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Evaluation of Control in Commercial Refurbishment Projects

Evaluation du contrôle dans les projets de remise à neuf de locaux commerciaux

Die Bedeutung der Projektsteuerung durch den Bauherrn bei kommerziellen Modernisierungsprojekten

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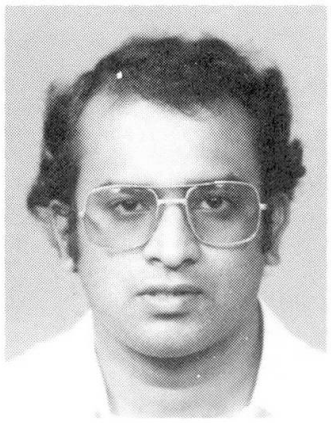

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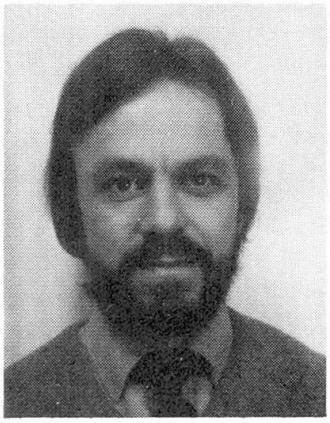

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SUMMARY
The degree of control exercised by the Clients in commercial refurbishment projects and the effectiveness of management systems and contractual arrangements commonly used in the United Kingdom were studied. It was found that the «time» is the major criterion of Clients for success in commercial refurbishment projects and the existing procurement procedures do not give sufficient importance to the time requirements.

RÉSUMÉ
L'article traite du contrôle exercé par les clients au cours des projets de remise à neuf de locaux commerciaux, ainsi que de l'efficacité des systèmes de gestion et des dispositions contractuelles appliquées au Royaume-Uni. Le facteur principal pour le succès de projets de remise à neuf de locaux commerciaux, utilisé par les clients, est celui du temps. La pratique actuelle ne tient pas suffisamment compte de ce facteur.

ZUSAMMENFASSUNG
Diese Untersuchung widmet sich den Problemen der vom Bauherrn bei kommerziellen Renovationsprojekten ausgeübten Kontrolle sowie der Wirksamkeit von Management-Systemen und vertraglichen Abmachungen in England. Die Ergebnisse zeigen, dass die Bauzeit das wichtigste Kriterium für eine erfolgreiche Abwicklung von Renovationsprojekten darstellt, und dass die angewendeten Beschaffungsverfahren diesem Kriterium nicht genügend Rechnung tragen.

1. INTRODUCTION

1.1 Background

Refurbishment of commercial and industrial buildings is the sector of the UK Construction Industry which has attained increasing importance over the last ten years. As a proportion of workload (by value), the refurbishment and rehabilitation sector has increased in size to constitute currently about 40% of the construction market. Increasingly the commercial sector is taking-up the refurbishment option in preference to new-build.

The refurbishment project involves greater uncertainty for the client due to the requirement of flexibility in evolving the design as construction progresses. The working environment of refurbishment is different from new-build, necessitating different managerial expertise.

At the Construction Study Unit, Brunel University, we are involved in research entitled "Client Control of Commercial Refurbishment Projects", and this paper is based on the outcome of the pilot study which was of one year duration. The research is sponsored by the Science and Engineering Research Council under the Specially Promoted Programme in Construction Management.

1.2 Definitions

Client: The party who is responsible for the decision to build and who commissions the Consultants and Contractors to execute the work.

Control: Action to influence the performance of a project in order to achieve the objectives of the project's execution.

Control Process: Setting targets, measuring performance, comparing performance with targets and taking corrective action, if necessary.

Refurbishment: Work involving alterations or repairs to structural fabrics, new or overhauling services, new finishes and other additional works, the basic structure of the building being retained. Construction of a new building behind an existing facade, fitting-out, decoration and maintenance work specifically are excluded.

Commercial Buildings: Offices, shops, banks and similar buildings.

Traditional Contracts: Separation of design and construction in which the Client engages a team of independent Consultants to design the project fully before tenders are sought from Contractors by the process of single stage tendering based on firm bill of quantities; the subsequent constructions being executed under JCT '80 (or similar) contract, overseen by the Architect on behalf of the Client.

