.

Design liability of VM proposals

The design liability of VM proposals is a thorny issue in VM applications. Whether the VM team or original team takes the design liability for any recommendations implemented is debatable, although it is the design team to determine either accept or reject the proposal recommended by VM team (Kelly and Male, 1993).

Lack of a defined approach to functional analysis in practices

A number of influential VM authors emphasised to function analysis (Dell'Isola, 1982; Zimmerman and Hart, 1982). They considered function analysis an indispensable factor contributing to the success of VM studies and this differentiates VM from traditional cost reduction methodologies. However, there is not a clearly defined approach to functional analysis in practices in North American VM (Palmer, 1992).

Lack of a precise approach in functional cost modelling

How to structure the cost model is still a question. According to many guidance notes, the total cost should be broken down by functions. However, the method may cause confusion when a component can provide more than one function. For example, the window of housing contributes both ventilation and lighting, how much cost should be assigned separately?

The above does not exhaust all critiques of VM in construction in literature, their listing indicates the necessity to develop and improve the traditional VM approaches.

3.8 Summary and conclusions

The findings of the literature review on Value Management are presented in this chapter. VM originated in the US manufacturing industry during the Second World War. It was then introduced to Australia and the UK in the 1960s, and subsequently to Hong Kong in the late 1980s. VM was first used in the construction industry during the early 1960s. Thereafter, it was tailored to fit the unique characteristics of the industry.

Value management is defined as “a structured, organised team approach to identifying the functions of a project, product, or service with recognised techniques and providing the necessary functions to meet the required performance at the lowest overall cost.” (SAVE International, 2001). It consists of five basic components that are essential to the success of VM methodology. They are: job plan, functional approach, function cost approach, team approach, and environment for creative thinking. There is a variety of VM job plans, such as SAVE 40-hour Job Plan, Charette Job Plan, VM Audit and Contractor’s Change Proposal. Typically, a job plan comprises phases such as pre-workshop phase, information phase, function analysis phase, creativity phase, evaluation phase, development phase, presentation phase and post-workshop phase. The objectives and scopes of these phases in a job plan are described in Section 3.5.1. In addition, the Charette Job Plan, which is a meeting following the compilation of the client’s brief, is discussed in Section 3.5.2.

After the introduction of what VM is, the existing frameworks for implementing VM were reviewed. The major frameworks produced by academics and practitioners are summarised in Section 3.6.2. The review revealed that although a large variety of frameworks were produced, little works have been done to develop a framework especially for the implementation of VM in the briefing process of the construction industry and therefore give evidence to the necessity of this research study.

The critical success factors for VM studies in construction as identified by previous researchers are outlined in Section 3.6.3. The five top CSFs, in descending order of importance, are ‘client’s support and active participation’, ‘clear objective of VM study’, ‘multidisciplinary composition of VM team’, ‘qualified VM facilitator’ and ‘control of workshop’.

Two recent works on benchmarking VM in construction works are discussed in Section 3.6.4. In particular, a good practice framework for VM implementation in construction was developed by Male et al. (1998b) through the international benchmarking exercise of VM process, procedures, tools and techniques. It highlights essential pre-requisites to a successful VM study, illustrates and outlines the generic VM process, suggests six value opportunities points in the project life cycle, and their associated tools, techniques, durations and participants. This framework serves as good foundation to this research study and it was noted that further improvement and enhancement to the framework are required.

Finally, the benefits and critiques of VM in construction are discussed in detail in Sections 3.7.1 and 3.7.2 respectively. In the next chapter, the application of VM, in particular to the briefing process of the construction industry, is examined.

CHAPTER 4

APPLICATION OF VALUE MANAGEMENT TO BRIEFING

- ❖ **Introduction**
- ❖ **Previous works by others**
- ❖ **The timing of VM study in briefing**
- ❖ **Using VM to focus on client's needs and gain
consensus**
- ❖ **The use of Function Analysis in briefing**
- ❖ **The use of Functional Performance Specification in
briefing**
- ❖ **The need of facilitation in briefing**
- ❖ **The use of VM tools and techniques in briefing**
- ❖ **The benefits of using VM in briefing**
- ❖ **Summary and conclusions**

4.1 Introduction

This chapter examines the application of Value Management (VM) in briefing and lays the foundation for further investigation and development of the proposed VM framework for briefing. The work of relevant practitioners and researchers is first described as background to explaining the timing of VM study in briefing. This is followed by a review of the use of Function Analysis and Functional Performance Specification, which are considered as the heart of VM methodology for briefing. As VM is a special management tool to the construction industry, the need of facilitation in briefing is discussed. Essential VM tools and techniques that can be used in the briefing workshops are also introduced. The chapter is concluded with an outline on the benefits of using VM in briefing.

4.2 Previous works by others

In the past decade, much interest in the application of VM and its relevance to the briefing process has been shown. Value Management and Value Engineering methodologies have been adapted from their manufacturing engineering origins to suit construction practice in specifying the function of elements and also to better understand value systems. In the USA, the Government requires the entire executive branch and federal agencies to establish and maintain cost-effective VM procedures and processes in all programmes and projects (SAVE International, 1997).

In Hong Kong, a technical circular was jointly issued by the Environment, Transport and Works Bureau, demanding VM studies for major projects in the subordinate departments (ETWB, 2002). The Construction Industry Review Committee (2001)

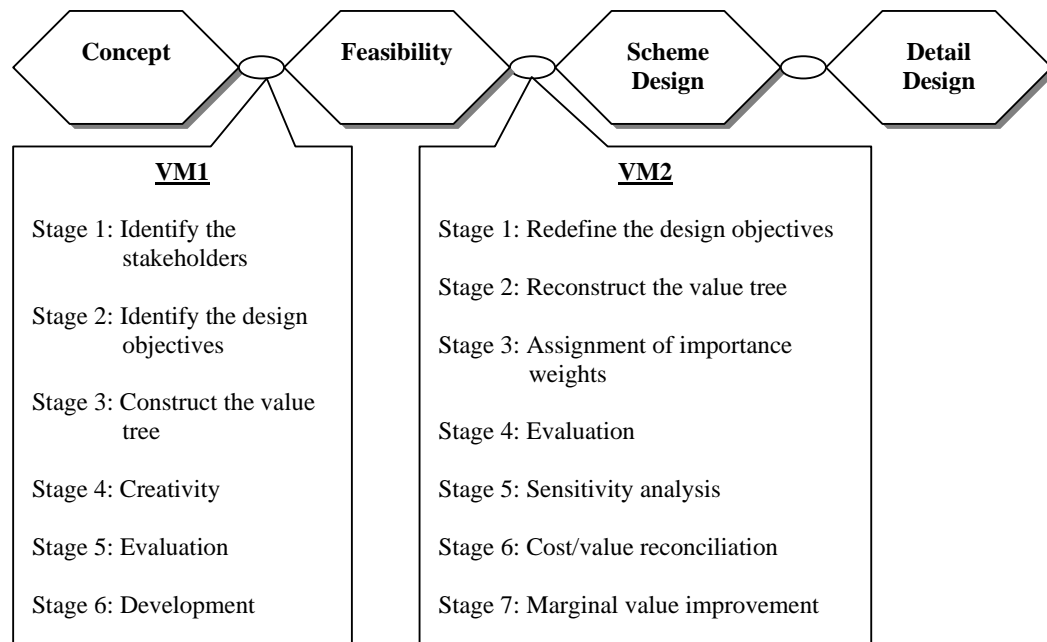
has also recommended that VM should be used more widely in local construction. It is generally recognised that VM can help the clients and the project team to focus on the objectives and needs of the project and all stakeholders, both long and short term.

In the UK, although it is not regulated to require agencies and departments to use VM, several researchers have investigated the application of VM to briefing. A successful attempt was the Charette Job Plan (see also Chapter 3, Section 3.5.2). It rationalises client briefs primarily through the Function Analysis of space requirements. This plan was considered by many clients as an effective method of briefing the design team to avoid abortive design work (Kelly and Male, 1993). It could, however, be broadened to include other issues of client requirements and to ensure that designers fully understand these requirements. The expansion of this plan can be facilitated by using the Functional Hierarchy which draws the why-how relationships amongst functions of a project diagrammatically: higher level functions appear on the left-hand side, and lower level functions on the right-hand side. The use of Function Analysis in briefing is discussed in Section 4.4 of this chapter.

The Work of Green

The realisation of the differences between structured and unstructured problems has also led to attempts to revise the VM methodology to cope with unstructured problems such as the briefing process. Green (1992, 1994, 1997) proposed a SMART methodology and suggested the use of soft systems methodology. The unique contribution of SMART Value Management is its provision of a framework

to develop thought and communication. The outline methodology for SMART Value Management is illustrated in Figure 4.1.



**Figure 4.1 The outline methodology of SMART Value Management
(Source: Green: 1994)**

The Work of Barton

Barton (2000) also proposed a methodology of soft Value Management, which is specifically designed to address the complex problems encountered in project initiation, whereby a large number of people are involved in the process and high-level facilitation skills essential to its success. The following points summarise the methodology (Barton, 2000):

- The facilitation methodology separates workshop processes from the content of the study and makes extensive use of co-facilitators.
- Soft Value Management studies typically include 20 to 30 people.

- Soft Value Management embraces the notions of function and purpose and makes use of modelling techniques.
- Soft Value Management workshops are typically of two days duration in which the first day is primarily one of divergence, about learning, creating a new knowledge base, sharing understanding and creating possibilities. The second day is one of convergence, about evaluating ideas and developing proposals in response to defined study objectives. The structure of these workshops follows a traditional problem solving/ VM approach, comprising sequential phases of “finding out”, creating possibilities, evaluating possibilities, developing options, drawing conclusions, taking decisions and developing an action plan.
- Soft Value Management is characterised by extensive small-group work in which participants work in focus-groups, undertaking tasks to progress the study.

The Work of Shen, Li, Chung and Hui

Shen et al. (2004) developed a VM framework to facilitate the identification, clarification and representation of client requirements in the briefing process. The framework comprises two major elements: a structured job plan for the briefing process (Figure 4.2) and a hierarchical structure to identify, define and represent client requirements (Figure 4.3). The job plan provides a step-by-step procedure for gathering and analysing briefing information, and creating and presenting a briefing document. The purpose of commissioning a new project is to achieve the objectives of the client. These objectives direct the specific requirements of the project, which

in turn direct the design tasks. The hierarchy of functions provides a framework to represent these relationships in a logical way.

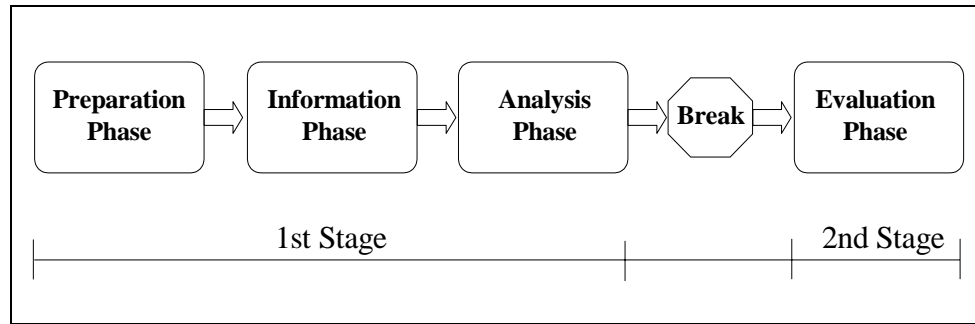


Figure 4.2 An overview of the Shen et al.'s framework
(Source: Shen et al., 2004)

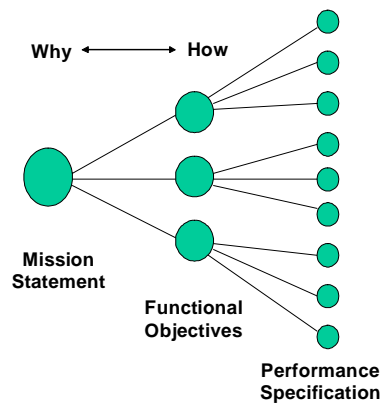


Figure 4.3 A hierarchy to link major functions
(Source: Shen et al., 2004)

The Work of Kelly, Male, MacPherson and Graham

Kelly, Male and MacPherson have also conducted research on briefing with the North American VE professionals since 1992. Their first study on briefing was divided into two parts. Part 1 was to review the methods of briefing and Part 2 was

to propose an alternative approach based upon the techniques of VM. The primary outcome from their research was the recognition of a two-stage briefing process (Kelly et al., 1992). The first stage dealt with the ‘policy brief’ for a project. It is the task of strategic management to identify the organisational needs and then to decide whether a building (or buildings) of a general type in a certain location is the most effective solution to meet those needs. The second stage dealt with the ‘concept brief’ for the project. Tactical management decisions are required on the performance specification of the building given the activities to be accommodated. A critique as well as a practice manual using the VM approach for the briefing process were produced (Kelly et al., 1992 and 1993). The manual described in detail how to conduct a two-stage briefing process using VM. Figure 4.4 shows the briefing process recommended by Kelly et al. (1993) in a flow chart. It was proposed that the concept brief would follow the policy brief, each could stand on its own as a study and the Charette is generally a single stage study reviewing an existing brief.

In 1994, Kelly and Male investigated the application of VM to strategic decision making on projects. North American colleagues, having read their reports, noted that the practice of North American architectural programming was very similar to the approach being proposed in the 1993 publication. Kelly and Male’s research team continued to develop the briefing methodology as part of the international benchmarking study for VM before a good practice framework for clients and practitioners was published in 1998 (Male et al., 1998b). In 2004, Kelly, Male and Graham published a book on VM with a detailed explanation of the two-stage briefing process, toolbox and case study for briefing. Based on the ideas expressed

therein, this present study proposes a more comprehensive VM framework for briefing (see Chapter 8, Section 8.2).

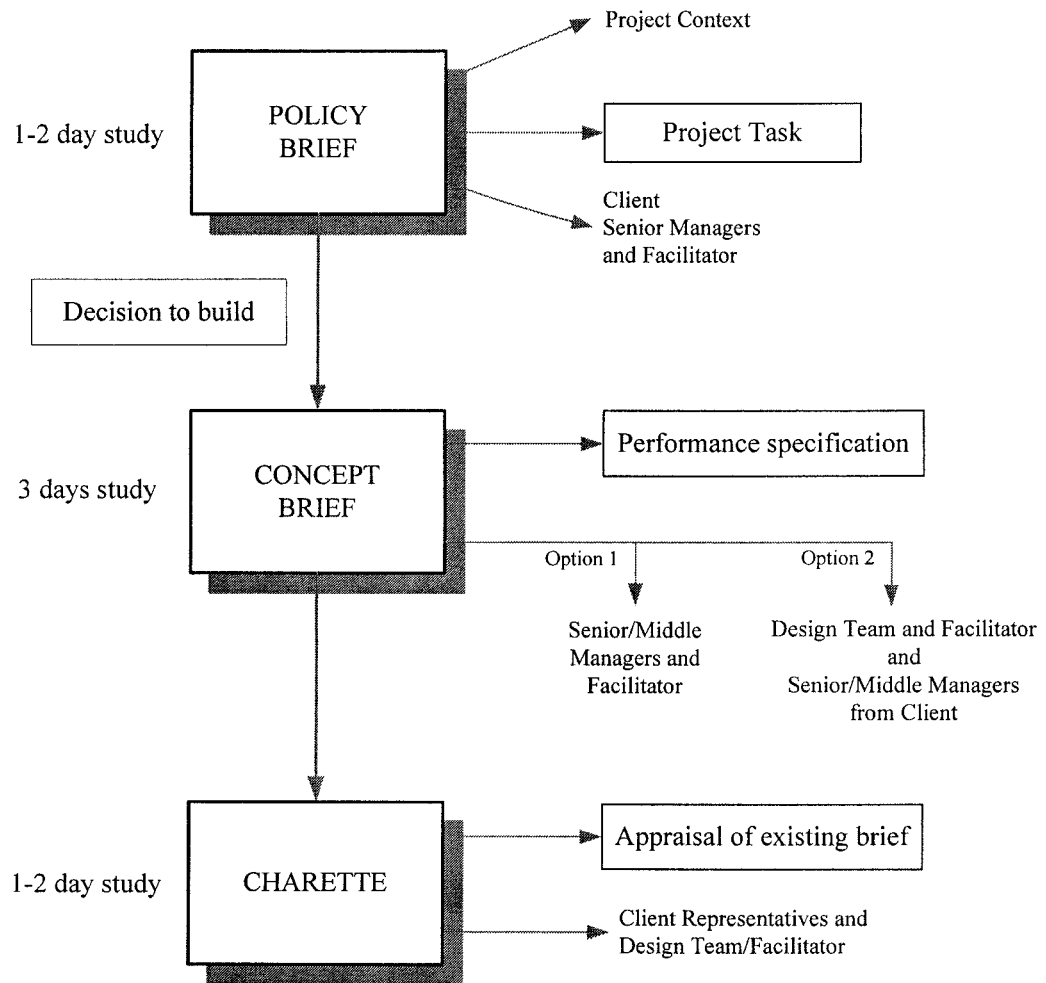


Figure 4.4 The briefing process recommended by Kelly, Male and MacPherson in 1993 (Source: Kelly et al., 1993)

4.3 The timing of VM study in briefing

The timing of VM workshops is very important. They must be tied closely to key stages in project development if they are to provide the best opportunity for identifying needs and challenging potential key design decisions. Key decisions

affecting project value are taken early in the project's development, thus it is clear VM should take place at this time.

In theory, the VM methodology can be successfully applied at any stage of a building project. Generally, this methodology is used rather at the detail design stage when most of the essential design decisions are made. However, evidence in the literature indicates that VM is more usually applied at the embryonic stage (i.e. at the conceptual sketch design stages). Application at this stage forestalls the cost increases resulting from changes occurred over time during the life of the project. Figure 4.5 illustrates the potential value of applying VM during the whole life cycle of a project.

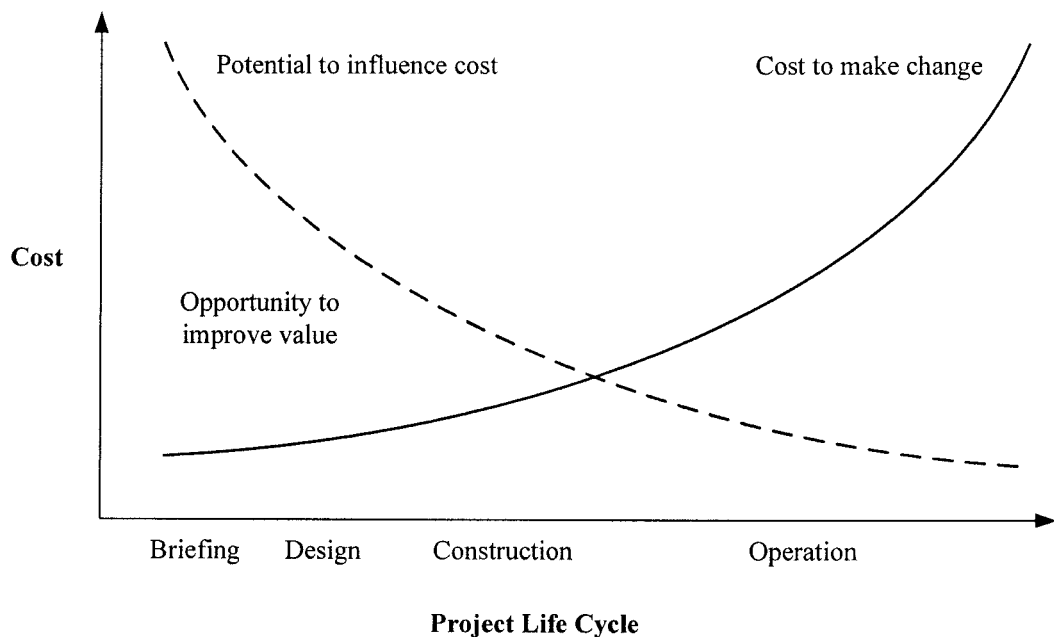


Figure 4.5 Opportunity to improve value during the project life cycle
(Source: Norton and McElligott, 1995)

In addition, the number of workshops is also important. Too many workshops can disrupt and delay the design and construction process. Too few can end up in opportunities for improving the value of design proposals to be lost. Experience shows that there are typically a small number of points where key client decisions must be made and where workshops are particularly effective (Connaughton and Green, 1996). These points may be linked to the client's capital expenditure approval procedure and often are programmed in advance as key design management milestones. Figure 4.6 shows the value opportunity points in briefing as identified by Male et al. (1998b). These are:

1. The pre-brief workshop, where the focus is on the business project.
2. The briefing workshop, where the focus is on the technical project.
3. The Charette, it was acknowledged that stage 1 and 2 could be combined as a review of the brief in an exercise known as 'Charette'.

However, it should be noted that not all projects are obliged to follow the above pattern. The scale and complexity of the project determine the number of workshops, and when they should be held. The client has the responsibility of identifying key decision points so that workshops can be planned in advance. Advice from an experienced facilitator may be needed to determine the appropriate timing for the VM study in the development process of a construction project.

Chapter 4 Application of Value Management to Briefing

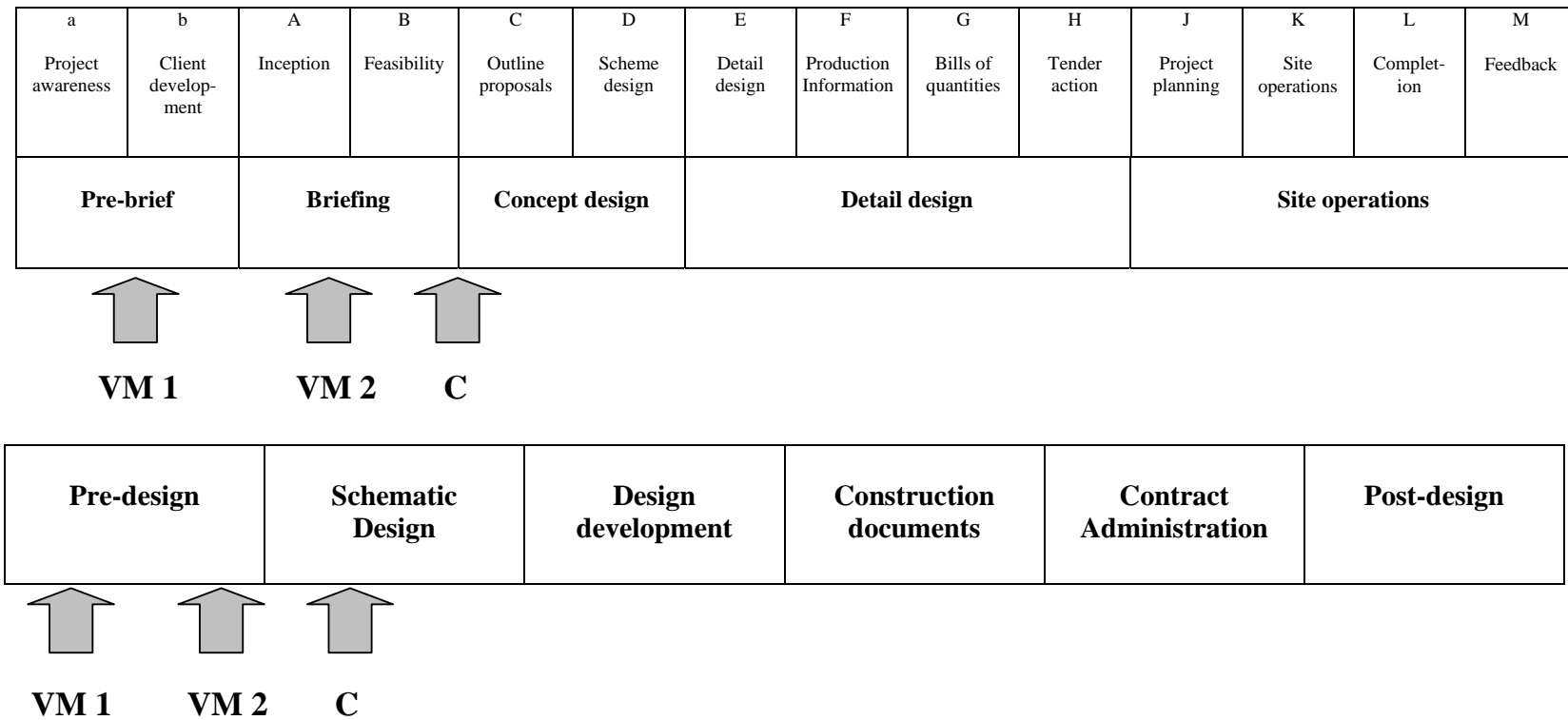


Figure 4.6 Value opportunities in briefing with reference to Royal Institute of British Architects and American Institute of Architects processes (Source: Male et al., 1998b)

4.4 Using VM to focus on client's needs and gain consensus

VM should be used as a means to focus on client's needs in the briefing process and to ensure that the objectives of the client's organisation are met. As top management must view projects from an overall perspective, they need to pursue ways to enhance their ability to make independent assessments of proposed new projects and their cost estimates. Most construction projects involve many areas of expertise, such as specialised planners, architects and engineers from many disciplines. Since no one in top management can be expert in all of these areas, a VM study should be structured to provide the ability to bring in all required experts for just the short time that they are needed. The aim is to provide the client with authoritative evaluations of every important project aspect, as well as independent evaluations of estimates for both capital and future operating costs. It should also provide management with the information it needs to make informed decisions.

One of the benefits of the VM workshop approach is that it enables the team to build consensus decisions, taking the better parts from a number of views and constructing a solution which is better than that proposed by any individuals within the workshop (Dallas, 2006). The first step in achieving consensus is to ensure that each participant's views have been heard fairly and taken into account. There are a number of techniques for building consensus. Each of these helps the team to the position when every member can give a clear yes to the following questions:

- Will you agree to the next step or question?
- Can you live with this position?
- Are you comfortable with the course of this action?

- Can you now support this alternative?

Consensus is better than voting, because it does not involve winners or losers. If, in a team of 12 people, 10 prefer one course of action and 2 people vote against it, there will be 2 dissatisfied members of the team. Because they are unhappy they may spend much of their time trying to undermine the decision. This causes dissent within a team and is not helpful. It is far better to gain consensus where the same two members of the team can answer yes to the questions posed above.

Consensus is not the same as compromise. A compromise involves reducing the proposed change to a level that it is acceptable to all parties. It is akin to finding the lowest common denominator. The art of building a consensus requires identifying the best features among the issues under discussion and putting these together into a proposal that all team members can support. It is like finding the highest common factor in mathematics.

Although consensus building in decision making is vital, the VM workshop should remain focusing on the needs of the client. The client representatives should participate actively in the workshop and articulate their values and requirements. For example, in order to capture the value criteria of the client organisation explicitly and reflect this in the definition of the project, only the client representatives may speak during this process, other stakeholders not a part of the client body must keep silent and listen, for this is the client's value system (refer to Chapter 8, Section 8.2.7, Toolbox 2, C).

4.5 The use of Function Analysis in briefing

As mentioned in Chapter 3, Section 3.4, one of the essential components of the VM methodology is the expression of client requirements as functions. A function is the specific purpose or intended use of a project that makes the project sell, produce revenue, or meet requirements (Dell’Isola, 1982). Function Analysis is used to identify the functions of a product, to quantify the performance to be reached, and to present functions so as to constitute a real means of communication. It is the primary activity that separates VM methodology from all other “improvement” practices. Identifying and defining functions means an attempt to express a function by an active verb and a measurable noun. The verb answers the question ‘What is it?’ and the noun qualifies ‘What does it do?’ (Norton and McElligott, 1995). For example, the functions of a ‘world class’ commercial center can be described as functions to ‘satisfy users’ and ‘attract users’ in a project level. This approach enables a systematic identification and clear definition of client requirements, an improved understanding of various stakeholders’ objectives, and the effective accomplishment of these functions (Shen, 1993).

When the right Function Analysis is applied at the right moment in the development of a project or process, with a correct mix of participants it creates a common understanding within the team (European Communities, 1995). Function Analysis also allows the participants to focus on project objectives and thus precludes possibly immature solutions. This enables the workshop team to develop innovative alternative solution to satisfy the client requirements.

4.5.1 General description of the Function Analysis process

It is normally implemented by a working group selected for its necessary skills and experience in finding the functions and formalising the result of the Function Analysis. The steps of the process involve (European Communities, 1995):

1. Listing functions

The purpose is to arrive at a complete description of the end results of the product, or of the product itself. It is necessary to systematically take care of the formalisation of each function and check that it correctly expresses the aim to be achieved.

2. Organising functions

The objective is to arrive at a clear, organised list of the functions to be retained and to present them in a logical arrangement. It can be expressed in the form of a table (functions, criteria, and constraints), a functional tree, a model, etc. All functions, when organised and structured, must give a complete qualitative description of the aim, which is the fulfillment of the need under consideration.

3. Characterising functions

The analysis, which so far has been qualitative by nature, is further supplemented by the quantification of the expected performance of different functions. It makes possible:

- to describe the performance assessment methods,

- to indicate the performance objective levels, taking into account the desires or needs of future users,
- to specify whether the service desired is absolutely necessary or whether it can be varied,
- to come up with the initial information for making a study of the risks linked to the use of this product,
- to indicate as often as possible the possibility of varying the performance levels through what is called their flexibility,
- to define the acceptable range for these levels, which limits the possibility of variation,
- to provide information about possible failure, indicating how serious it is in relation to the kind of risk the user is exposed to.

Thus, the purpose or objective to be reached is completely described.

4. Setting functions in a hierarchical order

The setting in a hierarchical order of user-related functions consists of assigning an order of importance to them, and reflecting the general viewpoint of the users.

5. Evaluating functions

The evaluation of the functions consists of attributing to each function a “weight”, constituting a kind of quantification of the hierarchical order.

4.5.2 Functional Analysis System Technique

Functional Analysis System Technique (FAST) was designed by a VE practitioner Charles Bytheway in 1965. FAST, sometimes called a logical functional diagram, is a presentation of the user-related functions and product related functions of a solution for a product (whether existing or in the process of being developed). Figure 4.7 shows an example of FAST diagram. A FAST diagram is marked by two vertical lines that delimit the scope of the problem. On the left of the diagram is the “higher level” functions, which are in fact the general needs of the client. One moves in the diagram from one function to another

- from left to right by asking the question: how?
- from right to left by asking the question: why?
- in addition, functions that happen at the same time as another function or functions that happen all the time are placed vertically

Functions identified by intuitive and logical thinking are placed to constitute an outline of a diagram that is modified until satisfactory relationships, and a sequence that correctly represents the operation of the product, are arrived at. Gaps in this logic diagram suggest that functions have been forgotten and need to be found.

The functions can be structured further by considering if they are *needs* or *wants*. Wants are the esteem functions not essential to delivering the primary mission. Functions that are seen to be needs are put at the top of the diagram and the functions that are considered wants are put on the bottom. This division can be indicated using a line drawn with a marker pen (Hayles and Simister, 2000).

This approach is good for the understanding of the problem by a team, and for the creative thinking that is initiated when the necessary – or non-necessary – attribute of a function, or the manner of having it performed, is questioned. FAST makes communication easier with those not in the working team who undertakes the Function Analysis.

FAST is commonly used in the United States. In Europe, it is most often used as a tool for structuring and organising functions, more to elaborate an explicit presentation than as a real tool for discovery (European Communities, 1995).

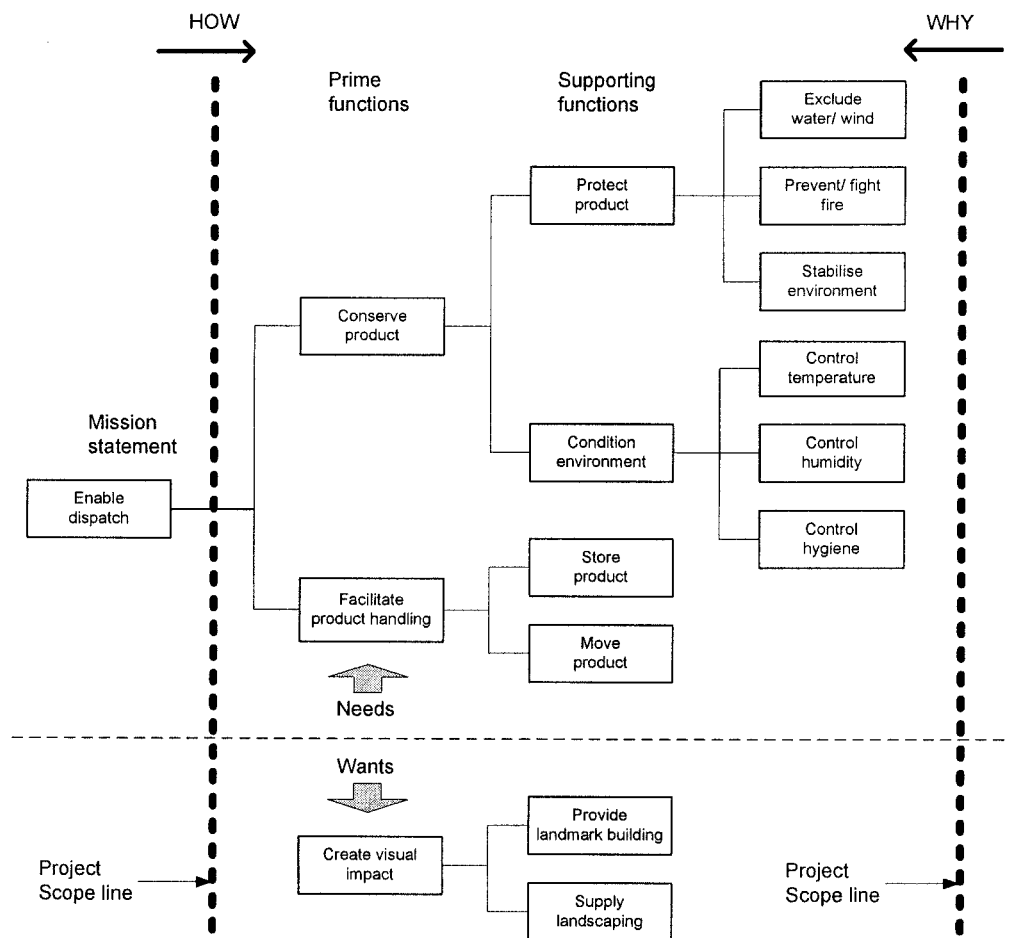


Figure 4.7 A FAST Diagram for a refrigerated warehouse
(Source: Hayles and Simister, 2000)

4.6 The use of Functional Performance Specification (FPS) in briefing

4.6.1 Definition of FPS

A Functional Performance Specification (FPS) is the function analysis of a product from the client's perspective. It is a document by which an enquirer expresses his needs (or those which he is responsible for expressing) in terms of user-related functions (service functions) and constraints (European Communities, 1995). For each of these, evaluation criteria are defined together with their "levels" and a certain degree of "flexibility".

4.6.2 Constituent elements of a FPS

According to European Communities (1995), a FPS consists of the following elements:

1. General presentation of the problem

The general concept of the product is presented to the designer, manufacturer or supplier to allow a quick and clear grasp of the problem and those main needs to be satisfied. Indications on the market (existing products, market importance, commercial life forecast) complement such information and would likely motivate the designer, manufacturer or supplier. The context of the project and objectives have to be specified, whether the project is part of a larger programme, already undertaken or underway, whether there will be further developments, etc. Finally, the environment and its constraints will be specified (persons and social context, other equipment, etc.)

2. Functional expression of need

The functional expression of need is the result of a thorough Function Analysis.

It constitutes the main part of the FPS and specifies:

- a) user-related functions and constraints (the latter, which limits the freedom of the designer, manufacturer or supplier, is reduced as much as possible)
- b) corresponding appreciation criteria
- c) the level of these criteria, indicating:
 - those which are imperative (with a certain tolerance),
 - those which are desirable but open to negotiation, subject to limits of acceptance and flexibilities (either qualitative ones and several classes of greater and lesser flexibility can be used, or quantitative ones, and “cost/level of criteria” trade-off ratios will then be set).

The functional expression of need is preferably presented in a summarised and concise form. The use of charts, graphs, diagrams or decision trees presenting what is called the function structure, often accompanied by comments, is generally preferred.

3. Call for variants

The call for variants refers to variants of the functional expression of need that the designer, manufacturers or supplier can propose as compared to the one the enquirer has set in the FPS. Systematically, the enquirer will closely examine the suggestions from the designer, manufacturer or supplier, given that an indication

of the general problem to solve has been set. The call for variants stimulates innovation and allows exploration of both ambitious and realistic solutions.

4. Framework of answers

In the case of multiple offers, to facilitate more thorough examination, it is imperative to set a framework of answers for the designers, manufacturers or suppliers. This is to enable each proposal to be compared like for like. This framework of answers, which is part of FPS, only considers aspects directly linked to the product, e.g. operation, unit price, realisation. The same functional presentation used by the enquirer to describe needs has to be used by the designer, manufacturer or supplier in presenting the proposal. The answer framework explains and describes the proposed solutions and comprises at least an evaluation table in which the designer, manufacturer or supplier indicates, for each function and for the whole product, among other things:

- the levels reached for each of the appreciation criteria (and the proposed methods for their examination)
- the part of the price corresponding to each function, if possible
- the arrangements made to meet constraints, to what level it is performed, and the costs incurred
- other associated costs such as user training, operation, maintenance, etc.
- the predicted level of reliability (assuming it was not specified in the appreciation criteria)

4.6.3 Usefulness of FPS

In briefing, the FPS is used to determine the needs required by the client and the provision of these in the most effective manner. The expression of these needs in the FPS is made in functional terms, without reference to the technical solutions that may satisfy them, and with a minimum of constraints. This allows the client to obtain from the designer, manufacturer or supplier the design or the proposal for the most efficient product to bring the most advantages to the user.

It is necessary every opportunity should be explored and that the terms of the FPS should stimulate the designer, manufacturer or supplier to optimise the product or to find the best proposal. The FPS favours dialogue between a client and a contractor, which implies that the possible flexibilities of what is asked for should be indicated.

Finally, the FPS has to facilitate the examination and the comparison of proposals, which is the best option proposed from the function structure, if not actually imposed, as a framework for the supplier's answer (European Communities, 1995).

4.7 The need of facilitation in briefing

Facilitation involves the controlling and leading of a team through a process using analytical, arbitration, guiding and influencing skills. It is distinguished from chairmanship in that the facilitator is not a member of the team, and contributes nothing more than facilitating skills, and has no vote and certainly no casting vote. Their work is not recorded in the final report of the VM study. A facilitator is a formal leader whose presence can frustrate the normal development of a team such

that the forming, storming and norming stages can be negated. In the context of a VM exercise, a skilled facilitator can efficiently manage a temporary team so that maintenance behaviour is minimised and task behaviour maximised (refer to Chapter 5, Section 5.3.3 also) (Kelly et al., 2004).

It is necessary to review the practical application of VM from the perspective of the facilitation of the process for a number of reasons (Kelly et al., 2004):

- VM is primarily a facilitated process.
- Where a VM service is required, it is often the case that a VM facilitator will be contacted.
- The VM facilitator is often the only person in a team who is knowledgeable and skilled in the VM process.
- VM is applied at certain strategic points in the development of a project and therefore facilitator tends to be engaged only for the number of days required to undertake the VM exercise from the pre-workshop to post-workshop phase.

The role of a facilitator is outlined in Chapter 8, Section 8.2.5.

4.8 The use of VM tools and techniques in briefing

This section introduces from the literature review the essential tools and techniques that can be used in briefing workshops. The detailed methodologies and the phases of the workshops to use these tools are described in the proposed VM framework for briefing in Chapter 8, Section 8.2.7. The tools and techniques are listed in alphabetical order as follows:

1. Action Plan
2. Adjacency Matrix
3. Brainstorming
4. Checklist
5. Client Value System
6. Function Analysis
7. Functional Space Analysis
8. Functional Performance Specification
9. Issue Analysis
10. REDReSS Analysis
11. Stakeholder Analysis
12. Timeline
13. Time/Cost/Quality Analysis
14. User Flow Analysis
15. Weighted Evaluation Technique

4.9 The benefits of using VM in briefing

The benefits of using VM in construction have been discussed in Chapter 3, Section 3.7.1. The perceived benefits of using VM particularly for the briefing process include:

- achieving value for money for the whole project,
- attaining appropriate quality for the project,
- openly discussing and clearly identifying project objectives,

- systematically identifying client requirements, clarifying their needs versus wants and prioritising the options for their issues,
- an evolved design with an agreed framework of project objectives,
- creating more alternative solutions to satisfy the client's needs,
- enabling clients to participate fully in the briefing process,
- being responsive to client's priorities,
- gaining a client and user insight into the project,
- providing an opportunity for stakeholders to formally participate in the design process,
- facilitating communication between clients and other stakeholders,
- resolving conflict of stakeholders,
- team working to identify opportunities available for development and to highlight any potential problems at the beginning of the project.

These benefits of VM in briefing were verified by a focus group meeting and an experiment which are discussed in Chapter 7, Sections 7.3 and 7.5 respectively.

4.10 Summary and conclusions

The application of VM to briefing is examined in this chapter. In Hong Kong and the USA, the use of VM in programmes and projects is a compulsory requirement by the government. In the UK, several researchers have investigated the application of VM to briefing. They are covered in the Works of Green, Barton, Kelly, Male, MacPherson and Graham. However, the model of briefing through VM in literature has changed little in concept during the past two decades. The existing models are

simplistic and whilst focused on two stage briefing (strategic/project) commonly accepted today are not sophisticated either in their input of the wider considerations of those factors such as stakeholder and knowledge which have themselves developed during the same timeframe. The most up-to-date study is perhaps the Work of Kelly, Male and Graham. They published a book on VM with a detailed explanation of the two-stage briefing process, Function Analysis, toolbox and case study using VM in briefing. Their work forms the basis of this research and has led to the proposal of a more comprehensive VM framework for briefing.

The timing of a VM study in the briefing process is an important issue. Many researchers and authors suggested that VM should be applied to a project in the early stage of development because the potential to influence cost decreases over time during the project life cycle. Male et al. (1998) identified three value opportunity points in briefing; they are (1) the pre-brief workshop, (2) the briefing workshop, and (3) the Charette.

Function Analysis is the primary activity that separates VM methodology from other improvement practices. This approach enables a systematic identification and clear definition of client requirements. The description of the Function Analysis process is provided in Section 4.4.1 while the explanation of FAST diagram is detailed in Section 4.4.2.

Functional Performance Specification is a useful document to express the needs of the client in the briefing process. The FPS allows the client to obtain from the

designer, manufacturer or supplier the design or the proposal for the most efficient product with most advantages for the user.

The need of a skilled facilitator in the VM studies of the briefing process is explained in Section 4.7. A list of essential VM tools and techniques that can be used in the briefing process is also provided. The detailed methodologies and when to use these tools are described in Chapter 8, Section 8.2.7. Finally, the perceived benefits of using VM in briefing are outlined in this chapter.

