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# **The Development of a Methodology to Match the Client's Project Requirements with the Knowledge of the Project Team in Refurbishment Projects**

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Refurbishment projects are generally considered to be higher risk, more complex and in need of greater co-ordination than new build projects. Meeting client requirements and managing refurbishment projects can pose a difficult task for construction organisations. In project-based professional or technical service organisations, an organisation's competences are reflected not only in the quality and quantity of its individual experts, but also in the integration of the organisation's knowledge resources through its deployment of people in project teams. It is argued that a knowledgeable project team that is able to understand and interpret the client's requirements and rely on their knowledge and experience to meet the client's requirements is likely to increase the chance of delivering a project on time and within budget. From a knowledge-based strategic management perspective, the creation of an optimal mix of a project team (i.e. having expertise in its membership drawn from across organisations) that has requisite skills and competences matched unto the client's project requirements, will lead to client satisfaction of the project. The aim of this paper is to explicate the process of developing a methodology to match the client's project requirements with the knowledge of the project team in refurbishment projects. Additionally, the paper emphasises the importance of meeting the client's requirements and the need for a knowledgeable project team in refurbishment projects.

**Keywords:** client requirements, knowledge capture, knowledge management, refurbishment.

## **INTRODUCTION**

It has long been acknowledged that the satisfaction of the client is an issue in much need of address and the importance of achieving client satisfaction has been emphasised by many authors: Bennett *et al.*, (1988), Kamara *et al.*, (2000), Latham (1994), Torbica and Stroh, (2001) and Egan, (1998). In the measurement of project success factors, Pinto and Slevin (1988) have emphasised that 'client satisfaction' should be included. In order to achieve client satisfaction, two objectives have to be met: firstly, the translation of client needs into a design, which specifies technical characteristics, functional performance criteria and quality standards; and secondly, the completion of the project within a specified time and in the most cost effective manner (Bowen, *et al.*, 1999).

The briefing process in construction projects involves capturing the client's requirements and documenting these requirements and instructions into a 'brief'. In the development of a project brief, a wide variety of skills are drawn upon including those of architects, planners and engineers who can envisage the options for the final product (Winch, Usmani and Edkins, 1998). The improvement of briefing practice has

for some time been recognised as an important area in which the construction process can be improved. It is difficult for the project team to interpret the requirements of the client, and to reduce these to a textual form is clearly impractical. For refurbishment projects where clients are very dependent on the knowledge and skills of the project team (Smith, Love and Jackson, 1999), it is all the more important that the project team is able to understand and interpret the client's requirements and rely on their knowledge and experience to meet the client's requirements and develop a functional brief.

Based on an on-going doctorate study which involves research on the development of a methodology to match the requirements of construction projects with the knowledge of project teams, this paper explicates the development process. The paper commences with the need to meet and satisfy client requirements. Next, the significance of staffing the project with knowledgeable team members so as to increase an organisation's competitive advantage is presented. The need for appropriate knowledge in and of refurbishment projects is discussed.

## **THE NEED TO MEET CLIENT'S PROJECT REQUIREMENTS**

Successful projects are characterised by a focus on client requirements (Brown *et al.*, 1999). Client satisfaction adds value to the organisation from a number of perspectives (Mbachu, 2003): creation of sustainable client loyalty to the firm (Preece, 2000), repeat purchase, acceptance of other products/services offered by the service firm, increased market share and profitability levels (Surprenant, 1997), creation of positive word-of-mouth (Churchill and Surprenant, 1982), and as a measure of market performance (Handy, 1977). Satisfaction is also important to the client because it reflects a positive outcome from the outlay of scarce resources and/or the fulfilment of unmet needs (Day and Landon, 1977; Landon, 1977). Consumer dissatisfaction, on the other hand, leads to undesirable consequences such as: negative word-of-mouth, complaints, redress-seeking, reduction of market share and profitability levels (Day, 1977, 1982; Oliver, 1980, 1981; Woodruff, Cadotte and Jenkins, 1983), and possible divestment from the industry (Kotler, 1997).

One of the reasons cited for resulting facilities falling short of the expectations of the clients is that construction professionals usually design with the needs of the environment, aesthetics and posterity in mind, rather than those of the client (Latham, 1994). A reason advanced by Mbachu (2003) for the prevalence of client dissatisfaction within the construction industry is that little research has been dedicated to the area of client needs and satisfaction in the industry. Not much effort has been made to identify the needs of clients, which is crucial to ensuring client satisfaction (Liu and Walker, 1998). Green and Lenard (1999) noted that the problem is a recurring one throughout the global construction industry and that the industry has invested little time and attention in investigating the needs of its clients compared to other economic sectors. Thus, greater demands from clients for a better quality of building product, delivered on time and within budget are now part of the construction service ethos (Smith *et al.*, 1999).

