

IMPROVED CLIENT SATISFACTION: A STRATEGIC APPROACH IN THE CONSTRUCTION SECTOR

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Abstract: Client satisfaction has widely been recognised by researchers as one of the key challenges for quality improvement in the construction industry. It is a vital factor in the development and management of the construction process, as well in the creation of efficient company-client relationship. In addition, client satisfaction is a catalyst for client retention which is a success strategy for any organisation. This paper presents a novel theoretical framework for client satisfaction evaluation and assessment. It involves an integrated approach that considers the entire supply chain of a construction project as a tree structure and each member of that tree as an intelligent agent. Each agent will have processes and client satisfaction attributes associated with it. Relationships and interactions of the agents and how these affect the overall satisfaction levels of a single project, are analysed based on current practices in client satisfaction.

Keywords: client, integration, quality, satisfaction, team.

1. INTRODUCTION

The construction industry has remained a key industry within the UK economy. In 2002, it contributed approximately 7% to gross domestic profit (Cox & Ireland, 2002). An issue released in December 2006 (issue 5) by the constructing excellence states that the construction industry contributes 10% to the UK's gross domestic product. In view of this, to keep the industry sustainable, it is critical to devise measures on how to improve its client satisfaction level. This is because construction clients play a crucial role in the industry's distinction and survival. The subject on client satisfaction in the construction sector could be traced back to the 1980s. An investigation carried out by Ashley et al, (1987) on the determinants of the success of construction projects highlighted six criteria for measuring success. These are budget, schedule, *client satisfaction*, functionality, *contractor satisfaction*, and project-manager/ *team satisfaction*. Hence, the creation of a common client satisfaction measurement or approach is essential in the construction industry and this will be carefully explored through this study.

Client retention is a success strategy for organisations and is highly influenced by client/ customer satisfaction level (Feščíková, 2004). Though his customer satisfaction measurement system is not emphatically for the construction industry, his analysis is relevant to this research. This is because his system recognises the importance and criticality of satisfying the internal customers (project team members) thereby satisfying the external customer (final customer/ project user).

Kärnä, (2004) asserts that customer satisfaction is a vital factor in the development of the construction process. The client satisfaction of the project team members is a

prerequisite for maintaining good working relationships (Soetanto et al, 2001) and conditions.

Despite the emphasis that is being placed on client satisfaction, the construction industry lacks this added feature, probably because of the fragmented nature of the industry. This shortfall can be met by the adequate integration of the construction project team. This paper presents quality deployment (satisfaction attribute) and team integration as antecedents for assessing client satisfaction. In addition, to properly assess the satisfaction level of the supply chain or integrated team, an assessment rating framework/ model focussing on client/ stakeholder satisfaction and how it impacts on integration is proposed. Based on the aim of the model, a satisfaction-focussed questionnaire has been developed to solicit information from respondents in four major groups of the construction industry): User Group, Client Group, Project Management Group and Supply Chain Group, as identified by the Construction Strategic Forum (www.strategicform.org.uk) and Construction Online (www.constructionline.co.uk).

The User Group constitutes the user client (s).

The Client Group constitutes the main client or project owner, client advisor, client intermediary.

The Project Management Group constitutes the main contractor, specialist contractor (s), sub-contractors, engineers, designers, architects

The Supply Chain Group constitutes the suppliers, distributors, manufacturers.

2. QUALITY (SATISFACTION ATTRIBUTE) IN CONSTRUCTION

The construction industry faces a lot of criticism due to cost overruns, delayed project delivery, high accident rates and poor project performance. These problems are likely as a result of poor quest for quality and quality investment in the construction process. In other words, the construction industry is faced with increased pressure and demand for high quality project (Al-Momani, 2000) and delivery.