CHAPTER 5

A THEORETICAL FRAMEWORK FOR BRIEFING

- ❖ **Introduction**
- ❖ **The development of the theoretical framework**
- ❖ **The thirteen variables of briefing**
 - Projects
 - Stakeholder Management
 - Teams and Team Dynamics
 - Client Representation
 - Change Management
 - Knowledge Management
 - Risk and Conflict Management
 - Post-Occupancy Evaluation and Post-Project Evaluation
 - Critical Success Factors and Key Performance Indicators
 - Types of Business and Organisational Theory
 - Decision Making
 - Communication
 - Culture and Ethics
- ❖ **The theoretical framework for briefing**
- ❖ **Summary and conclusions**

5.1 Introduction

The purpose of this chapter is to present the theoretical foundations which form the basis for developing the practical VM framework of briefing. This theoretical framework was established through an extensive search and synthesis of literature from a variety of sources. The process for developing the theoretical framework is first described, followed by a discussion of the thirteen variables and their relationships to briefing from a theoretical perspective. A theoretical framework for briefing is then put forward and the rationale for input of VM into briefing is explained.

5.2 The development of the theoretical framework

A theoretical framework is a collection of interrelated concepts and theories. It is the foundation on which the entire research project is based. It is also a logically developed, described, elaborated network of associations among the variables deemed relevant to the problem situation.

The development of the theoretical framework for briefing in this study was approached through an initial brainstorming session with two professors who are experts in briefing and VM to elicit variables likely to be significant in such theoretical framework. A comprehensive literature review confirmed or rejected the variables as significant and highlighted other variables initially not included. Thirteen significant variables were identified which have impacts from a theoretical perspective for this study and became the theoretical foundation for the study. These variables were thoroughly considered their impact, if any, on the briefing process of

construction projects. This work was written-up to form a working research document (refer to Appendix J). It summarises each of the thirteen parts in terms of how the briefing process is influenced by the variables and forms the basis for the development of a theory behind the issues involved in the briefing process.

5.3 The thirteen variables of briefing

In order to establish a theoretical framework of briefing, it is necessary to identify its variables. There are many factors that would affect the performance of the briefing process. In a brainstorming session conducted amongst the research team of this project, the following factors were identified:

1. Projects
2. Stakeholder Management
3. Teams and Team Dynamics
4. Client Representation
5. Change Management
6. Knowledge Management
7. Risk and Conflict Management
8. Post-Occupancy Evaluation and Post-Project Evaluation
9. Critical Success Factors and Key Performance Indicators
10. Types of Business and Organisational Theory
11. Decision Making
12. Communication
13. Culture and Ethics

These variables are discussed in the following sections 5.3.1 to 5.3.13 based on a comprehensive literature review.

5.3.1 Projects

The current thinking in respect of ‘projects’ and the use of a brief in a project are summarised in this section.

1. A project definition that evolved from the review is ‘an enterprise comprising of physical and non-physical activities that includes a pre-project stage to ensure effective planning and a post-project stage to ensure successful absorption into core business’ (Oxford English Dictionary, 2001; Morris and Hough, 1987; Nicholas, 2001). Therefore, a project is a separate, temporary activity from the organisation’s core business aiming at making changes. A brief for a project necessarily requires the initiator of the brief to accept change.
2. There are two types of project, one that is complete in itself or those which form part of a series or programme (Morris and Hough, 1987).
3. There are three primary stages of a project, a pre-project planning stage, a project stage involving a practical start, and a post-project stage where the project is absorbed into mainstream business. The three primary stages of a project are illustrated in Figure 5.1. The pre-project stage, which is conducted primarily in the form of discussion and written records, involves users and planners (Nicholas, 2001) and terminates with full budgetary approval. The project stage commences

at ‘project initiation’, a practical start when the initial concept becomes an identifiable project (Woodhead, 2000). Usually the designers and builders are involved (Nicholas, 2001). Using a construction project as an example where an architect or engineer gets involved, once the decision to build is made the pre-project stage terminates and the ‘project’ commences. Finally, the post-project stage, where the project is absorbed into the organisation’s core business, involves users and operators (Nicholas, 2001).

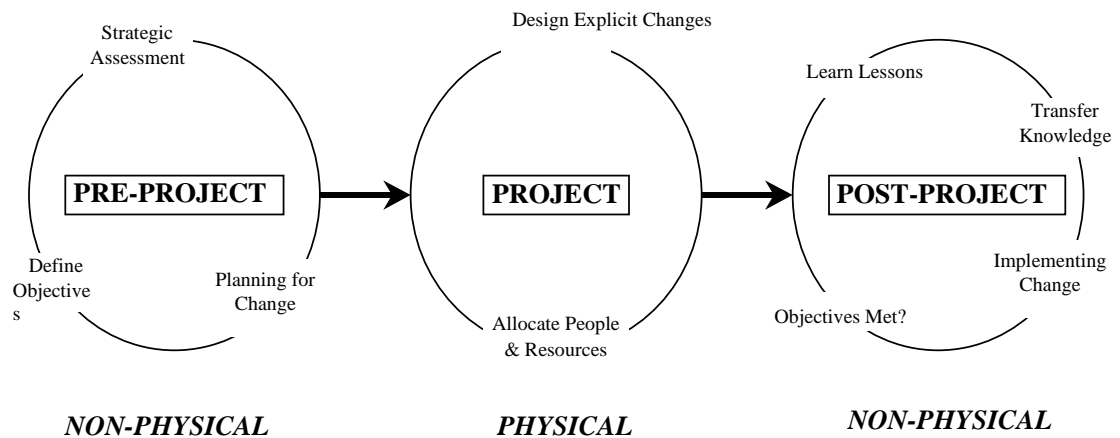


Figure 5.1 Three fundamental project stages (Source: Nicholas, 2001)

4. A brief will be compiled during the first stage of a project, pre-project planning. The brief will encapsulate and make explicit decisions taken at the pre-project planning stage. It is important to spend sufficient time planning at the pre-project stage to ensure a comprehensive definition of the project as decisions made in the early stages will influence the rest of the project.
5. When the project is complete it is absorbed into core business and is considered a

success if it meets its business objectives and satisfies the clients and the end-users. This implies that the brief contains details of the procedures necessary to successfully absorb the project into the core business and the criteria against which to judge success. The projects' relationship to core business is illustrated in Figure 5.2, whereby the project has an identifiable start, a resource plan, a timeline, and upon completion, an identifiable end (handover to the client) in order to ensure smooth adoption into mainstream business.

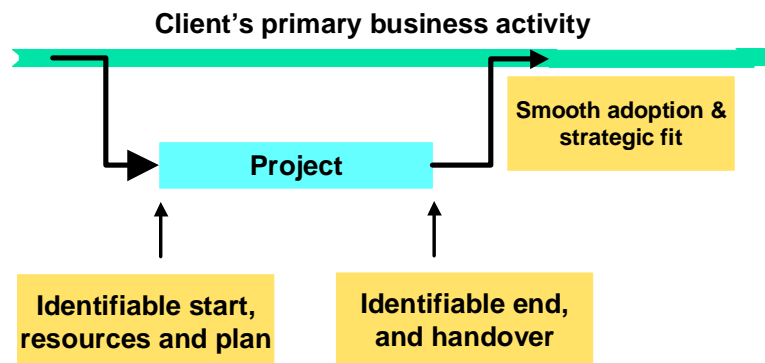


Figure 5.2 A project's relationship with core business
(Source: Kelly and Male, 2002)

6. A typical construction project will have a project execution plan in use outlining all details pertaining to the project. The responsibility for this document generally lies with the project sponsor. The project execution plan is described as the 'key management document' encompassing all activities related to the project (HM Treasury). The plan includes the project brief and details such as project objectives, constraints, cost control, programme, change control, management details, procurement route, and roles and responsibilities. The size and detail of

this document will depend on the nature of the project. The plan is generally used by all parties for reference when requiring project information or as a performance measurement tool.

5.3.2 Stakeholder Management

The current thinking in respect of ‘stakeholder management’ and those characteristics contributing to a theory to be used in the analysis of briefing literature are summarised in this section.

1. Stakeholders are defined as “those groups or individuals with whom the organisation interacts or has interdependencies” and “any individual or group who can affect or is affected by the actions, decisions, policies, practices or goals of the organisation” (Carroll, 1993). The project stakeholders are defined as “individuals and organisations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion” (PMI, 1996). Figure 5.3 presents the project stakeholders as interpreted by Cleland (1986).
2. In the briefing process, it is necessary to consider the interests of stakeholders, both primary and secondary, and maintain a balance between different stakeholders’ interests. *Primary stakeholders* have a legal contractual relationship to the project. This group includes the project owner, suppliers, functional groups, investors, and those from the public domain (such as communities and institutions) that provide infrastructures and markets, whose

laws and regulations must be obeyed, and to whom taxes and other obligations are owned.

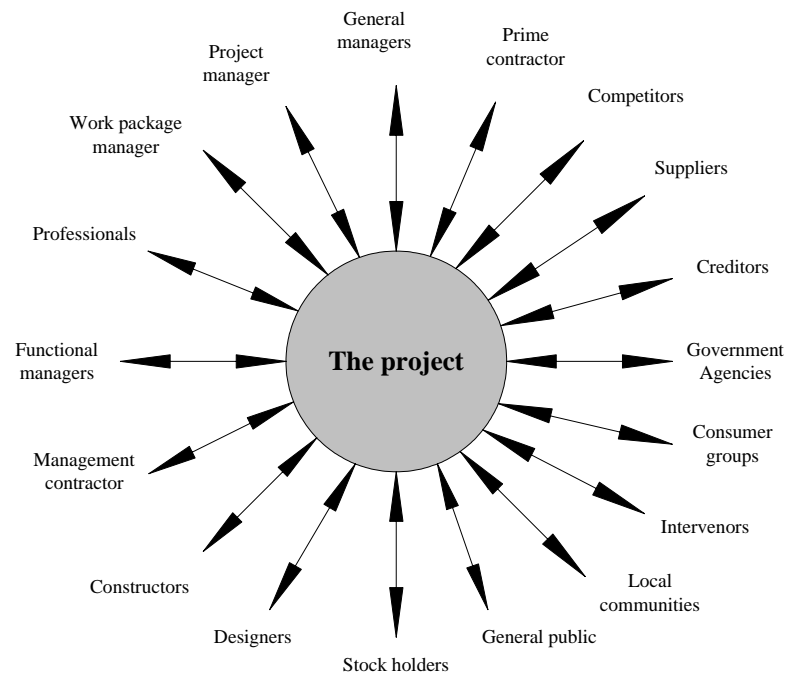


Figure 5.3 Project stakeholders network (Source: Cleland, 1986)

Secondary stakeholders are those who influence, or who are influenced or affected by, the project but are not regularly engaged in transactions with it and may not be essential for its survival (Pinto, 1998). For instance, the media and special interest groups are secondary stakeholders who can mobilise public opinion in favour of or in opposition to the project's purposes and performance.

3. In order to understand the various interested parties in the project, all types of stakeholders should be identified and represented during the early stages of the project. The stakeholders' commitment, interest and power should be assessed before the briefing exercise. Much time and effort should be devoted to the key

players in the briefing process. The methodology for assessing the stakeholders' commitment, interest and power are described in Chapter 8, Section 8.2.7, Toolbox 1.

4. Kelly and Duerk (2002) proposed that those with responsibility for the briefing process should undertake a test of the relative position of stakeholders. This test is known as the ACID test. The details of the test are described in Section 5.3.3 of this chapter.

5.3.3 Teams and Team Dynamics

The section summarises current thinking in respect of 'teams and team dynamics' and outlines those characteristics contributing to a theory to be used in the analysis of briefing literature.

1. A team is defined as a type of group with complementary skills, competencies and knowledge, which is committed to a common purpose, set of performance goals and approach for which they will hold themselves mutually accountable. (Hellriegel et al., 1998; Cook et al., 1997).
2. Team dynamics or processes are affected by the following factors (Hellriegel et al., 1998) which provide an 'atmosphere' or 'climate' which is characteristic to each particular team:
 - Team size.
 - Membership roles and composition.

- Group norms concerned with emerging implicit or explicit codes of behaviour.
 - Group goals, the task to be performed or objectives attained.
 - Group coherence.
 - Leadership, both formal and informal.
 - External environment, those factors outside of the group that impacts its operations but over which it may have limited control.
2. For maximum performance a briefing team is a task orientated, temporary, formal team with an upper limit of approximately 16 members and a formal leader (Hellriegel et al., 1998). A large briefing team (say 13 to 16 members) requires formal rules and procedures. The briefing exercise should be efficiently conducted over a sufficient but short period of time to prevent the emergence of an informal leader.
3. Hellriegel et al. (1998) stated that all team members perform task oriented, relation oriented and self-oriented activities.
- Task oriented activities relate to the project activities, for example, initiating new ideas, seeking information, giving information, co-ordinating and evaluation.
 - Relation oriented activities relate to encouraging, harmonising, consensus seeking, conflict resolving, integrative processes.
 - Self-oriented activities are self-centred manifestations through blocking of progress, seeking recognition, domination.

Maintenance behaviour is therefore comprised of relation oriented or self-oriented behaviour. Hunt (1986) suggested the team members to sort out task and maintenance behaviour amongst themselves in order to enable the task to be undertaken. For maximum productivity the formal leader should prevent excessive maintenance behaviour.

4. The briefing team is project focused and has to interact among themselves. It is desirable if the team is comprised of individuals willing to sacrifice individualism for collectivism. It should well be empowered by the client within defined limits if possible.
5. Team membership should be effective and balanced as indicated by the ACID test. Members of teams should be chosen based upon their ability to contribute information, enable or undertake decision taking. The ACID test is a useful aid to selecting team members.
 - A** Authorise – include those having the authority to take decisions during the workshop process.
 - C** Consult – include those to be consulted during the workshop process and without whose consultation the workshop would be suspended.
 - I** Inform – exclude those who merely have to be informed of the outcome of the workshop.
 - D** Do – include those who have to translate the outcomes of the workshop into action.

5.3.4 Client Representation

This section summarises current thinking in respect of client types and outlines those characteristics that contribute to a theory to be used in the analysis of briefing literature. The findings have been mainly extracted from the summary on clients in ‘The Briefing Process: A review and critique’. (Kelly et al., 1992).

1. A client is considered as the sponsoring organisation or the initiator, who is directly responsible for the production and development of the project (Bresnen et al., 1990).
2. There are many different types of clients: Large Owner/Occupier, Public Sector, Developer, Refurbishing Retailers and Small owner/occupier who all have different requirements and ways of going about projects.
3. Client type can be further categorised under size (large or small), sector (public or private) and project interest (development or owner occupation).
4. The client type will influence the decision to build as to whether it is part of a long term strategic plan, a response to unanticipated changes, or if it is opportunistic.
5. Within the client body there are usually two groups; the ‘decision making unit’ involving people with the power to implement changes, and those with financial or operational interests in the building.

6. Following the identification of the need or the opportunity to build, the way in which the client proceeds depends upon the size of the client.
7. Larger and more knowledgeable clients are generally assumed to have investigated the need to build quite thoroughly.
8. The statement of a need will tend to be influenced by the envisaged nature of the solution, and so concept brief writers can find themselves attempting to solve the wrong problem.
9. The identifiable problem areas in briefing, in relation to the client, include (Kelly et al., 1992):
 - Client experience with the building industry.
 - Representation of client interest groups.
 - Identification of client needs.
 - Interpretation of client needs in building terms.
 - Provision of sufficient time for briefing.

These problems are discussed in Chapter 2, Section 2.4.

10. In empowering the client during briefing process, the following should be considered (Barrett and Stanley, 1999):
 - Clients should be knowledgeable about their own organisations.
 - Clients should be aware of the project constraints.
 - Clients should understand the basics of the construction process.

- Clients should understand their roles and responsibilities.
- Clients should maintain participation in projects.
- Clients should gain the support of senior managers for projects.
- Clients should appoint internal project managers to manage projects.
- Clients should integrate business strategy and building requirements.

5.3.5 Change Management

This section summarises current thinking in respect of ‘change management’ and outlines those characteristics contributing to a theory to be used in the analysis of briefing literature.

1. ‘Change management’ in this study refers to the task of managing change from a proactive posture in a project. A change project essentially involves three stages, understanding the status quo (as-is) situation, specifying the desired future (to-be) situation, and planning and implementing an effective migration path from ‘as-is’ to ‘to-be’. In order to move from stage one to stage three in an appropriate, controlled and effective manner, the following actions are required (Male et al., 2002):

- Undertake a strategic review.
- Identify the desired future state.
- Analyse the change context.
- Identify the critical change features.
- Determine the implementation choices.
- Design and manage the transition process.

2. A change project requires the definition of objectives, the nature and scope of the change and the performance measures used to determine a successful outcome.
3. A strategic or project brief implies change within the client organisation.
4. A strategic brief will contain an outline of the seven success client organisational elements: Strategy, Structure, Systems, Staff, Style, Skills and Shared Values (Waterman et al., 1980).
5. A strategic brief will contain the results of the strategic review, the desired future state, the change context, the critical change features, the implementation choices and an outline of the transition process.
6. A project brief is a part of the client's change management process involving evaluating, planning and implementing change. This implies that the briefing team should be aware of this process.
7. The briefing team should be able to capture, record, process, structure, store, transform and access client organisation information.
8. The briefing team should recognise that people are at the heart of any change process; therefore communication and involvement are key areas to ensure change management success. The key areas of change management are

education, training, communication, team and leadership development (Bechtel and Squires, 2001).

9. The briefing process involves more than just managing change within an organisation but also managing risks and anticipating the effects of external factors. (Risk management is discussed in Section 5.3.7 of this chapter).

5.3.6 Knowledge Management

This section summarises current thinking in respect of ‘knowledge management’ and outlines those characteristics contributing to a theory to be used in the analysis of briefing literature.

1. Knowledge is defined as ‘information interpreted by the individual and applied to the purpose for which it is needed’ (Bender and Fish, 2000). Therefore knowledge is information processed through an individual’s skill and experience. However, an organisation’s knowledge is not the sum of individuals’ knowledge but rather the ability to access and distribute all individuals’ knowledge.
2. Knowledge management is defined as ‘the strategies and processes of identifying, capturing and leveraging knowledge to enhance competitiveness’ (McCampbell et al., 1999 cites Manasco, 1996).
3. Fundamental to briefing therefore is the mapping of individuals’ contributions to organisational knowledge in order to determine the membership of the briefing

team based upon the ACID test (Kelly and Duerk, 2002).

4. Briefing relies on those within the client organisation at the heart of knowledge management.
5. Briefing would benefit from a knowledge management strategy and a culture that supports knowledge.
6. A brief should capture client organisational goals, and detail changes to the way in which the client organisation should do things to meet organisational needs and to reap the benefits of quality improvement, increased productivity and enhanced competitiveness which are a necessary part of the project.
7. Briefing should access knowledge practices include creating, obtaining, interpreting, using, retaining, warehousing, organising, refining, restructuring and disseminating knowledge.
8. Knowledge management in briefing relies on teamwork, collaboration, face-to-face contact and effective communication structures (McC Campbell et al., 1999; Bender and Fish, 2000).

5.3.7 Risk and Conflict Management

5.3.7.1 Risk Management

This section summarises current thinking in respect of ‘risk management’ and outlines those characteristics contributing to a theory to be used in the analysis of briefing literature.

1. The concept of risk is related to the activities that flow from decisions made by the client, where the outcomes of those activities may differ from expectations. An identified risk displays three elements (Shen, 1990): a range of possible outcomes, individual consequences, and probability.
2. Project risk management consists of four stages: risk identification, risk analysis, risk response, and documentation and control (Pinto, 1998).

Stage 1: Risk identification

First identify all possible risks that significantly affect the success of the project. Conceptually, risks may range from high impact and high probability through low impact and low probability.

Stage 2: Assessment and Quantification (Risk analysis)

Assess and quantify the identified risks, and categorize them in terms of type, impact, and probability. This may range from a simple attempt at subjective evaluation on a smaller project, to a more serious attempt at measurement on a

larger one. Some significant risks may defy direct measurement, and a more in-depth impact analysis may be necessary.

Stage 3: Response Development (Risk Response)

Establish a strategy for dealing with the various categories of risks identified. Deal with each risk appropriately by avoidance workarounds (i.e. by finding alternative solutions to each potential problem), such as taking up insurance, transferring risks through contract arrangements, or by contingent planning. Deal with each risk in order of priority until an acceptable level of comfort is obtained. The sponsoring organisation should assume responsibility for high-impact but very low-probability risk such as government intervention or labour, material, or cash flow shortfalls.

Stage 4: Documentation and Control

Carefully document the data collected and mitigation strategies recommended. The objective is to build a reference source for continuing evaluation of risk on the project and for use should any of the risks materialise. It is an interesting reflection that the more a risk is carefully planned for, the less likely it is to happen. Teams on subsequent similar projects will also find this data invaluable.

3. The benefit of managing risks during the initial project appraisal is to increase the confidence and the possibility of success for project clients to receive value for money from their investment decisions.

4. The importance of applying risk management techniques during the initial project appraisal is that they allow flexibility in consideration of alternatives in design and planning whilst the greatest degree of uncertainty exists.
.
5. Risk identification is a diagnostic process in which all the potential risks that could affect a construction project are identified and investigated, thus enabling the client to understand the potential risk sources at an early stage in the project.

5.3.7.2 Conflict Management

This section summarises current thinking in respect of ‘conflict management’ and outlines those characteristics contributing to a theory to be used in the analysis of briefing literature.

1. Conflict occurs whenever disagreements exist in a social situation over issues of substance or whenever emotional antagonisms create frictions between individuals or groups (Schermerhorn et al., 2003).
2. Types of conflict include *substantive conflict*, which involves fundamental disagreement over ends or goals to be pursued and the means for their accomplishment; and *emotional conflict*, which involves interpersonal difficulties that arise over feelings of anger, mistrust, dislike, fear, resentment, and the like (Schermerhorn et al., 2003).

3. Constructive conflict results in positive benefits to the individual, the group, or the organisation; and destructive conflict works to the individual's, group's or organisation's disadvantage (Schermerhorn et al., 2003). In the briefing exercise, constructive conflict is to be encouraged and destructive conflict should be prevented.
4. The key to prevent conflict is the discovery and elimination of causes (Loosemore, 1999).
5. Collaboration and problem solving is preferred to gain true conflict resolution when time and cost permit in the briefing process.
6. It is beneficial to construct conflict management plans during pre-design stages of a project, i.e. during the briefing stage (Loosemore, 1999).

5.3.8 Post-Occupancy Evaluation and Post-Project Evaluation

This section summarises current thinking in respect of 'post-occupancy evaluation' (POE) and 'post-project evaluation' (PPE), and outlines those characteristics contributing to a theory to be used in the analysis of briefing literature.

1. POE has been defined as 'a diagnostic tool and system which allows facility managers to identify and evaluate critical aspects of building performance systematically' (Preisner, 1995). It is a management tool within the broader

context of facilities management, aiming to improve the performance and quality of buildings.

2. PPE is similar to POE in the sense that it is not something to be considered at the end of the project but throughout its life cycle. It forms part of the project management discipline. The primary aim of PPE is continuous improvement through transferring learning from one project to the next.
3. The importance of having a relationship between the briefing process and the post occupancy stage for POE was stressed by Then (2002). He suggested using POE throughout the building life cycle. Figure 5.4 highlights the relationship between the evaluation phase of a project with the project brief. Preiser (1995) also suggested the use of POE as a 'Knowledge-based system' to create and generate information that will inform the design process in the early stages of a project.

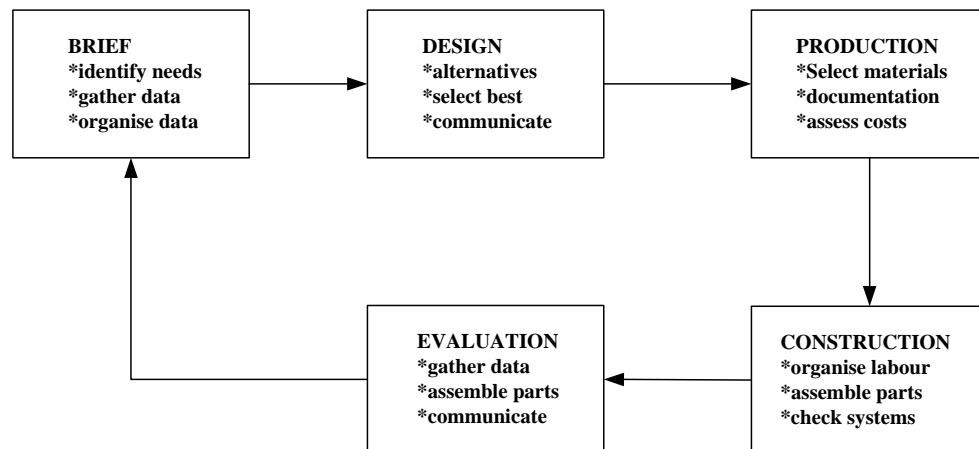


Figure 5.4 Building process flow diagram
(Source: Then, 2002)

4. Duerk (1993) identified four reasons for undertaking evaluation:
 - To test the success of the project on meeting the goals of the brief.
 - To test how well the project implemented the goals and then fine-tune the buildings and or systems to improve performance.
 - To gather information for future projects.
 - To develop policies, guidance and regulatory controls by reviewing failures.
5. Blyth and Worthington (2001) summarised the techniques available for evaluating buildings in use and gaining feedback, including:
 - Questionnaires, which can be provided to staff before and after move-in to assess levels of satisfaction and perceptions of performance;
 - Interviews, (one-to-one feedback) and focus groups with staff from similar interest and status;
 - Benchmarking, which enables comparison to be made between buildings or space performance against recognised leading-edge examples;
 - Measurement, assessing environmental conditions against those specified, or analysing data collection against predictions;
 - Walk through, either by the original design team or an independent professional group, including both observation (reflecting on performance of the space) and informal discussion with users for improvement.
6. The more detailed a POE, the more likely it will support and influence the decisions made in the briefing process.

7. Facility managers and end-users may be involved or consulted prior to project briefing for their valuable input to the project.
8. Successes, failures and past experience of what does and does not work well should be used to inform better decision making in the briefing process.
9. POE should ensure the client requirements are being met and that the project team is clear of what these are. This information should be documented in the project brief and communicated to the team.
10. PPE should be implemented throughout the building life cycle to ensure that no lessons are lost or forgotten.
11. Previous experience and lessons learned from past PPE should be reviewed in the briefing process to improve performance of the project.

5.3.9 Critical Success Factors and Key Performance Indicators

5.3.9.1 Critical Success Factors

The following theoretical framework was abstracted from the literature review of ‘critical success factors’ with reference to briefing.

1. Critical success factors (CSFs) are the statements of how improved business practice must be achieved if an organisation is to be able to attain its mission (McCabe, 2001).

2. The Construction Industry Board (1997) suggested the following factors are critical to success for the briefing process:

- Clear and agreed objectives.
- Carefully thought-out requirements.
- Provision of the essential information at each stage of the project.
- A flexible approach that balances the requirement for quality against the concern to 'freeze' requirements to control costs and meet deadlines.
- Trusting relationship.

3. Blyth and Worthington also identified six key areas essential to briefing success:

- Defining the process – which sets the framework for the briefing work.
- Timely decision taking – this is about identifying the value in spending time early on to accurately define issues to be tackled, and of managing the process of making decisions when they are necessary (rather than too early when they can become a constraint or too late when they become expensive).
- Understanding underlying agendas – this is about identifying and understanding the real needs of the organisation. A sharp focus on needs will lead to a project solution attuned to the organisation and the way that it works today and may work in future.
- Planning for future change – 'future proofing' is an important element of the briefing process. It enables the organisation to address how change might impact on its built environment, whether it is in terms of location

of buildings, work patterns or impact of information and communications technology.

- Clear and comprehensive communication – successful briefing demands attention to communication and how information is structured and passed through the system.
- Feedback of experience – feedback sources from either learning from within the project, whether it is during the process or from the completed building, or from outside the project and organisation such as other companies or the construction industry. It is important for understanding how to carry out such projects in the future as well as managing the briefing process itself.

5.3.9.2 Key Performance Indicators

The following theoretical framework was abstracted from the literature review of ‘key performance indicators’.

1. Key performance indicators (KPIs) are the means by which an organisation can measure the progress being made to ensure that the critical success factors are being achieved.
2. The procedures are as follows (McCabe, 2001):
 - Create an effective team to consider how an activity can be carried out,
 - Agree the actual measures that can be used to monitor the KPIs,

- Provide a method which enables the consistent collection of appropriate data,
 - Suggest possible changes that will create opportunities for improvement,
 - Review progress and, where necessary, alter the targets.
3. There are ten KPIs that are currently being used (CBPP, 2003). These are listed as follows:
- a) *Client satisfaction – product*. This measures the satisfaction level of a client with the finished product they received using a ten-point scale where ten is the highest score.
 - b) *Client satisfaction – service*. This measures the satisfaction level of a client with respect to the service received from consultants or main contractors they employed. Again a ten-point scale is employed.
 - c) *Defects*. This measures the ‘condition of the facility’ at the time of hand-over with respect to defects using a ten-point scale in which:
 - 10 = Defect-free
 - 8 = There are ‘some defects’ but no ‘significant impact’ on the client
 - 5 = There are defects, some of which have ‘impact on the client’
 - 3 = There are ‘major defects’ having a ‘major impact on the client’
 - 1 = The facility is ‘totally defective’
 - d) *Safety*. This measures the reportable accidents per 100, 000 employees. An accident is defined as being reportable by the Health and Safety Executive if

it results in death, major injury or over three days sickness to employees, those who are self-employed or members of the public.

e) *Predictability – cost*. There are two elements to cost:

- Design, which is defined as being ‘actual cost at available for use less the estimated cost at commit to invest, expressed as a percentage of the estimated cost at commit to invest’.
- Construction, which is defined as being ‘actual cost at available for use less the estimated cost at commit to construct, expressed as a percentage of the estimated cost at commit to construct’.

f) *Predictability – time*. There are two elements to time:

- Design, which is defined as being ‘actual duration at commit to construct less the estimated duration at commit to invest, expressed as a percentage of the estimated duration at commit to invest’.
- Construction, which is defined as being ‘actual duration at available for use less the estimated duration at commit to construct, expressed as a percentage of the estimated duration at commit to construct’.

g) *Construction time*. This is the normalized time (a statistical method which takes account of location, function, size and inflation) to construct projects when comparing from year to year.

- h) *Construction cost*. This is the normalized cost of projects when comparing from year to year.
- i) *Productivity*. This is the measure of the average value that has been added by each employee (total value is turnover less all costs subcontracted to, or supplied by, other parties).
- j) *Profitability*. This is the amount left prior to tax and interest as a percentage of sales.

5.3.10 Types of Business and Organisational Theory

This section summarises current thinking in respect of type of business and organisational theory (flexibility) in construction organisations and outlines those characteristics contributing to a theory to be used in the analysis of briefing literature.

1. The briefing process should take into account the composition of the team. The team may be formed of many different types of organisations with different success criteria dependent on how they aim to satisfy their shareholders, for examples such as a public limited company, a partnership or a not-for-profit organisation which will differ greatly in terms of success criteria from those in the team who aim to make a profit from the project.

2. Corporate clients make decisions to change their facilities in order to be cost effective, enhance competitive advantage and productivity (AIA, 2001) and this should be considered in the briefing process.
3. An effective design of organisation must balance the needs for consistency and predictability with the needs for flexibility and responsiveness (Hodge et al., 2003).

5.3.11 Decision Making

This section summarises current thinking in respect of ‘decision making’ in organisations and outlines those characteristics contributing to a theory to be used in the analysis of briefing literature.

1. Decision making is a process of identifying problems and opportunities, and choosing alternative courses of action for dealing successfully with them (Schermerhorn et al., 2003). Briefing involves a lot of decision making by individual and by groups.
2. Groups may make decisions through any of the following six methods: lack of response, authority rule, minority rule, majority rule, consensus, or unanimity (Schermerhorn et al., 2003).
3. A potential yet important problem in group decision making, identified by social psychologist Irving Janis, is groupthink – a tendency of members in highly

cohesive groups to lose their critical evaluative capabilities. Janis believes that, because highly cohesive groups demand conformity, their members tend to become unwilling to criticize one another's ideas and suggestions. Desire to hold the group together and to avoid unpleasant disagreements leads to over-emphasis on agreement and an under-emphasis on critical discussion. Therefore, groupthink shall be avoided in the group meetings of a briefing exercise.

4. Techniques for improving creativity in group decision making of a briefing exercise include brainstorming, nominal group technique, and Delphi method, including computer applications. These techniques are described in Chapter 8, Section 8.2.7, Toolbox 4. A good briefing team should not limit themselves to just one decision-making method and they should operate in contingency fashion by changing decision methods to best fit the problem and situation at hand.
5. The briefing team of a project should be empowered to make decisions as a team and to encourage more successful working practices.
6. In the briefing process, decisions may be made under certain risk assumptions generally embedded with uncertainty. This would become acute especially when facing non-routine problems.

5.3.12 Communication

This section summarises current thinking in respect of ‘communication and visualisation tools’, and outlines those characteristics contributing to a theory to be used in the analysis of briefing literature.

1. The briefing process is essentially a communication process (Barrett and Stanley, 1999).
2. Communication in the briefing process should be effective and efficient.
3. Active listening should be encouraged in the briefing exercise to allow a free and complete flow of communication.
4. Communication barriers should be avoided or minimised in the briefing process.
5. When briefing teams consider appropriate visualisation techniques, the following factors should be considered (Barrett and Stanley, 1999):
 - Visualisation techniques should be employed to increase potential for shared understanding.
 - Visualisation techniques should be adequately resourced.
 - Visualisation techniques should be used effectively.

5.3.13 Culture and Ethics

This section summarises current thinking in respect of ‘culture and ethics’ in organisations and outlines those characteristics contributing to a theory to be used in the analysis of briefing literature.

1. Culture is defined as the pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid, and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems (Schein, 1992).
2. In managing the briefing team, the influence of culture dimensions such as language, time orientation, use of space, religion, power distance, uncertainty avoidance, individualism-collectivism, masculinity-femininity and long term/short-term orientation must be taken into account.
3. Ethics is (Hong Kong Ethics Development Centre):
 - the study and understanding of morality, moral principles, and moral decision-making processes.
 - a set of general moral beliefs, normative rules of conduct, a code, a standard or sets of standards that govern what one ought to do when the well-being and rights of, or duties to oneself, others, or institutions are at stake.
 - development of reasonable standards and procedures for moral decisions.

- what one should do instead of what one will do in a particular instance, with all things considered.
4. Ethical values come from religion, culture, family, peer group and reflection (Hong Kong Ethics Development Centre).
 5. An 'ethical dilemma' is a situation in which a person must decide whether or not to do something that, although benefiting them or the organisation, or both, may be considered unethical (Schermerhorn et al., 2003). The briefing team would encounter ethical dilemmas in their relationships with superior, subordinates, customers, competitors, suppliers, and regulators. Common issues underlying the dilemmas involve honesty in communications and contracts, gifts and entertainment, kickbacks, pricing practices, and employee terminations.
 6. Culture and ethics affect the decision making in the briefing process. Ethical decision making comes from personal values, company organisation, trade /professional, government and society (Hong Kong Ethics Development Centre).

5.4 The theoretical framework for briefing

The briefing process commences with the initial identification of the requirement for change in the client organisation. Project drivers are identified as the raw data for the critical success factors identified with the client organisation. From this, a project is initiated with an explicit statement to make changes to benefit the organisation. To be successful an organisation cannot remain static, to improve it has to undergo

change by initiating projects. This leads to the formation of a team comprising primary and secondary stakeholders within the client organisation and those external to the client organisation to be impacted by the initiation of a project. The client organisation and stakeholders make up a team to address the strategic brief (also known as the concept brief), which is aspirational at this early stage. This stage is often not made explicit in most projects, and is dependent on the type of client that requires change.

Following the creation of the strategic brief, which has resulted from the decision to build in the case of the construction industry, a project team is taken on board and a technical and solution focused project brief is constructed. At this stage, there are a number of 'inputs,' 'controls' and 'measures' established to ensure a successful progression from the briefing stage throughout the remainder of the buildings life cycle. These inputs come from all types of management (stakeholder management, change management, knowledge management, project management, risk management and conflict management) as well as their associated techniques to enhance project success (stakeholder analysis, brainstorming, FAST diagrams, Delphi method, Nominal Group technique, computer-mediated decision making, ACID test, etc). For instance, with knowledge management, individual members of the team will have tacit and explicit knowledge as valuable input to the project brief. Such information is shared and become knowledge amongst the team to guide and support the project.

The controls and measures set up at this stage involve the use of various project management techniques, the implementation of a project execution plan and the use of key performance indicators. These may be the industry's standard indicators or those identified by the project team, or a combination of both.

The project briefing stage will also be influenced by previous Post-Occupancy and Post-Project Evaluations, which should outline the successes and failures of previous projects, and influence decisions made at the briefing stage to ensure organisational learning resulting in more successful projects.

Communication, decision making and the impact of culture and ethics are factors that span from commencement of the briefing process to project completion.

The need of Value Management input to briefing

In view of the thirteen variables mentioned in the previous section, a VM approach is suggested in the briefing stage for systematic identification and clarification of client requirements, and precise and explicit representation of these requirements. The VM service and tools and techniques associated with it may address each variable provided the method is used properly and by an accredited facilitator. In terms of projects, VM is a project oriented service relying on clear objectives set for the workshop(s) to allow the setting up of an agenda to improve project performance. VM is most effective when applied to a project with clearly defined goals and a start and completion date. Value Management also relies on a project team getting together for a workshop to discuss the project and add value in any way possible to

the project. How this team performs will depend on the dynamics of the team and their ability to share and transfer knowledge.

In terms of stakeholder management, the VM facilitator in conjunction with the workshop initiator should decide on the workshop membership. The facilitator may conduct pre-workshop interviews to determine what stakeholders would add value to the workshop proceedings (usually those with the knowledge and power to implement change) and what stakeholders need to be kept informed. VM may address other management fields such as change management and knowledge management by ensuring effective change mechanisms through the use of various tools and techniques to highlight communication and organisational structures which may be addressed in, for example, an ‘operations and communications’ workshop. It can also identify risks and address conflict management using tools such as ‘issues analysis’ which involves all team members participating in a brainstorming session to identify all project issues, including project risks. In terms of POEs and PPEs, if time is to be invested prior to a workshop, this information can be used by a VM facilitator to determine the workshop agenda with respect to lessons learned. Successes and failures from previous projects can be illustrated through examples to the project team to achieve the best possible solution for the project concerned.

Types of business, culture and ethics are other variables impacting the briefing process to be addressed through VM. For instance, a VM facilitator will use various techniques such as Function Analysis to determine the mission of the project and the client’s values to permit a clearer understanding to the rest of the project team on what the client considers to be important. Communication and decision making are

done throughout a VM workshop using a variety of tools and techniques such as brainstorming and weighted evaluation technique to share knowledge and achieve a consensus view.

The VM workshop concludes with an action plan with members of the project team assigned actions and timescales to completion with the construction of KPIs to monitor performance in relation to the CSFs for the project.

It should be noted that this is a typical overview on how VM may address the thirteen variables impacting the briefing process. The time spent on workshops and attention to particular variables will differ from project to project depending on the type of project and how thorough the briefing process is. Table 5.1 summarises the theoretical framework for briefing based on the findings of Chapters 2, 3, 4 and this chapter. The key elements of the briefing stage in terms of the people – the stakeholders, the product – the brief, and management tools are included in the table.

Stakeholders		Briefing stage	Objectives	Drivers	Management Issues	Tools	VM Workshop Duration
<i>VM Facilitators</i>		Strategic Brief	To produce the statement of the broad scope and purpose of the project and its key parameters including overall budget and programme	Core Business ↓ Business Case	<i>Value Management</i>	Pre-workshop Tools Strategic Briefing Tools Project Briefing Tools Strategic and Project Briefing Tools	4 to 8 hours
Financier Legislators Shareholders Public Others	Client Senior Management				Project Management Change Management Knowledge Management Risk Management Conflict Management Decision Making Communication Culture & Ethics		
Design Team Contractors Neighbors Politicians Users	Operational Management	Project Brief	To produce the full statement and operational requirements for the completed project	Business Operations ↓ Functional Specification		Post-workshop Implementation & Monitoring Tools	1 to 3 days

Table 5.1 Summary for theoretical framework of briefing

5.5 Summary and conclusions

A theoretical framework for briefing is presented in this chapter. Thirteen variables having impact on the briefing process were identified. They include Projects, Stakeholder Management, Teams and Team Dynamics, Client Representation, Change Management, Knowledge Management, Risk and Conflict Management, Post-Occupancy Evaluation and Post-Project Evaluation, Critical Success Factors and Key Performance Indicators, Types of Business and Organisational Theory, Decision Making, Communication, and Culture and Ethics. These factors are discussed and summarised in Sections 5.3.1 to 5.3.13 based on a comprehensive literature review.

The literature review and the development of the theoretical foundation revealed that Value Management (VM) is useful to address the thirteen variables of briefing and overcome some briefing problems evident years ago and still apparent in today's construction industry. VM provides a proven management technique that can be applied to the briefing process to help client organisations achieve optimal solution in their construction projects.

However, the existing VM models in the literature do not take into consideration recent development such as stakeholder, change, knowledge and risk management, in contemporary briefing process. Therefore, it is proposed to use the theoretical foundations established in this chapter to develop a more sophisticated VM framework for briefing.

CHAPTER 6

VALIDATION OF THE THEORETICAL FRAMEWORK FOR BRIEFING

❖ Introduction

❖ The questionnaire survey

❖ The results and findings

- The stages of briefing
- The significance of the variables and attributes of briefing
- The comparison of Hong Kong and the Western perceptions on the variables of briefing
- The critical success factors (CSFs) of briefing

❖ Discussion of the results

- The variables of briefing
- The differences of the perceptions between Hong Kong and the Western professionals on briefing
- Implications of the CSFs to the proposed VM framework

❖ Summary and conclusions

6.1 Introduction

This chapter presents the validation of the theoretical framework established for briefing. The methodology using a questionnaire survey for the validation is described. This is followed by the presentation of the survey results which detail the significance of the variables and attributes of briefing, the comparison of Hong Kong and the Western perceptions on such variables and the critical success factors (CSFs) of briefing. Finally, the survey results are discussed with their implication to the proposed VM framework indicated.

6.2 The questionnaire survey

A questionnaire survey was conducted to identify missing variables (if any) of briefing and validate the established theoretical framework presented in Chapter 5. Questions were designed with reference to the working research document (refer to Appendix J). The survey was conducted in Hong Kong, the UK and the USA. A variety of methods were used to distribute the questionnaire with a major target such as client's project managers and architects who are experienced on briefing. A web-based questionnaire designed from Snap Survey Software was used to administer the questionnaire survey in the UK and the USA. Postal and emailed questionnaire were adopted in Hong Kong in order to increase the response rate of the survey. The respondents were allowed to complete the questionnaire in eight weeks' time. Data collected were analysed using SPSS 12.0 package to determine whether the respondents are in agreement with our theoretical framework.

6.2.1 Design and layout of the questionnaire

There are four sections in the questionnaire. The first section collects the background information of the respondents. The second section is designed to collect opinions from respondents on the briefing practices. The thirteen variables of briefing are tested and verified in the third section. In the last section, an open-ended question is asked to identify the critical success factors (CSFs) of briefing.

The questionnaire was designed in a simple ‘tick-it’ format to facilitate easy filling. A likert scale is generally adopted. It is a widely used instrument measuring opinions, beliefs, and attitudes. Five possible responses used were: “strongly agree”, ‘agree”, “neutral”, “disagree” and “strongly disagree”.