## **KNOWLEDGE OF THE PROJECT TEAM**

Knowledge, as quoted by Martensson (2000), is something that resides in people's minds and is one of the most important resources to an organisation (Nonaka and Takeuchi, 1995). For professional and technical service firms, the reputations, experience and skills of employees are their main assets (Empson, 2001) and knowledge is an essential resource (Empson, 2001; Kogut & Zander, 1992) and a primary source of competitive advantage (Amit & Schoemaker, 1993; Galunic & Rodan, 1998; Grant, 1996; Wernerfelt, 1984).

Sustained competitive advantage is obtained through capabilities and resources that are valuable, rare, non-imitable and non-substitutable (Barney, 1991). Individual expertise and human capital have been identified as key resources to organisations because they add value to the firm, are unique and rare to competitors, imperfectly imitable, and cannot be substituted with another resource by competing firms (Wheelwright & Clark, 1992). Deploying experts into project teams is therefore the mechanism by which professional service organisations coordinate and apply the diverse expertise and experience embedded within individuals (Teece, 1998). The ability to offer customers the professionals with the expertise matching the desires of customers is key to improving the organisation's competitive advantage for project-based professional or technical service organisations (Maister, 1993). Building a project team that has greater number of experts required by the project will increase the organisation's ability to win projects and bring in business (Boh, 2004). From a knowledge-based strategic management perspective, the creation of an optimal mix of a project team (i.e. having expertise in its membership drawn from across organisations) that has requisite skills and competences matched unto the client's project requirements, will lead to client satisfaction of the project (Boh, 2004).

The importance of a knowledgeable project team has been indicated by Othman *et al.* (2005). Being the originators of brief development, project team members' knowledge or the lack of it can be a value source or a risk source to the project. This view is echoed by Hatten and Lalani (1997) who suggest that by selecting an appropriate consultant team, the chance of delivering a project on time and within budget might increase. Cooley (1994) concurred that good consultants bring genuine and lasting value to the organisation they serve.

Ideally, a multidisciplinary design team is staffed in such a way that both the levels and the distribution of knowledge within the team match those required for the project (Fong, 2003). However, the knowledge or expertise of staff is seldom deployed according to the requirements of the project as a result of a shortfall in knowledge, such as the mismatch between staff expertise and project domain knowledge or due to the ad hoc staffing approaches followed in most organisations due to a sudden increase in workload (Fong, 2003).

## **THE NEED FOR KNOWLEDGE IN REFURBISHMENT PROJECTS**

In refurbishment work there are many tasks where decisions are shaped not only by external factors but also by the experience-based capabilities and future workload of the firm's personnel and its general policy. In such situations, one is likely to find that experts rely on relatively unstructured methods in arriving at a decision (Okoroh & Torrance, 1999). The Technology Foresight Report (OST, 1995) emphasised the importance of the acquisition of appropriate skills, knowledge and competencies through appropriate education and training. Lansley (1990) has suggested that the construction industry now requires greater 'knowledge workers' than in the past.

Knowledge is the ideas, wisdom and facts that managers acquire through experience, theory and practice; the acquisition of which gives them an ability to understand. Knowledge can be potential or manifested in performance. Management skills and knowledge should complement one another (Egbu, 1999).

In refurbishment, with the increase in contract labour, together with a corresponding increase in fragmented specialised work and the difficulties associated with labour on site, the skills of leadership and communication have become even more necessary. Also, with an increasing need for speed of response to address the issues arising from variations to the works, the skills of communication becomes vitally important.

Koehn and Tower (1982) are of the view that refurbishment work demands greater supervision than new build work.

Willenbrock *et al.* (1987) are of the view that the nature of refurbishment work, coupled with a long working week and overtime work by construction personnel, leads to low morale and low productivity. Therefore the skill and knowledge of motivating others is needed.

Demolition work can involve the disposal of hazardous substances such as asbestos and lead. Statistics from the Health and Safety Executive (HSE, 1998) show that the repair and maintenance sector, including refurbishment, accounts for about 43% of the total number of construction fatal accidents in the UK. The need to understand and be able to control substances hazardous to health, especially by the site management team, is of the utmost importance. Egbu (1996) argued that appropriate management strategies need to be developed to cope with the safety risks and hazards, especially for works carried out with tenants in occupation.