The issue of quality evaluation for assessing customer satisfaction in the construction industry has been identified by researchers (Barrett, 2000; Maloney, 2002; Yasamis et al, 2002; Tang et al, 2003; Kärnä et al, 2004). Al-Momani, (2000); Ling and Chong, (2005) identified quality of service as the major factor/ client need for addressing and assessing client satisfaction. Tang et al, (2003) present quality of service, quality of product and quality of manner to customers as the quality elements for creating client satisfaction. In identifying service quality as an antecedent for client satisfaction, Love et al, (2000); and Palaneeswaran et al, (2006) emphasise that contractors and firms need to implement the ISO 9000 quality assurance standards. ISO 9000 represents series of quality systems or standards that deal with the method of quality management in organisations and industries. The aim of the ISO 9000 standards is to enable the supply for quality assurance and to present a common and widely accepted standard for quality evaluation and reliability. Client satisfaction has been included in the 2000 version of ISO 9000 quality standards (Tang et al, 2003)

Quality in construction is discussed in this study from two perspectives:

Quality in design
Quality in service

There exists a dependency between the quality in design and quality in service to create a strong effect on the overall satisfaction of the project team.

2.1 Quality Attribute in Design

Here quality is defined as how well a product, project or service in the construction process meets the design specifications. Hence, quality is viewed with respect to its conformance to the project design specifications and customer requirements. However, since the utmost desire and aim of any industry is to retain its customers and spend less on its customer acquisition, it is important that the design requirements be planned such that it actively incorporates the user (customer) requirements. User requirements here include the client needs and client satisfaction attributes. This is because the customers are not particularly interested in the project design specifications but in having their needs and expectations met (Torbica and Stroh, 1999). Significant quality plans and decisions are usually made in the design phase. In his discussion on quality in design, McConachy, (1996) carefully considered and incorporated assessment of the requirements of the main customer and the project team members. Here, McConachy scaled the customer requirements with respect to quality on three key parameters, which are budget, schedule and technical specifications. These parameters are obviously user requirements or client satisfaction parameters. This is to say that quality assessment and delivery is a catalyst for constant focus on improved client satisfaction throughout the construction process. Arditi & Gunaydin, (1997) explain quality in design as product quality. Here the authors elucidate that product quality (quality in design) refers to quality achieved in the material and technology in the building process.

2.2 Quality Attribute In Service

Delivering excellent service stands out as a competitive tool with the touch of quality attribute in place. The pressure and demand generated by construction customers/clients for quality service (Zheng et al, 2004) has challenged the industry to become more effective, devising and integrating means to meet, improve and possibly exceed its customer requirement and satisfaction. Quality in service is an exercise that needs to be carried out by every partner or construction team members so as to develop the concept within the industry's culture (Nzekwe-Excel et al, 2007). Absolute care needs to be taken in implementing quality in service because quality is a subjective attribute so is not particularly measurable. But, it can be evaluated based on the user or customer's experience with the construction project. This is to say that quality in service can again be expressed in the construction industry via defined factors or parameters. A good example is the ten customer factors (reliability, responsiveness, communication, knowing/ understanding the customer, etc) used for developing the SERVQUAL service quality instrument (See Parasuraman et al, 1988). The level of client satisfaction can be improved upon with constant assessment of quality and its factors. Hence Torbica and Stroh, (2001) assert that quality enhancement programme

will create better quality in service, which will then result in higher customer satisfaction.

3. TEAM INTEGRATION

Team integration is the effective collaboration of the construction project participants. It enables true commitment and understanding of each member's needs and requirements.

What distinguishes the construction industry is its uniqueness in incorporating or involving several professionals (to make up a team) and different project phases to deliver a project.

Client satisfaction is a vital factor in the development and management of the construction process, as well as in the creation of efficient company-client relationship. Considering Homburgh & Rudolph, (2001)'s study, where the authors assert that the issue of client satisfaction in construction is relationship-specific rather than transaction-specific, it is therefore apparent that the project participants or integrated team need to function and collaborate (Nzekwe-Excel et al, 2007) simultaneously so as to have a profitable outcome. This implies that the relationship structure of the partners constituting a multi-dimensional pattern should encourage interaction and communication. A well-integrated team will help to eliminate most of the construction problems and criticisms mentioned earlier. This will most likely in turn result in improved satisfaction of the team. A survey is currently being carried out to work out the impact and extent of relationship between team integration and (construction client) satisfaction. The survey will investigate the key attributes influencing the satisfaction of different groups (User, Client, Project Management, and Supply Chain) involved in a typical construction project, and the level of importance assigned to each attribute or factor. This is because each participant or group member is considered a client depending on the stage or phase of the project.