The preliminary questionnaire was sent to three experienced architects and two academics in Hong Kong for comments in a pilot study. The questionnaire was then revised based on comments collected. The improved questionnaire was again sent to four experienced architects in Hong Kong, two academics and one director of architectural firm in the UK as well as two experienced and senior architects in the USA for review in the second pilot study. The final questionnaire is attached in Appendix B.

6.2.2 Sample selection and profile of the respondents

The target population of the survey includes all client’s project managers and architects in Hong Kong, the UK and the USA. In Hong Kong, the questionnaire was mailed and emailed to 150 experienced professionals including 21 public and quasi-

public clients, 25 private clients and 104 architects. Names of these samples were obtained from HKIA directory 2003 and Builder directory 2003. Considering the size of the Hong Kong construction industry where, as an illustration, there are only about 160 architectural firms in the territory, the sample size is significant enough for the survey purposes. Reminder letter was sent to those who had not returned the questionnaire three weeks later, apart from subsequent telephone calls made. There were 51 valid responses out of 144 questionnaires after deducting the six undelivered mail, concluding a response rate of 35%.

In the UK, 100 e-cards were sent to the members of Royal Institute of Architects (RIBA) in different cities. Their names and email addresses were obtained from the RIBA website. Initially, the e-cards were sent in two bulks and blind carbon copied to hide the recipients from each other. Three weeks later, the response rate was disappointing and therefore a first reminder letter was sent to the 100 RIBA members alerting them to the briefing questionnaire web link. Five weeks later, the response rate was still disappointing and therefore the second reminder letter was sent to the 100 RIBA members with hard copy of questionnaire enclosed, with three options to complete the questionnaire: (1) to access web link, (2) to return the completed questionnaire by post, or (3) to facsimile back the completed questionnaire. There were 18 valid responses, indicating a response rate of 18%.

In the USA, 150 e-cards were sent to the members of The American Institute of Architects (AIA) in different cities whose names and email addresses were obtained from the AIA website. Initially, the e-cards were sent in three bulks and blind carbon

copied to hide the recipients from each other. Three weeks later, the response rate was disappointing and therefore 150 personal ecards were sent to remind the AIA members to complete the questionnaire. There were 20 valid responses received, representing a response rate of 13%.

Of the total 89 respondents, more than half of them were from Hong Kong (57%); the others were from the UK (20%) and the USA (23%). Figure 2 provides a breakdown of the valid responses by professional groups. The majority of them were architects (62%), client's project managers (26%), architectural programmers, mainly from the USA (6%) and others (6%). Regarding the respondents' experience of briefing in the past five years (measured by number of projects), 16% of the respondents have both coordinated (written) and contributed (has not written), of this 47% have coordinated and 37% has contributed only in the briefing process. In addition, 40% of the respondents have coordinated in briefing and 21% of the respondents have contributed to briefing for more than six projects in the past five years.

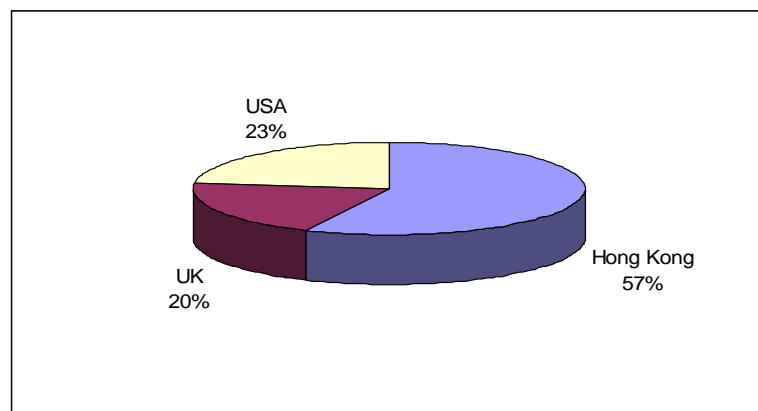


Figure 6.1 Percentage of respondents by region

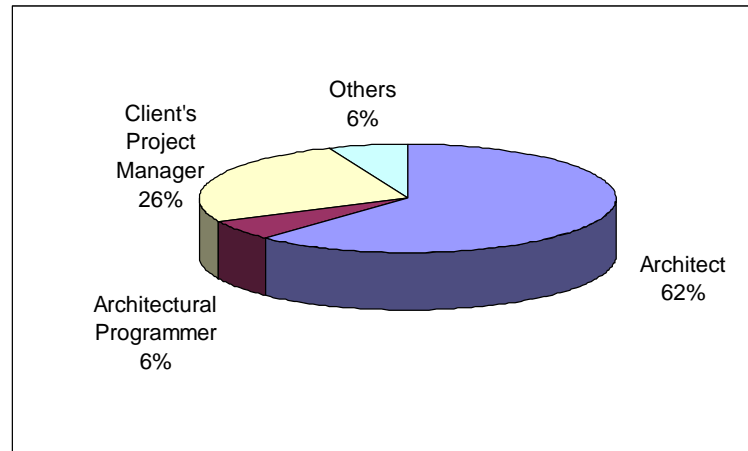


Figure 6.2 Percentage of respondents by professions

6.2.3 Data analysis

6.2.3.1 Statistical analyses

Data collected was analysed using SPSS 12.0 Package to determine whether the respondents are in agreement with our theoretical framework. The Likert five-point scale was employed as it gives unambiguous results and is easy to be interpreted. (Ekanayake and Ofori, 2004). In this survey, all attributes representing the 13 variables of briefing in the third section of the questionnaire were measured on an ordinal basis. The respondents' perceptions are measured using a five-point scale where scale 1 to 5 represented 'strongly disagree', 'disagree', 'neutral', 'agree' and 'strongly agree' respectively.

The reliability of this five-point scale used was determined using Cronbach's coefficient alpha, which measures the internal consistency among the attributes under the headings of the variables. Reliability analysis studies the properties of

measurement scales and the items that made them up. The analysis procedure calculates a number of commonly used measures of scale reliability and also provides information about the relationship between individual items in the scale. The results were in the range of 0.833 – 0.848. Since they are above 0.7, the scale can be considered reliable with the sample (Pallant, 2001).

After checking the reliability of the scale, the attributes of the variables were calculated and ranked according to their mean score ratings. The mean score rating was calculated using the following formula (Ekanayake and Ofori, 2004; Holt, 1997):

$$Mean = \frac{1(n_1) + 2(n_2) + 3(n_3) + 4(n_4) + 5(n_5)}{(n_1 + n_2 + n_3 + n_4 + n_5)} \quad (1)$$

where n_1, n_2, n_3, n_4, n_5 represent the total number of responses for attributes as 1 to 5 respectively.

The t -test was employed to check whether the population would consider the attributes to be significant. The null hypothesis $H_0: \mu \leq \mu_0$, against the alternative hypothesis $H_A: \mu > \mu_0$, where μ was the population mean and μ_0 represents the critical rating above which the attribute was considered as most significant. The value of μ_0 was fixed at '3' because, by definition, ratings above 3 represent 'agree' and 'strongly agree' the attributes according to the scale. The decision rule was to reject null hypothesis (H_0) when the calculation of observed t value (t_o)(Eq.2) was greater than the critical t value (t_c)(Eq.3), as shown in Eq. (4).

$$t_O = \frac{\bar{x} - \mu_0}{S_D / \sqrt{n}} \quad (2)$$

$$t_C = t_{(n-1, \alpha)} \quad (3)$$

$$t_O > t_C \quad (4)$$

where \bar{x} is the sample mean, S_D the sample standard deviation, n the sample size (which was 89 in this case), $n-1$ the degree of freedom and α the significant level which was set at 5% (0.05) following the conventional risk level.

In this study, the significance of the attributes to briefing was tested using Eq.4. If the observed t value of the statistic test of the mean ratings by the respondents is smaller than the critical t value ($t_O < t_C$), the null hypothesis that the attribute was ‘neutral’, ‘disagree’ and ‘strongly disagree’ only was accepted. However, if the observed t value is greater than the critical t value ($t_O > t_C$), $t_{(88, 0.05)} = 1.6649$ at 95% confidence interval, then null hypothesis (H_0) which states that the attributes was ‘neutral’, ‘disagree’ and ‘strongly disagree’ only was rejected and the alternative hypothesis accepted. Conclusion is then drawn that the attribute was significant as a contributor to briefing and the corresponding variable (from the thirteen variables) was considered to have an impact on briefing process.

In addition, non-parametric tests (Mann-Whitney test and Kruskal-Wallis test) were undertaken to test whether there were statistically significant differences or

divergences between groups. The matched parametric testing methods were not employed in this study since the parametric assumptions were not fulfilled and the variables were measured by ordinal scale of measurement (Abdel-Kader, 2001; Love et al., 2004). The Mann-Whitney test was used to investigate the difference between the two groups (the UK and the USA in this study) and the results were interpreted by the Z and p value. The Kruskal-Wallis test was conducted to examine the difference among three or more groups (Hong Kong, the UK and the USA in this study) and the results were interpreted by the Chi-square, degree of freedom (df) and p-value. In both tests, if the p-value is less than 0.05, there is a significant difference between the groups.

6.2.3.2 Content analysis

The data of the open-ended question concerning CSFs for briefing was analysed using research technique “Content Analysis”. In this study, the basic steps of conducting Content Analysis followed the methodology introduced by Fellows and Liu (1997). The initial step of Content Analysis is to identify the materials to be analysed. The next step is to adopt qualitative Content Analysis. In this method, the emphasis is on determining the meaning of the data. Data are given coded allocations to categories and groups of respondents from whom the data was obtained so that a matrix of categorised data against groups is constructed. Statements can be selected from each cell of the matrix to illustrate the contents of each cell. As in any allocation mechanism, the categories should be exclusive (i.e. data assigned to one category only) and exhaustive (i.e. categories cover the research topic comprehensively).

6.3 The results and findings

6.3.1 The stages of briefing

Of the 89 respondents, 64% of them agreed that the brief should recognise the distinction between the strategic brief as the mission of the project within the clients' core business and the project brief as the technical requirements of the project while 36% regarded that it is not necessary to distinguish between the strategic brief and the project brief.

6.3.2 The significance of the variables and attributes of briefing

Respondents were asked to rate their agreement to the attributes of the briefing Process. They were also invited to add new variables and attributes if necessary but no additional variables or attributes were suggested. The survey results are shown in Table 6.1. Performing the t-test by checking $t_o > t_c$, where t_c is 1.6649, the results show that each of the 13 variables has its respective attributes significantly agreed by the respondents. These 13 variables were (1) 'projects', (2) 'stakeholder management', (3) 'team and team dynamics', (4) client representation', (5) 'change management', (6) 'knowledge management', (7) 'risk and conflict management', (8) 'post-occupancy evaluation and post-project evaluation', (9) 'critical success factors and key performance indicators', (10) 'type of business and organisational theory', (11) 'decision making', (12) 'communication' and (13) 'culture and ethics'. The ranking of the attributes for each of their respective variables are shown in the third column of Table 6.1.

Table 6.1 Survey results on the thirteen variables of briefing

	Mean	Standard Deviation	Rank	t value
1. Projects				
1.1 A brief should be compiled, completed and agreed prior to design commencing of a project	4.09	0.858	2	11.875*
1.2 Briefing is a process which continues until the completion of the sketch design	3.88	0.895	3	9.175*
1.3 The construction project is an indication of change in the client's business	2.98	0.944	5	-0.231
1.4 The brief should act as a reference document which should be available to all project parties	4.20	0.814	1	13.928*
1.5 The brief should contain details of the procedures necessary to facilitate the absorption of the project into the clients' core business following completion	3.37	0.875	4	4.020*
2. Stakeholder Management				
2.1 Briefing is an investigation of the individual requirements of stakeholders	3.72	0.839	3	8.084*
2.2 Briefing is a facilitated meeting which inputs the requirements of stakeholders	3.93	0.809	1	10.875*
2.3 The individual stakeholders' commitment, interest and power should be assessed prior to the briefing process	3.70	0.858	4	7.658*
2.4 Briefing should consider and balance the interests of all stakeholders	3.89	0.845	2	9.907*
2.5 Only the requirements of client's stakeholders should be reflected in the brief	2.61	0.874	5	-4.244
3. Teams and Team Dynamics				
3.1 The stakeholder group is a temporary team formed for the project only	3.26	0.851	4	2.881*
3.2 The client should define the composition of the stakeholder group	3.70	0.871	3	7.543*
3.3 The stakeholder group should be empowered by the client within precisely defined limits	3.71	0.791	2	8.403*
3.4 Understanding of team dynamics is crucial for working effectively within the stakeholder group in the briefing process	4.03	0.775	1	12.578*

Table 6.1 Survey results on the thirteen variables of briefing (Continued)

	Mean	Standard Deviation	Rank	t value
4. Client Representation				
4.1 It is necessary to ensure adequate representation of client groups to address client needs and to prevent distortion of the brief	4.34	0.563	1	22.407*
4.2 Strict control by the brief writer is needed to avoid the brief becoming a 'wish list'	4.06	0.876	2	11.321*
4.3 The brief should be sufficiently flexible to reflect changing client requirements	3.83	0.882	4	8.892*
4.4 The brief should describe the contribution of the project to the clients core business	3.42	0.889	6	4.409*
4.5 The client should determine the time at which the brief becomes fixed	3.54	0.918	5	5.544*
4.6 The brief should be fixed before sketch design commences	3.24	1.012	7	2.201*
4.7 The brief should be fixed before detail design commences	4.03	0.976	3	9.938*
5. Change Management				
5.1 A brief for a construction project implies change in the client organisation	2.74	0.828	3	-2.979
5.2 The brief writer must be able to understand the operation of the client business	4.15	0.847	1	12.768*
5.3 The brief should describe the potential changes to the client organisation resulting from the construction project	3.26	0.936	2	2.605*
5.4 The brief documents is for use by the design team only	2.55	0.965	4	-4.392
6. Knowledge Management				
6.1 The brief is the primary vehicle for knowledge sharing amongst the project team	3.59	0.967	3	5.735*
6.2 Successful briefing is dependent on understanding the clients strategic goals	4.26	0.652	1	18.147*
6.3 Briefing is the integration of the skills, knowledge and experience of different stakeholders	3.94	0.768	2	11.448*

Table 6.1 Survey results on the thirteen variables of briefing (Continued)

	Mean	Standard Deviation	Rank	t value
7. Risk and Conflict Management				
7.1 Anticipating and recording risks to the project is an important part of the briefing process	3.81	0.771	1	9.817*
7.2 Consensus building is a vital component of the briefing process	3.81	0.908	1	8.336*
8. Post-Occupancy Evaluation and Post-Project Evaluation				
8.1 The briefing process should review the findings of a POE of the clients last project of a similar type	3.75	0.699	2	10.066*
8.2 Incorporating the results of a POE of another clients project is hazardous	2.92	0.715	3	-1.044
8.3 Consultation with facility managers and end-users benefits the briefing process	4.30	0.664	1	18.311*
9. Critical Success Factors and Key Performance Indicators				
9.1 The construction brief should include the key performance indicators by which the success of the project will be measured	3.78	0.794	1	9.209*
9.2 The success of the project as a business unit is the sole responsibility of the client	2.76	0.922	2	-2.427
9.3 The design team is only responsible for the technical performance of the project	2.62	0.948	3	-3.803
10. Type of Business and Organisational Theory				
10.1 Each stakeholder should have an equal input to the briefing process	2.62	0.875	3	-4.020
10.2 Client input should be given a greater weighting than other project stakeholders	3.72	0.816	1	8.232*
10.3 The briefing process must take into account that the stakeholder group may be formed of many different types of organisations with different success criteria	3.69	0.701	2	9.280*

Table 6.1 Survey results on the thirteen variables of briefing (Continued)

	Mean	Standard Deviation	Rank	t value
11. Decision Making				
11.1 Effective decision making can only occur if the client representatives are senior managers	3.57	1.052	2	5.093*
11.2 The brief writer should determine the appropriate decision making method in the briefing process	3.44	0.856	4	4.858*
11.3 The brief writer makes decisions based on information received from the stakeholders	3.51	0.791	3	5.967*
11.4 The stakeholder group must be empowered to make decisions as a team in the briefing process	3.73	0.754	1	9.049*
12. Communication				
12.1 Effective briefing is only possible if the client understands the construction process	3.24	0.947	4	2.364*
12.2 Clients should appoint internal project managers to manage the briefing process	3.75	0.715	2	9.837*
12.3 The brief writer should operate within strict project constraints set by the client	3.53	0.816	3	6.142*
12.4 Communication among stakeholders is crucial to the success of the briefing process	4.03	0.765	1	12.683*
12.5 A structured or facilitated workshop will improve communication amongst stakeholders	4.03	0.738	1	13.067*
13. Culture and Ethics				
13.1 The brief writer has to manage the different cultural and ethical characteristics of the individual stakeholders	3.69	0.764	1	8.517*
13.2 It is important that the stakeholder group be comprised of individuals of common cultural and ethical outlook	2.65	0.854	3	-3.847
13.3 Culture and ethics affect decision making in the briefing process	3.60	0.822	2	6.836*

Remark: - * represents the t value that is greater than critical t value (1.6649) which indicates the respective attribute was considered as significant as a contributor to briefing

6.3.3 The comparison of Hong Kong and the Western perceptions on the variables of briefing

In order to investigate whether there were significant differences between the UK and the USA perceptions on the variables of briefing, a Mann-Whitney Test was conducted. The results in Table 6.2 revealed that there was no significant difference between the UK and the USA except that American professionals strongly believed consensus building a vital component of the briefing process. In addition, a Kruskal-Wallis Test was conducted to examine the difference between the Hong Kong and Western perceptions on the variables of briefing. For the sake of comparison, the UK and the USA were taken to represent the West in the discussion because the UK and the USA are in the same “Anglo” cultural cluster, and have been classified as typical developed Western nations (Chen and Partington, 2004; Gupta et al., 2002; Ronen and Shenkar, 1985). The results in Table 6.3 revealed that the views between the Western and Hong Kong were statistically and significantly different and the findings were summarised as follows:

Projects

1. Hong Kong professionals perceived that brief documents were for use by the design team only. Western professionals considered that the brief should act as a reference document made available to all project parties.
2. Western professionals maintained that briefs should describe the contribution of the project to the client core business. Hong Kong professionals regarded this not essential.

Stakeholder Management

3. Western professionals believed that the individual stakeholders' commitment, interest and power should be assessed prior to the briefing process. Hong Kong professionals felt that this requirement is not vital.

Teams and Team Dynamics

4. Western professionals believed the understanding of team dynamics was crucial for working effectively within the stakeholder group in the briefing process while Hong Kong professionals considered this not so important.
5. Western professionals perceived that the stakeholder group should be empowered by the client within precisely defined limits. Hong Kong professionals were not as agreeable on this statement as the Western professionals.

Client Representation

6. Western professionals opined that strict control by the brief writer is needed to avoid the brief becoming a 'wish list'. Hong Kong professionals regarded this not necessary.
7. Both Hong Kong and Western professionals believed that the client should determine the time at which the brief becomes fixed. Western professionals held that the brief should be fixed before detail design commences while Hong

Kong professionals reckoned the brief should be fixed before sketch design commences.

Change Management

8. Western professionals agreed that the brief should be sufficiently flexible to reflect changing client requirements. Hong Kong professionals considered this not as important.
9. Western professionals perceived that the brief should describe the potential changes to the client organisation resulting from the construction project. Hong Kong professionals regarded this not essential.

Knowledge Management

10. Western professionals maintained that successful briefing is dependent on understanding the client's strategic goals while Hong Kong professionals saw a milder level of dependency on understanding the client strategic goals.
11. Western professionals opined that briefing is the integration of skills, knowledge and experience of different stakeholders while Hong Kong professionals were not in so much agreement with this statement as the Western professionals.

Risk and Conflict Management

12. Western professionals believed consensus building a vital component of the briefing process while Hong Kong professionals considered this not vital.

POE and PPE

13. Western professionals perceived that consultation with facility managers and end-users will benefit the briefing process while Hong Kong professionals regarded this not as beneficial.

CSFs and KPIs

14. Western professionals agreed that the construction brief should include the key performance indicators by which the success of the project was measured while Hong Kong professionals opined that this not as important.

Type of Business and Organisational Theory

15. Western professionals maintained that the briefing process had to take into account that the stakeholder group might be formed of many different types of organisations with different success criteria while Hong Kong professionals believed this consideration not as important.

Decision Making

16. Hong Kong professionals considered that effective decision making could only occur if the client representatives were senior managers. Western professionals were not so agreeable on this statement.

Communication

17. Western professionals regarded communication among stakeholders crucial to the success of the briefing process. Hong Kong professionals considered this not crucial.
18. Western professionals believed a structured or facilitated workshop would improve communication amongst stakeholders while Hong Kong professionals were less agreeable on this statement.

Culture and Ethics

19. Hong Kong professionals opined that it is important the stakeholder group was comprised of individuals of common cultural and ethical outlook and Western professionals considered this not as important.

Table 6.2 Results of Mann-Whitney Test on variables of briefing

	Mean		Mann-Whitney U	Z	p-value
	UK	USA			
1. Projects					
The brief should act as a reference document which should be available to all project parties	4.39	4.65	159.000	-0.719	0.472
The brief documents is for use by the design team only	2.33	2.20	169.000	-0.346	0.729
The brief should describe the contribution of the project to the clients core business	3.50	3.95	128.500	-1.608	0.108
2. Stakeholder Management					
The individual stakeholders commitment, interest and power should be assessed prior to the briefing process	3.83	4.10	138.000	-1.345	0.179
3. Teams and Team Dynamics					
The stakeholder group should be empowered by the client within precisely defined limits	3.94	4.05	154.000	-0.626	0.531
Understanding of team dynamics is crucial for working effectively within the stakeholder group in the briefing process	4.17	4.45	147.500	-1.042	0.297
4. Client Representation					
Strict control by the brief writer is needed to avoid the brief becoming a 'wish list'	4.61	4.40	154.500	-0.859	0.390
The client should determine the time at which the brief becomes fixed	3.44	3.60	163.000	-0.527	0.598
The brief should be fixed before sketch design commences	2.89	3.20	150.500	-0.897	0.370
The brief should be fixed before detail design commences	4.33	4.40	176.000	-0.132	0.895
5. Change Management					
The brief should be sufficiently flexible to reflect changing client requirements	4.17	4.35	147.500	-1.086	0.278
The brief should describe the potential changes to the client organisation resulting from the construction project	3.61	3.85	152.000	-0.906	0.365
6. Knowledge Management					
Successful briefing is dependent on understanding the clients strategic goals	4.39	4.55	151.000	-0.980	0.327
Briefing is the integration of the skills, knowledge and experience of different stakeholders	4.17	4.35	152.500	-0.919	0.358

	Mean		Mann-Whitney U	Z	p-value
	UK	USA			
7. Risk and Conflict Management Consensus building is a vital component of the briefing process	3.94	4.40	115.500	-2.022	0.043*
8. Post-Occupancy Evaluation and Post-Project Evaluation Consultation with facility managers and end-users benefits the briefing process	4.35	4.60	156.000	-0.491	0.624
9. Critical Success Factors and Key Performance Indicators The construction brief should include the key performance indicators by which the success of the project will be measured	4.00	4.15	159.000	-0.663	0.507
10. Type of Business and Organisational Theory The briefing process must take into account that the stakeholder group may be formed of many different types of organisations with different success criteria	4.00	4.21	139.000	-1.356	0.175
11. Decision Making Effective decision making can only occur if the client representatives are senior managers	3.50	2.89	116.000	-1.524	0.128
12. Communication Communication among stakeholders is crucial to the success of the briefing process A structured or facilitated workshop will improve communication amongst stakeholders	4.18	4.45	132.500	-1.307	0.191
	4.31	4.50	145.000	-0.533	0.594
13. Culture and Ethics It is important that the stakeholder group be comprised of individuals of common cultural and ethical outlook	2.61	2.25	139.500	-1.307	0.191

* represents the p-value is less than 0.05

Table 6.3 Results of Kruskal-Wallis Test on variables of briefing

	Mean			Chi-Square	p-value
	Hong Kong	UK	USA		
1. Projects					
The brief should act as a reference document which should be available to all project parties	3.96	4.39	4.65	12.284	0.002*
The brief documents is for use by the design team only	2.76	2.33	2.20	7.629	0.022*
The brief should describe the contribution of the project to the clients core business	3.18	3.50	3.95	9.641	0.008*
2. Stakeholder Management					
The individual stakeholders commitment, interest and power should be assessed prior to the briefing process	3.49	3.83	4.10	9.009	0.011*
3. Teams and Team Dynamics					
The stakeholder group should be empowered by the client within precisely defined limits	3.50	3.94	4.05	7.800	0.020*
Understanding of team dynamics is crucial for working effectively within the stakeholder group in the briefing process	3.82	4.17	4.45	11.362	0.003*
4. Client Representation					
Strict control by the brief writer is needed to avoid the brief becoming a 'wish list'	3.72	4.61	4.40	18.456	0.000*
The client should determine the time at which the brief becomes fixed	3.55	3.44	3.60	0.323	0.851
The brief should be fixed before sketch design commences	3.37	2.89	3.20	2.918	0.232
The brief should be fixed before detail design commences	3.78	4.33	4.40	10.849	0.004*
5. Change Management					
The brief should be sufficiently flexible to reflect changing client requirements	3.51	4.17	4.35	16.644	0.000*
The brief should describe the potential changes to the client organisation resulting from the construction project	2.90	3.61	3.85	18.511	0.000*
6. Knowledge Management					
Successful briefing is dependent on understanding the clients strategic goals	4.10	4.39	4.55	7.031	0.030*

	Mean			Chi-Square	p-value
	Hong Kong	UK	USA		
Briefing is the integration of the skills, knowledge and experience of different stakeholders	3.69	4.17	4.35	12.209	0.002*
7. Risk and Conflict Management					
Consensus building is a vital component of the briefing process	3.52	3.94	4.40	14.846	0.001*
8. Post-Occupancy Evaluation and Post-Project Evaluation					
Consultation with facility managers and end-users benefits the briefing process	4.16	4.35	4.60	8.420	0.015*
9. Critical Success Factors and Key Performance Indicators					
The construction brief should include the key performance indicators by which the success of the project will be measured	3.55	4.00	4.15	10.615	0.005*
10. Type of Business and Organisational Theory					
The briefing process must take into account that the stakeholder group may be formed of many different types of organisations with different success criteria	3.39	4.00	4.21	25.749	0.000*
11. Decision Making					
Effective decision making can only occur if the client representatives are senior managers	3.84	3.50	2.89	8.641	0.013*
12. Communication					
Communication among stakeholders is crucial to the success of the briefing process	3.82	4.18	4.45	10.069	0.007*
A structured or facilitated workshop will improve communication amongst stakeholders	3.76	4.31	4.50	17.359	0.000*
13. Culture and Ethics					
It is important that the stakeholder group be comprised of individuals of common cultural and ethical outlook	2.82	2.61	2.25	7.592	0.022*

Remark: - df for Kruskal Wallis test = 2

* represents the p-value is less than 0.05

6.3.4 The critical success factors (CSFs) of briefing

6.3.4.1 Classification of CSFs for briefing

Table 6.4 summarises the responses to the open-ended question concerning CSFs of the briefing process. Thirty-seven CSFs for briefing were identified and coded, and the content analysis yielded five major categories of the factors. These include project-related factors, human-related factors, process-related factors, input-related factors and output-related factors, which was adapted from a careful study of literature on CSFs of project success (Sanvido et al. 1992; Belassi and Tukel, 1996; Chua et al. 1999; Chan, et al. 2004). The matrix of categorised data serves as a basic framework for studying the CSFs for briefing.

Project-related factors

‘Clear project goal and objectives’ and ‘Realistic budget and programme’ are included in this category. It is critical in the early stage of the briefing process that the goal and objectives are clearly defined (Blyth and Worthington, 2001). This may seem obvious, in reality, people make different assumptions wherever there are ambiguities. Clearly articulating the goals and priorities help the client get what he wants from the project and not only what a designer thinks he should have. With the limited resource, time, cost and quality of the project should be realistic. Managers responsible for briefing will need to strike a balance between these factors.

Table 6.4 Summary of critical success factors for briefing

Categories	Sub-categories	Factors
Project-related Factors	Project	1. Clear goal and objectives 2. Realistic budget and programme
Human-related Factors	Client	3. Experience of the client 4. Clear intention and objectives 5. Clear management structure
	Brief Writer	6. Experience of the brief writer 7. Knowledge of client's business
	Designer	8. Skillful guidance and advice from architect
	End user	9. Clear end user requirements
Process-related Factors	Process	10. Development of a framework agreed by the key parties 11. Control of process 12. Adequate time for briefing 13. Holding workshops for stakeholders 14. Good facilitation
Input-related Factors	Stakeholder Management	15. Selection of briefing team 16. Clarity of roles of stakeholders 17. Sufficient consultation with stakeholders 18. Experience of stakeholder group 19. Balance of the needs/requirements of different stakeholders
	Conflict Management	20. Consensus building
	Knowledge Management	21. Knowledge of client's business 22. Knowledge of consultants 23. Knowledge of statutory and lease control of the project 24. Excellent technical capability
	Change Management	25. Time for freezing of brief documents 26. Flexibility of briefs to cater for changes
	Team and Team Dynamics	27. Team commitment 28. Honesty 29. Openness and trust
	Decision Making	30. Proper priority setting 31. Good record of decisions made
	Communication	32. Identification of client requirements 33. Open and effective communication 34. Thorough understanding of client requirements
	Post-Occupation Evaluation	35. Feedback from completed projects
Output-related Factors	Brief	36. Clear and precise briefing documents 37. Agreement of brief by all relevant parties

Human-related factors

According to the responses of the questionnaire survey, the attributes of this factor were divided into four main sub-categories: (1) the client; (2) the brief writer; (3) the designer; and (4) the end user. For the first category, it includes 'client's experience', 'clear intention and objectives' and 'clear management structure'. In terms of client's ability to effectively interact with the construction industry, they will have varying levels of confidence and competence to play an active role. Inexperienced clients may find it difficult to describe their operations to another party and they are not always sure of their requirements (Barrett and Stanley, 1999). Problems can occur when this type of client is not led carefully through the strategic and project briefing process. For the second category, it includes 'experience of the brief writer' and 'knowledge of client's business'. It is necessary for the brief writer to understand the needs of clients and users on the one hand and of designers and the building industry on the other (Hyams, 2001). The brief writer serves as the interpreter between the two groups and is a key player in the briefing process. For the third category, it includes 'skillful guidance and advice from architect'. Salisbury (1998) stated that it is the responsibility of the architect to give initial advice and undertake feasibility exercises to help the client appreciate the nature of their site or building. The last category includes 'clear end user requirements'. The requirements of the end users are important because they are the occupants of the building. However, the end users of the building may not be made known in the briefing process. It is the client's responsibility to collate and arbitrate between the conflicting demands of any user groups once they are identified (Blyth and Worthington, 2001).

Process-related factors

The success of briefing depends on the management of the process. Characteristic factors in this category consists of ‘development of a framework agreed by the key parties’, control of process’, ‘adequate time for briefing’, ‘holding workshops with stakeholders’ and ‘good facilitation’. Many researchers suggested that the general framework for briefing was still inadequate (Newman et al. 1981; Kelly et al. 1992; Barrett and Stanley, 1999; CIT, 1996; Kamara and Anumba, 2001a). Blyth and Worthington (2001) also stated that the first key area to briefing is the definition of process which sets the framework for the briefing work. Many projects suffer from poor definition due to inadequate time being given at an early stage (Kelly et al. 1992; Kamara and Anumba, 2001a; Blyth and Worthington, 2001). The amount of time it takes to develop a brief is frequently underestimated because the client group is anxious to find an immediate solution. Holding workshops with qualified facilitators and key stakeholders may save time and improve communication in the briefing process as they are able to discuss the requirements of the project simultaneously.

Input-related factors

Another major category involves the management inputs and feedback of experience from past projects to the briefing process. The management inputs include ‘stakeholder management’, ‘conflict management’, ‘knowledge management’, ‘change management’, ‘team and team dynamics’, ‘decision making’ and ‘communication’.

There were five factors included in the responses classified as ‘stakeholder management’: (1) selection of briefing team; (2) clarity of roles of stakeholders; (3) sufficient consultation with stakeholders; (4) experience of stakeholder group; and (5) balance of the needs/requirements of different stakeholders. In order to understand the various interested parties in the project, all types of stakeholders should be identified and represented during the early stages of the project (Kelly et al. 2004). The stakeholders’ commitment, interest and power should be assessed in order to select the briefing team. During the briefing process it is important all stakeholders’ needs are assessed so that a satisfactory and realistic solution can be formulated.

Under the sub-category of ‘conflict management’, a few respondents considered ‘consensus building’ a CSF for briefing. In the briefing exercise, constructive conflict is to be encouraged and destructive conflict prevented. The key to prevent destructive conflict is the discovery and elimination of causes (Schermerhorn et al., 2003). Active listening and participation in the discussion by every member in the briefing team may lead easier to group consensus.

Another sub-category, ‘knowledge management’, consists of CSFs such as ‘knowledge of client’, ‘knowledge of consultants’, ‘knowledge of statutory and lease control of the project’ and ‘excellent technical capability’. Knowledge management is defined as ‘the strategies and processes of identifying, capturing and leveraging knowledge to enhance competitiveness’ (McC Campbell et al., 1999 cites Manasco, 1996). Knowledge management in briefing relies on teamwork, collaboration, face-to-face contact and effective communication structures. Fundamental to briefing

therefore is the mapping of individuals' contributions to organisational project knowledge in order to determine the membership of the project briefing team.

'Change management' is another sub-category which includes CSFs concerning 'time of freezing of brief documents' and 'flexibility of briefs to cater for changes'. There are basically two schools of thought relating to briefing. One considers the brief as an entity in itself, which should be frozen after a critical period; and briefing becomes a stage or stages in the design process (Hershberger, 1999; RIBA, 2000; Hyams, 2001; Yu et al., 2006b). The other regards the brief as a live and dynamic document that develops iteratively from an initial global brief in a series of stages; and briefing is deemed as an ongoing activity that evolves during the design and construction process (Barrett and Stanley, 1999; Blyth and Worthington, 2001; Kamara et al., 2002; Othman, et al. 2004). Since variations in construction projects cannot be avoided, briefs should be flexible enough to define change that can be made quickly with relatively little effort or cost (Blyth and Worthington, 2001).

'Team commitment', 'honesty' and 'openness and trust' are the CSFs in the sub-category of 'team and team dynamics'. A workshop based approach is a successful method to build relationships and enable people to understand the project. Commitment of the team members is crucial to the briefing process, therefore the workshops are suggested to be held away from the workplace such that all participants can focus to work on the project.

‘Proper priority setting’ and ‘good record of decisions made’ are the CSFs in the sub-category of ‘decision making’. An effective decision-making process is the backbone of an effective briefing strategy (Blyth and Worthington, 2001). The client group makes the decisions. The role of the brief writer is to organise and lead the decision-making process. There are many techniques available for achieving decisions such as using scoring and ranking systems to set priorities for the issues and options of the project. Establishment of records to log decisions taken and items outstanding is also a matter which requires attention in decision making.

Another important sub-category of management inputs involves ‘communication’ of the briefing process. CSFs for briefing in this sub-category consist of ‘identification of client requirements’, ‘open and effective communication’ and ‘thorough understanding of client requirements’. These factors are discussed in the next section explaining ranking of the CSFs for briefing.

The last sub-category of input-related factors is ‘Post-Occupation Evaluation’ which involves ‘feedback from completed project’ to the briefing process. A fully structured post-occupation evaluation of the client’s last completed building can highlight efficiency gains that might be possible in the current project. It is suggested that all information should be sought for a reason and be capable of being presented to individual members of the workshop team in a form conducive to comprehension in the shortest possible time (Kelly et al. 2004).

Output-related factors

The quality of the brief is one of the criteria to measure the success of briefing. No matter how well the briefing exercises are conducted, all effort made will be in vain if the client requirements and decisions made are not properly recorded in the briefs. Various researchers and practitioners have contributed to the production of briefs (Duerk, 1993; ISO, 1994; Kumlin, 1995; Salisbury, 1998; Blyth and Worthington, 2001; Hyams, 2001; Pena and Parshall, 2001; Yu et al., 2006 a, b). According to the survey responses, ‘clear and precise briefing documents’ and ‘agreement of brief by all the relevant parties’ are two CSFs for briefing included in this category.

6.3.4.2 Ranking of the CSFs for briefing

The CSFs were ranked according to the overall frequency of the responses received, by regions and by roles of respondents. The data was first sorted by groups with Microsoft Excel. Ranking was done by sorting the factors according to the frequency of responses received. The factor which was most frequently raised is ranked top, followed by the second most frequently raised factor and so forth. The results are given in Tables 6.5 – 6.7.

Table 6.5 Ranking of critical success factors of briefing

Critical Success Factors	Frequency of response	% of respondents	Rank
1. Open and effective communication	20	35.7	1
2. Clear and precise briefing documents	9	16.1	2
3. Clear intention and objectives of client	7	12.5	3
4. Clear project goal and objectives	7	12.5	3
5. Thorough understanding of client requirements	4	7.1	4
6. Experience of brief writer	4	7.1	4
7. Team commitment	4	7.1	4
8. Identification of client requirements	3	5.4	5
9. Agreement of brief by all relevant parties	3	5.4	5
10. Sufficient consultation with stakeholders	3	5.4	5
11. Holding workshops with stakeholders	3	5.4	5
12. Control of the briefing process	3	5.4	5
13. Realistic budget and programme	3	5.4	5
14. Consensus building	3	5.4	5
15. Honesty	3	5.4	5

In Table 6.5, the fifteen top CSFs for briefing are listed and ranked. Twenty respondents out of fifty-six identified ‘open and effective communication’ as the most frequently mentioned CSFs for briefing. Respondents wrote, “Thorough communication and understanding between parties,” “Transparent communication of the mission statement and resulting brief for all parties to evaluate,” and “The conveyance of the principal criteria and expectations which may not be effectively described in writing.” These responses are echoed by Worthington’s statement that clear and comprehensive communication is an important factor for successful briefing (Blyth and Worthington, 2001).

Nine respondents regarded ‘clear and precise briefing documents’ the second most frequently raised factors for affecting success in briefing. One respondent described, “The brief shall be precise, concise, conspicuous and easily to understand.” Another wrote, “The need to have a client written strategic brief before sketch design commences and a technical brief before the tender drawings commence.” And another considered, “The brief must be clear and precise and adequately reflect clients intention.”

‘Clear intention and objectives of client’ and ‘clear project goal and objectives’ are ranked the third CSFs for briefing. Seven respondents suggested these two factors. Respondents wrote, “The client body knows exactly what he wants under the constraints of available resource,” and “Client intention must be clear and succinct.” Another wrote, “The purpose, objectives and targets to be accomplished are important matters to be ensured at the very outset.” These responses are consistent with previous research that identifies clear and agreed objectives as a major factor for achieving briefing success (CIB, 1997).

‘Thorough understanding of client requirements’, ‘experience of brief writer’, and ‘team commitment’ are ranked fourth. A respondent described “Clear understanding by the consultants of the standards required by the client.” Another two wrote “The insight of the brief writer to see the need, trend, problem and risk that will come in the future,” and “The brief writer must understand the construction process and the operation of the client’s business at the same time.” And another wrote, “Every member’s mindset is working towards achieving a common goal.”

Finally, eight factors are ranked the fifth CSFs for briefing. They are ‘identification of client requirements’, ‘agreement of brief by all relevant parties’, ‘sufficient consultation from stakeholders’, ‘holding workshops with stakeholders’, ‘control of the briefing process’, ‘realistic budget and programme’, ‘consensus building’ and ‘honesty of the team members’. Representative descriptions from respondents include “be able to state out the requirements in the early stage”; “brief must be agreed by all parties within the client organisation and endorsed by the highest management level”; “cross-examination/comments given by individual stakeholders in the briefing”; and “holding a balancing workshop for stakeholders to consolidate space and balance with project budget”.

In addition, the CSFs for briefing are also ranked according to regions and roles of respondents. In Table 6.6, the five top CSFs of the three regions are shown. The results indicate that the ranking of CSFs are slightly different among Hong Kong, the USA and the UK although ‘open and effective communication’ is ranked the most important factors for briefing in all three regions. In Table 6.7, the five top CSFs given by client’s project managers and architects are shown. The results also indicate that the ranking of CSFs according to the role of respondents is different. Project managers considered ‘clear and precise briefing documents’ the most important factor for briefing while architects regarded ‘open and effective communication’ as the most essential factor.

Table 6.6 The five top critical success factors by regions

Rank	Critical Success Factors		
	Hong Kong	USA	UK
1	Open and effective communication	Open and effective communication	Open and effective communication
2	Clear and precise briefing documents	Holding workshops for stakeholders	Clear and precise briefing documents
3	Thorough understanding of client requirements	Control of briefing process	Clear intention and objectives of client
4	Clear intention and objectives of client	Clear and precise briefing documents	Team commitment
5	Agreement of brief by all relevant parties	Experience of brief writers	Clear project goal and objectives

Table 6.7 The five top critical success factors by role of respondents

Rank	Critical Success Factors	
	Architect	Project Manager
1	Open and effective communication	Clear and precise briefing documents
2	Clear and precise briefing documents	Open and effective communication
3	Clear intention and objectives of client	Clear project goals and objectives
4	Clear project goal and objectives	Agreement of brief by all relevant parties
5	Experience of brief writer	Sufficient consultation with stakeholders

6.4 Discussion of the results

6.4.1 The variables of briefing

The survey results indicated that all the 13 variables, which were identified through an initial brainstorming session and a comprehensive literature review, were important factors affecting the briefing process. These variables and their significant attributes formed the theoretical framework of the research study and were considered and used in drafting the practical VM Framework for systematic identification and representation of client requirements in the briefing process.

One of the fundamental principles for briefing was established. Under the variable of ‘client representation’, the respondents supported that the client should determine the time at which the brief becomes fixed and the brief should be fixed before detail design commences. This agreed with the significant attribute that briefing is a process which continues until completion of the sketch design under the variable ‘projects’. In an endeavour to eliminate brief changes during the construction process, the Royal Institute of British Architects (RIBA) Plan of Work updated and approved by the RIBA Council in 1998, also freezes the modification of the project brief after the detailed proposal stage (RIBA, 2000; Othman et al., 2004). Late changes to the brief have an impact on project cost, time and quality, which are considered a major source of dispute and litigation globally throughout the construction industry (CIC, 1994; Kubal, 1994; O’Brien, 1998; Veenendaal, 1998).

In addition, it was agreed that a structured or facilitated workshop would improve communication amongst stakeholders. In the UK, Kelly et al. (1992) suggested

using Value Management (VM) for the future development of the briefing guide. Green (1994) considered the application of VM to the briefing and outline design stages of building developments and developed a SMART methodology for VM. The US Government requires the entire executive branch and federal agencies to establish and maintain cost-effective VM procedures and processes in all programmes and projects (SAVE International, 1997). In Hong Kong, a technical circular was jointly issued by the Environment, Transport and Works Bureau, which demands VM studies for major projects in the subordinate departments (ETWB, 2002). The Construction Industry Review Committee (2001) has also recommended that VM should be used more widely in local construction, because VM can help the clients and the project team to focus on the objectives and needs of the project and all stakeholders, both short and long term.