Refurbishment work is characterised by high risk, uncertainty and high numbers of variation orders to the works. Working under such situations, and at the same time attempting to achieve the stipulated time for project completion, requires managers to make impromptu and sound decisions. The skill of decision making therefore is of great importance at all levels of management. In an environment of uncertainty, with increased variation to the works and costs likely to escalate at short notice, controlling the financial requirements of refurbishment processes is of utmost significance. Thus the skills and knowledge associated with forecasting and planning are very important.

With refurbishment works often involving working within a confined site, the knowledge of site organisation is important. In addition, refurbishment projects requires the matching of new material components with that of the existing building (Evamy, 1988), thus there is a need to understand the nature and qualities of the materials used originally so as to match them exactly or look for a material which blends in and harmonise with the existing environment.

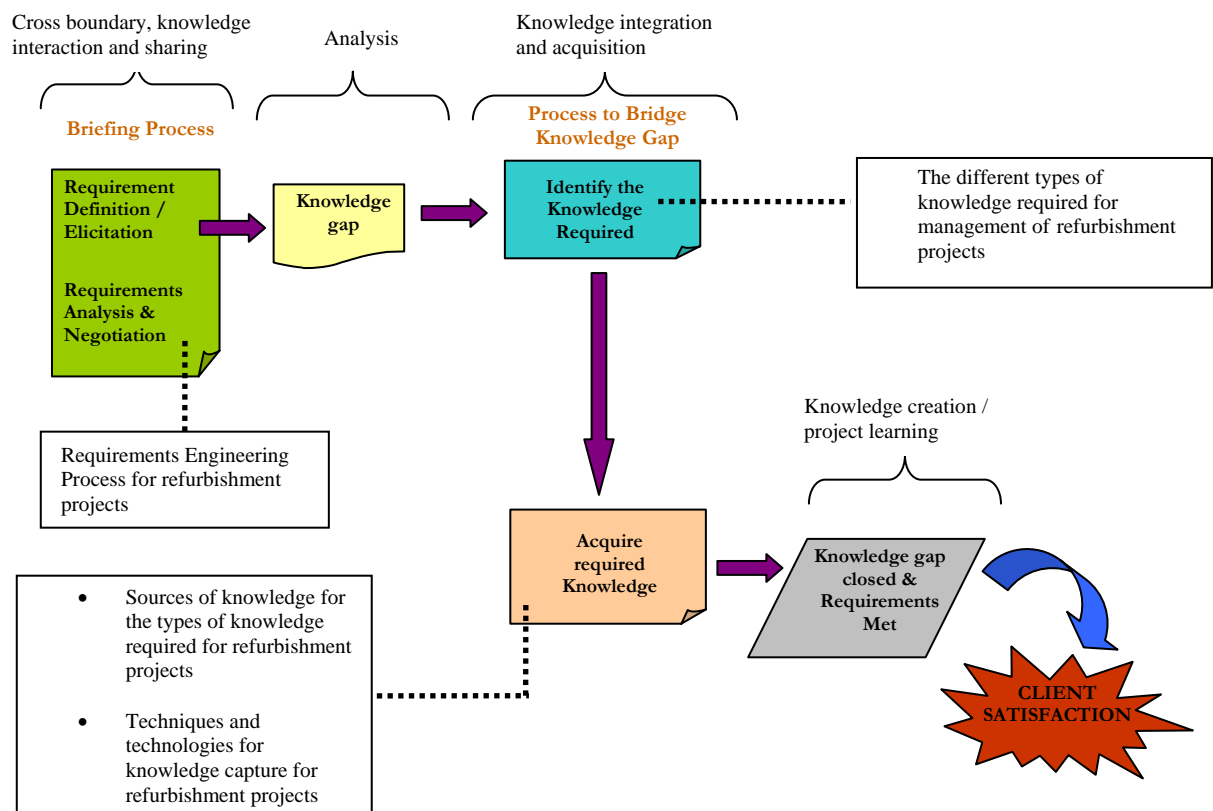
The nature of refurbishment work involves a high level of uncertainty and therefore lends itself to project time over-run. The skills and knowledge associated with managing time are therefore necessary. The relatively high degree of importance attached to managing time is supported by Jothiraj and Fellows (1986), who observed that time performance was the major factor in determining clients' overall satisfaction with commercial refurbishment projects.