The quality of the integrated team can be monitored and reported by how well the processes and tasks of the supply chain and project participants are integrated to enhance and improve project delivery. This then highlights the functionality and capability of the client satisfaction assessment model.

4. CLIENT SATISFACTION MODEL

The research presents a model as shown in figure 1 which integrates the four earlier mentioned groups, with constant focus to the groups' satisfaction attributes, in order to augment and improve the satisfaction of each group as well as the overall satisfaction rating.

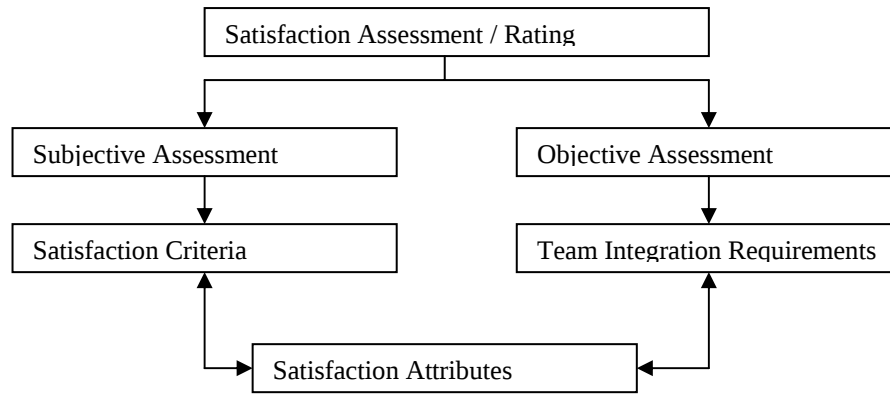


Figure1: Research Model

This study addresses and focuses on the existing limitations of current client satisfaction issues and models in the construction industry. A major limitation is:

- Relationships amongst the project participants have so far been addressed in a one-directional manner. This is a situation where client satisfaction attributes between the main client and the main contractor are addressed with little or no particular research on client satisfaction issues relating to other participants.

In view of the above limitation, the study scrutinises the satisfaction attributes and processes between the user group and the client group; the client group and the project management group; the project management group and the supply chain group. It also investigates and enables the integration of the entire network (see figure 2) with the aim to improve the satisfaction of the entire network.

The research relates its main case, which is high client satisfaction in the construction sector to the dependent variable (satisfaction). The independent construct or variables are the satisfaction attributes and team integration. However, team integration variable is considered as the independent moderator variable. This is because focus on the satisfaction attributes (independent variable) will help to improve satisfaction rating (dependent variable) only if the construction participants engage in consistent team integration (independent moderator variable). This is to say that the reason team integration affects satisfaction is because team integration enhances satisfaction attributes and vice versa, this in turn improves satisfaction rating. Satisfaction of construction clients and project participants hovers around achieving a better construction and adding value constantly for the user client. The need for integrated team in construction can be traced to as far back as the 60s (Emerson, 1962; Banwell report, 1964). The report on ‘modernising construction’ by Bourn, 2001 elucidate that the entire supply chain needs to be integrated in order to apply and manage value to the construction process. Pheng and Omar, (1997) explain how enabling integration in the construction environment will have a positive impact and improvement on quality. They elucidate that an integrative approach creates an environment where communication amongst the participants is encouraged thereby facilitating a unified and safe environment. This is because where every participant’s ideas and views are considered, and their processes/ tasks are well integrated, it helps to motivate and positively challenge the participants. This, in effect, enables the construction industry

as a whole to tap and benefit from the participants' invaluable contributions (Pheng and Omar, 1997).

4.1 Model's Theoretical Analysis for Team Integration

The user agent, client agents, project management agents and supply chain agents as indicated in figure 2 are the main agents of the model. Client agents are the agents that initiate the overall infrastructure of the model in response to the user agent's requirements. The project management agents are the agents that respond directly to the requests of the client agents. The supply chain agents are the agents that fuel the entire model by providing the required materials and/ or resources.