The following point was noted under the variable ‘stakeholder management’, both attributes 2.1 and 2.2 (refer to Table 6.1) were found to be significant. This may be attributed to the fact that respondents did not have a complete understanding of the methods of briefing. In fact, there are basically two methods of briefing, namely Investigative Briefing and Facilitative Briefing (Kelly et al., 2003). Investigative Briefing involves compiling the brief through interviewing the individual stakeholders. In Facilitative Briefing, a facilitator independent of the client and design team will guide the whole team to draft the brief in a workshop or series of workshops. These are two different approaches and the respondents may not be able to distinguish between them and agree with the two methods in the questionnaire survey.

6.4.2 The differences of the perceptions between Hong Kong and the Western professionals on briefing

The differences of the perceptions between Hong Kong and the Western professionals on briefing are explained in this section. Comparisons of the cultural dimensions shed light on our observations. A more detailed discussion of the four dimensions with respect to Hong Kong and Western culture and the perceptions of briefing are presented below with reference to Tables 6.8 and 6.9.

Table 6.8 A comparison of the culture dimensions among Hong Kong, the UK and USA (Source: Hofstede, 2001)

Culture Dimensions	Hong Kong	UK	USA
Power Distance (PDI)	High (68)	relatively low (35)	relatively low (40)
Uncertainty Avoidance (UAI)	Low (29)	relatively high (35)	relatively high (46)
Individualism (IDV)	Low (25)	high (89)	high (91)
Masculinity (MAS)	moderate (57)	relatively high (66)	relatively high (62)

Table 6.9 Consequences of differences in cultural dimensions for organisations
(Source: Hofstede, 2001)

1. Consequences of power distance index	
<i>High power distance</i> <ul style="list-style-type: none"> • Tall organisation pyramids • Information constrained by hierarchy • Managers rely on formal rules • Subordinates expect to be told • Centralised decision structures, more concentration of authority 	<i>Low power distance</i> <ul style="list-style-type: none"> • Flat organisation pyramids • Openness with information, also to nonsuperiors • Managers rely on personal experience and on subordinates • Subordinates expect to be consulted • Decentralised decision structures, less concentration of authority
2. Consequences of uncertainty avoidance index	
<i>Low uncertainty avoidance</i> <ul style="list-style-type: none"> • Less resistance to changes • Openness to change and innovation • Willingness to take unknown risks • Individual decisions, authoritative management 	<i>High uncertainty avoidance</i> <ul style="list-style-type: none"> • More resistance to changes • Conservatism, law and order • Only known risks are taken • Ideological preference for group decisions, consultative management
3. Consequences of individualism index	
<i>Low individualism</i> <ul style="list-style-type: none"> • “We” consciousness • Collectivity orientation • Group decisions are better • Management is management of groups • In business, personal relationship, prevail over task and company 	<i>High individualism</i> <ul style="list-style-type: none"> • “I” consciousness • Self-orientation • Individual decisions are better • Management is management of individuals • In business, task and company prevail over personal relationship
4. Consequences of masculinity index	
<i>Low masculinity</i> <ul style="list-style-type: none"> • Relationship orientation • Belief in group decisions • Resolution of conflicts through problem solving, compromise, and negotiation • Relationship with boss is important 	<i>High masculinity</i> <ul style="list-style-type: none"> • Ego orientation • Belief in individual decisions • Resolution of conflicts through denying them or fighting until the best “man” wins • Challenge and recognition in jobs important

Power Distance

Hofstede's study has shown that the Hong Kong society is characterised by high power distance. High PDI implies that Hong Kong Chinese perceive a distance between themselves and individuals who may be of higher status or who possess greater power. In managing information, it is likely to be constrained by hierarchy in Hong Kong society whereas openness with information, also to non-superiors is the general situation in Western countries. This may explain why Hong Kong professionals perceived that the brief documents are for use by the design team only while Western professionals considered the brief should be made available to all project parties.

Power distances also explain inequalities in perceptions of decision making between Hong Kong and the Western professionals. Hong Kong, with high PDI, prefers centralised decision structures with more concentration of authority whereas the UK and USA, with low PDI adopts decentralised decision structures. Therefore, it is not surprisingly that Hong Kong professionals agreed that effective decision making can only occur if the client representatives are senior managers.

According to Hofstede (2001), in society with low PDI, managers rely on personal experience and on subordinates. This may explain why the Western professionals believed that briefing is the integration of the skills, knowledge and experience of different stakeholders.

Uncertainty Avoidance

Hofstede's study reveals that the UK and the USA are represented by high UAI. In high UAI countries, there are more resistance to changes and less willingness to take unknown risks. This may explain why the UK and the USA professionals opined that the brief should reflect changing client's requirements and describe the potential changes to client organisation resulting from the construction project in the early design phase. However, Western professionals considered that the brief should be fixed before detail design commences while Hong Kong professionals felt that brief should be fixed even earlier before sketch design commences.

In high UAI countries such as the UK and the USA, the study reveals that people are somewhat threatened by the uncertainties in life. There is greater show of emotions than in Hong Kong. Aggressive behaviour is also more acceptable (Hofstede, 2001). Although aggressive behaviour can be tolerated, it may still prove detrimental when unleashed as a result of conflict in ideas during group meeting (Tung and Quaddus, 2002). Therefore, deviant ideas may be dangerous and a stronger need for consensus exists. This supports why Western professionals strongly believed that consensus building is a vital component of the briefing process.

Individualism

The UK and the USA are depicted as individualistic society with a relatively high IDV index. According to Hofstede (2001), in society with high IDV, people prefer to work as individuals and believe individual decisions are better. The “I” consciousness is high and they are characterised by self-orientation. It is not surprising that the UK and the USA professionals regarded individual stakeholders’ commitment, interest and power should be assessed prior to the briefing process. The high IDV of the UK and the USA may also explain why the respective respondents maintained that the briefing process must take into account that the stakeholders group may be formed of many different types of organisations with different success criteria.

On the other hand, Hong Kong is depicted as a collectivistic society with a relatively low IDV index. The “We” consciousness is high and they are characterised by collectivity orientation. This may be why Hong Kong professionals opined that it is important that the stakeholder group be comprised of individuals of common cultural and ethical outlook.

Masculinity

Hong Kong, the UK and the USA are all characterised by moderate levels of masculinity. However, the cultural differences between the regions may be better distinguished by depicting the UK and the USA with a moderate level of masculinity and Hong Kong with a moderate level of femininity because the UK and the USA scores are slightly higher than Hong Kong on MAS.

The feminine culture is to be people and relationship oriented. Therefore, Hong Kong professionals tend to conceive the client as superior or the boss of the project and value a long-term relationship with the client. They are more concerned about how to make the client happy and tend to avoid conflict with the client. This may be why Hong Kong Professionals are not in agreement with their Western counterparts that the brief writer should maintain strict control and tend to avoid the brief becoming a 'wish list'. On the other hand, the masculinity culture is task and ego oriented. According to Chen and Partington (2004), the UK project managers tend to conceive the client as provider of project funds and they only need to keep the client informed and maintain with them a working relationship. They regarded challenge and recognition in jobs as more important. Therefore, it is not surprising the UK professionals would strictly control the brief in order to prevent it from a 'wish list'.

The above discussions revealed that culture plays an important role in determining the variables of briefing. Hofstede's cultural dimensions can be used to find some reasons to explain the variation in results across the two regions. People with different values, preferences and beliefs tend to view briefing differently. This observation highlights the importance of understanding the implications of differences in culture on practice and research in briefing.

6.4.3 Implications of the CSFs to the proposed VM framework

Since the professionals in Hong Kong, the UK and the USA believed that 'open and effective communication' is the most important CSFs for briefing, this indicates that the proposed VM framework should be designed to facilitate open and effective

communication among the clients and stakeholders. The role of the VM facilitator in the briefing workshop should include maintaining a climate conducive to participating, listening, understanding, learning and creating and encouraging relevant dialogue and interaction among participants.

The USA professionals suggested holding workshops with stakeholders. This supports our proposal of facilitated VM workshops in the briefing process. The report of the VM workshop becomes the briefing document at a particular stage and an accredited VM facilitator serves as the brief writer. If the “Value Briefing Study” is carried out properly satisfying the objectives of workshop with a well-planned agenda, the CSF of having clear and precise briefs is not difficult to be achieved.

As for the CSFs such as ‘clear intention and objectives of client’, ‘thorough understanding of client requirements’ and ‘clear project goal and objectives’, these factors can be achieved by the use of VM tools such as Issue Analysis, Client Value System and Function Analysis which facilitate to systematic identification and explicit representation of client requirements in the briefing process.

‘Sufficient consultation with stakeholders’ can also be achieved in Value Briefing by specifying the methodology for Stakeholder Analysis. These include selection of relevant stakeholders, assessing their power, commitment and interest as well as their needs and wants of the project.

6.5 Summary and conclusions

The validation of the theoretical framework for briefing was described and discussed in detail in this chapter. It was found that the respondents of the questionnaire agreed with the 13 thirteen variables of briefing and there was no additional variables identified in the survey. Therefore, all 13 variables and the significant attributes within the variables are considered in drafting the proposed Value Management (VM) framework for systematic identification and explicit representation of client requirements in the briefing process.

Majority of the respondents agreed there should be two stages of briefing, namely Strategic Briefing and Project Briefing. The respondents also supported the client should determine the time at which the brief should become fixed. Many agreed the brief should be fixed before detail design commences. Late change to the brief would have an impact on the time, cost, quality as well as the building performance of the project.

The critical success factors (CSFs) of briefing were identified and it was found that the important CSFs could be addressed by application of VM approach to the briefing process led by an accredited VM facilitator with careful control of the process.

CHAPTER 7

DEVELOPMENT AND VALIDATION OF A VM FRAMEWORK FOR BRIEFING

- ❖ **Introduction**
- ❖ **The development and validation process of the VM
framework**
- ❖ **Focus group meeting**
- ❖ **Feedback questionnaire**
- ❖ **Experiment – A high-rise residential project**
- ❖ **Case study no. 1 – A housing project**
- ❖ **Case study no. 2 – A library project**
- ❖ **Training seminar no. 1 (using the concise guide)**
- ❖ **Training seminar no. 2 (using the how-to guide)**
- ❖ **Summary and conclusions**

7.1 Introduction

The development process and validation details of the proposed VM framework for briefing are described and discussed in this chapter. A focus group meeting organised in Hong Kong to collect opinions and comments from experts and experienced practitioners is described. This is followed by the results and comments obtained from the feedback questionnaire for the VM framework. An experiment testing the proposed VM framework based on a fictitious project in Hong Kong is then discussed. Subsequently, a desktop study of the two overseas case studies used to validate the VM framework is presented. Finally, two training seminars used to refine the VM framework are provided.

7.2 The development and validation process of the VM framework

The VM framework development went through five major stages of development (see Figure 7.1). In the first stage, a preliminary VM framework was synthesised from a validated theoretical framework taking into account the findings from the literature review (Chapters 2 to 4), the thirteen briefing variables, the reasons justifying the input of VM to briefing (Chapter 5) and the findings from a structured questionnaire survey (Chapter 6). Overseas guidance notes, standards, manuals and books on briefing and VM were consulted in order to incorporate useful elements into the VM framework.

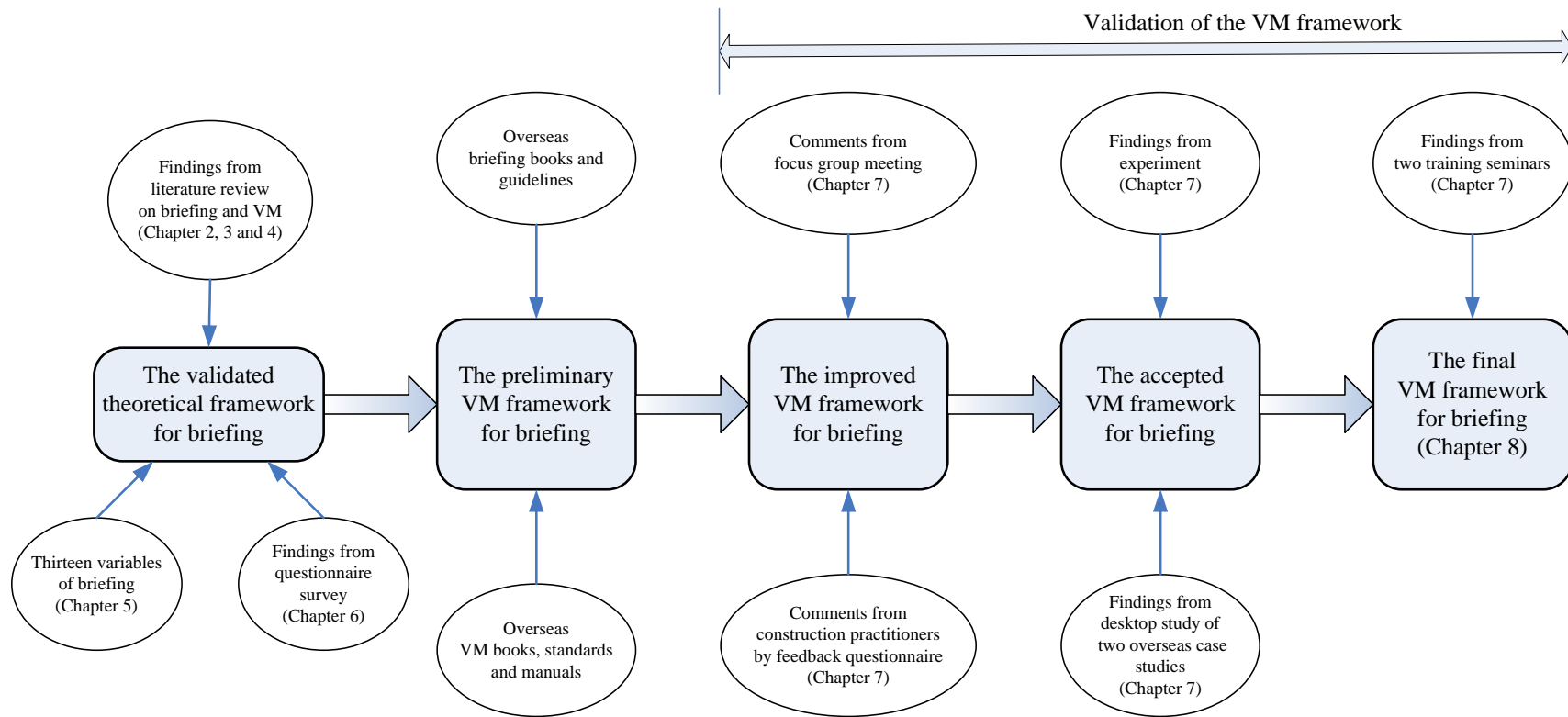


Figure 7.1 The development and validation process of the VM framework for briefing

In the second stage, a focus group meeting was organised in Hong Kong to collect opinions and comments from experts and experienced practitioners on the preliminary VM framework. This framework was also incorporated into a briefing guide which was sent to experienced professional prior to the focus group meeting by post. Comments were collected using a feedback questionnaire. The briefing guide and feedback questionnaire were also sent to those who were unable to attend the focus group meeting. The preliminary VM framework was revised according to comments obtained with an objective to establish an improved version of the VM framework. At this stage, it was decided to add a concise version of the briefing guide. Consequently, two briefing guides were produced, “A How-To Guide to Value Briefing” and “A Concise Guide to Value Briefing”.

In the third stage, with the assistance of a group of professional practitioners, the improved VM framework was tested using an experiment concentrating on the strategic briefing study. A fictitious project developed from the information of an existing residential development was used to form the scenario of the experiment. The performance of the strategic briefing workshop was evaluated and any implementation problems of the workshop were noted.

In the fourth stage, the improved VM framework was validated by the findings from a desktop study of two overseas case studies (a housing project and a library project) because real-life case studies to test the proposed VM framework were not available. The briefing reports of the two case studies were examined. The details of the case studies in terms of preparation for the workshop, working team, venue, agenda, tools

and techniques used for the workshop, and outcome of the case studies were analysed from the report. The improved VM framework was subsequently refined by the useful elements from these two case studies. An accepted VM framework for briefing was created.

In the final stage, the accepted VM framework was further refined by the findings from two training seminars which were held in The Hong Kong Polytechnic University. The first seminars aimed at training senior project managers and associate architects using the ‘concise’ guide while the second seminar focused on training designers and engineers at working level with the ‘how-to’ guide. Comments from the participants were obtained through group discussion and feedback questionnaire survey. The accepted VM framework was revised and a final VM framework for briefing was subsequently formed. This final VM framework is presented in Chapter 8.

The following sections focus on the validation of the VM framework for briefing.

7.3 Focus group meeting

The first validation exercise utilised the focus group meeting, the second stage of the whole process. The focus group meeting was held in Hong Kong Polytechnic University on 24th February 2005. The aim was to obtain the participants’ views on the preliminary VM framework, presented as a briefing guide. By doing this, the briefing guide can be improved and refined according to the participants’ comments. Invitation letters were sent to 30 professionals, 15 professionals agreed to join the

focus group meeting while 11 actually attended. These professionals included senior representatives from public and private clients, project managers and a design consultant. Table 7.1 shows the profile of the organisations which participated in the focus group meeting.

Table 7.1 Profile of the organisations participated in the focus group meeting

Representative	Organisation	Business Nature	Years of experience in Briefing
1	Architectural Services Department (ArchSD) Being the works agent for Government facilities development, they are responsible for maintaining the overall standard of in-house and outsourced projects both in terms of design and construction.	Government department	35
2	Hong Kong Housing Authority (HA) HA is a statutory body and is one the largest property developers in the world.	Government department	25
3	Hong Kong Housing Society (HS) HS is a quasi-government developer and it provides a significant amount of public housing annually under different housing schemes.	Government-related department	20
4	Hospital Authority HA is a statutory body which manages all public hospitals in Hong Kong.	Government-related department	10
5	MTR Corporation Ltd. MTR Corporation is a government wholly owned statutory corporation. Besides railway operations, the Corporation is also actively involved in the development of key residential and commercial projects above existing stations and along new line extensions.	Government-related department	15
6	City University of Hong Kong (CityU) CityU is a major University in Hong Kong enrolled over 20,000 students on programmes of all levels from associate degree to postgraduate research.	Tertiary Institution	25
7	Sino Land The Sino Group is one of the largest property developers in Hong Kong today. The Group comprises three public-listed companies, namely Sino Land Company Limited, Tsim Sha Tsui Properties Limited and Sino Hotels (Holdings) Limited and a number of privately held companies.	Private developer	25
8	Swire Properties Ltd. Swire Properties is a wholly-owned subsidiary of the Swire Group and one of the largest property investment companies in Hong Kong with major commercial, residential and industrial developments in its portfolio.	Private developer	20
9	Hysan Development Co. Ltd. Hysan Development Co. Ltd. is a property investment company that invests in office, retail and residential properties in Hong Kong.	Private developer	-
10	Crow Maunsell Management Consultants Ltd. Crow Maunsell is part of the Maunsell group which provides the full range of project management, construction management, project support, etc,	Project management consultant	-
11	AGC Design Ltd. AGC is a medium-size private architectural firm	Architectural firm	-

The focus group session began with a presentation of the overview of the briefing guide. This was followed by a facilitated session guiding the participants to give comments on how the guidebook can be used, its benefits and limitations. The guidebook was well received by the participants and most of them commented positively on the proposed VM framework.

The participants agreed that the proposed framework represented a benchmark of good practice for those participating in the briefing process. The guidebook was very comprehensive and would be useful when they reviewed the briefing process employed in their own organisations. The document also provided an audit trail showing how decisions were made. As one of the participants added, “it sped up the briefing process and reduced the time required to arrive at a justified ‘decision to proceed’ and thus to obtain the optimum solution”. However, some participants felt that the document was too regimented and descriptive and was necessary to make it more user friendly. Subsequently, it was decided to prepare a concise version of the guidebook, especially for the senior management, to enable the proposed framework to be mastered more effectively.

Nevertheless, the briefing guide contained many useful elements which can be used in a structured way by professionals at working level. For example, post-occupancy evaluation was regarded as a worthwhile exercise to obtain feedback of past experience to the briefing process. Room data sheets were also important in the project briefing stage. Risk management, too, was an essential element in the briefing process. In the current practice, risk management was also incorporated into

the value management which was undertaken in a one or two days' workshop. In order to make the document more comprehensive, the focus group recommended inclusion of other elements such as procurement and buildability assessments to the proposed framework.

One important finding of the focus group meeting was that the briefing practices in the private sector are different from those of the public sector. A participant from a private developer pointed out the strategic brief usually did not exist, and in fact, the briefing commenced from the feasibility stage. Investment evaluation is the term used instead of briefing. In his company, the evaluation and development department was responsible for identifying the business and investment potential. They had to conduct a detailed analysis to justify the project prior to the appointment of consultants. The process may take a few years. The final document contained only a few pages. It was an internal document which was not released to outside parties. The process was dynamic and continuously changed all the time. In order to make the briefing guide useful for this stage, the focus group suggested that the strategic briefing workshop could be made more open enabling better participations from project managers and designers. Since the project briefing stage could be more structured, the focus group considered the process laid out in the briefing guide good practice and would be useful for many organisations. Further development of the guidebook may be possible by producing different briefing guidebooks for the public and private sectors such that the briefing process is adapted to suit the corporate model.

The participants of the focus group meeting further raised some possible constraints for the implementation of the proposed framework. The successful implementation of the proposed approach depended largely on support from clients, as additional time and resources were required. Composition of the study teams and the skill of facilitators were also critical in this process. The focus group noticed that the guidebook recommended the appointment of a facilitator for the briefing process. They agreed that it was a good idea to appoint a facilitator but they did not know how to obtain the facilitators and about their training. It was concluded that the websites of the local and international VM institutes should provide details of the qualified facilitators. In Hong Kong, there should be greater synergy with academia and the Hong Kong Institute of Value Management (HKIVM). For this proposed framework to be received well in the market, training was needed. The government and developers may undergo some use of VM framework pilot schemes. There was a need to train the right facilitators who would be able to implement the framework and use the tools of the framework effectively and efficiently. It may be a long process before it could be integrated in terms of the quality management processes.

7.4 Feedback Questionnaire

The acceptability of the VM framework was further confirmed by the results of a feedback questionnaire survey on the preliminary briefing guide. The briefing guide was sent to the participants of the focus group meeting in advance as well as to those who were unable to attend the meeting. In total, 28 out of 100 questionnaires were returned, a response rate of 28%. The feedback questionnaire and the data about the respondents are attached in Appendix E and F respectively. The results of the 28

returned questionnaires from experienced professionals in Hong Kong are shown in Table 7.2. The analysed results 7.9 indicated participants were satisfied with the guide in general. The t-test indicates that all the statement nos. 1 to 8 are significant. They liked the structure, content, clarity and length of the guide.

Apart from giving rating to the statements, the respondents also raised various elements they liked most in the briefing guide. The majority of them felt that the guide was comprehensive, succinct, logical and well structured with excellent use of summary tables and diagrams. It was very informative and served a good reference to the readers. They appreciated the introduction of Facilitative Briefing and the early involvement of the relevant stakeholders in the process. The guidebook explained why VM should be used for briefing. It gave clear direction of a systematic group process under proper facilitation. The programme of workshops was clearly indicated. The respondents agreed with the guidebook which addressed briefing as an area where new tools were needed. The toolboxes were useful with clear explanations and real life examples, especially for Function Analysis. Problems, risks and changes were anticipated and addressed in the guidebook. In short, this draft guidebook marked a very good head start.

Table 7.2 Results of feedback questionnaire on the briefing guide

Descriptions	Max.	Min.	Mean	Standard Deviation	t value (Test Value = 3)
1. The structure of the briefing guide is well-organised.	5	3	4.07	0.466	12.173*
2. The content of the briefing guide is appropriate.	5	2	3.89	0.685	6.895*
3. The length of the briefing guide is appropriate.	5	2	3.86	0.705	6.431*
4. The briefing guide explains clearly how to conduct briefing.	5	2	3.89	0.641	7.211*
5. Benefits of using the proposed methodology in the briefing guide					
a) establishing the client value system to facilitate the prioritisation of the value in the client organisation	5	3	4.19	0.681	9.037*
b) providing a structured methodology to identify and represent client requirements	5	3	4.11	0.577	10.000*
c) clarifying client's needs versus wants	5	3	3.93	0.604	8.132*
d) prioritizing client's options	5	2	3.93	0.604	8.132*
e) promoting team work to identify opportunities available for project development	5	3	4.29	0.600	11.342*
f) highlighting any potential problems at the beginning of the project	5	3	4.11	0.685	8.549*
g) stimulating participation and effective communication among clients and others stakeholders	5	3	4.14	0.651	9.295*
6. Stages of briefing					
a) The briefing guide indicates the right stage for Strategic Briefing.	5	2	4.00	0.816	6.481*
b) The briefing guide indicates the right stage for Project Briefing.	5	2	3.88	0.653	6.910*
7. The briefing guide suggests the appropriate guidelines for selecting the briefing team.	5	3	3.86	0.591	7.675*
8. Toolboxes of the briefing guide					
a) Toolbox 1 – Pre-Workshop Phase Tools are useful.	5	3	4.00	0.679	7.649*
b) Toolbox 2 – Tools for Strategic Briefing Workshop are useful.	5	3	4.32	0.548	12.761*
c) Toolbox 3 – Tools for Project Briefing Workshop are useful.	5	3	3.85	0.456	9.706*
d) Toolbox 4 – Supplementary Tools are useful.	5	3	3.96	0.437	11.453*

5 – Strongly agree, 4 – Agree, 3 – Neutral, 2 – Disagree, 1 – Strongly disagree

*** represents the t value that is greater than critical t value (1.703) which indicates the respective statement is significant**

Furthermore, the respondents made several comments for improvement. Some respondents felt that the guidebook was prescriptive and more flexibility was needed. The guidebook should relate to the real decision making process which was dynamic in the commercial world. Contract procurement should be considered in the early project planning stage. As facilitation is a very important element to ensure success, guidelines to ensure the right person was selected should be given. The guidebook should refer to the HKIVM web page for the list of certified facilitators to assist those who were not knowledgeable about VM. Although the guidebook emphasised the use of facilitators with preference for an external independent party, the respondents suggested there was still room to make it more user friendly in order to cater for the less qualified or non-accredited internal facilitators. In order to make the guidebook valuable, it must emphasise the importance of ‘follow through’ in the post-workshop phase. In addition, case studies and successful examples of applying VM to briefing could make good reference. The recommended sizes and nature of projects which can benefit most from Value Briefing may be suggested. Finally, the jargon in the guidebook can be clarified by giving clearer explanation of the terminologies.

Whilst the benefits and limitations of using the proposed VM framework for briefing have been confirmed through the questionnaire survey, an experiment was conducted to verify the benefits of the methodology in practice and to make further improvement to the framework.

7.5 Experimental study – A high-rise residential project

7.5.1 Background to the experimental study

This experimental study aimed at studying the application of the VM approach in the strategic briefing stage in order to find out any problems of implementation. A strategic briefing workshop was conducted on 17th April 2005. A fictitious project based on the data relating to an existing residential development provided the scenario of the experiment.

The residential development at the existing site No.15 Wylie Path Kowloon is 40 years old. The last renovation works were carried out in 1996. A recent building survey reported a lot of spalling concrete in the buildings and poor conditions of the lifts, electrical and fire services installations, and drainage. Structural cracks were also found at the two carport levels and the swimming pools at the podium.

There are five blocks of 20-storeys buildings at the site. Three blocks (A, B and C) are government accommodation and two blocks (D, E) provide the purchaser's accommodation. The government leased the land for Block D and E to Win Hin Development Co. Ltd. (WH) for 75 years from 1st April 1963 on condition that WH constructed Block A, B and C for government accommodation at no cost to the government. The lease is not yet expired.

The government wholly owned Blocks A, B & C and possessed 60% of the shares of the common areas and facilities. WH had 50% of the shares of Block D & E and 20% of the common areas. Individual owners of Blocks D & E (the Incorporated

Owners of Block D & E) held the remaining 50% of the shares of Block D & E and 20% of the common areas.

The Architectural Services Department (ArchSD) was requested by the Government Property Agency, here below called the ‘Client’, to carry out an evaluation study to optimize the use of the existing site and to explore other uses of the land. The proposed options may include renovation of the existing buildings, demolition of the existing buildings and development of new buildings for residential use, offices, social or recreational facilities.

Based on the above scenario, the experiment was carried out with the cooperation of a group of professional practitioners who were taking the subject ‘Value Management in Construction and Property’ for a part-time postgraduate degree of The Hong Kong Polytechnic University. They attended a lecture on the application of VM in the briefing process and were provided with the fifth draft of the briefing guide ‘A Guide to Value Briefing’. These 19 construction practitioners were instructed to act as a team of professionals including VM facilitators, client’s representatives and other key stakeholders in order to conduct a strategic briefing study using the VM approach. This study included preparing and attending a one-day workshop and producing the strategic brief for the project. The roles of the professionals in this experimental study are indicated in Table 7.3.

Table 7.3 Role of the participants

Construction Practitioners	Role in this experiment	Representing organisation in this experimental study
1	Government Property Administrator	Government Property Agency
2	Chief Property Manager	Government Property Agency
3	Director	Architectural Service Department
4	Chief Architect	Architectural Service Department
5	Director	Planning Department
6	Assistant Director	Planning Department
7	Permanent Secretary for Financial Services and the Treasury	Financial Services and Treasury Bureau
8	Deputy Secretary for Financial Services and the Treasury	Financial Services and Treasury Bureau
9	Director	Environment Protection Department
10	Assistant Director	Environment Protection Department
11	Director	Highway Department
12	Managing Director	Win Hin Development Co. Ltd.
13	Chairperson	Incorporated Owner of Block D
14	Chairperson	Incorporated Owner of Block E
15	Chairman	Yau Tsim Mong District Council
16	Facilitator	VM Consultant
17	Facilitator	VM Consultant
18	Recorder	VM Consultant
19	Recorder	VM Consultant

7.5.2 The process of the strategic briefing study

Pre-workshop phase

Prior to the briefing workshop, the facilitators were requested to prepare a workshop proposal on how to set up and run the workshop. An initial meeting was held with the facilitators and group leaders to give comments on their workshop proposal, explain the expectations of the workshop and answer queries relating to the given briefing guide. A pre-workshop meeting was also held with the workshop participants to introduce and clarify the following:

- a) the objectives of a strategic briefing workshop
- b) the background to the project
- c) the role of the participants
- d) the agenda for the workshop
- e) the logistic and facilities required for the workshop

Workshop phase

The actual workshop schedule is shown in Table 7.4. It was a one day strategic briefing workshop. The facilitators ran the workshop smoothly within the time planned on the agenda. Five major VM tools were used, Issue Analysis, Client Value System, Timeline, Function Analysis and REDReSS Analysis.

Post-workshop phase

After the strategic briefing workshop before adjourning the group, the participants were asked to evaluate the performance of the workshop and complete a feedback questionnaire. They were able to submit a strategic brief within two weeks.

Table 7.4 Schedule of the strategic briefing workshop

Time	Activity	Remarks
9:30	Welcome and participants self-introductions	Introductory
9:35	Introduction to the day's agenda	
9:40	Overview of Value Management	
9:45	Objectives of the workshop and role of facilitators and participants	
9:50	Issue Analysis – Identify all uncover issues affecting the project	Information Phase
10:30	Morning Break	
10:55	Client Value System – Ranking of client's values	
11:15	Timeline – Identify key dates and events	
11:30	Expansion of issues – Identify and expand on important issues	
12:00	Function Analysis – Identify strategic function	Function Analysis Phase
12:30	Sorting of functions	
12:45	Lunch Break	
14:10	Construction of functional diagram (FAST) – agree mission of project	
14:50	REDReSS analysis – identify any missing issues, review information and the function diagram	
15:15	Afternoon Break	
15:30	Agree strategic brief as represented by functions prior to option appraisal	
15:45	Creatively explore solutions to strategic functions prior to option appraisal	Creativity Phase
16:20	Select the options which fulfill the mission and functions of the project and the options can be carried forward to option appraisal – make 'decision to proceed'	Evaluation Phase
17:05	Complete action plan	Development Phase
17:20	End of workshop	End

7.5.3 Evaluation of the strategic briefing study

7.5.3.1 *Pre-workshop phase*

The participants were satisfied with the pre-workshop phase. They agreed that this phase was very important for familiarisation with the VM process, set clear objectives for the workshop and collect background information. The limitation was that stakeholder analysis and the ACID Test could not be carried out as they would be in the real case since each participant was assigned a role in this experiment. In addition, the benefits of post-occupancy evaluation and existing facilities walk through could not be appreciated in this fictitious study. The two facilitators were not qualified and had no experience in running a VM workshop. Nevertheless, guidance and training was given to them until they felt confident about acting the role.

7.5.3.2 *Workshop phase*

The process of the workshop was controlled very well. Most activities were completed within the time limit set on the agenda drafted by the facilitators based on the briefing guide provided to them. Minor deviation from the agenda existed but the workshop was completed half an hour earlier than expected. This successful attempt implied that the suggested timing of the indicative agenda for strategic briefing workshop in the guidebook was reasonable.

The workshop was conducted in an active atmosphere in which all the participants communicated freely with each other. Most admitted good interaction in the questionnaire. Various tools were used in different phases of the workshop. They made the process of the workshop more systematic and organised. The results of

questionnaire showed that the participants were satisfied with these techniques. The details of the five phases for the workshop have been analysed and the results given below:

A) Information Phase

Client's objectives clarified

It was observed that the facilitator spent only two minutes to introduce the objectives of the workshop and no question was raised regarding the objectives. Most participants agreed the client's objectives had been clarified in the pre-meeting.

Givens/assumptions clarified

The givens/assumptions were mentioned in the introduction to the experiment in the briefing material for the study. No specific time was assigned during the workshop clarify the givens/assumptions. However, most participants considered that the givens/assumptions were clear.

B) Function analysis phase

Generation and sorting of functions

By following the examples in the guidebook, the participants were able to identify the functions of the project in combination of verb and noun by using sticky notes. They managed to sort the notes into the more organised form of a project function priority matrix.

Construction of FAST diagram

The most difficult part of the exercise was perhaps the construction of a FAST diagram. The participants have difficulties in understanding the ‘why-how’ logic as well as constructing the mission statement. As my role was a consultant in the workshop, advice was given to the participants to assist them to solve any problems constructing the diagram.

C) Creativity phase

Total number of ideas

Subsequent to the thorough overview of project constraints, and analysis of the functions of the project, twenty-two innovative ideas and options were generated. Valuable ideas may emerge out from large number of ideas. Twenty-two options were judged as sufficient for evaluation in this strategy briefing workshop.

Equal contribution of participants

It was observed from the numbers of opinions raised by each participant that all participants had contributed to the ideas generation. Nobody dominated the discussion and no one was silent. Good synergy was noticed in the group discussion.

Efficiency of generation

The team assigned half an hour to conduct the ideas generation. However, fifteen participants only generated twenty-two ideas in this period. The average number of ideas generated by a participant in an hour was less than three. It was evident that the generation of ideas was not very efficient.

D) Evaluation phase

Quality of ideas

Ideas generated were screened into categories: P1 (realistically possible), P2 (remotely possible) and P3 (fantasy). Only the realistically possible ideas were analysed in the next step in the workshop. They were grouped into clusters of ideas and developed further to integrate the ideas.

Efficiency of evaluation

Instead of using weighted evaluation, the simple voting/discussion process was adopted to select ideas for further investigation. They managed to combine some of the options and subsequently three options were agreed for further development among the twenty-two ideas. A further detailed examination of these options was undertaken by the groups. Finally, group consensus was reached with one alternative being favoured by most members and the other members agreeing to support it. The whole evaluation process was completed in 45 minutes as planned. It was considered that evaluation phase was efficient.

E) Development Phase

The development of ideas/options selected in groups was carried out in the evaluation phase. In this phase, the participants managed to prepare an action plan with details of who should take the actions and by when the actions should be completed.

7.5.3.3 Outcomes of the workshop

The results for the outcomes of the workshop are indicated in Table 7.5.

Table 7.5 Results for the outcome of the workshop

Category	Description	Mean score
Communication	Identification and clarification of client requirements	4.3
	Expedition of decisions	4.0
	Improving communication and understanding	4.4
	Consideration of options	4.2
Satisfaction	Client's satisfaction	4.5
	Participants' satisfaction	4.2
	Facilitator's satisfaction	3.5
Product	Quality of brief	4.0

(5: Excellent 4: Good 3: Neutral 2: Bad 1: Terrible)

A) Communication

Clarification of client requirements

Through the use of issue analysis, the concerns of the client were elicited. The needs and wants of the client were also identified and clarified in the subsequent functional analysis. The REDReSS analysis finally captured any missing requirements.

Expedition of decisions

The systematic group process sped up the briefing process and reduced the time required to arrive at a justified 'decision to proceed' and thus to obtain the optimum solution.

Improving communication and understanding

Through presentation, listening and active discussion, the participants were able to understand the client requirements as well as other relevant information on the projects. In addition, communication was improved by participating in small group discussion and subsequent presentation to the whole team.

Consideration of options

Twenty-two options were proposed. Some proposed new development such as a Theme Park to attract tourists. The other proposed ideas such as a Queen Elizabeth Hospital extension, a Hong Kong Polytechnic University extension, elderly persons' house, library, car park, proposed renovation works and land sales to private developer. The scope and depth of the proposed options were considered acceptable.

B) Satisfaction

Client's satisfaction (mean score 4.5)

The client was satisfied with the process as well as the outcome of the strategic briefing workshop. The objective of the workshop has been achieved.

Participants' satisfaction (mean score 4.2)

The participants were satisfied with the team work and cooperation by all the parties.

Facilitator's satisfaction (mean score 3.5)

The facilitators were satisfied with the process and the outcome of the workshop.

The performance of this first time job was excellent. However, they felt that their skills in facilitating the workshop could be improved if they had more experience and qualifications.

C) Product

Quality of brief

The report of the workshop was basically the strategic brief for the project. It described all the relevant information and requirements, and recorded all options and decisions made. The brief was considered comprehensive and well structured.

7.5.4 Concluding remarks

The participants of this workshop agreed that the proposed framework using the five VM tools facilitated the systematic identification and representation of client requirements in terms of value and functions in the Strategic Briefing. The systematic group process expedited the briefing process and reduced the time required to arrive at a justified 'decision to proceed'. This experimental study revealed the potential benefits of applying VM tools in the early briefing stage of a project.

The success of this experimental study demonstrates that the VM framework for briefing was practical. The participants responded that the briefing guide provided necessary guidelines for the briefing process and was easy to understand. The satisfactory performance of the facilitators suggested the possibility of appointing less qualified facilitators to lead the Strategic Briefing Study using the proposed VM

framework subject to selection of the right person and provision of training. This is particularly suitable for those cases where private developers require the briefing process to be confidential and so may prefer to appoint internal facilitators.

The difficulties encountered with Function Analysis by the participants in this experimental study indicate that training is needed to strengthen the understanding of the construction of a FAST diagram in order to achieve the optimum results. This finding echoes the comments made by the participants at the focus group meeting.

The established function list, project function priority matrix and FAST diagram as well as Client Value System diagram and Timeline in this experiment were good examples. These examples were incorporated into the VM framework for illustration (see Chapter 8, Section 8.2.7, Toolbox 2).

7.6 Case study no. 1 – A housing project

The purpose of conducting this case study was to further refine the improved VM framework focusing on Strategic Briefing. The process of the strategic briefing study in the case study was compared with the VM framework in ‘A How-To Guide to Value Briefing’. In this section, the details of the strategic briefing study were first described, before any subsequent refinement to the VM framework was discussed.

7.6.1 Background of the case study

This particular project was a housing project for a housing office which was to deliver 200 housing units on a number of sites. A one-day workshop was held to

investigate into the project specific issues and how they could best be addressed using the Partnering process initially established by the team during the previous workshop. This workshop was the second in a series aiming at establishing a firm Project Partnering process on the project. In particular the Strategic Brief was examined and a number of changes proposed. In addition, a number of key issues raised in the workshop were discussed for either action agreed upon to progress or decisions taken on the most appropriate way to proceed.

7.6.2 Pre-workshop phase

Objectives of the workshop

The objective of the workshop was to examine specific project issues with reference to the Strategic Brief and the identification of key issues needed to be resolved for the benefit of the project.

A number of key issues were identified in order of importance as follows:-

1. Council Reaction Time
2. Satisfy Tenants
3. Team Communications
4. Politics of Site Availability
5. Buildability
6. Continuity of Construction
7. Continuity of Pre-Contract Programme / Cost
8. Quality of End Result
9. Construction – Quality of Labour

10. Government Legislation
11. Attractiveness to Tenants
12. Sustainability and Energy Conservation

Preparation for the workshop

Two facilitators were appointed to assist the preparation work for the workshop. The interview technique was adopted by the facilitators to collect basic information on the project. It was chosen to ensure that all the key issues of the project and partnership were understood and that the project team members selected were comfortable with the aims of the workshop and did not feel threatened by the VM process. Three key members of the project team including the architect, quantity surveyor and contractor were interviewed.

The client had attended a previous value management training course and considered that VM would be the way forward for this project. With the guidance from the facilitator, the client chose the workshop team.

7.6.3 Workshop team, venue and agenda

The workshop team comprised:

- Director of housing office
- Development Officer of housing office
- Clerk of Works of housing office
- Employers Agent Partner
- Architect Partner

- Project Architect
- Structural Engineer (Associate Partner)
- Development Surveyor
- Contracts Manager
- Site Manager
- Planning Supervisor
- Two Facilitators
- Recorder

The venue for the workshop was a large meeting room in the client's office. The room was ideal for the purpose of the workshop. The only drawback was that the director of housing office, who joined and left the meeting occasionally, missed parts of the workshop.

The agenda for the one-day workshop is shown in Table 7.6.

Table 7.6 Agenda for the housing project

Time	Agenda Item
09:00	Introduction to the workshop – project focus
09:15	Re-visit action plan from partnering workshop
09:30	Project issues analysis
10:15	Determine the relative importance of the project issues raised
10:30	Discuss the important project issues
11:00	Examine timeline
11:30	REDReSS (re-organisation, expansion, disposal, refurbishment & maintenance, Safety & Security)
12:00	Strategic and technical functions
12:45	Lunch
13:30	Project value continuum
14:00	Wamp study (What Affects My Performance)
14:30	Development of the project process and project execution plan
16:30	Action Plan
17:00	End

7.6.4 Workshop phase

During the workshop, the following tools and techniques were used:

1. Issue Analysis

The team's brainstorming, which recorded ideas on "Post-it" notes, identified a number of issues relating to the project. The issues identified were sorted under key headings and prioritised by majority voting with coloured dots. In the first instance each participant applied blue dots to identify their most important issues, followed by the application of red dots to identify the most critical issues. Key issues were identified by issues heavily dotted as both important and critical issues. These issues were further explored to ensure that the team had a common understanding and full recognition of their impacts upon the project.

2. Timeline

The group drew a timeline from the date of the workshop until the last critical point of the project to identify the critical points. The development of the strategic time line highlighted additional issues regarding the programme of the project, all of which were recorded.

3. REDReSS Analysis

The next stage adopted the technique – REDReSS, to bring out any missing issues from the initial issue analysis stage. A series of headers commonly applied to a number of construction related projects was used: Re-organisation, Expansion, Disposal Strategy, Refurbishment, Safety and Security. With the

exception of Safety and Security, these headings relate to the whole life of the project. A number of these issues had been considered at the start of the workshop. However, this technique ensured that there were no crucial issues missing from the analysis.