The ability to cope with unexpected, changes, conflicts and crises is needed in refurbishment work, whilst the skill/knowledge associated with the analysis of project risk/uncertainty is also of high importance. The high degree of importance attached to project risks/uncertainty by all levels of management reflects the high levels of risk and uncertainty associated with refurbishment works (Chapman, 1980; Quah, 1988; Teo, 1990). Refurbishment work therefore demands requisite skill/knowledge associated with being able to assess and analyse risks/uncertainty in construction work.

Based on the discussions so far and in the light of the need for knowledgeable project team members for refurbishment projects, this research shall therefore look at developing a methodology to match the client's project requirements with the knowledge of the project team for refurbishment projects.

# THE DEVELOPMENT OF A METHODOLOGY TO MATCH CLIENT'S REQUIREMENTS WITH THE KNOWLEDGE OF THE PROJECT TEAM FOR REFURBISHMENT PROJECTS

Although there is some literature written on the desirability of the customisation of teams to meet the requirements of projects and clients' needs (Demsetz, 1991; Maister, 1993; Teece, 1998; Boh, 2004), there is little empirical work that has considered the methods in which to do so; and certainly not for refurbishment projects in the construction industry. There is no available method to match the knowledge of the project team with the client's requirements in refurbishment projects. The sections that follow shall describe the process of developing a methodology based on the theoretical framework as shown in Figure 1.



**Fig. 1: Theoretical framework for knowledge generation during the briefing process for refurbishment projects.**

## LITERATURE REVIEW

The aim of literature review is to (1) provide a summary of contemporary issues and an analysis of gaps in knowledge of the field, which would reinforce the relevance of the research topic (Bassioni, Price and Hassan, 2003); and (2) to form a basis for identifying issues to be considered in the area to be investigated, and to generate research questions for the next stage of the study.

## ISSUES TO BE CONSIDERED

As the staffing of project team members according to the requirements of refurbishment projects brings about increased competitive advantage, and as a



professional service organisation is in the business of selling the technical expertise, reputation, connections and experience of professionals on each project team they propose to clients, it is therefore an important managerial decision. Depending on the expertise requirements of a project, managers may staff each project differently. Thus, this research seeks to explore:

- What method(s) is/are employed by project teams or clients in matching the client's project requirements with the requisite knowledge of the project team?
- Do the types and complexities of refurbishment projects have an impact on the types and sources of knowledge that the project team draw upon to address specific refurbishment tasks in order to meet the client's project requirements?
- Do the types and complexities of refurbishment projects affect the choice of knowledge capture tools and techniques employed by the project team to meet the client's project requirements?

### **QUESTIONNAIRE SURVEY**

The aim of the questionnaire survey in this research is to answer the following questions:

- What are the types of knowledge more often used by the project team to meet the client's project requirements in refurbishment projects?
- Where do project teams draw their sources of knowledge from in order to perform tasks to meet the client's project requirements in refurbishment projects?
- What are the knowledge capture techniques and technologies employed by the project team to capture the requisite knowledge to perform tasks to meet the client's project requirements in refurbishment projects?
- Do the types and complexities of refurbishment projects affect the types and sources of knowledge and the techniques and technologies used by the project team to meet the client's project requirements in refurbishment projects?

Different aspects of conducting the questionnaire survey are considered to obtain the best results in terms of statistical significance, validity and reliability.

### **SEMI-STRUCTURED INTERVIEWS**

To further assist in the development of the proposed methodology, semi-structured interviews are conducted to find out:

- the approaches employed by companies to match the client's project requirements with the requisite knowledge of the project team.
- the impact of the types and complexities of refurbishment projects on the types and sources of knowledge that the project team draws upon to address specific refurbishment tasks in order to meet the client's project requirements.
- the impact of the types and complexities of refurbishment projects on the choice of knowledge capture techniques and technologies employed by the project team in meeting the client's project requirements.

### **VALIDATION AND GENERALISATION**

Usefulness, practicality and applicability of the developed methodology will be assessed at this stage. This is to be achieved through semi-structured interviews and focus groups of targeted participants with knowledge in this area.

## CONCLUSION

This paper has discussed the importance of meeting the client's requirements on refurbishment projects. There is a need to improve the briefing process through capturing the client's needs and requirements. It is only possible to rightly identify the client's requirements through a team of knowledgeable project team members. Different approaches have been introduced to identify clients' requirements in the construction industry, and the importance of knowledge in the project team has been emphasised by many authors. However, little has been researched on assigning employees to projects such that there is a good match of employees' expertise with customers' project requirements. The discussions in this paper outlined the development process of a methodology to integrate the client's requirements with the knowledge of the project team so as to increase a company's competitive advantage and client's satisfaction.

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