1.3 Research Methodology

Three research instruments were used:

Case studies. Five from the private sector plus one from a local authority to provide a cross section of projects ranging from £1 million to £20 millions. The study included interviews with Clients, Consultants and Contractors, a detailed study of contract documentation and various other papers including clients' initial briefs, minutes of meetings and correspondence.

Structured Interviews. In addition to the interviews for case studies, further interviews were conducted based on a defined structure to obtain data.

This supplemented the case studies by facilitating comparison of refurbishment and new-build projects.

Questionnaires. The general application of the data obtained from the case studies and structured interviews was evaluated using a postal questionnaire to a larger sample of companies.

1.4 Literature Review

Sidwell (1) drew attention to the extensive uncertainties inherent in most refurbishment projects and recommended that procedures be developed to cope with the consequent strains imposed on the management of projects. Ninos and Wearne (2) suggested that the effectiveness of control depends upon the Client's decisions at the start of a project regarding the authority of the project team.

According to Sadler et al. (3) the higher the uncertainty in the overall task, the less appropriate is an organizational structure designed to achieve a high degree of control. As the empirical evidence indicates there to be high levels of uncertainty in commercial refurbishment projects, there is conflict between the assertions of Ninos and Sadler. Freeman's (4) view, that the division of responsibilities between the parties results in less control by the client adds a further potential complication.

Cherns (5) believes that the performance of a management team is determined more by the managerial capabilities of the team members and by their coordination than by the form of contract used, reinforcing the view of Higgin (6) that informal management systems are often more important for project success than are formal systems.

2. FINDINGS

2.1 Project Characteristics

Refurbishment projects are problematic compared to new-builds. The main difficulties are (in the order of importance):

Necessity for concurrent design and construction
Time Prediction
Cost Forecasting
Site Difficulties
Construction Difficulties
Cost Control

The majority of the problems are created by the high degree of uncertainty that prevails. Non-availability or lack of accuracy of the original drawings and the extent of deterioration which often is not sufficiently revealed in the exploratory survey are the major causes. Occupied buildings create additional problems, especially sequencing of work and maintenance of facilities/habitable environment for the occupants. Listed buildings provide a particular challenge in reconciling Clients' criteria with the requirements of the Planning Authorities.

2.2 Clients' Criteria

Accuracy of overall time prediction and shortest overall period of design and construction are the major factors of importance to the Clients who execute

refurbishment projects, compared to accuracy of initial budget to the Clients of new-build projects. Quality is a dominating concern for most Clients, in refurbishment and new-build projects, mainly the fitness for purpose; but as the specification requirement is usually determined prior to construction, the control of quality is ensuring that the set standards are met. Thus achievement of quality is assumed by the Client's team.

Most major decisions in commercial refurbishment are time-driven. The Clients in the case studies were willing to pay "acceleration costs" in order to shorten the construction period. Such additional costs are outweighted by early flow of income and lower finance charges, resulting in enhanced profitability of the venture for the Client.

Those Clients who need to specify the project requirements tightly will do so, immaterial of whether it is a new-build or a refurbishment. However, the chances of achieving the requirements are less in refurbishment projects. The ability to specify achievable targets improves between the inception and contract stages in new-build; refurbishment does not facilitate such improvement due to the continuing nature of the design work.

2.3 Control Process

Clients' involvement in the post contract stages was assessed. The results indicated that the Clients' direct involvement is high in refurbishment projects and concentrates on Time Control, particularly measuring progress of the work and deciding corrective action. Quality control and cost control remain mostly the responsibility of the Consultants. Table 1 indicates the Clients' involvement in the Control Process in both refurbishment and new-build projects.

	Refurbishment			New-Build		
	Time	Cost	Quality	Time	Cost	Quality
Measuring Performance	48%	13%	26%	35%	13%	30%
Assessing Deviation	30%	9%	22%	17%	17%	9%
Proposing Corrective Action	34%	13%	13%	26%	17%	13%
Deciding Corrective Action	48%	48%	35%	39%	57%	35%
Average	40%	20%	24%	29%	26%	21%

Table 1 Clients' involvement in the control process as a percentage of projects studied.

The degree of direct Client involvement in refurbishment projects ranges from casual and informal to (almost) over-riding the contractual rights of individual members of the building team. There was evidence to suggest that the Consultants who are vested with the responsibility for exercising control

on behalf of the Clients, sometimes merely act as "rubber-stampers", utilisation of their expertise and the sense of responsibility being minimised.