4. Client Value System Re-visited

The client's value criteria were re-visited in the presence of another member of the client organisation to ensure that the top three ranked values remained the same, apart from refreshing the project team's memory prior to defining the project mission. The three most important aspects to the client were identified as capital cost, operating cost and comfort, matching the client value system with which the project must be completed within the spending limit; and the operating cost and the tenants comfort must be considered in the design.

5. Project Drivers

Project drivers are defined as those issues essential to the successful delivery of the project and without which the project would either change or fail. The project drivers were drawn out in a short brainstorming session directed at the client organisation to develop an understanding among the workshop participants on what was driving the project. Typical statement of drivers included "the project is strategically important to the City Council" and "a need for the client organisation to keep pace with competitors".

6. WAMP Study (What Affects My Performance)

Prior to the workshop, participants were asked to draw on other projects they were previously involved in to identify twenty positive and negative factors affecting their performance on projects. Four of the team members completed the exercise and reported in the workshop. The other participants who were not assigned to identify the factors collated the studies and grouped the factors under various headers. The initial analysis of the WAMP studies collated in the workshop highlighted the following key headers. Two team members were further assigned to identify various issues.

- Changes to the brief
- Realistic programme
- Design changes – delays on site
- Co-operation between task team members
- Task completion on time
- Good brief from client
- Communications between team
- Over management/unnecessary meetings/correct balance between too few and too many
- Having all necessary information to commence task

This study was used by Group 2 in the Group Work sessions (refer to item no. 8) to consider improvements to the project partnering process.

7. FAST (Function Analysis Systems Technique)

After revisiting items generated in the initial issues analysis workshop participants were asked to identify all the functions relating to the project. These were categorised in a four box matrix; strategic needs and wants, and technical needs and wants and placed within each box on a continuum from low to high order needs or wants. The strategic FAST diagram was constructed to identify the strategic mission of the project and the main functions it requires to deliver to the client. In addition, the technical FAST, relating to the generic brief issued by the client, was constructed by members of Group 2 in the Group Work sessions (refer to item no. 8).

8. Group Work

In order to increase the efficiency of the team work, workshop participants were split into two teams, one addressed the strategic mission of the project and key areas identified in the WAMP Study, the other constructed the technical FAST.

Group 1: Strategic Design Brief and Technical FAST

The first exercise Group 1 carried out was to arrange the Technical Needs and Wants into a function hierarchy diagram. From the functional information contained in this diagram the Group was asked to compare the Strategic Brief document and consider if there were any mismatches and/or omissions.

Group 2: Strategic FAST and WAMP Study

Group 2 analysed the issues surrounding the level one functions identified in the strategic FAST diagram and the factors identified in the WAMP Study.

7.6.5 Outcome of the case study

A Mission or Task statement was agreed for the Project and this was further structured into functions that are required to deliver the mission or needs of the project for the client. The Mission or Task for the project was defined as:-

‘Satisfy the housing office by re-housing people from location A into appropriate sustainable homes that are designed and constructed as a model for the future, and which maintained their attractiveness to future tenants.’

The workshop team considered the key issues identified together with areas where impediments to performance can occur and the key functions necessary to deliver the project. The result was an action plan. The facilitators abstracted the action plan after the workshop and allocated individuals to each of the actions.

7.6.6 Refinements to the proposed VM Framework

This case study validated mainly the sections concerning the Strategic Briefing of the VM framework. It was noted that the workshop of this case study was conducted to review the Strategic Brief which completed before the workshop. However, perhaps a better way is to conduct the strategic briefing workshop with an objective to produce the strategic brief such that duplication of work may be avoided.

The review of the tools used in the study highlights how each activity logically progresses from one to another and the typical outcomes that can be expected from each stage of the study. The indicative agenda for the strategic briefing workshop in the VM framework was reconsidered. The agenda was revised such that the REDReSS Analysis was recommended to be carried out before the Function Analysis such that all issues were identified for preparation of the Function Diagram (See Chapter 8, Table 8.1).

The success of the Group Work Sessions addressed the pressures for even shorter VM studies. The use of Group Work Sessions to increase the efficiency of the team work is worth mentioning in the VM framework.

7.7 Case study no. 2 – A library project

The purpose of conducting this case study was to further refine the improved VM framework focusing on Project Briefing. The process of the project briefing study in the case study was compared with the VM framework in “A How-To Guide to Value Briefing”. The details of the project briefing study were first described with subsequent refinement to the VM framework discussed.

7.7.1 Background of the case study

The particular project was a new library facility for a university to replace the existing building. A two and a half day technical (strategic and project) briefing workshop was held to develop brief and budget. This workshop was the third in a

series of three VM studies for the project. In particular, the end user control was put in place and the detailed brief was asked to be signed off by the client before design commenced.

7.7.2 Pre-workshop phase

Objectives of the workshop

The objectives of the workshop were stated as follows:

- to confirm a number of outstanding policy areas and clarify issues within the business (strategic) brief
- to develop the architectural, structural, mechanical and electrical technical (project) briefs
- to review time, cost and quality parameters
- to scope the procurement strategy, including clarifying roles and responsibilities
- to confirm an outline programme

Preparation for the workshop

Two VM consultants were appointed to organise the workshop. The preparation work included full discussion with the client representatives and the design team. The interview technique and document analysis were adopted by the VM consultants to collect basic information on the project. The lead VM consultants and a briefing architect interviewed about 15 key personnel in the university to establish their perceptions of the reason for the project, its key use requirements and major

functional space requirements. Important constraints were also identified. In addition, with the guidance from the VM consultants, the client chose the workshop team using ACID Test.

7.7.3 Workshop team, venue and agenda

The workshop team comprised:

- Two VM consultants and a workshop recorder
- Client Team – acting head and two project managers for Estate Department, two end users (Head of Library and assistant librarian as internal library representatives)
- Shadow design team – briefing architect, structural engineer, building services engineer, cost consultant and contractor (very experienced national contractor). They were hired as part of the VM team.

The venue for the workshop was a hotel seminar room. It was fully equipped with all requirements requested in advance.

The agenda for the two-and-a-half day workshop is presented in Table 7.7.

Table 7.7 Agenda for the library project

Time	Agenda Item
<i>Evening – Tuesday</i>	
6:30pm	Meet for buffet supper
7:00pm	Introduction to workshop and agenda
7:10pm	Presentation by briefing team on areas for clarification and confirmation:
	<ul style="list-style-type: none"> • Perceived policy pressures on the library development • The role of the library in the future strategy of the University, research and teaching strategies, the agenda for change • Confirmation of staffing numbers • The purpose of the project – the library service and the building as a library • Confirmation of time, cost quality priorities
7:30pm	Discussion, question and answer
9:00pm	Review and confirmation of discussion points
<i>Day 1 – Wednesday</i>	
9:00 am	Review of day 1
9:10 am	Review of users
	Confirmation of schedule of space requirements
	Development of user flow diagrams
12:30pm	LUNCH
1:30pm	Development of adjacency requirements
	Staff process workflow diagrams
	Confirmation of schedule of accommodation
	Deliverables: <ul style="list-style-type: none"> • Schedule of accommodation • Space use by user function • Staff workflow flow diagrams • Size of floor area and grid • Single sentence description of each space
<i>Day 2 – Thursday</i>	
9:00am	Review of Day 1
9:10am	Element function analysis to develop and confirm architectural, structural and mechanical and electrical technical briefs
	Establishing the cost parameters
12:30pm	LUNCH
1:30pm	Procurement strategy, roles and responsibilities
	Confirmation of programme
4:00pm	Review and Action Plan

7.7.4 Workshop phase

During the workshop, the following activities were carried out:

1. Areas for clarification

The workshop commenced by confirming and exploring areas requiring clarifications for moving ahead into the technical (project) briefing during days 2 and 3 of the workshop. The main areas of clarification are outlined below:

- Staff numbers and the drivers behind them, to be interpreted into space use.
- What does the university mean by the term “flexibility”?
- Reader spaces: methodology for calculating numbers.
- Size of the collections and how it may vary, in terms of the space occupied.
- Budgetary constraints.

2. Space requirements

(a) Reader spaces analysis

Following on the above, the number of reader spaces was recalculated and the resulting analysis tabulated.

(b) User flow analysis

A documented analysis as to how the various users of the new library, including both staff and borrowers, interact with it was conducted.

(c) Collections analysis

The type of collections, their locations and the size of the shelves required were identified, discussed and documented in the analysis.

(d) Schedule of accommodation analysis

The team detailed the various requirements for accommodation as outlined in the brief. The details were documented while the area requirements tabulated.

(e) Expansion capacity

An analysis as to the inherent expansion capacity of the building and how much that flexibility actually cost was outlined in a table.

3. Building element analysis

The building elements were systematically analysed by the team according to the BCIS list of elements. The resultant criteria were listed in a table. This was not intended to be an outline specification but rather a list of functional needs specific to the library project.

4. Preliminary budget cost

Following the elemental analysis, a preliminary budget cost was developed. A unit cost in terms of £ / m² of gross internal floor area was worked out.

5. Procurement options

(a) Programme

Items affecting the programme were discussed and recorded.

(b) Procurement route analysis

Four routes were suggested and the respective advantages and disadvantages were subsequently discussed. A strength and weakness comparison of the procurement options was carried out and summarised in tables. In addition, the criteria for choosing an appropriate procurement route were analysed and all the weighted scores were summarised in a table to ease the choice of the preferred route.

6. Time/cost/quality analysis

Having completed the analyses over a two and a half day's session, the team was asked to prioritise the project in terms of time, cost and quality parameters for delivery. The resulting analysis was summarised in simple statements.

The above adopted techniques were specifically chosen to reflect the full set of information gathering requirements to elicit and understand client requirements. They all worked exceptionally well.

7.7.5 Outcome of the case study

The main outcomes of the workshop are summarised and listed below:

- A preliminary budget cost with policy options including inflation was indicated.
- There was space flexibility in the building which would be sufficient until 2020.
- The revised schedule of accommodation met the business (strategic) brief.

- The project could be delivered by the end of 2003 with a latest delivery date estimated at mid 2004, depending on the procurement route chosen. In preliminary order of scoring against key criteria, the procurement routes suggested were
 - Partnering
 - Traditional two stages.
 - Traditional single stage.
 - Design and build.
- The project parameters, in terms of delivery for time, cost and quality that have to be met were outlined.
- The project brief was refined in discussion with the Library and others over the course of the next few weeks after the workshop.
- An action plan was also drawn up.

7.7.6 Refinements to the proposed VM Framework

This case study validated mainly the sections concerning the Project Briefing of the VM framework. The logical review of the activities carried out in the study highlighted how each activity logically progressed from one to another and the typical outcomes that could be expected at each stage of the study. The whole process ran two and a half days. In view of the time pressure when involving senior management in any workshop study, the duration of the project briefing workshop as recommended in the proposed VM framework remained at two days. The consideration of procurement options was found missing in the project briefing study of the VM framework. The indicative agenda for the project briefing workshop in the

VM framework was reconsidered and revised. In addition, Toolbox 3 – Tools for project briefing workshop was supplemented with additional tools such as procurement route analysis and time/cost/quality analysis.

7.8 Training seminar no. 1 (using the concise guide)

Senior project managers and architects were trained to use the guidebook “A Concise Guide to Value Briefing”, during a one-day seminar held in The Hong Kong Polytechnic University on the 29th June 2005.

7.8.1 Background of the participants

A total of 12 participants attended this seminar. The majority were senior project managers and associate architects. One was a Chartered Quantity Surveyor. They were specially invited to attend the training seminar. Their experience in briefing ranged from two to twenty five years and in applying VM to briefing ranged from zero to fifteen years. Two overseas qualified VM facilitators were appointed to conduct the seminar with the author acting as the coordinator of the event.

7.8.2 The process of the training seminar

The agenda of the training seminar is indicated in Table 7.8. The fictitious project used in the experiment of this research study (refer to Section 7.5 of this chapter) was also adopted as the background scenario for carrying out Issue Analysis, Function Analysis and Client Value System because these activities are core elements of the briefing process. The participants were eager to complete the above activities and no difficulty was encountered. In the discussion, they appreciated the

benefits of the exercises. At the end of the seminar, the participants were urged to read the guidebook “A Concise Guide to Value Briefing” within two weeks after the seminar and return the feedback questionnaire on the ‘concise’ guide (Appendix I).

Table 7.8 Agenda for the training seminar no. 1

Time	Agenda Item
09:00	Introduction
09:30	Objective of the Seminar
09:35	Introduction to VM/VE
10:20	Morning Break
10:35	Exploring VM/VE through Case Study Examples
11:15	Introduction to Fictitious Project (Wylie Residential Towers)
11:25	Determining the Workshop Stakeholder Groups
11:40	Issue Analysis (brainstorming and sorting under headers)
12:30	Lunch
13:30	Issue Analysis (prioritisation through dotting technique)
14:00	Function Analysis and FAST Diagramming
15:00	Afternoon Break
15:15	Client Value System
16:00	Overview of the briefing process using VM
16:30	Q&A Session and Conclusion of Workshop

7.8.3 Comments and refinements to the proposed VM framework

The analysed results in Table 7.9 indicated participants were satisfied with the guide in general. The t-test indicates that all the statement nos. 1 to 8 are significant. They liked the structure, content, clarity and length of the guide. However, the score for item no. 7 (The briefing guide suggests the appropriate guidelines for selecting the briefing team) was 3.56. This was considered relatively low compared with the other scores. It was found that the participants of this seminar would like to have a list of potential project participants to attend the strategic and project briefing workshops. Consequently, a recommended number and list of participants were added into the VM framework (see Chapter 8, Section 8.2.5).

Table 7.9 Results of feedback questionnaire on the ‘concise’ guide

Descriptions	Max.	Min.	Mean	Standard Deviation	t value (Test Value = 3)
1. The structure of the briefing guide is well-organised.	5	4	4.33	0.500	8.000*
2. The content of the briefing guide is appropriate.	5	3	4.00	0.707	4.243*
3. The length of the briefing guide is appropriate.	5	2	3.78	0.972	2.401*
4. The briefing guide explains clearly how to conduct briefing.	5	3	4.22	0.667	5.500*
5. Benefits of using the proposed methodology in the briefing guide					
a) establishing the client value system to facilitate the prioritisation of the value in the client organisation	4	3	3.89	0.333	8.000*
b) providing a structured methodology to identify and represent client requirements	5	3	4.22	0.667	5.500*
c) clarifying client’s needs versus wants	5	3	3.89	0.601	4.438*
d) prioritising client’s options	5	3	3.78	0.667	3.500*
e) promoting team work to identify opportunities available for project development	5	3	3.89	0.601	4.438*
f) highlighting any potential problems at the beginning of the project	5	2	4.11	0.928	3.592*
g) stimulating participation and effective communication among clients and others stakeholders	4	3	3.89	0.333	8.000*
6. Stages of briefing					
a) The briefing guide indicates the right stage for Strategic Briefing.	4	3	3.89	0.333	8.000*
b) The briefing guide indicates the right stage for Project Briefing.	4	3	3.67	0.500	4.000*
7. The briefing guide suggests the appropriate guidelines for selecting the briefing team.	4	3	3.56	0.527	3.162*
8. Contents of the briefing workshop					
a) The suggested contents for Strategic Briefing Workshop are useful.	5	3	4.00	0.500	6.000*
b) The suggested contents for Project Briefing Workshop are useful.	4	3	3.89	0.333	8.000*

5 – Strongly agree, 4 – Agree, 3 – Neutral, 2 – Disagree, 1 – Strongly disagree

*** represents the t value that is greater than critical t value (1.860) which means the respective statement is significant**

The training sessions were well received by all participants. The participants agreed that the presentation was very clear, precise, interesting and impressive. Demonstration sessions before the exercises were helpful. The participants considered the VM framework a new approach for conducting briefing. They appreciated the probable real-life applicability of elements such as Facilitative Briefing, summary of VM Methodology, the reasons for using VM, the role and skill of facilitators, team work, active participation of workshop attendants, organisation of the events, provision of toolboxes and illustration with examples, Client Value System, Issue Analysis, and Function Analysis. Case studies and more examples were recommended for insertion into the VM framework. A CD-ROM copy of the guide was requested by the participants.

In addition, the participants reckoned the guide should offer flexibility to cater for different processes contemplated in different organisations. The top management commitment to this innovative approach was of the utmost important to the briefing success. All the key participants might not be able to attend the two to three day workshops without their top management commitment.

Nevertheless, they looked forward to seeing how the approach would be applied in the local context. Any real-life case studies will be included in the guide in the future when available.

7.9 Training seminar no. 2 (using the how-to guide)

This seminar aimed at training architects and engineers at the working level to use the guidebook “A How-To Guide to Value Briefing”. A three-hour session was held in The Hong Kong Polytechnic University on 16th February 2006.

7.9.1 Background of the participants

A total of 15 participants attended this seminar. The majority were architects and engineers, who were taking the subject ‘Value Management in Construction and Property’ for a postgraduate degree of The Hong Kong Polytechnic University. Their experience in briefing ranged from zero to six years while that in applying VM to briefing ranged from zero to five years.

7.9.2 The process of the training seminar

The seminar commenced with a one hour presentation of the overview of the proposed VM framework for briefing. This was followed by a ‘question and answer’ session. The ‘how-to’ guide was then distributed alongside a ten-minute briefing on the major sections of the guide to the participants.

After a 15 minute break, an exercise on Function Analysis was carried out based on a fictitious ‘world-class’ office building project such as the International Finance Centre. This exercise lasted for 40 minutes. The participants, who were divided into three groups, managed to generate and sort the functions as well as to construct the FAST diagram following examples in the guidebook.

A 45 minute group discussion session was then held focusing on the following three questions:

1. What is the value of using the guidebook for Value Briefing? How can it help with the briefing tasks? Would it make the briefing process more transparent and comprehensive?
2. What would be the difficulties in implementing the guidebook for Value Briefing?
3. Can you suggest any recommendations for improving the guidebook?

The groups were given 25 minutes for discussion and each group reported its comments in turn in the remaining time.

Finally, ten minutes were allowed for the participants to complete a feedback questionnaire on the 'how-to' guide (Appendix E).

7.9.3 Comments and refinements to the proposed VM framework

The analysed results in Table 7.10 indicated participants were satisfied with the guide in general. The participant of this seminar agreed the 'how-to' guide a comprehensive document of appropriate length which was also easy to understand. A reference library for recommended toolboxes, which were essential elements of the briefing process, was provided. The examples and diagrams in the guide demonstrated a practical way to conduct briefing. However, time must be allowed for learning and digestion of the guide.

Table 7.10 Results of feedback questionnaire on the ‘how-to’ guide

Descriptions	Maximum	Minimum	Mean	Standard Deviation
1. The structure of the briefing guide is well-organised.	5	4	4.27	0.458
2. The content of the briefing guide is appropriate.	5	4	4.07	0.258
3. The length of the briefing guide is appropriate.	5	3	3.80	0.561
4. The briefing guide explains clearly how to conduct briefing.	5	3	3.93	0.458
5. Benefits of using the proposed methodology in the briefing guide				
a) establishing the client value system to facilitate the prioritisation of the value in the client organisation	5	3	3.73	0.594
b) providing a structured methodology to identify and represent client requirements	5	3	4.20	0.775
c) clarifying client’s needs versus wants	5	3	3.73	0.594
d) prioritising client’s options	5	3	3.73	0.594
e) promoting team work to identify opportunities available for project development	5	3	3.73	0.594
f) highlighting any potential problems at the beginning of the project	5	3	3.87	0.743
g) stimulating participation and effective communication among clients and others stakeholders	5	3	3.87	0.640
6. Stages of briefing				
a) The briefing guide indicates the right stage for Strategic Briefing.	4	3	3.93	0.267
b) The briefing guide indicates the right stage for Project Briefing.	4	3	3.93	0.258
7. The briefing guide suggests the appropriate guidelines for selecting the briefing team.	5	3	3.93	0.458
8. Toolboxes of the briefing guide				
a) Toolbox 1 – Pre-Workshop Phase Tools are useful.	5	3	4.20	0.561
b) Toolbox 2 – Tools for Strategic Briefing Workshop are useful.	5	3	4.07	0.458
c) Toolbox 3 – Tools for Project Briefing Workshop are useful.	5	2	4.00	0.655
d) Toolbox 4 – Supplementary Tools are useful.	5	3	4.00	0.535

5 – Strongly agree, 4 – Agree, 3 – Neutral, 2 – Disagree, 1 – Strongly disagree

The majority of the participants suggested a clear flow chart illustrating the whole process of briefing should be provided. More diagrams and charts were preferred to wordy explanations. Case studies were recommended for provision in the appendix of the guide. In addition, a commercial consultancy service package was requested.

Hence, certain parts of the VM framework were revised accordingly. Any real-life case studies available in the future will be considered. The commercial package for consultancy service will also be considered in future research studies.

7.10 Summary and conclusions

The development and validation of the proposed VM framework is presented in this chapter. The preliminary VM framework created was based on the theoretical framework for briefing with reference to overseas publications, standards, manuals and guidelines on briefing and VM. The validation process included focus group meeting, feedback questionnaire survey, experimental study, desktop study on two relevant case studies and two training seminars. Comments on the ‘concise’ guide and ‘how-to’ guide for Value Briefing as well as the briefing workshop were collected. The VM framework, which has been incorporated into the two briefing guides, was improved and refined several times. The two guides were published in January 2006. After the training seminar no. 2 and the subsequent revision of the VM framework, the final VM framework was produced and is introduced in this thesis below (see Chapter 8).

The validation process was considered rigorous. Comments obtained and findings revealed from the whole process are valuable. The authors of the guidebooks

sincerely hope that the two publications can be tested on real-life projects in local and international context.

CHAPTER 8

THE VM FRAMEWORK FOR BRIEFING

❖ Introduction

❖ The VM framework for briefing

- What is briefing?
- Why use Value Management for briefing?
- What is Value Management?
- When should briefing be conducted?
- Who should participate in briefing?
- Where should briefing be conducted?
- How to apply tools and techniques in briefing?

❖ Analysis of the VM framework for briefing

❖ Summary and conclusions

8.1 Introduction

In this chapter, the final version of the proposed VM framework for briefing is presented. In this framework, seven essential questions were addressed. These questions include ‘What is briefing?’ ‘Why use VM for briefing?’ ‘What is Value Management?’ ‘When should briefing be conducted?’ ‘Who should participate in briefing?’ ‘Where should briefing be conducted?’ and ‘How to apply tools and techniques in briefing?’ The rationale for VM framework for briefing was structured in this way by following the suggestion mentioned in Chapter 3, Section 3.6.1, thus using five “W”s and one “H” to form the basic framework. The VM framework has been incorporated and published in two guidebooks entitled “A How-To Guide to Value Briefing” and “A Concise Guide to Value Briefing”.

8.2 The VM framework for briefing

8.2.1 What is briefing?

A) Definition of briefing

Briefing (also known as architectural programming in the United States) is the first and most important step in the design process, where client requirements for a project are defined and the major commitment of resources is made. It is a procedure of gathering, analysing, and synthesising the information needed to inform decision-making and decision implementation at the strategic and project planning stages of the construction process. According to CIB, 1997, briefing is defined as the process by which a client informs others of specific needs, aspirations and desires, either formally or informally, and a brief (also known as program) is a formal document which sets out a client’s requirements in detail.

The briefing process is both critical to the successful delivery of construction projects and also at present problematic in its effectiveness. Problems in projects can often be traced back to the briefing process. The famous Pruitt Igoe project in the USA was demolished in 1976 because it did not respond to the behavioural and social needs of the users (Duerk, 1993). This building design failure illustrates very well a systematic identification of client requirements serves a pre-requisite to project success.

B) Investigative/ Facilitative Briefing

Irrespective of how briefing is undertaken, it is a team activity. The brief writer engages with a finite team of people in collecting, collating and processing information that leads to the performance specification of the project. The brief writer has a choice of either carrying out an exploration through interviews with all stakeholders, or engaging with people in a workshop or series of workshops. These two methods are *investigation* or *facilitation*.

Investigation involves compiling the brief through a process of a literature review, interviews and meetings with key client representatives, post-occupancy evaluation and existing facilities walk throughs. The data thus gathered is checked through presentations at team meetings.

The advantages of the investigation approach are as follows.

- A skilled brief writer is able to logically collect data using proven techniques in an efficient manner, minimising client representative input.

- It is not necessary to identify all stakeholders at the commencement of briefing. If an important stakeholder comes to light during the process, he / they can be interviewed in turn.
- It is more likely that, through a confidential interview, particularly on a one to one basis, the truthful views of those junior in a hierarchy can be obtained and /or hidden agendas revealed.
- An interview is likely to reveal the decision makers even if their identity previously may not have been made clear.

The disadvantages of the investigative approach are as follows.

- Points raised in later interviews may require revisiting earlier interviewees to clarify issues. Checks need to sometimes be made to ensure all interviewees are using language and terms in a common manner.
- Where the brief writer is not knowledgeable in terms of the client business it may be necessary to enlist the help of an expert to ensure an appropriate coverage of the questions.
- It is difficult to counter the “wish list” syndrome, particularly where a forceful stakeholder puts over their requirements as a *fait accompli* and validation checks with the briefing team may not be possible until all interviews have been collated. Discrepancies may therefore only be revealed rather late in the briefing process.

In *facilitation*, a facilitator independent of the client and the design team guides the whole team through a process of briefing largely by means of the techniques of value,

risk and project management. It is still necessary to undertake a literature review, conduct pre-workshop meetings, post- occupancy evaluation and walk throughs of existing facilities as means of providing information to the workshop, the results of which are then supplemented and interpreted by the workshop team. The workshop team comprises of stakeholders appropriate to the stage of the briefing exercise, whether it is a Strategic or Project Briefing exercises. Typically a Strategic Briefing exercise takes between 4 and 8 hours and involves between 6 to 20 stakeholders. A Project Briefing exercise typically takes one to three days and involves between 12 to 20 stakeholders.

Advantages of the facilitation approach are as follows.

- A facilitated briefing exercise extracts all the project or useful background information in the shortest time.
- The team may contain all the experts necessary to feed information into the project and asks appropriate questions of others.
- Misunderstandings and/or disagreements between team members can be resolved immediately in the workshop.
- The facilitator or other members of the team can challenge “wish lists”.
- The facilitator is able to summarise data contributed by the team at stages during the team exercise, therefore the brief largely comprises a collation of these conclusions.
- An intensive, focused, facilitated briefing exercise encourages good team dynamics and effective team building highlighted by some clients as the

most important aspect of the process and the one least able to be replicated through the investigation process.

Disadvantages of the facilitation approach are as follows.

- A facilitated briefing exercise demands, concurrently, the presence of all stakeholders.
- Hidden agendas may be difficult to be uncovered in a team exercise.

In view of the pros and cons of the two approaches, it is recommended to adopt the facilitation approach for Strategic and Project Briefing in this study.

C) The stages of briefing

The briefing process is generally accepted to be divided into two major stages – ***Strategic Briefing*** and ***Project Briefing***. This theme is observed both in practice and in briefing guides. It seems that this two step approach is due to the nature of the early stage design problem. First, it is the task of strategic management to identify the organisational needs in a Strategic Briefing Study and then to decide whether a project (or projects) of a general type and in a certain location is the most effective solution for those needs. Second, tactical management decisions are required on the performance specification of the project given the activities to be accommodated in the Project Briefing Study.

Strategic Briefing

The primary objective of the Strategic Briefing Study is to develop a Strategic Brief which describes in business language the reason for investment in a physical asset, and the purpose of that investment for the organisation together with its important parameters. Hence, questions to be answered include “Why invest?” “Why invest now?” and “What is the purpose of the investment?”

The ‘mission of the business project’ and its strategic fit with the corporate aims of the client organisation are described clearly and objectively in the Strategic Briefing Study. These corporate aims are explicit in terms of commercial objectives and usually implicit in terms of cultural values. The combined commercial objectives and cultural values form the ‘client’s value system’. The study also includes establishing the outline budget and programme. The Strategic Briefing Study explores a range of options for delivering the ‘business project’ such as creation of a new building, additional and alteration works, refurbishment of existing building(s). It also structures information in a clear and unambiguous way to permit the ‘decision to proceed’ to be taken in the full knowledge of all the relevant facts at the time.

On completion of the Strategic Briefing Study, the decision to proceed can be made as it is based on all relevant issues and options addressed and explored, with alternatives examined. Figure 8.1 indicates a flow chart of a typical Strategic Briefing Process and Table 8.1 shows an indicative agenda for a one-day Strategic Briefing Workshop.

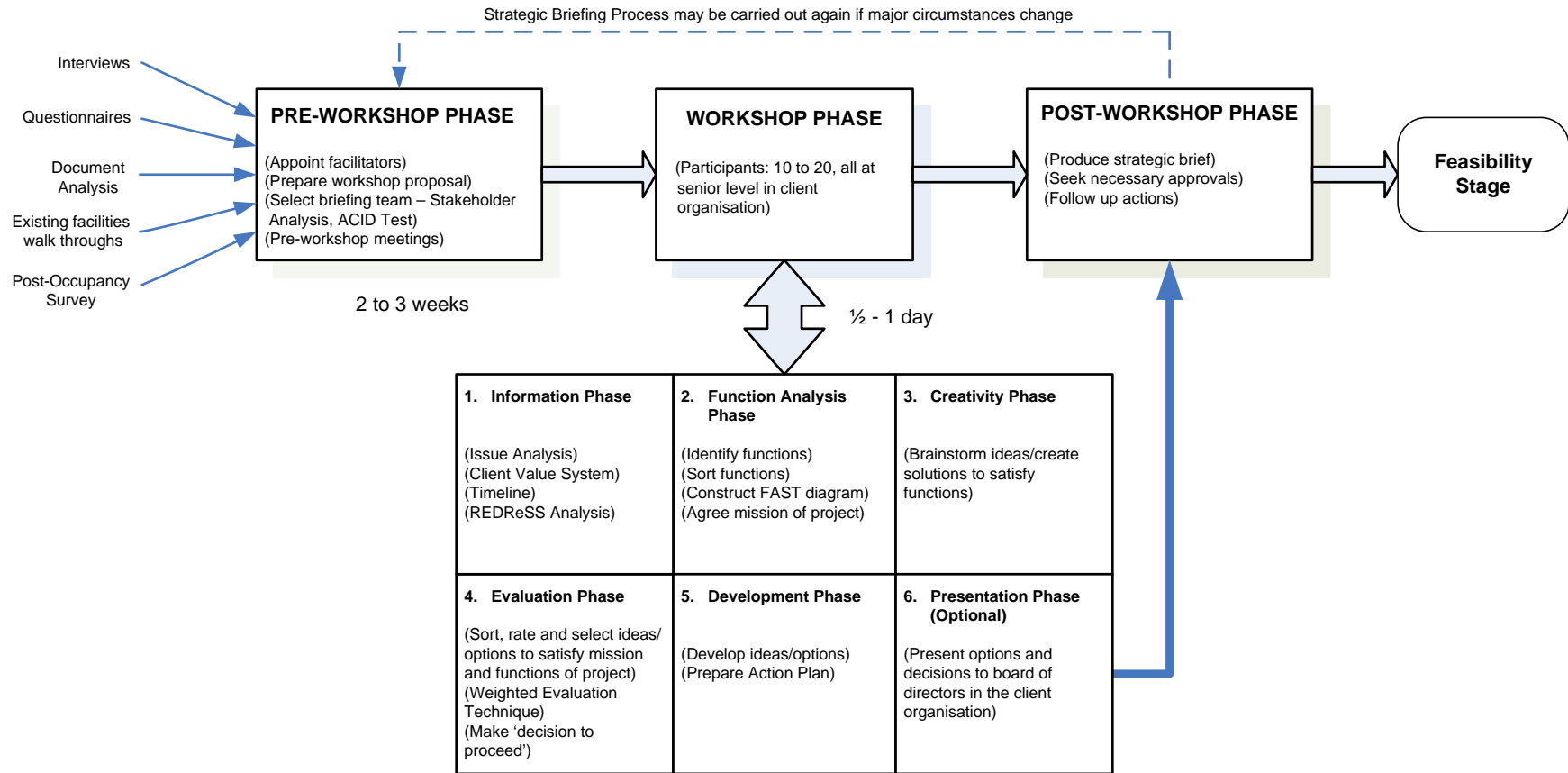


Figure 8.1 A flow chart of a typical Strategic Briefing Process

Table 8.1 Indicative agenda for the Strategic Briefing Workshop

Time	Activity/Task/Technique
9:00	Welcome and participants' self-introductions
9:10	Introduction to the day's agenda
9:20	Overview of Value Management
9:25	Objectives of the workshop and role of facilitators and participants
9:30	<i>Issue Analysis</i> – Uncover issues
10:30	Morning Break
10:45	<i>Client Value System</i> – Ranking of client's values
11:15	<i>Timeline</i> - Identify key dates and events
11:30	<i>Expansion of issues</i> - Identify and expand on important issues
12:00	<i>REDReSS Analysis</i> – Identify any missing issues and review information
12:30	Lunch Break
1:30	<i>Function Analysis</i> - Identify strategic functions
2:00	<i>Sorting of functions</i>
2:30	Construction of function diagram (FAST) – agree mission of project
3:30	Afternoon Break
3:45	Agree strategic brief as represented by function diagram and supplementary information
4:00	Creatively explore solutions to strategic functions prior to option appraisal
5:00	Select options to be carried forward to option appraisal – make 'decision to proceed'
5:30	Complete action plan
6:00	End of workshop

Project Briefing

The Project Briefing Study focuses on delivering the 'technical project'; that is, the construction industry's response to client requirements expressed in the Strategic Brief. The Project Brief translates the strategic brief into construction terms, specifying performance requirements for each of the elements of the project. It also includes spatial relationships. The Project Brief provides the basis on which design can proceed. Figure 8.2 indicates a flow chart of a typical Project Briefing Process and Table 8.2 shows an indicative agenda for a two-day Project Briefing Workshop.

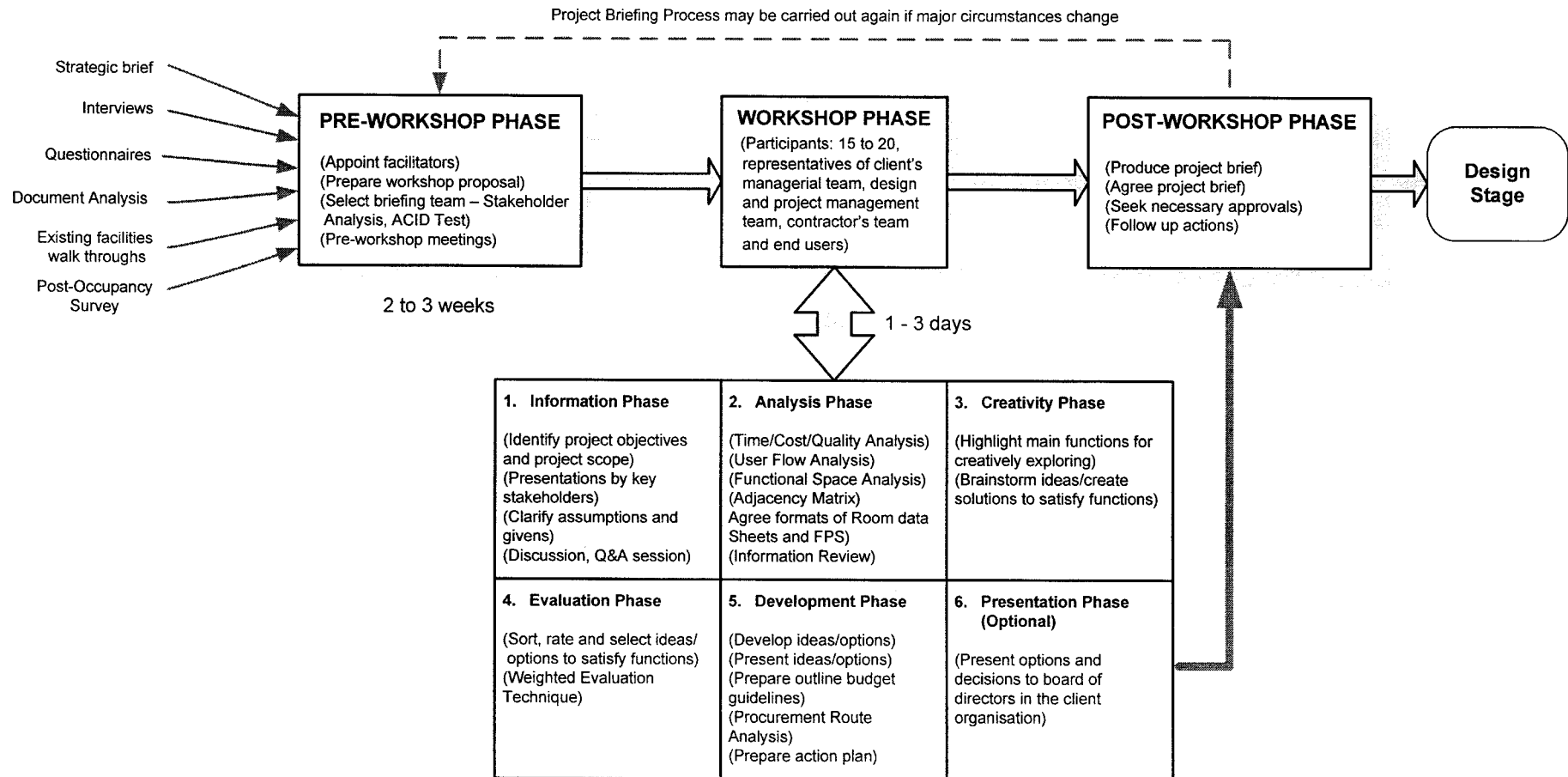


Figure 8.2 A flow chart of a typical Project Briefing Process

Table 8.2 Indicative agenda for the Project Briefing Workshop

Time	Activity/Task/Technique
Day 1	
9:00	Welcome and participants' self-introductions
9:10	Introduction to the two days' agenda
9:20	Overview of Value Management
9:30	Objectives of the workshop and role of facilitators and participants
9:40	Project objectives and project scope
9:50	Presentations and expectations by key stakeholders
10:20	Discussion, question and answer
10:45	Morning Break
11:00	<i>Time/Cost/Quality Analysis</i>
11:30	Identify users
12:00	<i>User Flow Analysis</i>
1:00	Lunch Break
2:00	Identify spaces from user flow analysis
2:30	<i>Functional Space Analysis</i>
3:30	Afternoon Break
3:45	<i>Adjacency Matrix</i>
5:00	Agree format of Room Data Sheets and Functional Performance Specification
5:30	Information review
6:00	End of Day 1
Day 2	
9:00	Information review
9:30	Highlight main functions for creatively exploring
10:00	Creatively investigate and generate new ideas
11:00	Morning Break
11:15	Initial sort of ideas
11:30	Select and group ideas for development – Rating of ideas
12:30	Outline development possibly in groups
1:00	Lunch Break
2:00	Outline development in groups continued
3:00	Presentations
3:30	Afternoon Break
3:45	Prepare outline budget guidelines
4:15	<i>Procurement Route Analysis</i>
5:15	Complete action plan
5:45	Conclusions and thanks
6:00	End of workshop

In case of pressure for an even shorter Strategic or Project Briefing Workshop, group work sessions may be used to increase team work efficiency.

8.2.2 Why use Value Management for briefing?

A) Factors that may have impact on the briefing process

In order to establish practical guidelines for briefing, it is necessary to identify the variables of briefing. To this end, the following variables of briefing have been identified and the many factors that could affect the briefing process performance are covered.

1. Projects
2. Stakeholder Management
3. Teams and Team Dynamics
4. Client Representation
5. Change Management
6. Knowledge Management
7. Risk and Conflict Management
8. Post-Occupancy Evaluation and Post-Project Evaluation (POE & PPE)
9. Critical Success Factors and Key Performance Indicators (CSFs & KPIs)
10. Type of Business and Organisational Theory
11. Decision Making
12. Communication
13. Culture and Ethics

Projects

A project is a change orientated event defined as ‘an enterprise comprising physical and non-physical activities that include a pre-project stage to ensure effective

planning and a post project stage to ensure successful absorption into core business.’ Therefore a project is a temporary activity separate from the organisation’s core business but one which will make a change in that business. A brief for a project requires the initiator of the brief to accept change.

Stakeholder Management

In the briefing process, it is necessary to consider the interests of stakeholders, both primary and secondary, and maintain a balance between different stakeholder interests. Those with responsibility for the briefing process should strive to maintain a good working relationship among all stakeholders.

Teams and Team Dynamics

The briefing team is project focused and interactive, and comprised of individuals willing to sacrifice individualism for collectivism. An important objective of team building is to break down the barriers to effective communications, encouraging listening and understanding of the project (Blyth and Worthington, 2001).

Client Representation

Kelly et al. (1992) identified one of the problem areas of briefing being the representation of the client interest groups. It is important to ensure adequate representation of client groups in order to address client needs and to prevent distortion of the brief.

Change Management

The client should, during the briefing process, be made aware of the impact of change during the design and construction process (Kelly and Duerk, 2002). The most difficult change management occurs when change results from inaccuracies in design caused by incomplete, unclear or ambiguous project information generated at the early stage of the project process. This may result from, for example, the appropriate stakeholder's information not being incorporated at a particular stage in the development of the project (Kelly et al., 2004).

Knowledge Management

Knowledge management in briefing relies on teamwork, collaboration, face-to-face contact and effective communication structures (McC Campbell et al., 1999; Bender and Fish, 2000). Fundamental to briefing, therefore, is the mapping of individuals' contributions to organisational project knowledge in order to determine the membership of the project briefing team.

Risk and Conflict Management

It is widely accepted that it is during the initial appraisal phase that risk management is most valuable. There is a great deal of flexibility in design and planning to allow consideration of ways in which various risks might be avoided or better controlled (Thompson and Perry, 1992). It is most beneficial to construct conflict management plans during pre-design stages of a project and such plans should incorporate preventative and reactive elements (Loosemore, 1999). Collaboration and problem solving is preferred to conflict resolution during the briefing process.

Post-Occupancy Evaluation and Post-Project Evaluation

POE has been defined as ‘a diagnostic tool and system which allows facility managers to identify and evaluate critical aspects of building performance systematically (Preiser, 1995). Successes, failures and past experiences of what does and does not work well should be used to inform better decision making in the briefing process. The more detailed a post-occupancy evaluation, the more likely it will support and influence the decisions made in the briefing process.

Critical Success Factors and Key Performance Indicators

The critical success factors in the briefing process range from clear objectives and requirements of the project to trust and involvement of key stakeholders (CIB, 1997). Key performance indicators include time, cost and quality as well as satisfaction of stakeholders.

Types of Business and Organisational Theory

The briefing team may be formed of many different types of organisations with different success criteria which are most influenced by stakeholder satisfaction. For example a government organisation or a not-for-profit organisation will differ greatly in terms of success criteria from those in the team more commercially orientated. Hence recognition of such differences in the briefing process is an important success criterion.

Decision Making

Multiple decision making methods may be employed to facilitate various scenario of the decision making process. In order to be successful, the briefing process should operate in a contingency fashion by changing decision methods to best fit the problem and situation in hand.

Communication

The briefing process is essentially a communicative act (Barrett and Stanley, 1999). Effective and efficient communication among stakeholders is crucial to the success of the briefing process. Active listening in the briefing exercise allows a free and complete flow of communication.