For each main agent, there are sub-agents associated with it. Each sub-agent has a set of satisfaction attributes or parameters associated with it. This is to say that each sub-agent has the ability to identify what satisfaction parameters it requires. Each main agent, which indicates a network, determines the sub-agents that need to be linked and integrated with the sub-agents of other main agents depending on the satisfaction attributes and the project phase. The links are set and established such that the processes and tasks of the sub-agents meet the defined satisfaction attributes. However the satisfaction attributes identified and defined at each network or node or by each main agent affect the satisfaction of another main agent. This is to say that where the satisfaction attributes of the project management sub agents are not fully met by the supply chain agents, this negatively impacts on and affects the satisfaction of the client and user agents.

The main agents ensure collaboration and integration of its sub-agents in order to solve satisfaction problem and improve satisfaction level up the network or tree structure.

The satisfaction attributes defined by Xsai determines the sub-agents' (team's) processes and procedures. Based on the results of the recently conducted pilot study which involved 30 construction clients/ participants, attributes such as quality, communication & information flow, responsiveness, time, safety, mutual support have a high rating impact on team integration. A likert scale of 1-5 was provided for each attribute to note down the respondents' level of importance where 5 is 'strongly agree', 4 is 'agree', 3 is 'somewhat agree', 2 is 'disagree', 1 is 'strongly disagree'. The mentioned attributes recorded a response rate of 4.5 to 5.0 (on average).

In view of the pilot study's results, the integration processes for a particular sub-agent i, could be defined as the function f_{spi} such that:

$$f_{spi}(x_{sp1}, x_{sp2}, \dots, x_{spn} | x_{spj} \in X_{sai}) \quad (1.0)$$

Therefore, for a given main agent, the integration model is represented by

$$\sum_{i=1}^n f_{spi} X_{sai} \quad (2.0)$$

where f_{spi} = agents' processes/ functions

X_{sai} = agents' attributes

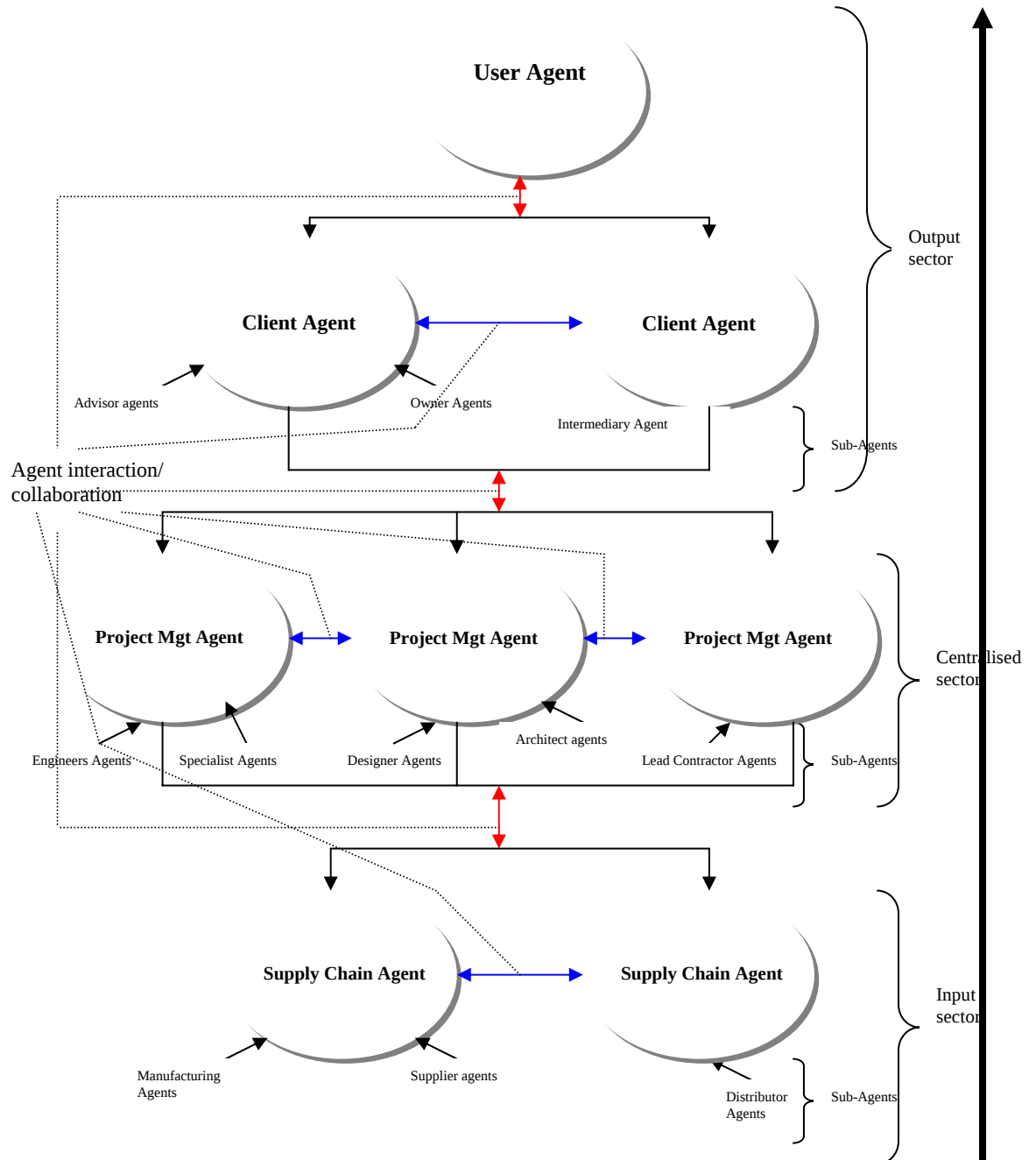


Figure 2: Satisfaction Tree Structure in (construction) agent-based integrated design/model

Based on the models defined on equations (1.0) and (2.0), the integration model for the user agent could be defined as:

$$U_a = \sum_{i=1}^n f_{spui} X_{sai} \quad (3.0)$$

The integration model for the client agent could be defined as:

$$Ca = \sum_{i=1}^n f_{spci} X_{saci} + Ua \quad (4.0)$$

The integration model for the project management agent could be defined as:

$$Pma = \sum_{i=1}^n f_{ppmi} X_{sapmi} + Ca \quad (5.0)$$

The integration model for the supply chain agent could be defined as:

$$Sca = \sum_{i=1}^n f_{spsci} X_{sasci} + Pma \quad (6.0)$$

Based on the models defined in equations 4.0, 5.0 and 6.0, it indicates that the minimum requirement for the client agent for instance, is:

$$\sum_{i=1}^n f_{spci} X_{saci} + Ua,$$

this shows that the client agents consider and focus on the user requirements while defining their satisfaction attributes and requirements.

Similarly, the project management agents consider and focus on the requirements of the user and client agents while defining their satisfaction attributes and requirements. The supply chain agents follow the same approach while defining their requirements and attributes for satisfaction. This is to say that the minimum requirement for the supply chain agents is:

$$\sum_{i=1}^n f_{spsci} X_{sasci} + Pma$$

Therefore, based on the above models and explanations, where the satisfaction attributes of a given sub-agent at the lowest level on the network or tree structure (the supply chain sub-agent) are not fully met, it affects the agent's satisfaction (delaying its contribution or processes). This is to say that, considering that the entire network is a two way process, adequate integration and collaboration of the entire team (agents) is required to continually enhance and improve the overall satisfaction of the agents (project participants).

5. CONCLUSIONS

The UK Construction industry has experienced obvious changes due to increasing pressures from customer satisfaction. The industry needs to devise more and better strategies into determining what is important to their clients so as to optimise client investments and opportunities. The study has explained that the failure to embrace and understand the problem of satisfaction issues, with particular reference to

satisfaction attributes (example quality) and team integration, facing the industry will prevent it from achieving its objectives.

It is almost impossible to achieve high client satisfaction without the provision and delivery of the quality attribute. In order to ensure that quality is deployed throughout the construction process, it needs to be imbibed into the industrial culture. This is to say that quality needs to be taken and practiced as an attitude.

The construction supply chain or integrated team are susceptible to the range of problems arising from lack of understanding of each other's requirements and satisfaction attributes. Through this study, it has been explained that an understanding of the client (supply chain) needs is paramount in the decision making process and at the various stages of the project life cycle/ construction process because it helps in aligning the project outcome to client satisfaction.

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