The majority of Clients who execute refurbishment projects are management conscious; their willingness to exercise control on time and then cost often extends to personal involvement in contractual matters, sub-contractor selection and technical problems. They are aware of the requirement for their continuous involvement during the post contract stages. Clients either employ construction professionals as permanent staff or appoint independent Project Managers to act on their behalf. The appointment of independent Project Managers is more frequent in refurbishment projects (43%) than in new-build projects (19%); the role is dominated by Builders and Building Surveyors in refurbishment and by Architects and Quantity Surveyors in new-builds.

2.4 Project Organisation

The traditional contractual procedures which distribute responsibilities discretely between members of the building team were found to be inappropriate on refurbishment projects. Unorthodox Management Systems, Contract Forms and Tendering Procedures are popular. The current usage of the existing procedures in commercial refurbishment projects was surveyed (Table 2).

	Refurbishment		New-Build	
Management Systems				
Traditional	28%		64%	
Project Management	25%		15%	
Management Contracting	28%	72%	13%	36%
Design and Build	19%		8%	
Contract Forms				
JCT with Quantities	18%		65%	
JCT with Approximate Quantities	22%		10%	
JCT without Quantities JCT Fixed Fee JCT Contractors Design	35%		14%	
Clients'/Contractors' Own	25%		11%	
Tendering Procedures				
Single stage	39%		71%	
Two stage Negotiated Cost Plus	61%		29%	

Table 2. Current Usage of the Existing Procedures (by No.)
(Commercial buildings - contract value 1 million and over)

As indicated the use of the traditional system in association with a firm Bill of Quantities is limited in commercial refurbishment projects as it is impossible to define the work with the requisite degree of accuracy in refurbishment. Design and Build is used on less complex projects. Such

restriction is often relaxed when there is an established relationship between the Client and the Contractor which has created a mutual trust. Management Contracting is used frequently when the time is of essence but may have a drawback of not providing sufficient incentives to the Contractor to complete the project on time; such situation necessitates stringent Client control.

The most commonly used tendering procedures for refurbishment projects are two-stage tendering or negotiation. The current tendering procedures are criticised for providing insufficient importance to the Client's time requirement on refurbishment projects; they are cost-oriented and may restrict savings which could be realised from a shorter project duration. A procedure of selective dual tendering is proposed to give due importance to Clients' time requirements on commercial refurbishment projects. Contractors will bid for work with the construction period prescribed by the Client/Consultants and should submit an alternative bid for a construction period of their own choice. The process of tender evaluation will include a trade-off between time and cost criteria. The method of dual tendering is already being practised to a limited extent in the building industry but they are not formalised and the tender evaluation is conducted in an ad-hoc manner. A code of Procedure for Selective Dual Tendering is to be developed incorporating a quantification model for bid evaluation.