Culture and Ethics

In managing the briefing team, the influence of culture dimensions such as language, time orientation, use of space, religion, power distance, uncertainty avoidance, individualism-collectivism, masculinity-femininity and long term/short-term orientation are taken into account. The briefing team may even encounter ethical dilemmas which affect decision making in the briefing process.

The application of a Value Management (VM) approach is suggested in the briefing process embracing and taking into consideration the above thirteen variables and leading to systematic identification and clarification of client requirements, as well

as the precise and explicit representation of these requirements. The reasons why VM is recommended for briefing are given in the following section.

B) Why use VM for briefing?

Value Management service and the tools associated with that service, will address each of the 13 briefing variables listed above, on the condition that the method is used properly and by an accredited facilitator. In terms of projects, Value Management is a project orientated service which relies on clear objectives being set for the workshop(s) to allow for an agenda set to improve project performance. It is understood that Value Management is most effective when applied to a project which has a specific start and completion date. Value Management also relies on the project team assembling for a workshop to discuss the project with the conscious aim of adding value wherever possible to that project. How the team performs depends on the dynamics of that team and its ability to share and transfer knowledge.

In terms of stakeholder management, the Value Management facilitator in conjunction with the workshop initiator should decide on the workshop membership. The facilitator may conduct pre-workshop interviews to determine which stakeholders need to be kept informed and which stakeholders would add value to the workshop proceedings, those stakeholders are likely to be the ones with the knowledge and power to implement change. Value Management addresses other management fields such as change management and knowledge management. Effective change mechanisms are ensured through use of various tools and techniques that highlight communication and organisational structures which may be

addressed, for example, an ‘operations and communications’ workshop. Value Management can also identify risks and address conflict management by using tools such as those of ‘issues analysis’ which involves all team members participating in a brainstorming session to identify all project issues including project risks. In terms of Post-Occupancy Evaluation (POE) and Post-Project Evaluation (PPE), if time can be invested prior to a workshop, information gathered can be used by a Value Management facilitator to determine the workshop agenda. Contributions to the agenda are lessons learned from previous projects plus illustrative examples, with the obvious objective of providing the best possible solution for the project concerned.

Types of business, culture and ethics are other variables impacting the briefing process addressed through Value Management. For instance, a Value Management facilitator uses various techniques to determine the mission of the project. Incorporated are the client’s values to ensure that a clearer understanding is given to the rest of the project team on what is important to that client for the project concerned. Communication and decision making are done throughout a Value Management workshop using a variety of tools and techniques to share knowledge and achieve a consensus view.

An action plan, which assigns actions to the project team members and gives timescales to completion, completes the Value Management workshop. Key Performance Indicators (KPIs) have also been constructed to monitor performance in relation to the critical success factors of the project.

C) The benefits of using VM in briefing

Properly organised and executed, VM can achieve value for money and improved investment return through:

Concentrating expenditure on adding value

VM works by making stakeholders' objectives explicit and focusing on value for money criteria. This helps to fully investigate the need for a project, before financial commitment is made. VM provides a structured framework within which subsequent decisions can be taken in accordance with the objectives and criteria set. This means that the project design is developed and continuously evaluated against needs so that value for money is achieved.

Time savings in design, construction and approvals

Early application of VM saves design time by clarifying scope, reducing false starts, and helping to prevent redesign and reconstruction.

Improved project management structures and systems

VM improves the project management structures and systems by bringing all the consultants together in a workshop so that the project can be discussed face-to-face. It improves the project management system in that design consultants are able to communicate one with the other.

Consideration of options

The early application of VM will enable the recognition of the strengths, weaknesses, opportunities and threats created by the 'build' or 'no build' option. Any project should be initiated only after a careful analysis of needs. Failure to do this will cause problems with design and construction. More importantly, such failure causes problems with operation and use in the longer term.

Expedite decisions

There are a number of key points in every construction project at which the client must make important decisions. VM applied at these stages helps to ensure that these decisions are made in a manner which is rational, explicit, transparent, accountable and auditable. This means that key project stakeholders are able to participate more fully and effectively in decision making, hence increasing their confidence in the process and raising their commitment level to a successful project outcome.

Minimising wastage

Clients are aware of the need to minimise wastage in their construction projects. By careful consideration of different options for achieving the agreed objectives, VM may eliminate duplicating effort and abortive work in both design and construction.

Forecasting risks

Risk Management is also an important part of VM, even though it may seem unhelpful to try to identify and manage risks until there is agreement about what the project objectives are. In fact, a strategic diagnosis of the risks may well influence

how the objectives are set. A consideration of project risks is likely to feature in outline design proposals during project feasibility assessment.

Improving communication and understanding

VM drives the team members beyond their habitual patterns and procedures. The basic physical limitations of an office set-up prohibits the free flow of information between various groups, whilst a VM programme provides a way of mobilising and uniting the individual talents of each member to achieve objectives designated for the project.

The benefits of using VM in briefing include:

- achieving value for money from the whole project,
- attaining appropriate quality for the project,
- systematically identifying client's requirements, clarifying their needs versus wants and prioritising options for their issues,
- openly discussing and clearly identifying project objectives,
- the evolution of a design with an agreed framework of project objectives,
- creating more alternative solutions,
- validating design proposals,
- enabling clients to participate fully in the briefing process,
- being responsive to client's priorities,
- gaining a client and user insight into the project,
- providing an opportunity for stakeholders to formally participate in the design process,

- facilitating communication between clients and other stakeholders,
- resolving conflict among stakeholders,
- team working to identify opportunities available for development and to highlight any potential problems from the beginning of the project.

8.2.3 What is Value Management?

A) Historical perspective

Value Management (VM) evolved from Value Analysis (VA) which was first developed by Lawrence Miles in the General Electric Company (GEC) during World War II. Due to the shortages caused by the war, GEC was forced to evaluate functions and use substitute materials for many of their products. It was found that this also resulted in reducing costs, due to the elimination of some unnecessary functions of the products. Miles developed the mechanism behind the phenomenon and finally established a formulated function-oriented systematic method named Value Analysis. He is now regarded in the USA as the father of Value Analysis/Value Engineering/Value Management.

B) Definition of VM

VM is an organised function-oriented systematic team approach directed at analysing the functions and values of a system, supply, equipment, service or facility, for the purpose of achieving the required functions specified by the clients at the lowest possible overall cost, consistent with requirements for performance (Shen, 1993).

C) VM methodology

The VM methodology has a series of systematic and specific steps commonly known as the “Job Plan”. It demonstrates systematic procedures for accomplishing all the necessary tasks associated with a VM study. The SAVE 40-hour Plan is one of the formal approaches in the construction industry. This 40-hour study is a systematic step-by-step approach to define objectives, identify functions, issues and constraints, and to recommend proposals in order to facilitate the design process.

According to the Value Methodology Standard (SAVE International, 1998), the SAVE 40-hour Plan is comprised of three major phases:

- (i) pre-workshop phase,
- (ii) workshop phase, and
- (iii) post-workshop phase

A summary of the VM methodology is given in Table 8.3.

Table 8.3 The VM Job Plan (Source: SAVE International, 1998)

Phase		Main Tasks
PRE-WORKSHOP		<ul style="list-style-type: none"> • Collect user/customer attitudes • Complete data file • Determine evaluation factors • Scope of the study • Build data models • Determine team composition
VM WORKSHOP	Information Phase	<ul style="list-style-type: none"> • Complete data package • Modify scope
	Function Analysis Phase	<ul style="list-style-type: none"> • Identify functions • Classify functions • Develop function relationships/models • Establish function
	Creativity Phase	<ul style="list-style-type: none"> • Create quantity of ideas by function
	Evaluation Phase	<ul style="list-style-type: none"> • Rank and rate alternative ideas • Select ideas for development
	Development Phase	<ul style="list-style-type: none"> • Conduct benefit analysis • Complete technical data package • Create implementation plan • Prepare final proposals
	Presentation Phase	<ul style="list-style-type: none"> • Present oral report • Prepare written report • Obtain commitments for implementation
POST WORKSHOP		<ul style="list-style-type: none"> • Complete changes • Implement changes • Monitor status

8.2.4 When should briefing be conducted?

Strategic Briefing should be carried out at the time prior to ‘decision to proceed’ is made. A strategic brief should be completed after the workshop. Anybody reading the strategic brief should be able to understand why an organisation has decided to invest in a physical asset or assets and pursue no other strategic options that might compete for the same investment resource at that time. The strategic brief is

recommended to be fixed before detail design commences in order to avoid redesign and rework.

Project Briefing should be carried out prior to the completion of the project feasibility study in order to derive the greatest benefits from limited resources. A project brief, which forms the basis of design, should be completed after the workshop and before scheme design.

Please note that the recommended timings are indicative and the exact timing of Strategic and Project Briefing for different projects may vary slightly according to the scope and complexity of the projects. If circumstances change, Strategic or Project Briefing may be required again but to save time, the number of reviews may be reduced if the first reports (briefs) are well documented and relevant.

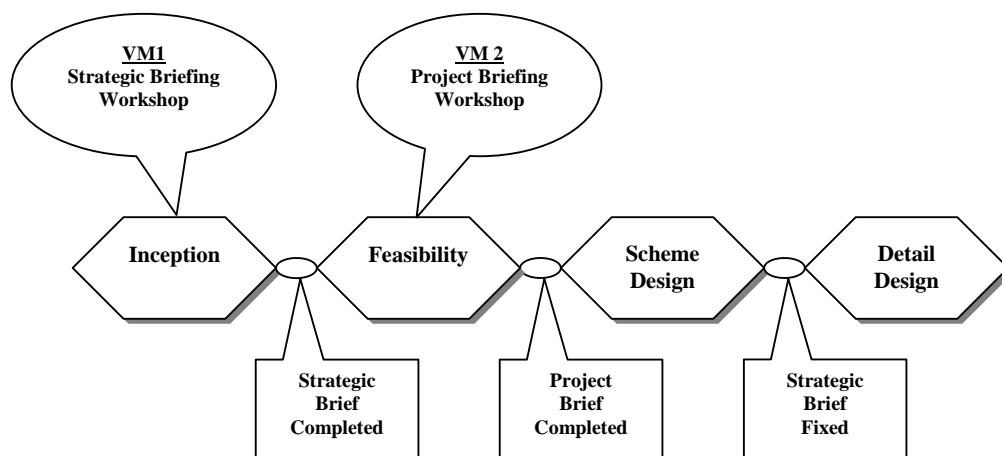


Figure 8.3 Indicative ideal timing of Strategic and Project Briefing

8.2.5 Who should participate in briefing?

A) Appointment of a facilitator

It is necessary to appoint a VM trained facilitator to lead the Value Management study and to chair meetings. The facilitator must be proficient and experienced enough to take on this key role. Ideally, he must:

- manage the whole VM process professionally,
- maintain a climate conducive to participation, listening, understanding, learning, and creating,
- listen actively,
- help the team to establish and accomplish its own objectives,
- provide structure and guidance to increase the likelihood that objectives will be accomplished,
- keep the group focused on its objectives,
- encourage relevant dialogue and interaction among participants,
- suggest and direct processes that empowers and mobilises the group to get its work done,
- encourage the group to evaluate its own progress or development,
- capitalise on the differences among the group,
- remain neutral on content and be active in suggesting and directing the process,
- protect group members and their ideas from being attacked or ignored,
- use facilitation skills to tap the group's reservoir of knowledge, experience and creativity,
- sort, organise and summarise group inputs or help the group to do so,

- help the group move to a healthy consensus, define and commit to the next steps, and reach timely closure.

The facilitator may or may not be an existing member of the project team. Appointing a facilitator from outside your organisation usually gives the role and the person an air of impartiality and therefore greater credibility among the briefing team members.

The following web sites provide details of qualified facilitators:

Hong Kong Institute of Value Management (HKIVM) – <http://www.hkivm.com.hk>

Institute of Value Management UK (IVM) - <http://www.ivm.org.uk>

SAVE International USA - <http://www.value-eng.org>

Institute of Value Management Australia - <http://www.value-management.com.au>

B) The briefing team

The facilitator of choice assists in selecting the briefing team for a specific project, which ideally:

- aims to be objective,
- has a good understanding of the project's objectives and constraints,
- includes a representative from each of the key disciplines involved,
- focuses on collaboration and trust,
- commits to democratic practice,
- is capable of lateral thinking; team members should be able to think out of the box innovatively,

- includes good team players,
- includes clear communicators.

Criteria for an effective briefing team

1. For maximum performance a briefing team should be temporary, formal, task orientated, and has an upper limit of approximately 20 members and a formal leader.
2. A large briefing team (say 13 to 20 members) requires formal rules and procedures.
3. The briefing exercise should be efficiently conducted over a sufficient but short period of time to prevent the emergence of an informal leader.
4. The briefing team should be project focused and interactive and be comprised of individuals willing to sacrifice individualism for collectivism.
5. Team membership should be effective and balanced as indicated by the ACID Test (refer to Toolbox 1, Section 8.2.7).

Potential participants for Strategic Briefing Workshop: 10 to 20, all at senior level in the client organisation

Potential participants for Project Briefing Workshop: 15 to 20, representatives of the client's managerial team, design and project management team, contractor's team and end users

8.2.6 Where should briefing be conducted?

A) Venue

If possible, the ideal venue to assemble the participants should be a hotel or resort which is away from the office. The objective being to enable the participants to deliver their undivided attention to the workshop, for a concentrated period.

B) Facilities

The facilities and equipment needed in a briefing workshop include:

- a large room with good ventilation and lighting,
- seating arranged in a U-shape or a semi-circle,
- overhead projector,
- LCD projector,
- flip charts and stands,
- adequate wall space to pin up flip charts,
- white boards,
- marker pens,
- “Post-it “notes,
- blu-tack,
- black and red sticky dots.

Additional facilities, such as photocopying, computing, printing, fax and telephones, should be accessible but only when required to provide information for the workshop.

C) Room layout

Figure 8.4 indicates a recommended room layout for briefing workshops and Figures 8.5 and 8.6 show the venue of a workshop.

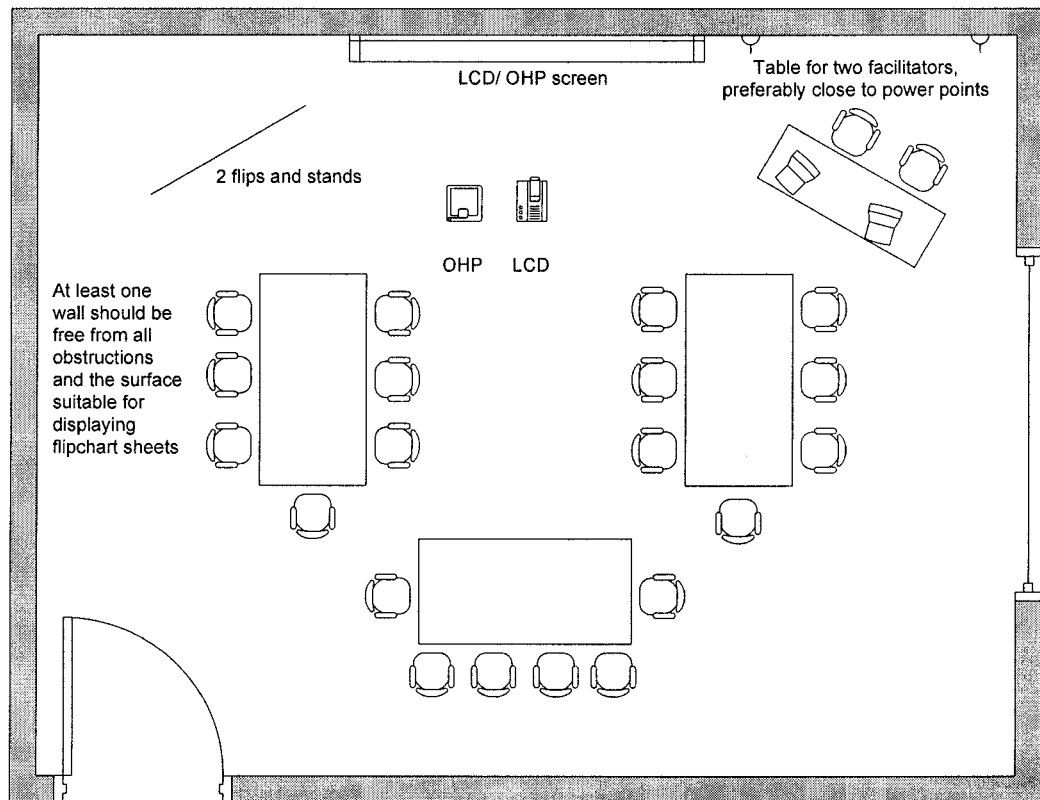
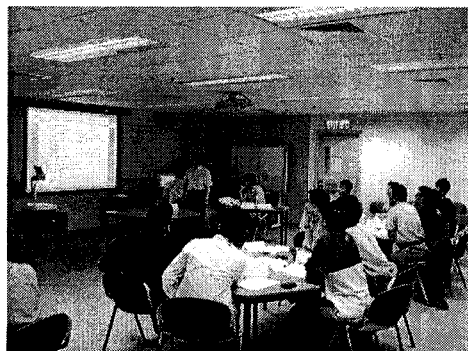


Figure 8.4 Typical room layout for the briefing workshop



Figures 8.5 and 8.6 Photos of workshop venue

8.2.7 How to apply tools and techniques in briefing?

This section comprises of four toolboxes:

1. Toolbox 1 – Pre-Workshop Phase Tools
2. Toolbox 2 – Tools for Strategic Briefing Workshop
3. Toolbox 3 – Tools for Project Briefing Workshop
4. Toolbox 4 – Supplementary Tools

These toolboxes were created with reference to the book “Value Management of Construction Projects” (Kelly et al., 2004). A summary of tools and techniques for briefing is provided at the end of this section.

Toolbox 1 – Pre-Workshop Phase Tools

A) Stakeholder Analysis

A stakeholder analysis, prior to the briefing workshop, is suggested for the mutual understanding of the various interested parties in the project. Important tasks for the project manager therefore include:

- identification of stakeholders in a project,
- assessment of stakeholders’ commitment,
- assessment of stakeholders’ interests, and how this will affect what they think and do about the change,
- assessment of stakeholders’ power to help and hinder the change,
- management of relations with stakeholders.

Identify stakeholders in a project

Identification of stakeholders can be achieved through a visual representation in the form of a map. A suggested procedure is as follows.

- Write the name of the project in a circle at the centre of a sheet of paper.
- Draw other circles around the sheet, each identifying an individual or group whom you regard as having a stake in the project. Place the most significant nearer the centre; with the less significant around the edge.
- Check to include all relevant interests – senior management, colleagues, staff, and people in other organisations.

Assess the commitment of the main stakeholders

The next step is to assess the degree of commitment of the main stakeholders in the project. The project manager can assess the level of commitment of each stakeholder on a scale as shown in Table 8.4. Mark both current and desired levels on the scale for each stakeholder – such as ‘present’ = X, ‘hoped for’ = Y.

Table 8.4 Stakeholder commitment (Source: Boddy, 2002)

Key Stakeholder	Vigorous opposition	Some Opposition	Indifferent towards it	Will let it happen	Will help it happen	Will make it happen

Assess the interests of the main stakeholders

The next step is to assess the interests of the main stakeholders – those on whom you want to concentrate. This can be done on a grid as shown in Table 8.5.

Table 8.5 Grid for summarising stakeholder interests and reactions
(Source: Boddy, 2002)

Stakeholder	Their goal	Current relationship	What is expected of them?	Positive or negative to them?	Likely reaction?	Ideas for action

Assess the power of main stakeholders

Johnston and Scholes (1999) introduce the idea of analysing, not only the interests of stakeholders, but also their power in an organisation's strategy (see Figure 8.7). This idea is also relevant at the level of the project, as it indicates what kind of relationship the manager needs to establish with each group. The acceptability of the direction of a project to key players (segment D) should be a major consideration. The manager needs to devote much time and effort to key players. Less effort, or a different kind of effort, is acceptable regarding those in other segments. A major hazard to be aware of is that players may suddenly change their position – such as from Segment B to Segment D. The project manager needs to adapt his approach accordingly.

		Level of interest	
		Low	High
Power	Low	A Minimal effort	B Keep Informed
	High	C Keep satisfied	D Key players

Figure 8.7 Stakeholder mapping: power/interest matrix
(Source: Johnson and Scholes, 1999)

Manage relations with stakeholders

It is necessary to gain stakeholders' support, minimise opposition and generally create favourable attitude to the change induced by the project.

B) ACID Test – Selecting the team

The team facilitator works either with the client in selecting the members of the briefing team in the pre-workshop phase or can request the client to build the team based simply on the inclusion of those stakeholders with an input relevant to the particular stage in the project development. The ACID Test is to determine precisely who should be a member of the briefing team. The criteria are as follows:

- A AUTHORISE – Include those who are appropriate in connection with the stage of the project development under discussion and who can therefore authorise actions appropriate to any decisions made. Such people have

executive authority and are invaluable members of the management team. Their value is in their ability to immediately sanction a particular line of discovery or take a decision during the workshop to resolve an issue or unblocks a particular line of investigation.

- C CONSULT – Include experts who have to be consulted regarding particular aspects of the project during workshop discussions. Such people can then be relied upon if a particular line of investigation is dependent upon consultation with an absent expert, thus preventing workshop progress being compromised.
- I INFORM – Do not include those whose major input is simply “to be in receipt of decisions reached at the workshop”.
- D DO – Include those who are likely to be designated to carry out major tasks specified at the workshop stage. Such players are those, for example, employed to design or construct and need to be fully conversant with the decisions taken during the workshop.

The facilitator and/or project manager may also take into account the following factors when selecting the briefing team.

1. Limit multiple representations from one organisation or one department. For example, three members from one organisation where other organisations have single representation will lead to a weight of argument in favour of the multi-represented organisation.

2. Understand the hierarchical mix (senior, subordinate) within the team.
3. Understand the relationships between team members, for example, one member may be dependent financially on another team member.
4. Consider the completeness of the team. Discuss with the client any apparently missing representatives of crucial areas of expertise.

C) Post-Occupancy Evaluation

A fully structured post-occupancy evaluation of the client's last completed building can highlight efficiency gains that might be possible in the current project. A note of caution, however, is not to collect information for the sake of collecting information. Information should be sought for a reason and be capable of being presented to individual members of the workshop team in a form conducive to being understood in the shortest possible time.

Steps in a post-occupancy evaluation include:

1. a clear decision on the sort of information to be collected and key questions to be asked regarding the information. The questions may have arisen from a document search of the proposed project or from interviews.
2. examination of all possible documented information including pre and post contract correspondence files, the project brief, drawings and specification, the tender documentation and preferably an elemental cost analysis.
3. examination of any previous customer care surveys.
4. a schedule of areas of functional space.

5. a walk through of the existing building addressing the questions highlighted in (1) above. Photographs should be taken as necessary.
6. interviews with users of the existing facility.

Questions that might be posed prior to commencing a post-occupancy evaluation might include:

1. When comparing or benchmarking costs, how did the last completed building of the client compare with the cost of other similar buildings from the same industry sector?
2. Are there any obvious elements of redundancy such as structures and architectural features? For example possibly the structural design may incorporate a frame. Is the building sufficiently and permanently compartmentalised such that the need of that frame is questionable?
3. Is there evidence at the final outcome of unfulfilled promises regarding production of items promised initially?
4. Is there evidence that the designers have allowed a particular briefing statement to drive the design? For example, the brief might state "the design to provide as much natural light as possible...." This could easily drive the whole design approach if not queried.
5. What is the percentage of circulation space?
6. Are there any specific safety or security issues?
7. Is there evidence that a standard specification has been slavishly adhered to? For example, it may be that the hardwood joinery and suspended ceilings are used in all areas even those where they are inappropriate.

8. Has sufficient thought been given to cleaning and maintenance?
9. Are the heating, lighting and ventilation sufficient comfortable?
10. Is the project energy efficient?
11. Are the recurrent costs reasonable?
12. Are the occupants satisfied? Do they feel that the building works for them or are they constantly adapting their own systems to match the configuration of the building.
13. What are the differences between the evaluated project and the future project?

Toolbox 2 – Tools for Strategic Briefing Workshop

A) Issue Analysis

Using this approach the facilitator asks the team for all factors impacting the project. The issues will tend to be uncovered in a relatively random fashion and therefore the facilitator records the issues on "Post-it" notes. Typically after approximately an hour the team will have exhausted all issues impacting the project.

The next stage in the process is for the team to sort the "Post-it" notes under the 14 generic headings (see Checklist in the next section) supplemented as necessary. The headings are written on card at the top of blank flip chart paper with which the walls have been lined. Where a particular checklist heading has no "Post-it" notes attached, the facilitator then asks for further issues under that heading.

After the issues are sorted, each member of the team should be given approximately 10 black sticky dots, with which to identify those issues described on the "Post-it" notes and which the particular team member believes important.

On completion of this exercise each team member is given approximately five red sticky dots to further prioritise those issues of importance, previously highlighted and which the team member believes to be so important that the project may be compromised unless that issue is resolved in workshop time.

At this stage all issues are under headings and effectively ranked in order of importance, based upon the number and colour of sticky dots attached to the "Post-it" notes. The facilitator then interrogates the team and records in detail, on the flip chart paper, the information behind those issues that have coloured dots attached. It is common for some issues to be ranked highly important by the majority of the team and therefore these are investigated in some considerable detail. The issue analysis and the ensuing information gathered on key issues are then pinned to the wall and surround the team for the remainder of the workshop.

B) Checklist

The checklist technique is adapted from that described by Morris & Hough (1987) who undertook a study of major international projects. It was determined that most information relevant to projects can be summarised under the following generic headings. The use of these headings facilitates the identification of client requirements through either interview, interrogation of the team, or issue analysis.

1. *Organisation:* Organisation involves the identification of the client's business, the place of the project within the business and the users of the project (who may not necessarily be a part of the client organisation). An investigation of the client's hierarchical organisational structure and the client's key activities and processes that impact the project are considered in this respect. Information on the departments from which the client representatives are drawn, the decision making structures of the client and how this interfaces with the project design and construction teams, and the communication networks anticipated for controlling the project, are also included. These decision making structures become more important in situations where a single project sponsor or project manager represents the team. The limits to the executive power of the project sponsor or project manager should be clearly defined. Information should be sought about the core and non-core business of the organisation and how they relate to space use if a building project is under study.

2. *Context:* The context of the project incorporates such factors as culture, tradition or social aspects. Cultural aspects may include the relationship of one department with another and the fitting out and general quality of the environment, e.g. a court. Tradition can cover such aspects as corporate identity that may be important in, for example, retailing. Social aspects generally relate to the provisions, made by the client, for the workforce such as dining, recreation, sports and social club activities.

3. *Location:* The location factors relate to the current site, the proposed sites or the characteristics of a preferred site which has not to date been acquired.
4. *Community:* Community relates to the community groups, such as those within close proximity of the project and who may require to be consulted regarding matters relating to it. Some market research may need to be undertaken to ascertain local perceptions. The positioning of the project within the local community should also be completely understood.
5. *Politics:* The political situation which may influence or affect the project should be fully investigated through an analysis of local government policies and central government policies and client organisational politics. The latter are often difficult to make overt at a workshop of representatives of different client departments; however, client politics is a key driver behind any project. It is useful to know the identity of the departments, individuals or groups of power, the innate sources and degree of that power and in particular how project decisions and development can be influenced by them either collectively or individually. The analysis of political parties in power at national, regional and local levels should include their views on the project. It should also include information regarding any anticipated changes in political persuasion anticipated over the project life cycle. Whether these political changes could have any bearing on the job in hand, should be noted.

6. *Finance:* The financing structure of the project should be determined by considering the source of funding, the allocation of funding and the effects of the project cash flow on the cash flow of the client organisation. The latter is particularly important when dealing with public sector organisations working with annual budgets.
7. *Time:* The general considerations regarding the timing of the project include a chronological list of the procedures which must be observed in order to correctly launch the project. In situations where the project is to be phased, time constraints for each stage of the project should be recorded.
8. *Legal and contractual issues:* These issues include all factors which have legal bearing on the project including the extent to which the client is risk averse and requires cost certainty. Also included are data relating to the client's partnership agreements with suppliers and contractors.
9. *Environmental issues:* The environmental concerns which may have some bearing on a project include site, climate, urban and regional context, available resources, and waste products. Environmental resources such as water, air, fuel, energy, building materials, may have a profound influence on site planning and built form.
10. *Project parameters and constraints:* A primary objective of the value management workshop at the strategic briefing stage is to make clear the

project aims. The workshop both “sets the scene” and paves the way for the development of future stages of the project. Discussions must take place on the evolution of the project to keep control of time and to measure the extent to which key stakeholders believe that the project is still evolving. Any constraints surrounding the development of the project should be discussed and recorded.

11. *Project drivers:* A project driver is defined as any factor which gives impetus to the project. The factor may be legislation, a champion or a change within the organisation.
12. *Change management:* The activities involved in change management are identifying, recognising, evaluation, planning and implementation usually through education, training, communication, and team and leadership development. As people are at the heart of any change process, communication and involvement are the keys to success. To recognise the change process, the organisation must be able to capture, record, process, structure, store, transform and access information. Change management involves not just managing change within an organisation but also managing risks and anticipating the effects of external factors.
13. *Procurement methods:* The procurement methods selected by the client determine the quality of the project brief required. In the design and build procurement system, the Employer’s Requirements, which includes the project

brief, is important as it defines the client's need and forms a major part of the contract. A common problem is an inadequate brief with much ambiguity and many loop-holes. This will lead to undesirable variations and disputes, and have an adverse effect on the progress and financial certainty of the project. A clear and well-defined brief enables the client to obtain a desirable building as well as maximising the benefits of design and build procurement systems.

14. *Buildability input:* Buildability input refers to the input of the contractors and supply chain, induced by the timely identification of the most flexible building strategies.

C) Client Value System

The client value system is used to obtain ordinal measurement in the form of a ranking of the client's values. Figure 8.8 shows an example of a client value system diagram for a residential development. The client value system diagram represents the view of the client at the time of the workshop. The various stages in the construction of the diagram are listed below.

CAPEX – Capital Cost (A)								
B	OPEX – Operating Cost (B)							
C	B	TIME (C)						
A	B	C	ENVIRONMENT (D)					
A	B	C	D	EXCHANGE (E)				
A	B	C	F	F	FLEXIBILITY (F)			
A	B	C	D	G	F	ESTEEM (G)		
A	B	C	D	E	F	H	COMFORT (H)	
I	B	I	I	I	I	I	I	POLITICS (I)

A	B	C	D	E	F	G	H	I
5	8	6	3	1	4	1	1	7

Figure 8.8 Example of the client value system diagram for a residential development

1. Identify the client. The diagram to be constructed represents the view of the client; therefore only members of the client organisation with executive authority and not consultant advisers to the client should be responsible for the construction of that diagram. The remainder of the team is asked by the facilitator to remain silent while the client completes the diagram.
2. Decide the value criteria. The diagram is typically comprised of up to nine variables as follows:
 - *Time*, from the present until the completion of the project, specifically the point when the project is absorbed back into the core client business.
 - *Capital cost (CAPEX)* includes all costs associated with the capital cost of the project, measured on a continuum between a tightly controlled and bound budget to a more flexibly operated budget.

- *Operating cost (OPEX)* refers to all costs associated with the operations and maintenance implications of the completed project as that project moves to an operational product within the client's core business.
- *Environment* refers to the extent to which the project results in a sympathetic approach to the environment, measured by its local and global impact, its embodied energy, the energy consumed through use and other green issues.
- *Exchange* or resale refers to the monetary value of the project. This may be viewed as assets on the balance sheet, the increase in share value, capitalised rental or how much the project would realise were it to be sold.
- *Flexibility* represents the extent to which project parameters have to reflect a continually changing environment in the design. This value criterion is generally associated with the changing technology or organisational processes or both.
- *Esteem* is the extent to which the client wishes to commit resources for an aesthetic statement or portray the external and internal esteem with which the organisation intends to be viewed.
- *Comfort* is the physical and psychological comfort of the building as a place of work and living and the subsequent impact on human performance.

- *Politics* is an external dimension and refers to the extent to which community, popularity and good neighbour issues are important to the client.

These nine variables are suggested as the key criteria against which client value relationships can be made explicit. Having explained the nine criteria, the facilitator should explore any other value criteria which the client may wish to add. Care must be taken to avoid any additional value criteria highly correlate with one of the original nine variables. In addition, value criteria within the list should be explored for relevance to the project; for example, exchange may not be relevant to a hospital that is to remain in public ownership.

3. Determine the organisational or project values. It must be clear whether the exercise relates to the client organisation as a whole or the specific project. In many situations it is necessary to undertake this exercise with the project characteristics set to one side, i.e. to obtain the value criteria for the organisation alone. Once the organisational value criteria have been established, any variation with those of the project must be identified. The reason is that the particular project may have value criteria that would not normally relate to the organisation. For example, a university laboratory may have been destroyed in a fire. The client will be keen to see the laboratory rebuilt as soon as possible. Time is therefore likely to be a key value variable in the context of this project but normally, for the university organisation, time may not be an important value driver.

4. Undertake the paired comparison matrix by asking the questions in turn, for example, 'Which is more important to you, CAPEX or OPEX? If CAPEX is more important, A is inserted in the appropriate box.
5. Add the total number of As, Bs, etc. on completion of the matrix and enter the number in the totals box.
6. Check back with the client his value criteria, i.e. the rank order of the variables.

D) Timeline

Horizontal lines are drawn on the flip chart in front of the team to represent the number of years over which the project may extend. The date of the workshop is indicated. All preparatory stages of the project, up to the decision to proceed, are included on the timeline as key events during the progress of the project prior to its adoption by the client's core business team. This is a useful technique to focus the team on the permissions and procedures that precede the decision to proceed with the project and any major events during the project. The timeline should not be confused with a highly developed computer generated programme. The timeline is purely a focusing technique used during the information stage of the workshop. Figure 8.9 shows an example of the timeline for renovation of a residential development.

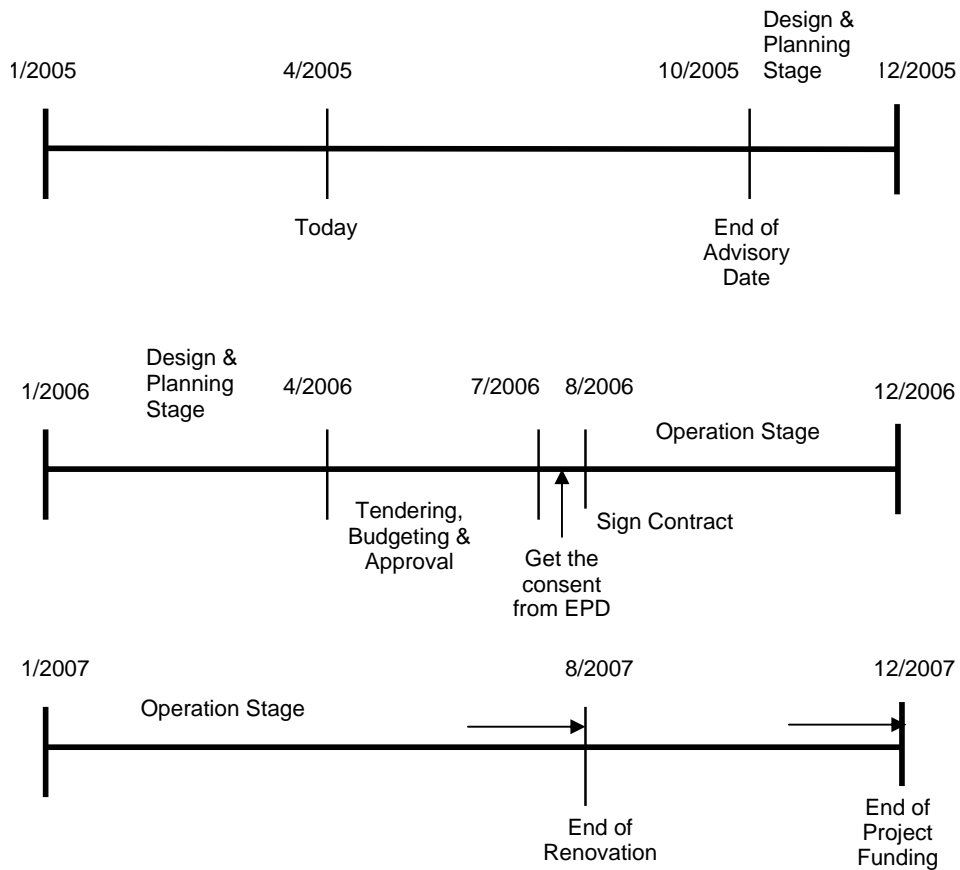


Figure 8.9 Example of the timeline for renovation of a residential development

E) REDReSS Analysis

REDReSS is an acronym for the final stage of the information validation exercise. The aim of the review is to finally capture any missing information and to sensitise the team for the function analysis exercise.

- **Reorganisation.** A final check is made to determine the extent to which the client is likely to reorganise during the project's life cycle. In the event that a decision to build is taken, the question becomes one of determining the extent to which

the client is likely to reorganise during the design and construction period and/or immediately thereafter.

- Expansion. This question invites an assessment of whether the project will remain fixed or whether a further phase is likely. In the event that a decision to build is taken the question becomes one of: ‘what expansion is likely and how it can be accommodated in terms of space and services within the existing and/or planned operating infrastructure’.
- Disposal. A construction project will have a predetermined life whether through economic redundancy or physical failure necessitating refurbishment or reconstruction. When this stage is reached, some disposal activity will occur. The question posed here is whether anything worthwhile can be incorporated into the design of the project to assist ‘disposal’.
- Refurbishment and maintenance. The questions posed in this respect are, ‘what are the client’s refurbishment and maintenance policies?’ and ‘can anything be factored into design thinking which assist those policies?’ Examples of policies could be that maintenance has to be carried out in a secure environment at predetermined times.
- Safety. All projects have to comply with the requirements of health and safety legislation. However, some clients may wish to extend the issue of safety by making it clearly demonstrable rather than just compliant.

- Security. Some facilities attract higher security than others. This factor has to be expressed in a manner which can be measured. Consideration of the future might allow security systems to be easily incorporated.

F) Function Analysis

This section introduces the concept of function analysis and its use at the strategic briefing stage of a project to derive the project's mission through function diagramming. The technique of function diagramming is attributed to a VE practitioner, Charles Bytheway, who gave it the acronym FAST (function analysis system technique). One of the objectives of the use of function analysis at the strategic briefing stage is to lay the foundation for the “best value for money” solutions to the project problems. The function analysis technique relies upon the discovery of all relevant information through the issue analysis and the structuring of that information in a way that leads to the recognition of the primary objective of the project.

There are three steps to the construction of a function diagram:

1) Generation of functions

A function is the specific purpose or intended use for a product, it is the characteristic that makes it work, sell, generate revenue, or meet requirements (Dell'Isola, 1982). The generation of functions starts with the facilitator leading the team to creatively explore the functions required by the project. These functions may be high order executive functions or relatively low order 'wants'. All functions are expressed in the form of an active verb plus a descriptive noun, and are recorded

on sticky notes and scattered randomly across a large sheet of paper. The facilitator will continually prompt the team to generate functions by referring back to the information from the issue analysis, timeline and REDReSS. A typical list of creatively explored functions is shown in Table 8.6.

2) Sorting of functions / constructing project function priority matrix

After the completion of the brainstorming session, the team is invited to sort the notes into a more organised form by putting the highest order 'needs' into the top left-hand corner of the paper and the lowest order 'wants' into the bottom right-hand corner. 'Needs' are the fundamental requirements that the project must possess to serve the client's basic intentions and 'wants' are the embellishments which it would be nice to have but are not necessarily needed. The project function priority matrix is constructed from responses gleaned from each "sticky note" function as to whether that function is technical or strategic and whether it constitutes a need or a want. The note is transferred to the appropriate box in the matrix where its position is ordered relative to the other function in the box (Table 8.7). The higher priorities are listed at the top of the respective boxes. It should be emphasised to the team this procedure is an iterative process and therefore any team member is entitled to move a previously ordered sticky note. Although this activity sounds confrontational, it is very rare for disagreement to occur and ultimately the team can arrive at a correct ordering of all functions.

Table 8.6 Typical list of creatively explored functions for a residential development

<ul style="list-style-type: none"> • Secure environment • Establish multi-function integration • Enhance facilities • Ensure user comfort • Meet community needs • Create pleasing environment • Upgrade living standard • Improve user interface • Better utilization of land • Change community perception • Minimize nuisance to public • Reduce deterioration • Control finances • Control operational cost • Relieve compliant • More recreational facilities • Improve accessibility • Increase flexibility • Allow private participation • Ensure buildability • Ensure operability • Ensure building lifetime • Establish project brief • Control programme 	<ul style="list-style-type: none"> • Please neighborhoods • Reduce government accommodation • Transfer responsibility to private sector • Protect existing building • Establish local community pressure • Satisfy compensation • Enhance environment • Secure funding • Create value • Provide recreational space • Enhance communication • Reduce mosquitoes • Reduce dust • Preserve parking • Suppress vibration • Reduce noise • Maintain access • Monitor environment • Monitor dust • Satisfy safety • Improve safety standard • Limit cost
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3) Construction of function diagram

A strategic or customer oriented FAST diagram is constructed by focusing on the strategic needs and wants (Figure 8.10) The highest order needs tend to form the mission of the project with supporting functions being positioned to the right. The strategic wants tend to be positioned below the centreline of the mission statement. The mission statement will require to be word crafted as a flowing statement. It is important to have unanimous team agreement that the statement truly reflects the mission of the project, remembering that the mission at this stage does not necessarily imply a building.

Table 8.7 Example of the project function priority matrix for a residential development

<p><i>Strategic needs</i></p> <ul style="list-style-type: none"> • Secure environment • Establish multi-function integration • Enhance facilities • Ensure user comfort • Meet community needs • Create pleasing environment • Upgrade living standard • Improve user interface • Better utilization of land • Change community perception • Minimize nuisance to public • Reduce deterioration • Control finances • Control operational cost • Relieve compliant • More recreational facilities • Improve accessibility • Increase flexibility 	<p><i>Technical needs</i></p> <ul style="list-style-type: none"> • Allow private participation • Ensure buildability • Ensure operability • Ensure building lifetime • Establish project brief • Control programme • Improve safety standard • Limit cost
<p><i>Strategic wants</i></p> <ul style="list-style-type: none"> • Please neighborhoods • Reduce government accommodation • Transfer responsibility to private sector • Protect existing building • Establish local community pressure • Satisfy compensation • Enhance environment • Secure funding • Create value • Provide recreational space • Enhance communication 	<p><i>Technical wants</i></p> <ul style="list-style-type: none"> • Reduce mosquitoes • Reduce dust • Preserve parking • Suppress vibration • Reduce noise • Maintain access • Monitor environment • Monitor dust • Satisfy safety

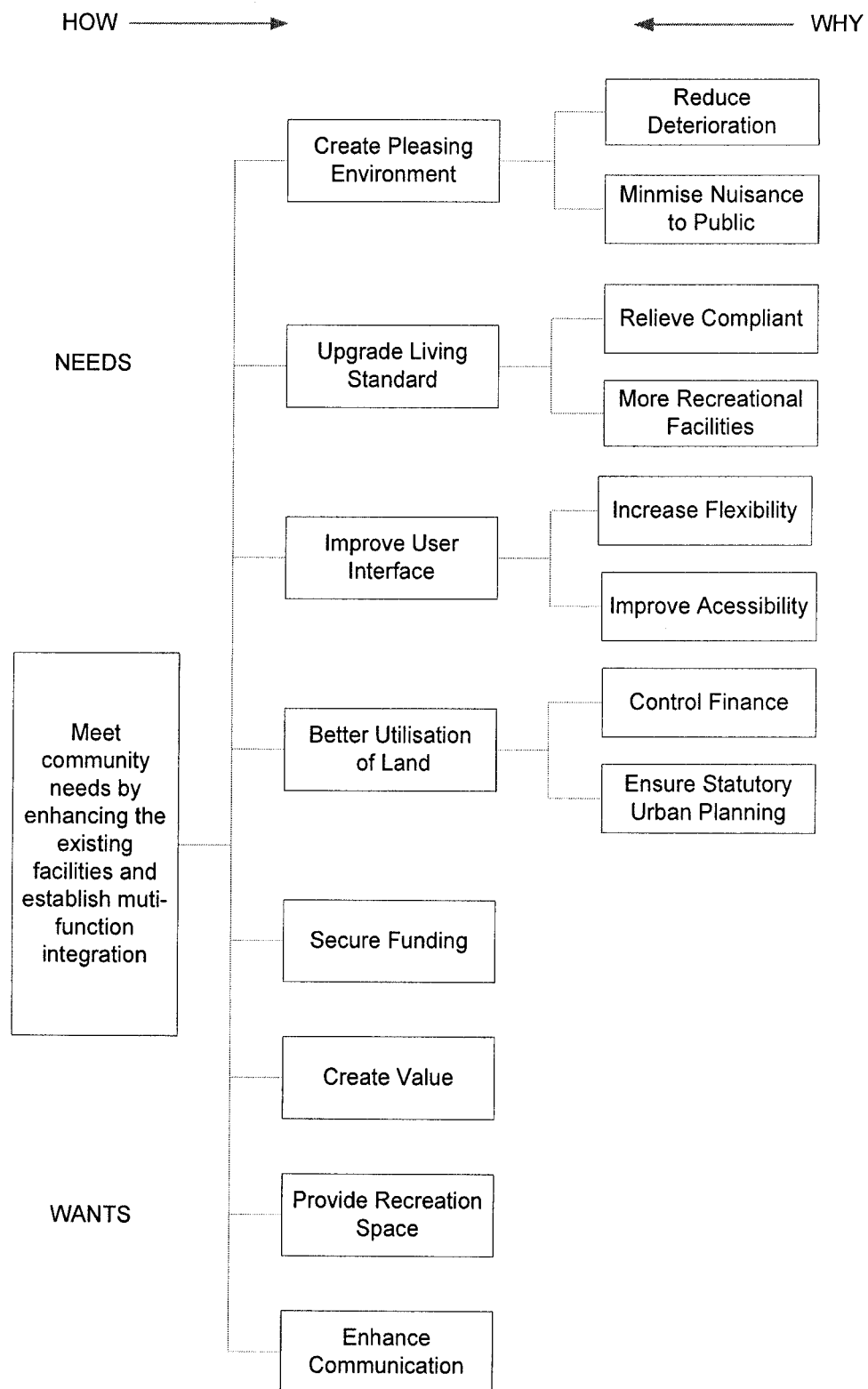


Figure 8.10 Example of the Strategic FAST diagram for renovation of a residential development

Toolbox 3 – Tools for Project Briefing Workshop

A) Time/Cost/Quality Analysis

When using this technique, a triangle is drawn on a flip chart in front of the team (Figure 8.11). The team is invited to agree on the position of a dot within the triangle that describes the relative importance of the parameters of time, cost and quality in relation to the project. A dot hard against the time corner indicates that time is all-important to the extent that the client would accept an increasing cost and a lowering of quality. A dot hard against the cost corner indicates that the project has to come in on budget even if time was exceeded and quality is lowered. Finally, a dot around the quality corner indicates that a stated level of quality has to be achieved even if cost and time are exceeded.

This simple technique can easily lead to considerable debate. Once consensus is reached the diagram is again pinned to the wall in full view of the team for the remainder of the workshop.

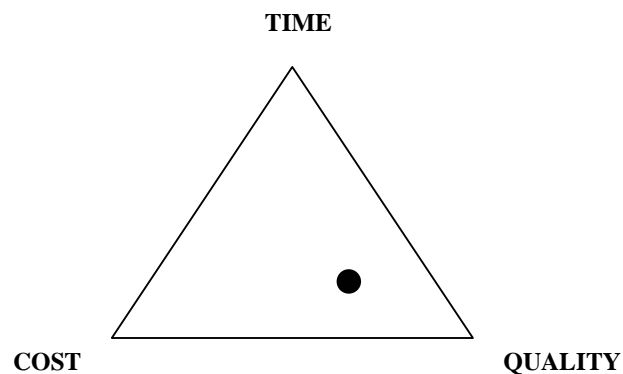


Figure 8.11 Example of time, cost, quality triangle
(Source: Kelly et al., 2004)

B) User Flow Analysis

The User Flow Analysis is the first step in the process of deriving a specification of functional space, the foundation of the project brief. This exercise involves the following steps:

1. Determine users

The first stage is to identify all users of the building. Table 8.8 lists the users of a Community Office Project.

**Table 8.8 List of users for a community office project.
(Source: Kelly et al., 2004)**

- Chief Executive
- Treasurer
- Area Manager
- Housing Administration Staff
- Housing Maintenance Manager
- Housing Maintenance Operatives
- Social Workers
- Youth and Community Workers
- Receptionist
- Filing clerk
- General Public
- Rent Collectors

2. Flowcharting exercise

Each user from the list in step 1 is studied in turn and a flow chart of their use of space is prepared. This is undertaken by anticipating each activity as part of the user's daily routine within the building where each activity is connected by arrows to the next activity. It is presumed that each activity will require space. Even the

activity of entering the building will require an entrance lobby of some sort, and the activity of moving from one space to another indicates circulation space. Figures 8.12 and 8.13 illustrate simplistically the activities of the social workers and housing staff in a Community Office Project.

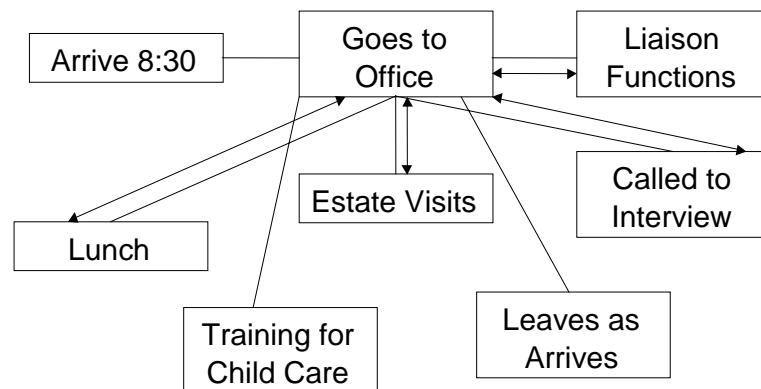


Figure 8.12 Social worker flow chart (Source: Kelly et al., 2004)

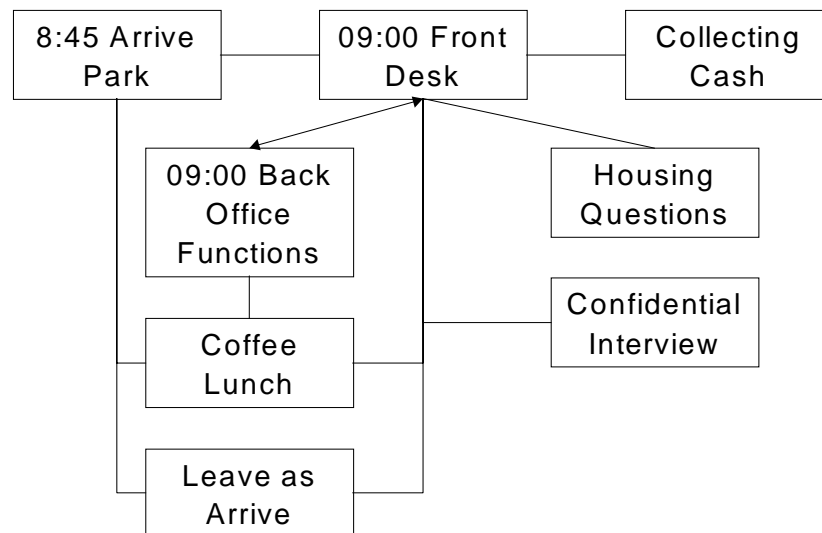


Figure 8.13 Housing staff flow chart (Source: Kelly et al., 2004)

C) Functional Space Analysis

Each functional activity in the user flow diagrams leads to a functional space used in a particular way. For example, from completing all the user flow diagrams in the user flow analysis, the following user spaces can be identified (Table 8.9).

**Table 8.9 List of functional space identified for a community office project
(Source: Kelly et al., 2004)**

Car park – secure (council vans, 11 private cars)
Briefing Area – Rent Collectors, Maintenance
Cash up Secure Area for Records
Lunch – Coffee Facility
Toilets / Showers / Changing / Boot Area
Maintenance Desk (1)
Meeting Area
Reception Area
Confidential Interview (2)
Housing Desks (4)
Storage for Materials / Tools
Strong Room / Safe
Pram Park / Cycle Park - secure
Children’s Play Area
Toilets
Waiting Area
Social Worker Desk (1)
Area Manager Desk (1)
Youth and Community Desk (1)
Receptionist / Filing Clerk
General Office (8)
Area Manager Office (1)

D) Adjacency Matrix

Each space is identified by a specific name. These names are transferred to the adjacency matrix diagram (Figure 8.14) that illustrates the adjacency requirement on an index scale of +5 (spaces are required to be adjacent) to -5 (spaces should be

designed so that they are not adjacent). In this context adjacency means that there is a physical link between one space and another, normally a door or a short length of corridor.

Spaces with an adjacency index of 3 are within easy reach of one another separated by, for instance, one flight of stairs or a reasonable length of corridor.

Spaces with an adjacency index of 0 give the indication to the designer that the spaces have no adjacency importance between one with the other and therefore can be anywhere in relation to the total structure.

Spaces with an adjacency index of -5 should be completely separated one from the other in terms of environment, sound and physical linkage. This does not mean that from a geometrical perspective the space cannot be separated by a single wall. However, it is presumed that one cannot be accessed from the other without traveling through many other spaces. A good example would be two bedrooms in separate apartments within an apartment block. A solid wall separates the bedrooms and to get from one bedroom to the other necessitates leaving one apartment and entering the one next door. In this situation, separation of physical and acoustic environments is highly important.

A. Car Park									
0	B. Common Room								
+5	+2	C. Staff Toilets / Showers / Changing / Drying							
-5	-2	-5	D. Public Toilets						
+3	0	0	-5	E. Plant Room					
+5	-5	-5	-5	-5	F. Money Safe				
0	+1	+2	-5	-3	+3	G. General Office			
-5	-1	-5	+5	-5	+5 / -5	+5	H. Reception / Waiting / Children		
-5	-2	-2	+3	-5	-5	+5	+5	J. Confidential Interview	
+3	0	-3	-5	-5	+5	+2	-5	-5	K. Meeting Room and Cash Up
0	0	0	-5	0	-5	+2	+2	-5	-5
									L. Meeting Room

Figure 8.14 Example of an Adjacency Matrix (Source: Kelly et al., 2004)

E) Room Data Sheets

The project brief should include room data sheet for each functional space. Each space will have the attributes of size, servicing (heating, lighting, ventilation, and acoustics), quality (normally defined by fittings and furnishings) and finally the technology support required. These room specifications become the raw data from which to compile the room data sheets. It is recommended that the briefing team should agree the format of the room data sheets in the workshop while the details of the room data sheets should be completed in the post-workshop phase. Tables 8.10 and 8.11 show two examples of a room data sheet.

Table 8.10 Typical room data sheet of a reception

Room Data Sheet		
Activity Space		No.
Reception		14.2
Occupants	3 receptionists at peak times	
Workstations	3 no.	
	one facing each entrance, nominally wet/dry fast tills; centre position of enquires, bookings, disabled ticketing, return of equipment	
Fittings	3 LABS computer booking systems – supplied outwith contract 2 telephones 1 microphone unit all call/select zone 1 radio base unit 1 pool alarm base unit Entrance call button indicators Alarm indicator disabled toilets GF Assistance call indicator of control barrier CCTV monitor and keyboard Personal attack alarms for each workstation Space for form files Lighting switching for entrance lobby and reception area	
Base Units:	PA rack unit Cash transfer entry point Lockable safe drawer for each workstation 2 lockable drawers for sale item stock 1 lockable deep drawer for lost property Lockable rack for equipment	
Design	<ul style="list-style-type: none"> • Uncluttered appearance • Centre section of reception to be “dropped”, serving wheelchair users and children • High quality materials • Security screen to be agreed • Secure access to reception 	
Remarks		

Table 8.11 Typical room data sheet of a multi-purpose function room

Room Data Sheet			
Activity Space			No.
Multi-Purpose Function Room			16.1
Occupants	Crèche: 16 children + 2/3 adults Meetings/Functions: 4-30 persons		
Floor Area	m ²	Min 43.5	
Ceiling Height	m	2.6-2.8	
Floor Finish	Heavy duty contact carpet; skirting boards to wall		
Wall Finish	Painted lined blockwork, glazed screen to circulation area		
Ceiling Finish	Suspended ceiling system		
Air Conditioning	Temperature	C ⁰	min 17
	Air Changes/Hour		H&V to cope with high and low occupancy levels
Visual Conditions	Illuminance	Lux	300, CIBSE guide
	Daylight		Desirable
	Lighting		Recessed fittings, local control
Sound conditions	Room must be suitable for quiet activities		
Other Requirements	Internal telephone outlet, wall mounted		
	2 twin 13 amp sockets, child proof		
	PA System		Voice only
Fittings	Blind to screen for black out		
Note	No sharp edges anywhere in room		
Safety Conditions	As required		
Access	From circulation area		
Remarks			

F) Functional Performance Specification

A Functional Performance Specification (FPS) is defined as a document by which an enquirer expresses his needs (or those which he is responsible for expressing) in terms of user-related functions and constraints (BS EN 12973: 2000). For each of these functions, evaluation criteria are defined together with their levels, with a certain degree of flexibility being assigned (Masson, 2001).

FPS assists the client representatives to:

- express the needs of the clients and end-users in functional terms, without reference to the technical solutions that may satisfy them, and with a minimum of constraints,
- stimulate the communication between clients and designers to optimise the design and to find the best proposal,
- facilitate the examination and comparison of proposals to determine the best proposal for the design.

FPS, a new technique in VM, is an additional step to usual VM exercises. It is applied after functions are identified, defined and weighted. It eliminates conceived restrictions and provides a precise definition of the needs which the relevant products or services must meet.

An example of Project Fast Diagram and Functional Performance Specification are illustrated below (Figures 8.15, 8.16 and Tables 8.12, 8.13).

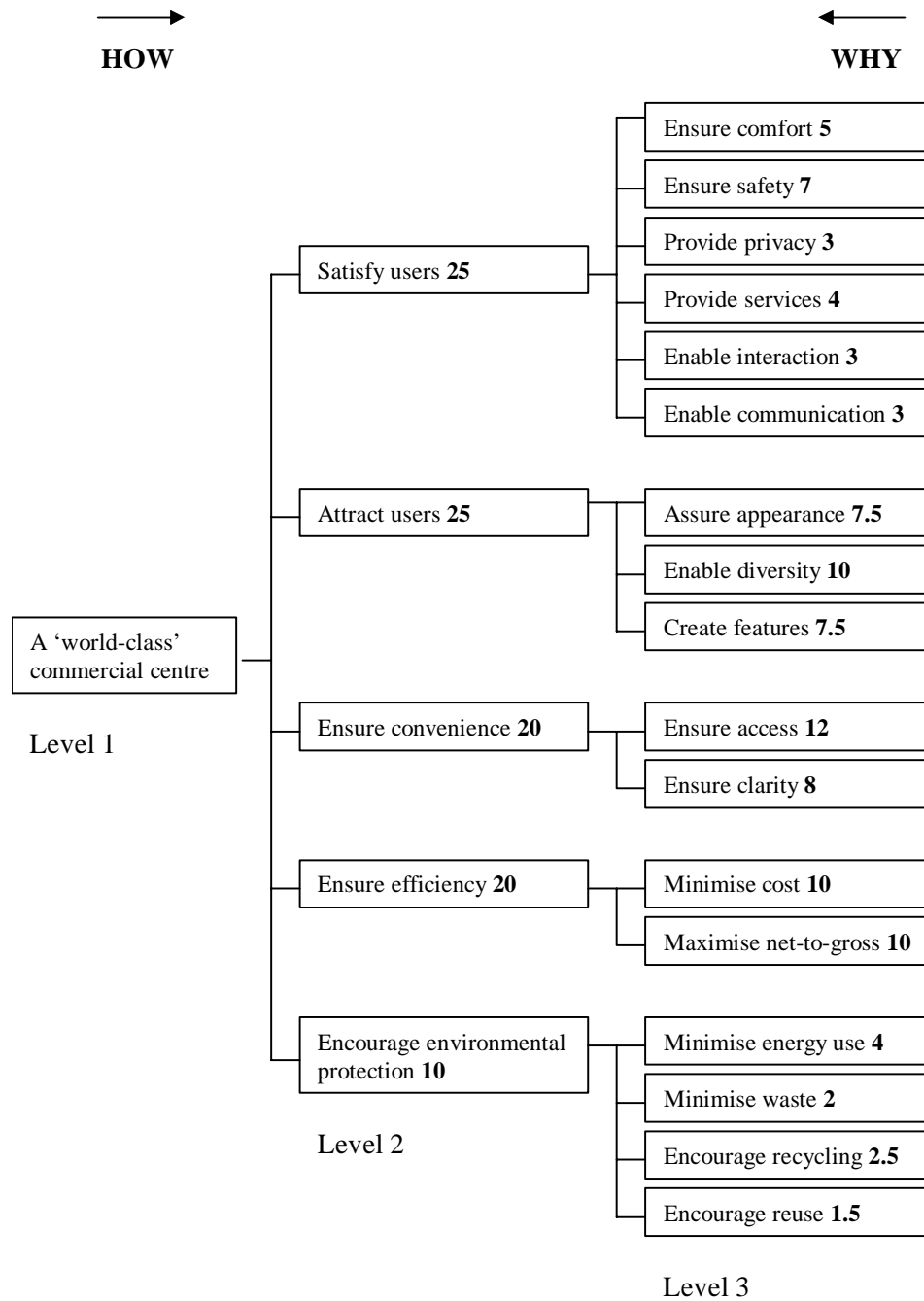


Figure 8.15 Example of the Project FAST diagram for a commercial centre (Source: Shen et al., 2004)

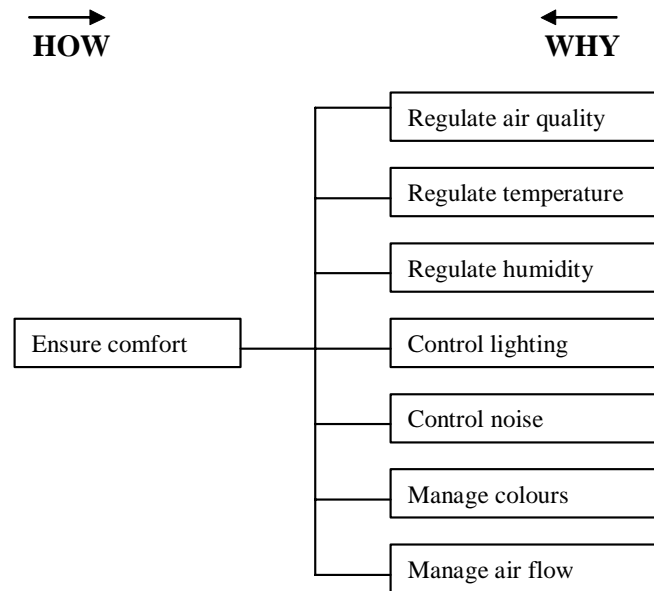


Figure 8.16 Lower-level functions of the function ‘ensure comfort’
(Source: Shen et al., 2004)

Table 8.12 Example of the FPS application for ‘regulating air quality’
(Source: Shen et al., 2004)

Criteria	Level	Flexibility
Well-located air inlets	Avoid close proximity of outdoor intake to sources such as garages, loading docks, building exhausts, outside construction projects	F1
Efficient circulation	Minimum ventilation (i.e. the introduction of fresh air to replace stale air): (1) about 0.5 to 3 air changes/hour depending upon density of occupants; (2) values per occupant range from 5 to 25 litres/sec/person (Baker & Steemers, 2000)	F2
	Air movement to cool heat sources: (1) average air velocity during winter not to exceed 30 feet/minute ¹ (fpm); (2) average air velocity during summer not to exceed 50 fpm	F2
Minimal airborne contaminants	High efficiency filter to be used for HVAC* system to remove bacteria, pollen, insects, soot, dust, and dirt (ASHRAE** dust spot rating of 85% to 95%) (EPA, 2001)	F1
	Areas from which fumes need to be extracted must be maintained at a lower overall pressure than surrounding areas, and be isolated from the return air system so that contaminants are not transported to other parts of the building.	F0
Allow for individual control	Local control system to modulate airflow	F0
	Control switches to be conveniently located and properly instructed	F0

*HVAC – Heating, ventilating and air conditioning

**ASHRAE – The American Society of Heating, Refrigerating and Air-Conditioning Engineers

Table 8.13 The scale of flexibility in the FPS (Source: Shen et al., 2004)

Level	Description
F0:	The criterion is an absolute must, not negotiable, all effort must be made to meet this level, whatever the cost
F1:	The criterion is a must if at all possible, no discussion unless there is a very good reason
F2:	The criterion is negotiable, hope this level is reached, ready to discuss
F3:	The criterion is very flexible, this level is proposed but is open to any suggestion

G) Creativity Session

The creativity session undertaken at this stage is designed to give the project brief final directions with regard to the incorporation of all the above techniques. Ideas deemed not feasible from the outset are deleted prior to a vote by giving each member of the team five “sticky dots” to place on those ideas which they champion. Further analysis can be conducted by deciding which ideas were technically feasible (TF), economically viable (EV), functionally suitable (FS) and client acceptable (CA). Some creatively explored ideas are shown in Table 8.14. Items that do not survive the sorting process are scored out.

Table 8.14 Typical list of creatively explored ideas
(Source: Kelly et al., 2004)

	Items	Vote	TF	EV	FS	CA
1.	Create housing help desk only at centre	13	y	y	y	y
2.	Build community centre	9	y	y	y	y
3.	Build large hall with offices attached	6	y	y	y	y
4.	Maintenance materials from builder's merchants as now	13	y	y	y	y
5.	10 lock up garages for staff cars in secure walled yard	4	y	y	y	y
6.	Start a local radio and use for information on e.g. maintenance					
7.	Install an internet server and encourage contact by e-mail	3	n	n	y	y
8.	Build a facility for social & youth project near local school	4	y	n	y	n
9.	Issue all tenants with "pay as you go" mobile phones					
10.	Build temporary building for youth project					
11.	Build steel shelter for youth project	1				
12.	Break up projects into three distinct facilities	10	y	y	y	y
13.	Operate help desk from mobile library	1				
14.	Build a large concrete dome and let tenants fit out					
15.	Rent local hall for youth project	1				
16.	Start 5 a side football team					

H) Procurement Route Analysis

The facilitator asks the team for potential procurement route suggestions which are then discussed their advantages and disadvantages. A decision matrix can be used to determine the best option. Criteria for choosing an appropriate procurement are analysed using the following procedures as an example:

1. Five main criteria are *identified* and *weighted*.

2. Each procurement route is then *scored* according to how well it meets the criteria identified on a scale of 1 to 10 (where 10 is the best score).
3. 'Raw' scores are then multiplied by the weightings identified to get a *weighted score*.
4. Finally, all the weighted scores are summed to indicate the *preferred route*.

Table 8.15 Example of a decision matrix for choosing an appropriate procurement route

Criteria	Weight	Single Stage	D & B	Two Stage	Partnering
Deliver project early	25	4 100	6 150	6 150	9 225
Deliver design quality	25	7 175	4 100	9 225	9 225
Cost certainty	20	7.5 150	8 160	7.5 150	9 180
Proven procurement route	15	9 135	8 120	7 105	3 45
Good team relationships	15	8 120	6 90	6 90	5 75
Total	100	680	620	720	750

As can be seen from Table 8.15, the highest score is with Partnering while the Two Stage Traditional route the second. It must be noted, however, that the above analysis is quite subjective and a sensitivity analysis should be carried out to establish exactly how close the various routes lie. However, the analysis does serve as a good initial indicator as to where to focus subsequent analysis and effort.

Toolbox 4 – Supplementary Tools

A) Change Management Procedures

Change management procedures should be set up and made clear at the outset of the project. During interviews with client and the client's consultants in the pre-workshop phase, it is suggested to make explicit the procedures necessary for the workshop to carry through change proposals.

The strategic brief serves as the baseline requirements and scope of work in order to identify and recognise change. The project brief is a part of the client's change management process involving identifying, recognising, evaluating, planning and implementing. This implies that the briefing team should be aware of this process. Checklists are also recommended to be developed for record and tracking of change management.

Change for the benefit of the project may be formalised into value management change proposals (VMCP) clauses within a contract. Changes suggested by the project team should aim to:

- reduce project programme
- not delay the project programme (subject to client's value criteria)
- pay for abortive costs of redundant design and costs of the new design out of the savings generated by the VMCP
- generate savings
- reduce risk

B) Risk Analysis and Management

Risk and Value Analysis/Management are often linked at the service level. Risk is commonly defined as a hazard, the chance of a bad consequence or loss, or the exposure to mishap. However it is defined, it is normally considered to be those issues that prejudice the outcome of an event. Risk management is a planned and systematic process of identifying, analysing and controlling the outcome of a particular event to achieve the planned objective and thereby maximise value in the project process. It is at this level that value and risk intertwine using a common team, workshop structures and techniques. It is recommended however, that value and risk be not so intertwined that the team constantly flips from value to risk to value. A value workshop should rather be completed to the evaluation stage, before addressing the risks associated with each of the evaluated ideas. The designing out or minimisation of risk will take contingency from the cost and/or time side of the time, cost and quality equation thereby providing, at the very least, identical quality for less money and/or time. Risk Management incorporates three distinct stages:

- risk identification
- risk analysis
- risk response

Risk identification

Risk identification can be undertaken by a facilitated team brainstorming risks associated with a particular solution which has evolved during the evaluation stage of a Value Management workshop. Generally these risks fall under four headings:

- Changes in project focus: - this will result in a change in the project mission and could result from, for example, a reorientation of the client's core business.
- Client changes: - these are brought about by unforeseen changes in the client organisation. However, commonly client changes result in the first place from poor communication structures leading to incorrect briefing of the project. The client change is not so much a change but rather a correction to the project's course of progress.
- Design changes: - these result from an incorrect analysis of data or exposure to some unforeseen circumstance.
- Changes in the project environment: - these changes are brought about by bad weather, non-delivery of materials, unavailability of labour, new legislation and planning restrictions.

Upon completion of risk brainstorming some form of ranking exercise is undertaken to prioritise the risks, highlighting those which, in the opinion of the team, have a high probability and a serious consequence. The consequence can be determined at three levels, irritating background noise, turbulence in the project's progress (the project can continue but is severely disrupted), and a blocking force which, until contained, is capable of halting the project. A method ranking each risk on a scale of A to F is illustrated in Table 8.16.

Table 8.16 Ranking of risk items (Source: Kelly et al., 2004)

Rank	Probability	Consequence
A	High	blocking force
B	Low	blocking force
C	High	Turbulence
D	Low	Turbulence
E	High	Noise
F	Low	Noise

Risks ranked A, B and C are taken to the next stage, risk analysis. Risks ranking D, E, and F are further examined to make an immediate assessment as to whether additional action is necessary. If this is the case, and before embarking on the risk analysis stage, decisions must be made as to whether the risks can be absorbed during the development of the project.

Risk Analysis

The first stage in a risk analysis is normally qualitative. The following are examined and analysed:

- the identity and ownership of the risk and at what stage of the project the risk occurs,
- the factors that could cause it and the likelihood of those occurring,
- the extent to which the project will be affected.

The action of undertaking risk, even where the qualitative risk analysis is considered to be sufficient, will sensitise the team towards the recognition of the risk and prompt an appropriate risk response in the event of its occurrence. The team, however, may decide that a qualitative risk assessment is insufficient and require a

quantitative risk assessment. This is an activity normally not carried out within the workshop and it may therefore be necessary to adjourn the workshop at this point.

Quantitative risk analysis seeks to mathematically model the probability of the risk occurring in two ways, objective risk analysis and subjective risk analysis. An objective risk characteristics known probability, for example, the loss of £10 relies on the flip of a coin landing tails up. The probability of this is 50 per cent. A subjective risk carries unknown but estimated probability, for example, a loss of £10 relies on more than one hour of continuous rain next Thursday. While reference to weather data records may allow an assessment of the probability of continuous rain next Thursday this could not be relied on exactly. Quantitative risk analysis becomes mathematically complex when a number of risks are combined. Computer software is available to calculate probability curves for this situation, usually based on a simulation. It should be emphasised, however, that the results presented by the computer software are merely an aid to decision making.

Risk Response

At the end of the risk analysis exercise the team undertakes a risk response by reducing the cause of risk, categorised as one of the following four actions:

- avoid the risk by undertaking that part of the project in a different manner,
- reduce the risk by taking action to lower the probability of the risk occurring,
- transfer the risk to a third party, commonly an insurance company,
- accept the risk and manage its consequences.

The risk response stage is characterised by continual reference to the function analysis and particularly the client's value system. All decisions must accord with the functional requirements and fulfill the requirements of the client. This is a vital part of a workshop recap and audit.

Risk Register and Action Planning

The output of a value and risk management workshop is a risk register that summarises the deliberations of the team and records:

- a description of the risk
- the impact of the risk and the probability of its occurrence
- the nature of the solution agreed by the team
- the person responsible for action in the next stage
- the time or cost contingency to be built into the project at this stage.

Action planning requires the team to select the best value for money solution from the evaluation stage and decide:

- who is responsible for taking action
- by when the action is to be taken.

C) Knowledge Management Procedures

The ultimate objective of most knowledge management (KM) initiatives is to improve decision-making activities and outcomes. This highlights the importance of linking KM strategy with business strategy. As successful business are typically driven by a focus on clear and defined objectives. KM is likely to become more

embedded where it is tied to strategic business objectives. These linkages enable employees to increase their understanding of the connection between KM and the corporate mission and goals (Dent and Montague, 2004).

The KM processes is split into four main stages (Anumba et al., 2005):

Define KM problem

The aim of this stage is to define the overall KM problem within a business context, and it involves a description of the perceived problem and identifying the business drivers underpinning it. The characteristics of the knowledge under consideration are defined and the potential users and sources of this knowledge are identified. The probable enablers and inhibitors for identified users and sources and the potentially relevant KM processes (e.g. creation and transfer of knowledge) are also identified. The output of this stage is a clarified KM problem and a set of KM issues emanating from the problem.

Identify 'to-be' solution

This stage highlights the problem areas the user wishes to focus on. It is used to confirm the characteristics of the current 'as-is' position and identify the desired 'to-be' position on each problem area with regard to organisational strategy and policy. A clear set of concerns are extracted and prioritised, and these are used to identify migration paths for each identified problem. The output of this stage is a set of concerns or specific KM components of the overall problem that the user wishes to focus on.

Identify critical migration paths

This stage focuses on defining how the user wishes to proceed from the current ('as-is') situation to the desired ('to-be') position. A set of predefined 'squares' that relate to each problem identified in the previous stage are selected. The user then maps out his/her situation, where he/she wants to be, and the path he/she wants to follow. Each identified problem is considered in turn, and the overall set of migration paths are mapped out for the overall KM problem under consideration.

In this stage, a set of 'migration path tools' is used. These are a set of matrices ('square') that define the possible implications of migration from the current to the desired knowledge solution. For example, if the sharing of knowledge is considered, this applies to 'knowledge as an organisational asset'. One of the 'squares' that would be applicable to this situation is shown in Figure 8.17. The desired position on the 'square' is the top left-hand corner (shared internal/explicit), and this can be achieved by 'migrating' from the bottom right of the 'square' in the direction indicated. The decision on which path to follow will depend on the resources of the organisation.

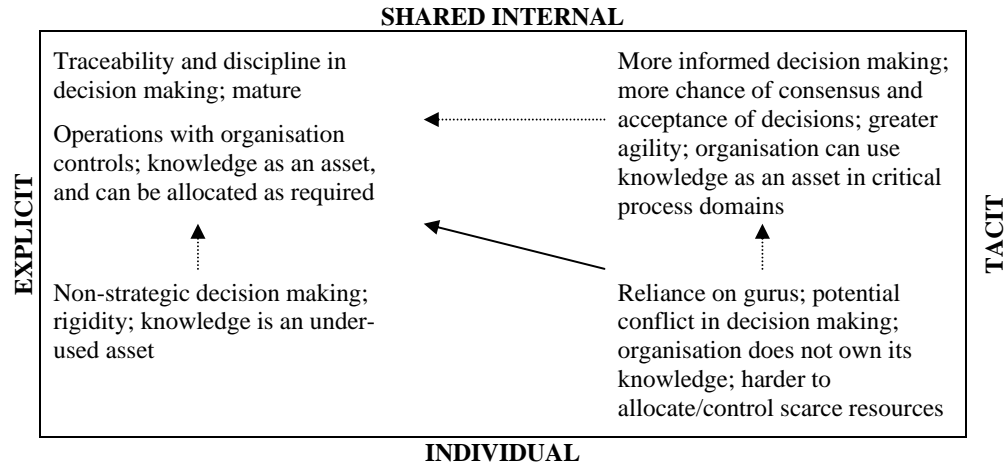


Figure 8.17 Migration path tool for ‘individual/shared’ and ‘explicit/tacit’ knowledge

Select appropriate KM process(es)

This stage deals with the selection of appropriate KM process(es) to move along each migration path. Thus for each migration path defined in the previous stage, the relevant KM process is selected from a standard list of processes. Organisational enablers/resistors that may facilitate or inhibit the implementation of the selected process are also identified. This will enable the organisation to develop specific plans to implement the selected strategies that relate to its stated KM problem.

There are four steps in this process: ‘identify knowledge to be transferred’, ‘identify knowledge sources’, ‘identify knowledge transfer target’ and ‘select transfer methods’. A clear identification of the ‘source’ and ‘destination of knowledge to be transferred will determine whether it is people-to-people transfer, people-to-software transfer and people-to-people transfer. Resistors and enablers that affect each step should be identified. By distilling a KM problem, identifying migration

paths and the organisational resistors and enablers that might affect a selected KM process, the user is assisted in selecting an appropriate strategy for its solution that reflects his/her organisational context.

D) Weighted Evaluation Technique

Weighted Evaluation Technique is relevant in Value Management, and particularly Value Management exercises in situations where a decision needs to be made in selecting an option from a number of competing options where the best option is not immediately identifiable.

The first stage in the weighting and scoring methodology is to determine the criteria by which the options are to be judged. In selecting criteria it is important not to select criteria which are highly correlated, for example, when judging between floor finishes it would be a mistake to include criteria such as ease of cleaning with cost of cleaning since the two are highly correlated.

Consider the following example. A large research consultancy organisation undertakes research, development and training for a wide variety of public and private sector organisations. It is currently commissioning a 12 storey, 8,000 square metres building on a city centre site. Its work is organised around projects for specific clients that tend to last for between two and six years. Teams for each project have a dedicated space for the period of the project. Residual space is rented on short leases at attractive rates. The building interior has to be flexible to cater for reorganisation on a two to six year basis. When considering internal partitions a

number of options are suggested. In determining the criteria for judging the options the following are agreed.

- The ability to be demounted easily with minimum disruption to services, structure and finishes.
- Good noise attenuation.
- Attractive finish.
- Ability to conceal services.
- Ability to support fittings and fixtures.
- Cost (capital and maintenance)
- Reliability of supply over a period of years.

A paired comparison exercise is then held to determine the weighting to be given to each attribute as shown in Figure 8.18. The weights are carried forward to the scoring matrix and entered under their respective attributes (Figure 8.19). The scoring exercise determines how well each option meets the attributes based on a scale of 1 to 5. These scores are entered in the top left triangle in each cell of the matrix, and further multiplied by the weight in each cell and the amount entered in the bottom right triangle. All amounts are summed for each option and the total entered. Based upon the decisions taken by the team a traditional stud and plasterboard partition is the best option with traditional plastered blockwork a close second. The proprietary partitions did not score well in the exercise and this may require a second look. Indeed a sensitivity analysis should take place by changing some of the weights and scores to see the impact.

A. Demountable							
B	B. Noise attenuation						
C	B	C. Attractive finish					
A	B	C	D. Support fittings				
A	B	E	E	E. Conceal services			
A	B	F	F	E	F. Capital cost		
A	B	G	G	E	G	G. Maintenance cost	
H	H	C	H	E	F	G	H. Reliability of supply

A	B	C	D	E	F	G	H
4	6	3	0	5	3	4	3

Figure 8.18 Example of a paired comparison exercise
(Source: Kelly et al., 2004)

		Demountable Noise attenuation Attractive finish Support fittings Conceal services Capital cost Maintenance cost Reliability of supply								
		A	B	C	D	E	F	G	H	
		4	6	3	0	5	3	4	3	Total
Proprietary	Blockwork	1 4	5 30	4 12	4 0	3 15	4 12	4 16	5 15	104
	Stud	3 12	3 18	4 12	3 0	5 25	5 15	3 12	5 15	109
	Metal	5 20	3 18	3 9	1 0	2 10	2 6	4 16	2 6	85
	Timber	5 20	2 12	4 12	1 0	2 10	3 9	4 16	2 6	85
	Polystyrene	5 20	1 6	2 6	1 0	2 10	4 12	4 16	2 6	76
	Plasterboard	5 20	1 6	4 12	1 0	2 10	5 15	4 16	4 12	91

Figure 8.19 Example of a scoring matrix (Source: Kelly et al., 2004)

E) Group Decision Making Techniques

Techniques for improving creativity in group decision making include brainstorming, nominal group technique, the Delphi method and computer applications.

Brainstorming

In brainstorming, group members actively generate as many ideas and alternatives as possible, relatively quickly and without inhibitions. Four rules typically govern the brainstorming process.

1. All criticism is ruled out. No one is allowed to judge or evaluate any ideas until the idea-generation process has been completed.
2. “Freewheeling” is welcomed. The emphasis is on creativity and imagination; the wilder or more radical the ideas, the better.
3. Quantity is wanted. The emphasis is also on the number of ideas; the greater the number, the more likely a superior idea will appear.
4. “Piggy-backing” can be good. Everyone is encouraged to suggest how others’ ideas can be turned into new ideas or combining ideas into new idea. Typical results include enthusiasm, involvement, and a free flow of ideas useful in creative problem solving.

Nominal Group Technique

In any group, there will be times when the opinions of members differ so much that antagonistic arguments are developed during free-wheeling discussions. At other times the group will be so large that open discussion and creativity are awkward to

be managed. In such cases, a form of structured group decision making called the nominal group technique may be helpful. It puts people in small groups of six to seven members and asks everyone to respond individually and in writing to a “nominal question”. Everyone is encouraged to list as many alternatives or ideas as they can. Participants then read aloud their responses to the nominal question in round-robin fashion. The recorder writes each response on large newsprint as it is offered. No criticism is allowed. The recorder asks for any questions that may clarify items on the newsprint. This is again done in round-robin fashion, and no evaluation is allowed. The goal is simply to make sure that everyone present fully understands each response. A structured voting procedure is then used to prioritise responses to the nominal question. The nominal group procedure allows ideas to be evaluated without risking the inhibitions, hostilities, and distortions that may occur in an open meeting.

Delphi Technique

A third group decision approach, the Delphi Technique, was developed by the Rand Corporation for use in situations where group members are unable to meet face to face. In this procedure, a series of questionnaires are distributed to a panel of decision makers who submit initial responses to a decision coordinator. The coordinator summarises the solutions and sends the summary back to the panel members, along with a follow-up questionnaire. Panel members again send in their responses, and the process is repeated until a consensus is reached and a clear decision emerges.

Computer-Mediated Decision Making

Today's information and computer technologies enable group decision making to take place across great distances with the help of group decision support systems. The growing use of electronic brainstorming is an example of the trend towards virtual meetings. Assisted by special software, participants use personal computers to enter ideas at will, either through simultaneous interaction or over a period of time. The computer compiles and disseminates the results. Both the nominal group and Delphi techniques also lend themselves to computer mediation. Electronic approaches to group decision making can offer several advantages, including the benefits of anonymity, greater number of ideas generated, efficiency of recording and storing for later use, and ability to handle large groups with geographically dispersed members (Gallupe and Cooper, 1993).

The following are guidelines useful for achieving group consensus (Schermerhorn et al., 2003):

1. Don't argue blindly; consider other's reactions to your points.
2. Don't change your mind just to reach quick agreement.
3. Avoid conflict reduction by voting, coin tossing, and bargaining.
4. Try to involve everyone in the decision process.
5. Allow disagreements to surface so that information and opinions can be deliberated.
6. Don't focus on winning versus losing; seek alternatives acceptable to all.
7. Discuss assumptions, listen carefully, and encourage participation by everyone.

F) Key Performance Indicators

It is necessary to establish meaningful criteria against which performance can be measured for evaluation of project success when the project has been completed.

The construction industry has spawned a number of such performance indicators in recent years. An early reference cited by Thiry is the 1994 paper by Kirk presented to SAVE International. Thiry (1997) illustrates Kirk's quality model as a radar diagram comprising the following performance measures:

- capital cost
- operation and maintenance cost
- schedule
- operational effectiveness
- flexibility/expandability
- user comfort
- site planning image
- architectural image
- community values
- engineering performance
- security/safety in operation
- environment

In July 2002 (Architect's Journal, 11 July 2002) the Construction Industry Council launched the Design Quality Indicator, which has significant similarities to Kirk. The indicators are grouped under three headings as follows:

- functionality
 - use
 - access
 - space

- build quality
 - performance
 - engineering systems
 - construction

- impact:
 - form and materials
 - internal environment
 - urban and social integration
 - character and innovation

- Additionally the topics of finance, time, environment and resources are dealt with separately

The Construction Best Practice Panel (CBPP) performance criteria for benchmarking are:

- construction cost
- construction time
- predicted design cost

- predicted design time
- defects
- client satisfaction of product
- client satisfaction of service
- profitability
- productivity
- safety

G) Action Plan

Workshops are the seats of action, and some form will arise from the discussions held therein. The action plan itself is a summary document usually incorporated or appended to the executive summary of the workshop report. It describes the action in detail, the members of the team best suited to take the actions (whether present at the workshop or not), and the date by which the actions are to be completed. Members of the workshop team will be the ones to carry out all items identified in the action plan if the ACID Test (Toolbox 1) has been correctly carried out.

The action plan is thus included in the project execution plan and the team's actions are reviewed at future design team meetings.

Table 8.17 Example of an action plan

Ref.	Action Description	By	When
1.	Prepare the Room Data Sheets	Ann Yu	1/3/2005
2.	Prepare the Functional Performance Specification for building services installation	Q. P. Shen	1/3/2005
3.	Prepare the project brief for circulation and agreement	John Kelly	7/3/2005

Table 8.18 summarises the tools and techniques recommended to be used in the briefing process.