2.5 Degree of Control

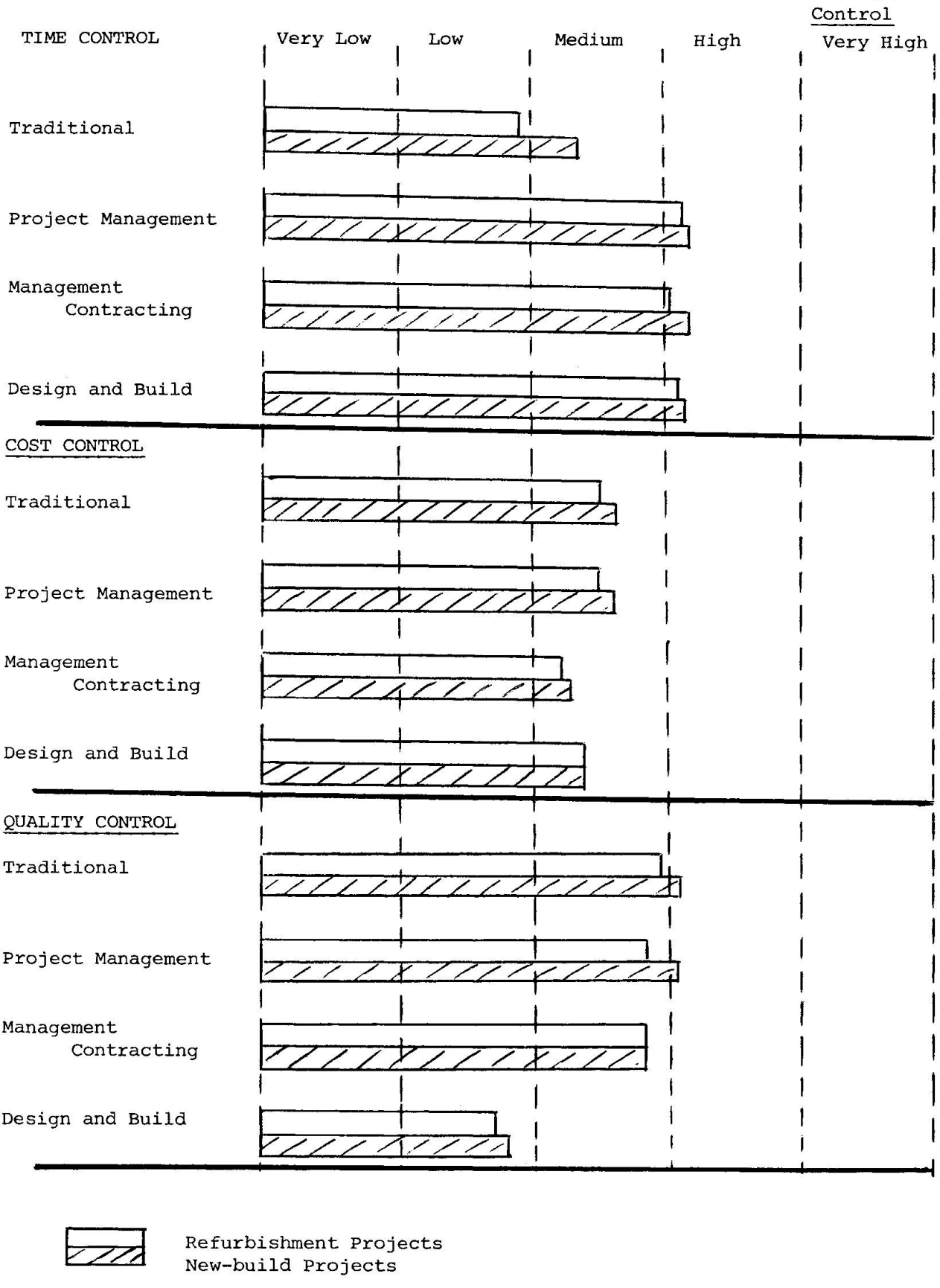
The commonly used management systems and their ability to permit Client control was assessed in refurbishment and new-build projects (Fig. 1).

The degree of control that was exercised by the Clients in the case study projects was compared with the degree of control that was predicted. Prediction was based on the assessment of the complexity of the projects, the chosen management system and the contract form used. What was controlled, who exercised control and how were the major questions for which answers were sought.

It was evident that there is a mismatch between the predicted and exercised degrees of control in commercial refurbishment projects. The informal procedures attempt to overcome the mismatch.

The mismatch results in Clients' dissatisfaction with the existing management systems and contractual arrangements, for their inability to facilitate the required degree of control. It is suspected that such apparent mismatch may affect the project performance and also the relationship between various parties in the building team.

FIGURE 1 Management Systems and their ability to permit Client Control



Refurbishment Projects
New-build Projects

2.6 Building Team

It is common practice for the Clients to seek Consultants and Contractors who have a flexible and collaborative attitude towards management and control of commercial refurbishment projects.

The major factors considered in the Contractor Selection and the importance given was assessed (Fig.2). Clients are meticulous in selecting contractors for refurbishment projects. Ability to work as a team, experience of similar projects and details of key personnel are given additional importance in refurbishment compared to new-build projects.