Table 8.18 A summary of tools and techniques which may be applied in the briefing process

VM tools	Strategic Briefing			Project Briefing		
	Pre-workshop	Workshop	Post-workshop	Pre-workshop	Workshop	Post-workshop
ACID Test	•			•		
Action Plan		•	•		•	•
Adjacency Matrix					•	
Creativity Session		•			•	
Change Management Procedures	•	•	•	•	•	•
Checklist	•	•	•	•	•	•
Client Value System		•			•	
Computer-Mediated Decision Making		•			•	
Delphi Technique	•		•	•		•
Document Analysis	•			•		
Function Analysis		•			•	
Functional Performance Specification					•	•
Functional Space Analysis					•	
Interview	•			•		
Issue Analysis	•	•		•	•	
Key Performance Indicators		•			•	
Knowledge Management Procedures	•	•	•	•	•	•
Nominal Group Technique		•			•	
Post-Occupancy Evaluation	•			•		
Procurement Route Analysis					•	
Questionnaire	•			•		
REDReSS Analysis		•				
Risk Analysis and Management		•	•		•	•
Room Data Sheets					•	•
Site Tour	•			•		
Timeline		•				
Time/Cost/Quality Analysis		•			•	
Stakeholder Analysis	•			•		
User Flow Analysis					•	
Weighted Evaluation Technique		•			•	

8.3 Analysis of the VM framework for briefing

The proposed VM framework for briefing represents an improved alternative to the existing process of briefing. A comparison between current briefing practice and the VM framework is provided in Table 8.19.

Table 8.19 Comparison between current briefing practice and the proposed VM framework for briefing

Current briefing practice	The proposed VM framework for briefing
Briefing is combined with design.	Client requirements are identified, clarified and represented before scheme design.
Solution-focused approach is usually adopted. The ‘solution’, in the form of sketches/drawings, is used to define the problem.	Problem-focused approach whereby requirements are sufficiently defined before scheme design commences.
Briefing is usually the responsibility of the architect and the client representative(s). No deliberate effort to include other ‘down stream’ professionals (e.g. engineers, contractors, suppliers, etc.) at the briefing stage.	Identification, clarification and representation of client requirements are carried out by a team of stakeholders, which comprises representatives of the client and appointed construction professionals.
Prioritisation is done through discussions. There is no formal approach to prioritisation.	Structured approach to the prioritisation of client requirements using formal decision-making techniques such as weighted evaluation techniques.

In addition, the proposed VM framework for briefing was compared with the briefing guidelines listed in Chapter 2, Table 2.9. The major difference is that the VM framework proposes the application of VM to the briefing process. Although the practice manual produced by Kelly et al., 1993 also introduced VM to briefing, this manual outlined and described how to conduct a two-stage briefing process using VM without providing the tools and techniques that can be used for briefing.

Furthermore, the proposed VM framework takes into account the 13 briefing variables identified during the development of the theoretical framework. These variables were incorporated into the various sections of the VM framework for briefing. A mapping of the 13 briefing variables and the VM framework was indicated in Table 8.20.

Table 8.20 Mapping of 13 briefing variables and the proposed VM framework for briefing

Variables of briefing	What is briefing?	Why use VM for briefing?	What is VM?	When should briefing be conducted?	Who should participate in briefing?	How to apply tools and techniques in briefing?			
						Toolbox 1	Toolbox 2	Toolbox 3	Toolbox 4
Projects	•	•	•	•	•		•	•	
Stakeholder Management		•			•	•	•		
Teams and Team Dynamics		•			•	•			
Client Representation		•			•	•	•		
Change Management		•							•
Knowledge Management		•							•
Risk and Conflict Management		•					•	•	•
POE and PPE		•				•			
CSFs and KPIs		•							•
Type of Business and Organisational Theory		•					•		
Decision Making		•							•
Communication		•					•	•	
Culture and Ethics		•					•		

8.4 Summary and conclusions

The final version of VM framework for briefing is presented in this chapter. Seven important questions are addressed in details in the established VM framework. These questions include ‘What is briefing?’ ‘Why use VM for briefing?’ ‘What is Value Management?’ ‘When should briefing be conducted?’ ‘Who should participate in Briefing?’ ‘Where should briefing be conducted?’ and ‘How to apply tools and techniques in briefing?’

The VM framework for briefing was generally divided into two major stages, i.e. Strategic Briefing and Project Briefing. Strategic Briefing should be carried out at the time prior to ‘decision to proceed’ is made. Project Briefing should be carried out prior to the completion of the project feasibility study in order to derive the greatest benefits from limited resources. Facilitative Briefing, a workshop-based approach, is the preferred method for conducting the briefing process. It is recommended that a VM trained facilitator be appointed to lead the two briefing studies described above. The VM framework also includes the indicative agendas, tasks, techniques and tools which can be used at various stages of the briefing workshops.

The proposed VM framework was validated and refined through a focus group meeting, an experiment, feedback questionnaire survey and desktop study of two relevant case studies and two training seminars (see Chapter 7). The results indicated the framework is acceptable and practical, and able to improve the performance of the briefing process.

CHAPTER 9

CONCLUSIONS

- ❖ **Introduction**
- ❖ **Review of research objectives**
- ❖ **Conclusions**
- ❖ **The contribution and significance of this research study**
- ❖ **The limitations of this research study**
- ❖ **Recommendations for future research studies**

9.1 Introduction

This chapter presents the conclusions of this research study. The objectives of the study are first reviewed, supplemented by a summary of the main findings and the presentation of the conclusions, contribution and significance of the research. The limitations of this study are indicated and recommendations for future research made.

9.2 Review of research objectives

The opening chapter outlines the limitations of the current practices in the briefing process which has existed for more than forty years in the construction industry. The aim of this study is to investigate the briefing process and develop a framework using the Value Management (VM) approach for systematic identification and precise representation of client requirements in the briefing process. The objectives are: (1) to identify the problems and difficulties faced by clients and designers in the briefing process, (2) to evaluate the current practices in identifying and clarifying client requirements for construction projects, (3) to develop a new approach using VM to systematically identify, clarify and explicitly represent client requirements in the briefing process.

Regarding the first objective, the problems of the briefing process are identified and discussed in Chapter 2, Section 2.4. Based on literature review, the problems encountered in the briefing process were summarised in Table 2.8 listing the common problems. The barriers in preparing a comprehensive brief include clients frequently change requirements and design, poor communication amongst parties, lack of an experienced professional as the brief leader, needs of end-users not clearly

stated, insufficient resources and financial support, lack of a systematic approach in clarifying and representing requirements and lack of review and feedback to the client brief (refer to Chapter 2, Section 2.3.3). In addition, the improvement areas, which are in line of the problems and barriers identified, are elaborated in Chapter 2, Section 2.5.

For the second objective, the briefing practices in Hong Kong, the UK and the USA are reviewed and discussed in Chapter 2, Section 2.3. These methods range from informal discussions between client and architect to specifically planned research studies towards a comprehensive and detailed brief. There are also many guidelines for briefing in the public domain intended to improve the briefing practices. The existing guidelines for briefing are outlined in Chapter 2, Section 2.6. Despite these efforts, the current briefing practice is still considered inadequate by many researchers. Most briefing guides show what should be done without explaining how things can be done explicitly. In addition, it appears that the use of information technology to briefing (outlined in Chapter 2, Section 2.7) may not solve the roots of the problems mentioned above. Therefore, it is necessary to investigate and develop other methodologies such as VM approach in order to achieve and effective briefing.

For the third objective, the whole process to develop and validate the new approach using VM in briefing is described and explained in detail from Chapter 4 to Chapter 8. In Chapter 4, issues concerning the application of VM to briefing are discussed. In Chapter 5, the theoretical framework including the 13 variables of briefing and the rationale to input VM to briefing process are explained. In Chapter 6, the validation

of the theoretical framework for briefing is described. In Chapter 7, the development and validation process of the VM framework is described in detail. Finally, the final version of the proposed VM framework is presented in Chapter 8.

Using the proposed VM framework, the client requirements can be systematically identified and clarified using VM tools such as Issue Analysis, Client Value System, REDReSS Analysis, Function Analysis, User Flow Analysis and Functional Space Analysis with reference to the indicative agendas for Strategic and Project Briefing. The Issue Analysis assists the client and stakeholders to identify, clarify and prioritise all factors impacting the project. The Client Value System is used to obtain measurement in the form of a ranking of the client's values. The nine value criteria include time, capital cost, operating cost, environment, exchange, flexibility, esteem, comfort and politics. The REDReSS Analysis serves to capture any missing information and to sensitise the team for the function analysis exercise which aims at deriving the project's mission through function diagramming. The function analysis techniques relies on the discovery of all relevant information identified by the Issue Analysis and REDReSS Analysis, and the structuring of that information in a way that leads to the recognition of the primary objective of the project. The User Flow Analysis and Functional Space Analysis are useful techniques to establish the spatial requirements and relationship.

In terms of precise and explicit presentation of client requirements, this aim can also be achieved by using the VM tools and following the guidelines set out in the proposed VM framework, especially the FAST Diagram and Functional Performance

Specification. The FAST Diagram helps to develop a better understanding of why a project is needed and what is required to be done. In particular, the actual needs and wants of the client are presented in form of functions expressed as an active verb plus a descriptive noun. Usually the highest order needs tend to form the mission of the project. The functional requirements are placed into a suitable hierarchy with the mission statement, with the primary and supporting functions being positioned from left to right. The needs are positioned above the centreline of the mission statement while the wants are placed below the centreline. The Functional Performance Specification provides a detailed and precise definition of the needs in terms of user-related functions and constraints. For each of these functions, evaluation criteria are defined together with their levels and a certain degree of flexibility being assigned. With the use of the FAST Diagram and Functional Performance Specification, the client requirements can be presented precisely and explicitly to facilitate the design process.

9.3 Conclusions

Briefing is the first and most important step in the design process where the requirements of the client are identified and articulated, options are reviewed and decisions are made. It is critical to the successful delivery of construction projects but also at present problematic in its effectiveness. Problems associated with briefing include the lack of a comprehensive framework, lack of identification of client requirements, inadequate involvement of all relevant parties of a project, inadequate communication between those involved in briefing and insufficient time allocated for briefing. Although many initiatives have been taken to improve the

briefing process, current briefing practice is still considered by many researchers as “inadequate” and having many limitations. In short, there is a lack of a holistic framework to tackle briefing problems. Therefore, this research seeks to develop a practical framework using the Value Management (VM) approach which can lead to systematic identification and clarification of client requirements, and precise and explicit representation of these requirements in the briefing process.

Through a comprehensive literature review and a structured questionnaire survey, the 13 variables which have impact on briefing have been identified in this study. These variables include Projects, Stakeholder Management, Teams and Team Dynamics, Client Representation, Change Management, Knowledge Management, Risk and Conflict Management, Post-Occupancy Evaluation and Post-Project Evaluation, Critical Success Factors and Key Performance Indicators, Types of Business and Organisational Theory, Decision Making, Communication, and Culture and Ethics. A theoretical framework for the briefing process has been established based on these thirteen variables.

The review of literature and the development of the theoretical foundation revealed that VM is useful to address the 13 variables of briefing as well as to overcome age-old problems associated with briefing, of which many are still apparent in today's construction industry. Many researchers suggested applying VM in the briefing process (Kelly et al., 1992, 1993; Green, 1994, 1997; Barton, 2000). However, the model of briefing through VM has not been much developed in concept during the past decade. Existing models commonly accepted today are simplistic, focused on

two stage briefing (strategic/project), and not sophisticated either in their input of the wider considerations of those factors such as stakeholder, change, knowledge and risk management which have been developed during the same time frame. In order to improve the briefing process and promote VM, it is necessary to investigate into the application of VM to the briefing process and develop a practical framework for systematic identification and precise representation of client requirements in the briefing process.

A VM framework for briefing has been successfully developed and incorporated into two briefing guides in this study. The framework for the briefing process was generally divided into two major stages, i.e. Strategic Briefing and Project Briefing. Strategic Briefing should be carried out at the time prior to 'decision to proceed' is made. The Strategic Brief explains why an organisation has decided to invest in a physical asset or assets and pursue no other strategic options that may compete for the same investment resource at that time. It is recommended to be fixed before detail design commences in order to avoid redesign and rework. Project Briefing should be carried out prior to the completion of the project feasibility study in order to derive the greatest benefits from limited resources. The Project Brief, which forms the basis of design, should be completed after the workshop and before scheme design. Facilitative Briefing, a workshop-based approach, is the preferred method for conducting the briefing process. It is recommended that a VM trained facilitator be appointed to lead the two briefing studies described above. The facilitator of choice should then assist the client to form the briefing team. For maximum performance, a briefing team should have an upper limit of approximately 20 members and a formal

leader. Team membership should be effective and balanced as indicated by the ACID Test. The ideal venue to assemble the participants should be a hotel or resort which is away from the office with the objective of enabling the participants to deliver their undivided attention to the workshop for a concentrated period. The VM framework developed in this research also details the indicative agendas, tasks, techniques and tools which may be used at various stages of the briefing workshops. In summary, seven questions, ‘What is briefing?’ ‘Why use Value Management for briefing?’ ‘What is Value Management?’ ‘When should briefing be conducted?’ ‘Who should participate in briefing?’ ‘Where should briefing be conducted?’ and ‘How to apply tools and technique in briefing?’ have been presented as the key components of the VM framework.

The VM framework for briefing was validated and refined through focus group meeting, experimental study, feedback questionnaire survey, desktop study of two relevant case studies and two training seminars. The results indicated the VM framework is acceptable and practical, and able to improve the performance of the briefing process. It is concluded that the proposed VM framework provides a structured methodology which can lead to systematic identification and precise representation of client requirements in the briefing process.

9.4 The contribution and significance of this research study

This research investigated briefing from both the practical and theoretical points of view. Theoretically, the 13 variables of briefing were identified. The impact of these 13 variables on briefing was discussed and these variables formed the theoretical

foundation of this research. From the practical point of view, the existing briefing practices were evaluated and the problems associated with the briefing process were identified and investigated. A practical VM framework with detailed procedures and tools has been introduced to the briefing process. This framework provides practical solutions to critical issues frequently encountered by the briefing team.

The outcome of the research is the production of a briefing guide “A How-To Guide to Value Briefing”. This document is a comprehensive guide to Facilitative Briefing. Its structure allows its use in a number of ways and also by people with different degrees of experience and interest. It can be used as:

- 1) a complete guide for those who are new to the concept of Facilitative Briefing.
- 2) a checklist for those who will lead and manage the whole briefing process.
- 3) a reference document for those who will participate in the briefing process.
- 4) a benchmark of good practice for those skilled in the use of Facilitative Briefing
- 5) toolbox sets for those who would like to apply VM tools in briefing.
- 6) a sign post to recent research direction for those engaged in the research of the briefing process.

This investigation significantly improves our comprehension of the identification and clarification of client requirements and their functional representations to arrive at a precise and explicit briefing document. This is of significant value to both clients and designers in the building industry because a systematic approach to briefing and a precise project brief can effectively avoid abortive design and rework. It is

crucially important for projects to be “on the right track” from the very beginning to ensure earliest possible completion. As concluded by the Construction Industry Review Committee (2001), a comprehensive and clear project brief, which fully reflects the needs and expectations of the procuring clients at the outset of the project, lays strong foundation for successful project implementation. The explicit representation of requirements provides essential input to the creative design process and enables designers to widen the scope to search for alternative design solutions to meet client requirements.

9.5 Areas of originality

I have investigated the appropriateness of applying VM to briefing in a holistic way. First of all, I formulated a questionnaire systematically to identify the factors that may have impact on the briefing process, i.e. the 13 variables of briefing. I have also identified the critical success factors of construction project briefing or architectural programming from the open-ended question of the questionnaire. From these, I have laid down the foundation of the research project and drafted a theoretical framework for briefing based on the 13 variables and the respective attributes and comprehensive literature review. I have also compared the differences in opinions on the significance of the briefing variables and attributes among Hong Kong, the UK and the USA respondents of the questionnaire survey and explain the possible reasons for the differences, largely due to cultural differences. The questionnaire survey and the theoretical framework for briefing can serve as the foundation for future research in briefing.

From the theoretical framework mentioned above, I have drafted and refined a comprehensive and practical framework using the VM approach which addresses the 13 variables of briefing and the significant critical success factors of briefing. This framework is based on Kelly, Male and Graham's methodology. The improvement includes the addition of the elements such as stakeholder management, knowledge management, conflict management, type of business and organisational theory, decision making, communication and, culture and ethics to their approach. The VM framework illustrates a more complete picture of briefing and how to apply VM in briefing. Additional tools and techniques such as stakeholder management and knowledge management were added to Kelly, Male and Graham's methodology. Now there are a set of recommended tools and techniques that can be applied in the briefing process. I have also validated the VM framework using focus group meeting, experimental study and desktop case studies. The findings from these activities help to improve and refine the VM framework. The comments and feedback from the participants of these activities agreed that VM helps to solve some problems of the briefing process and can benefit the briefing process. In particular, no one has investigated the systematic identification and precise representation of client requirements using VM in such a holistic way.

9.6 The limitations of this research study

The research has two main limitations. Firstly, due to the limited time and resources, the research project was confined to the construction industries in Hong Kong, the UK and the USA. The response rates of the questionnaire survey in the UK and the USA were low (18% and 13% respectively) despite every endeavour to improve

them. This low response rate may compromise the results of comparisons of Hong Kong and Western perceptions of the 13 variables and attributes in briefing. Secondly, the VM framework developed in this research project was only validated by a focus group meeting, an experiment, a questionnaire survey, a desktop study of two case studies in the UK and two training seminars. The experiment tested the framework for the Strategic Briefing stage only. There was a lack of qualified designers willing to participate in another experiment carried out regarding the Project Briefing stage. It is felt that the framework could be further improved and refined if applied to real-life projects in the construction industries in Hong Kong, the UK and the USA.

9.7 Recommendations for future research studies

It is envisaged this research can be extended to the following three areas:

9.7.1 Critical success factors of briefing

A small part of this research is to investigate the critical success factors of briefing by content analysis. A basic framework that includes and categorises all identified factors affecting the success of briefing was presented. The top five critical success factors were ‘open and effective communication’, ‘clear and precise briefing documents’, ‘clear intention and objectives of client’, ‘client project goal and objectives’ and ‘thorough understanding of client requirements’. This set of critical success factors obtained in this study can serve as the basis for further quantitative

studies such as factor analysis to determine the critical success factors for briefing in general, and can be applicable to specific types of projects such as hospitals or hotels.

9.7.2 Improvement of the VM framework by real-life projects

This research has successfully synthesised a VM framework for briefing through the development of a theoretical framework with reference to overseas guidebooks and standards on briefing and VM, focus group meeting, questionnaire survey, experiment and desktop examination of two overseas case studies and two training seminars. The VM framework has been well received and accepted by VM practitioners, clients and construction professionals as the appreciative guidance for application of VM to briefing. It is anticipated that additional research work can be undertaken to further validate and refine this framework by applying it to real-life projects. Conducting briefing studies under the guidance of the VM framework in real-life projects can further assure the applicability of the framework. It can also be an effective way to continually improve and refine the framework by resolving the implementation problem in practice. Further insight would be gained if the VM framework could also be validated in the international context.

9.7.3 Development of the principles for requirement management

This research focused on the identification and representation of client requirements in the briefing process in the early stage of the design process. In fact, 'client requirements' is one of the categories of 'project requirements'. Other 'project requirements' include 'site requirements', 'environmental requirements', 'regulatory requirements', 'design requirements' and 'construction requirements'. The end

product of the building construction, the building, should fulfill the needs and requirements of all stakeholders in a comprehensive and logical manner. This is the ultimate target of requirement management. However, the concept of requirement management in the construction industry is still in its infancy stage when compared to the computer engineering world. Further research work can be undertaken to develop the concepts and principles of how to manage the requirements described above in the project life cycle of the construction industry.

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APPENDIX A

SAMPLE OF INVITATION LETTER FOR QUESTIONNAIRE SURVEY

Date

Receiver's Address

Dear,

Invitation for participating in a questionnaire survey

I am a PhD Research Student at the Department of Building Real Estate of the Hong Kong Polytechnic University. My research title is "A Value Management Framework for Systematic Identification and Precise Representation of Client's Requirements in the Briefing Process". This project aims to investigate whether using a value management approach in the briefing process can lead to improved identification and representation of client requirements.

During the first year of my study I have developed a theoretical framework which consists of 13 variables that have impact to the briefing process. I need to validate the established theoretical framework and would be most grateful if you and/or your colleague could participate in this research. You may photocopy the questionnaire and ask your colleague to complete it for each individual project. It would be helpful if you could complete the questionnaire and kindly return it to me by fax at 2764 5131 before 26 July 2004.

The questionnaire is purely for academic purpose. Please be assured that your responses will be held in strict confidence. Your prompt cooperation and participation in this survey is much appreciated. We are happy to share with you our research findings. Should you have any queries, please feel free to contact me phone at 2766 5874 or by fax at 2764 5131.

Thank you very much for your help in advance.

Yours Sincerely,

Ann T.W. Yu
PhD Research student

Encl.

APPENDIX B

SAMPLE OF QUESTIONNAIRE FOR VALIDATION OF THE THEORETICAL FRAMEWORK

Please return the completed questionnaire to Ms. Ann Yu, Department of Building and Real Estate, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, by post or by fax: (852) 2764 5131. Thank you for your cooperation.

Questionnaire on Construction Briefing/Architectural Programming

Construction Briefing/ Architectural Programming is the first and most important step in the construction cycle, where client requirements for a building project are defined. It is the procedure of gathering, analyzing, and synthesizing information needed to inform decision-making and decision implementation at the strategic and project planning stages of the development process. A brief/ program is a formal document which set out a client's requirements in detail. In this questionnaire, the words "briefing" and "architectural programming" are synonymous.

This questionnaire forms part of an international research project, which studies briefing practice, variables of briefing and critical success factors for briefing in building projects.

With reference to your previous experience in the Briefing Process of one representative building project you have participated, please tick appropriate box(es) for the following questions:

Section A – Background Information

1. **Project title:** _____

(e.g. Queensway Government Office Building, Hong Kong)

2. **Your role in the project**

- ☐ Architect ☐ Architectural Programmer ☐ Project Manager ☐ Surveyor
☐ Engineer ☐ Contractor/Supplier ☐ Others, please specify _____

3. **Sector of the client of the project**

- ☐ Public (proceed to Q4)
☐ Private (proceed to Q5)
☐ Quasi-Public or Regulated Private (proceed to Q6)

4. **Public**

- ☐ Local Government ☐ Central / Federal Government ☐ State Government,
☐ Others, please specify _____

5. Private

- | | |
|--|---|
| <input type="checkbox"/> Industrial (Manufacturing/Process Engineering etc.) | <input type="checkbox"/> Consultancy Practice |
| <input type="checkbox"/> Commercial (Retail, Construction) | <input type="checkbox"/> Financial (Banking) |
| <input type="checkbox"/> Not-For-Profit/Charity Company | <input type="checkbox"/> Property Developer |
| <input type="checkbox"/> Others, please specify _____ | |

6. Quasi-Public or Regulated Private

- | | | |
|---|--|---|
| <input type="checkbox"/> Utility Company | <input type="checkbox"/> Transport Company | <input type="checkbox"/> Telecommunications Company |
| <input type="checkbox"/> Educational Institution | <input type="checkbox"/> Post Office | <input type="checkbox"/> Hospital Authority |
| <input type="checkbox"/> Others, please specify _____ | | |

7. Size of the client organisation

number of employees ☐ 1-5 ☐ 6-50 ☐ 51-200 ☐ 201+

8. Country / Region

☐ Hong Kong ☐ United Kingdom ☐ United States of America

9. Your experience of briefing in past 5 years (measured by number of projects)

- ☐ Co-ordinated / Written (proceed to Q10)
- ☐ Contributed only; did not write (proceed to Q11)

10. Co-ordinated / Written ☐ 0 ☐ 1 ☐ 2-5 ☐ 6+

11. Contributed only; did not write ☐ 0 ☐ 1 ☐ 2-5 ☐ 6+

Section B – Your opinion of the Briefing Process**12. Which of the following statements best describes the stages of briefing?**

[The strategic brief is defined as the statement of the broad scope and purpose of the project and its key parameters including overall budget and programme (in USA read schedule), agreed at an early stage of the project; and project brief is defined as the full statement of the client's functional and operational requirements for the completed project.]

- ☐ The brief should recognize the distinction between the strategic brief as the mission of the project within the clients' core business and the project brief as the technical requirements of the project.
- ☐ It is not necessary to distinguish between the strategic brief and the project brief.

13. In your experience, to what extent are the following used to convey the client's requirements to the design team?

	Always	Frequently	50% of cases	Infrequently	Never
Room data sheets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minutes of meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Letters/concise written instructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outline drawings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Full functional specification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verbal instruction from client	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Others, please specify _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Which of the following statements best describes your briefing practice?

- ☐ I have an established procedure for briefing all projects
- ☐ I have several established procedures for briefing used with different projects
- ☐ I have no established procedure for briefing, in each project briefing is carried out as seems appropriate.

Section C – Variables of Construction Briefing

Those writing on the subject of briefing have made the following statements. Please indicate your level of agreement/disagreement for each statement.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
15. Projects					
a) A brief should be compiled, completed and agreed prior to design commencing of a project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Briefing is a process which continues until the completion of the sketch design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The construction project is an indication of change in the client's business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) The brief should act as a reference document which should be available to all project parties	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) The brief should contain details of the procedures necessary to facilitate the absorption of the project into the clients' core business following completion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
16. Stakeholder Management					
A stakeholder is any person who is directly affected (i.e. client, government, neighbours, and general public etc.) by or who has an influence on the proposed project.					
a) Briefing is an investigation of the individual requirements of stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Briefing is a facilitated meeting which inputs the requirements of stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The individual stakeholders commitment, interest and power should be assessed prior to the briefing process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Briefing should consider and balance the interests of all stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Only the requirements of client's stakeholders should be reflected in the brief	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Teams and Team Dynamics					
a) The stakeholder group is a temporary team formed for the project only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The client should define the composition of the stakeholder group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The stakeholder group should be empowered by the client within precisely defined limits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Understanding of team dynamics is crucial for working effectively within the stakeholder group in the briefing process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Client Representation					
a) It is necessary to ensure adequate representation of client groups to address client needs and to prevent distortion of the brief	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Strict control by the brief writer is needed to avoid the brief becoming a 'wish list'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The brief should be sufficiently flexible to reflect changing client requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) The brief should describe the contribution of the project to the clients core business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) The client should determine the time at which the brief becomes fixed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) The brief should be fixed before sketch design commences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) The brief should be fixed before detail design commences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Change Management					
a) A brief for a construction project implies change in the client organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The brief writer must be able to understand the operation of the client business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The brief should describe the potential changes to the client organisation resulting from the construction project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) The brief documents is for use by the design team only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
20. Knowledge Management					
a) The brief is the primary vehicle for knowledge sharing amongst the project team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Successful briefing is dependent on understanding the clients strategic goals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Briefing is the integration of the skills, knowledge and experience of different stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Risk and Conflict Management					
a) Anticipating and recording risks to the project is an important part of the briefing process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Consensus building is a vital component of the briefing process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Post Occupancy Evaluation and Post Project Evaluation					
a) The briefing process should review the findings of a POE of the clients last project of a similar type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Incorporating the results of a POE of another clients project is hazardous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Consultation with facility managers and end-users benefits the briefing process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Critical Success Factors and Key Performance Indicators					
a) The construction brief should include the key performance indicators by which the success of the project will be measured	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The success of the project as a business unit is the sole responsibility of the client	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The design team is only responsible for the technical performance of the project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Type of Business and Organisational Theory					
a) Each stakeholder should have an equal input to the briefing process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Client input should be given a greater weighting than other project stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The briefing process must take into account that the stakeholder group may be formed of many different types of organisations with different success criteria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Decision Making					
a) Effective decision making can only occur if the client representatives are senior managers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The brief writer should determine the appropriate decision making method in the briefing process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The brief writer makes decisions based on information received from the stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) The stakeholder group must be empowered to make decisions as a team in the briefing process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
26. Communication					
a) Effective briefing is only possible if the client understands the construction process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Clients should appoint internal project managers to manage the briefing process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The brief writer should operate within strict project constraints set by the client	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Communication among stakeholders is crucial to the success of the briefing process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) A structured or facilitated workshop will improve communication amongst stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Culture and Ethics					
a) The brief writer has to manage the different cultural and ethical characteristics of the individual stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) It is important that the stakeholder group be comprised of individuals of common cultural and ethical outlook	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Culture and ethics affect decision making in the briefing process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. Others, please specify _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section D – Critical Success Factors for Construction Briefing

29. In your opinion, what are the critical success factors for the briefing process?

--

Please provide the following details to ensure a copy of the final report is sent to you:

Name: _____	Position: _____
Organisation: _____	
Address: _____	
Telephone No.: _____	Fax No.: _____ Email address: _____

*** End of Questionnaire ***

**** Thank you very much for your contribution ****

APPENDIX C

SAMPLE OF REMINDER LETTER FOR QUESTIONNAIRE SURVEY

Date

Receiver's address

Dear,

Reminder: Invitation for participating in a questionnaire survey

Further to my letter dated 1 June 2004, I write again to invite you to participate in the questionnaire survey concerning the Briefing Process. Your participation is essential to the success of my study. I would therefore be grateful if you could complete the questionnaire and kindly return it to me in the postage-paid reply envelope by mail or by fax at 2764 5131 before 5 July 2004.

The questionnaire is purely for academic purpose. Please be assured that your responses will be held in strict confidence. Your participation and prompt reply in this survey would be much appreciated. We are happy to share with you our research findings. Should you have any queries, please feel free to contact me phone at 2766 5874 or by fax at 2764 5131.

Thank you very much for your help in advance.

Yours Sincerely,

Ann T.W. Yu
PhD Research student

APPENDIX D

SAMPLE OF INVITATION LETTER FOR FOCUS GROUP MEETING

Date

Receiver's address

Dear,

Invitation for participating in a focus group meeting

The Hong Kong Polytechnic University and Glasgow Caledonian University in the UK are collaborating in an international study on briefing, which is funded by the Research Grant Council of the Hong Kong SAR Government.

A Briefing Guide, which utilise value management approach, has been developed to provide practical solutions to conduct briefing. We would like to listen on your comments on this "how-to" guide and you are cordially invited to attend a lunch time focus group meeting which allows us to exchange ideas on Briefing. The details and agenda of the focus group meeting are attached for your information.

We would be grateful if you would participate in the focus group meeting and indicate your availability by returning the attached reply slip by fax before 23 December 2004.

For any further information, please feel free to contact me by phone at 2766 5817 or by fax at 2764 5131.

Yours sincerely,

Professor Geoffrey Q.P. Shen
Department of Building and Real Estate
The Hong Kong Polytechnic University
Hung Hom, Kowloon, Hong Kong
Email:bsqpshen@

APPENDIX E

SAMPLE OF FEEDBACK QUESTIONNAIRE ON THE BRIEFING GUIDE

Feedback Questionnaire on the Briefing Guide

INSTRUCTION:

Please put a tick in the appropriate boxes in Section A and input text into the space provided in Section B.

Section A

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The structure of the Briefing Guide is well-organised.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The content of the Briefing Guide is appropriate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The length of the Briefing Guide is appropriate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The Briefing Guide explains clearly how to conduct Briefing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Benefits of using the proposed methodology in the Briefing Guide					
a) establishing the client value system to facilitate the prioritisation of the value in the client organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) providing a structured methodology to identify client requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) clarifying client's needs versus wants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) prioritising client's options	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) promoting team work to identify opportunities available for project development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) highlighting any potential problems at the beginning of the project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) stimulating participation and effective communication among clients and others stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Stages of Briefing					
a) The Briefing Guide indicates the right stage for Strategic Briefing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The Briefing Guide indicates the right stage for Project Briefing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The Briefing Guide suggests the appropriate guidelines for selecting the briefing team.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Toolboxes of the Briefing Guide					
a) Toolbox 1 – Pre-Workshop Phase Tools are useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Toolbox 2 – Tools for Strategic Briefing Workshop are useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Toolbox 3 – Tools for Project Briefing Workshop are useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Toolbox 4 – Supplementary Tools are useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section B

9. What are the things that you like **MOST** in the Briefing Guide?

- a) _____
- b) _____
- c) _____
- d) _____
- e) _____

10. What are the things that you like **LEAST** in the Briefing Guide?

- a) _____
- b) _____
- c) _____
- d) _____
- e) _____

11. What are your comment(s) or suggestion(s) to improve the Briefing Guide?

12. Name: _____ 13. Professional Affiliation: _____

14. Contact Tel: _____ 15. Email: _____

16. How many years of experience do you have in Briefing? _____ years

17. How many years of experience do you have in applying Value Management to Briefing? _____ years

Please return the completed questionnaire to Ms. Ann Yu, Department of Building and Real Estate, The Hong Kong Polytechnic University Hung Hom, Kowloon by fax: (852) 2764 5131.

Thank you for your contribution!

APPENDIX F

DATA OF THE RESPONDENTS OF FEEDBACK QUESTIONNAIRE ON THE BRIEFING GUIDE

Appendix F

No.	Post	Professional Affiliation	Year of experience in Briefing	Year of experience in applying VM in Briefing
1.	Chief Architect	Architect	35+	10
2.	Associate Director	Architect	25	25
3.	Senior Contracts Manager	Engineer	15	15
4.	Senior Project Manager	Client	20	15
5.	Executive Manager (Capital Works)	Client	10	1
6.	Senior Project Manager	Client	20	6
7.	Senior Manager	Client	25	2
8.	General Manager	Client	25	15
9.	Senior Architect	Architect	15	1
10.	Director	Architect	20	5
11.	Project Coordinator	Client	1	1
12.	Senior Engineer	Engineer	1	1
13.	Senior Cost Control Engineer	Client	5	1
14.	Project Manager	Building Surveyor	1	1
15.	Quantity Surveyor	Quantity Surveyor	3	1
16.	Project Manager	Client	7	2

Appendix F

17.	Quantity Surveyor	Main Contractor	1	1
18.	Quantity Surveyor	Quantity Surveyor	1	1
19.	Project Manager	Building Surveyor	2	1
20.	Project Manager	Main Contractor	1	1
21.	Assistant Resident Quantity Surveyor	Quantity Surveyor	1	1
22.	Quantity Surveyor	Client	3	1
23.	Site Agent	Main Contractor	1	1
24.	Building Surveyor	Architect	1	1
25.	Project Manager	Building Surveyor	2	1
26.	Building officer	Building Surveyor	1	1
27.	Quantity Surveyor	Client	2	1
28.	Architect	Architect	1	1

APPENDIX G

EXPERIMENT SET UP FOR STRATEGIC BRIEFING STUDY

Experiment set up for Strategic Briefing Study

Introduction to scenario

The residential development at the existing site No.15 Wylie Path Kowloon is now 40 years old. The last renovation works were carried out in 1996. A building survey reported that there are a lot of spalling concrete in the buildings and the conditions of the lifts, electrical and fire services installations, and drainage are poor. Structural cracks were found at the two carport levels and the swimming pool at the podium.

There are five blocks of 20-storeys buildings at the existing site. Three blocks (A, B and C) are the government's accommodation and two blocks (D, E) are the purchaser's accommodation. The government leased the land for Block D and E to Win Hin Development Co. Ltd. (WH) for 75 years starting from 1 April 1963 on condition that WH should construct Block A, B and C for government's accommodation at no cost from the government. The lease condition has not been expired yet.

Now the Architectural Services Department is requested by the Government Property Agency to carry out an evaluation study to optimise the use of the existing site and to explore other uses of the land. The proposed options may include renovation of the existing buildings, demolition of the existing buildings and development of new buildings which may be for uses of residential buildings, offices, social or recreational facilities, etc.

A group of professional practitioners (19 nos.) will act as a team of professionals which may include VM facilitators, recorder, brief writer(s), client's representatives, project manager(s), architect(s), engineers, quantity surveyor(s), renovation contractor(s), new works contractor(s), government representative(s) and other key stakeholder(s) in order to design and conduct a Strategic Briefing study using the VM approach.

Objectives

- To test the VM framework as described in the Briefing Guide
- To conduct an experiment of using the Briefing Guide
- To improve and refine the Briefing Guide

Methodology

1. Give a presentation to the professional practitioners to explain the experiment and answer queries from them on 9 March 2005
2. Distribute the relevant information to the professional practitioners on 9 March 2005
3. Supervise and control the whole process professionally
4. Comment on the submitted Briefing Workshop Proposal by the professional practitioners

5. Observe the one day workshop and take record on 17 April 2005 (Photos will be taken)
6. Conduct a feedback session (30 mins) with the participants to review the whole process for future improvement on 17 April 2005 after the workshop session
7. Distribute feedback questionnaire to the professional practitioners for completion at the end of the feedback session on 17 April 2005.
8. Interview the facilitators to collect process and outcome performance measurement (to be carried out by Ann Yu and Thomas Lin)
9. Review the strategic brief submitted by the professional practitioners
10. Improve and refine the Briefing Guide
11. Role of Ann Yu: Observer and consultant

Data Collection

1. Record of queries raised by the professional practitioners
2. Record of issues that the professional practitioners do not understand and ways that they can improve the brief and the VM process
3. Proposal for the Strategic Briefing study
4. Strategic Brief
5. Process performance measurement – to be taken by Ann Yu and Thomas Lin
6. Outcome performance measurement – to be taken by Ann Yu and Thomas Lin

Data Analysis

1. Data item no. 1 to 4 will be analysed qualitatively to build up a case study of implementing the Briefing Guide. The Briefing Guide will be further improved and refined from the results of the experiment.
2. Data item no. 5 and 6 will be analysed quantitatively by simple statistic methods.

APPENDIX H

SAMPLE OF FEEDBACK QUESTIONNAIRE FOR STRATEGIC BRIEFING WORKSHOP

Feedback Questionnaire for Strategic Briefing Workshop

INSTRUCTIONS:

This questionnaire is designed to gather information to measure the performance of the Briefing Workshop. Unless otherwise stated, please indicate your answer by circling the appropriate numbers. The meanings of the acronyms are given under the tables.

1. To what extent do you agree with the following statement?

	SA	A	N	D	SD
You are satisfied with the time when the briefing workshop is conducted.	5	4	3	2	1
You are satisfied with the venue where the briefing workshop is conducted.	5	4	3	2	1
You are familiar with how briefing workshop is conducted.	5	4	3	2	1
The briefing workshop is fully supported by client.	5	4	3	2	1
Client representatives participate actively in the briefing workshop.	5	4	3	2	1
The briefing workshop has clear objective.	5	4	3	2	1
The briefing workshop is fully supported by the relevant departments.	5	4	3	2	1
(SA: Strongly Agree A: Agree N: Neutral D: Disagree SD: Strongly Disagree)					

2. Are you satisfied with the process of the briefing workshop?

	VS	S	N	U	VU
Information phase					
Are you satisfied with the techniques used in information phase?	5	4	3	2	1
Are you satisfied with the interaction between participants?	5	4	3	2	1
Are you satisfied with the clarification of client's objectives?	5	4	3	2	1
Are you clear about the givens/assumptions of the project?	5	4	3	2	1
Function analysis phase					
Are you satisfied with the techniques used in function analysis phase?.....	5	4	3	2	1
Are you satisfied with the interaction between participants?	5	4	3	2	1
Are the functions clearly identified?	5	4	3	2	1
Creativity phase					
Are you satisfied with the techniques used in creativity phase?	5	4	3	2	1
Are you satisfied with the interaction between participants?	5	4	3	2	1
Evaluation phase					
Are you satisfied with the techniques used in evaluation phase?	5	4	3	2	1
Are you satisfied with the interaction between participants?	5	4	3	2	1
Development phase					
Are you satisfied with the techniques used in development phase?	5	4	3	2	1
Are you satisfied with the interaction between participants?	5	4	3	2	1
(VS: Very satisfied S: Satisfied N: Neutral U: Unsatisfied VN: Very unsatisfied)					

3. What is your assessment on the outcomes of the briefing workshop?

	E	G	N	B	T
Identification and clarification of client requirements.	5	4	3	2	1
Expedition of decisions.....	5	4	3	2	1
Improving communication and understanding.	5	4	3	2	1
Consideration of options.	5	4	3	2	1
Quality of brief.....	5	4	3	2	1
Your satisfaction of the briefing workshop.	5	4	3	2	1
(E: Excellent G: Good N: Neutral B: Bad T: Terrible)					

4. What are the things that you like MOST in the Briefing Workshop?

- a) _____
- b) _____
- c) _____

5. What are the things that you like LEAST in the Briefing Workshop?

- a) _____
- b) _____
- c) _____

6. What are the things that you found INTERESTING in the Briefing Workshop?

- a) _____
- b) _____
- c) _____

7. What are the things that you found DIFFICULT in the Briefing Workshop?

- a) _____
- b) _____
- c) _____

8. What are your comments or suggestions to improve the Briefing Workshop?

- a) _____
- b) _____
- c) _____

Personal Particulars

Name of Respondent: _____ Position: _____

Thank you very much for completing this questionnaire!

APPENDIX I

SAMPLE OF FEEDBACK QUESTIONNAIRE ON THE CONCISE GUIDE

Feedback Questionnaire on the Concise Guide

INSTRUCTION:

Please put a tick in the appropriate boxes in Section A and input text into the space provided in Section B.

Section A

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The structure of the Briefing Guide is well-organised.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The content of the Briefing Guide is appropriate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The length of the Briefing Guide is appropriate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The Briefing Guide explains clearly how to conduct Briefing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Benefits of using the proposed methodology in the Briefing Guide					
a) establishing the client value system to facilitate the prioritisation of the value in the client organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) providing a structured methodology to identify client requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) clarifying client's needs versus wants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) prioritising client's options	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) promoting team work to identify opportunities available for project development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) highlighting any potential problems at the beginning of the project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) stimulating participation and effective communication among clients and others stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Stages of Briefing					
a) The Briefing Guide indicates the right stage for Strategic Briefing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The Briefing Guide indicates the right stage for Project Briefing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The Briefing Guide suggests the appropriate guidelines for selecting the briefing team.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Contents of the Briefing workshops					
a) The suggested contents for Strategic Briefing Workshop are useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The suggested contents for Project Briefing Workshop are useful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section B

9. What are the things that you like **MOST** in the Briefing Guide?

- a) _____
- b) _____
- c) _____
- d) _____
- e) _____

10. What are the things that you like **LEAST** in the Briefing Guide?

- a) _____
- b) _____
- c) _____
- d) _____
- e) _____

11. What are your comment(s) or suggestion(s) to improve the Briefing Guide?

12. Name: _____ 13. Professional Affiliation: _____

14. Contact Tel: _____ 15. Email: _____

16. How many years of experience do you have in Briefing? _____ years

17. How many years of experience do you have in applying Value Management in Briefing? _____ years

Please return the completed questionnaire to Ms. Ann Yu, Department of Building and Real Estate, The Hong Kong Polytechnic University Hung Hom, Kowloon by fax: (852) 2764 5131.

Thank you for your contribution!

APPENDIX J

CD-ROM – A THEORETICAL FRAMEWORK FOR CONSTRUCTION PROJECT BRIEFING/ ARCHITECTURAL PROGRAMMING