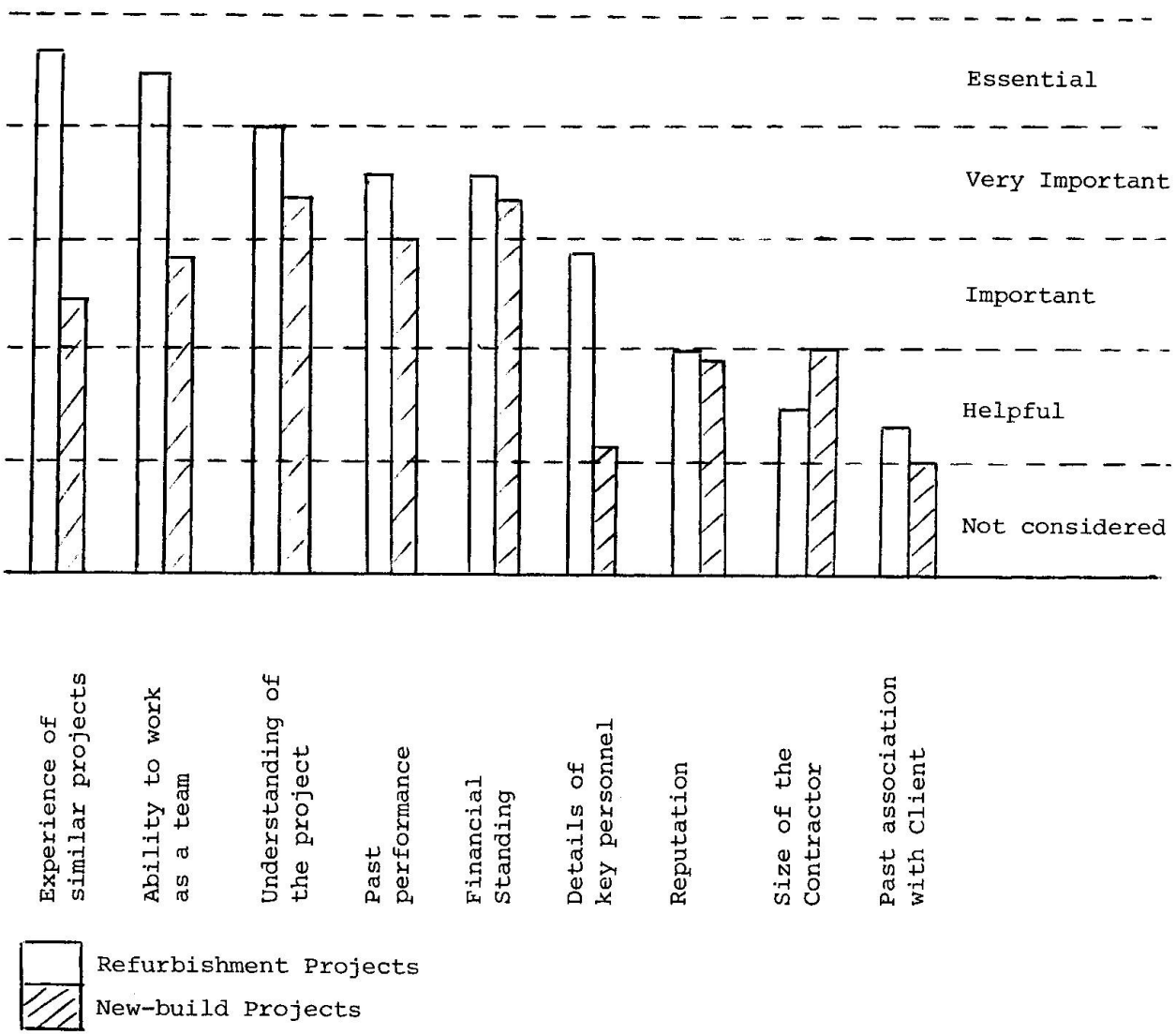


Fig. 2 Factors considered in Contractor Selection

3. CONCLUSIONS

3.1 Uncertainties are high in refurbishment projects compared to new-build projects. It is common for much design and construction to proceed concurrently on refurbishment - this heightens uncertainties and enhances difficulties of control.

3.2 Commercial refurbishment projects are time-driven. New-build contract forms and tendering procedures are inappropriate by giving insufficient importance to the time-requirement.

3.3 Unorthodox management systems are more prevalent on refurbishment projects than on new-build projects. They provide a better time control facility compared to the traditional system.

3.4 Informal management arrangements dominate refurbishment often to the extent of almost supplanting the formal. The contractual provisions are regarded only as a last resort or safety net.

3.5 Traditional arrangements which encourage a descrete distribution of responsibilities between members of the building team, are inappropriate on refurbishment projects. A flexible and collaborative approach comprising an organic form of organisation is required to manage and control refurbishment projects.

3.6 There is a high degree of mismatch between the level of control Clients exercise over commercial refurbishment projects and the level of control which is normally anticipated by the Consultants and Contractors.

3.7 Commercial refurbishment projects require a management approach which encourages active participation of Client, Consultants and Contractors - Decisions should be taken collectively and quickly.

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