INTERNATIONAL RESEARCH CONFERENCE 2017: SHAPING TOMORROW’S BUILT ENVIRONMENT

CONFERENCE PROCEEDINGS

11-12 SEPTEMBER 2017
COMPARATIVE ANALYSIS OF PUBLIC AND PRIVATE CLIENT VALUES FOR POST DISASTER RECONSTRUCTION SERVICES

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Abstract: There is a common belief that continuous improvement in delivery of contracting services is to be achieved through analysing client values. The current paper aims to help contractors to provide better services to their clients by identifying key values for successful delivery of contracting services in post-disaster reconstruction projects. This study was conducted in two steps based on a review of the literature. The first step was about to identify client values for post-disaster reconstruction situations. In the second step, a comparative analysis was used to understand how the importance levels of the identified values differ between New Zealand public and private clients. A key recurring theme from this study is the recognition of the instrumental values as a key strategic variable to meet New Zealand client expectations in post-disaster situations. The study indicates that New Zealand public and private clients have similar perceptions regarding client values within post-disaster reconstruction services. Partnerships with all parties, efficiency of construction methods and techniques, security, health and safety, and willingness to use local resources are slightly more important for public clients. Also, efficient problem resolution procedures, lower contract price, providing necessary guarantees, accessibility and responsiveness are slightly more important for public clients.

Keywords: Client Values, Contracting Services, Contractors, New Zealand, Post-Disaster Reconstruction.

1. INTRODUCTION

Reconstruction after a disaster event, is viewed as undertaking the business-as-usual construction process of replacing the built environment, but over a very intense timeframe (Norling, 2013). After small-scale disasters, existing business-as-usual methods can be modified and used for reconstruction programs. However, for larger scale disasters, there is a greater imperative to have appropriate systems in place, in advance, to enhance effectiveness of reconstruction services delivery (Rotimi et al., 2009). Following disaster events, clients are required to develop a comprehensive procurement mechanism for reconstruction projects (Zuo, 2010). Contractual mechanisms include the client values within contracting services (Masterman, 2003), and contractors should comply with these values (Yang and Peng, 2008). While all contractual mechanisms used in business-as-usual construction have specific values effective for disaster reconstruction situations, it is the weightings of these values to specific circumstances that are more essential (Wilkinson et al., 2005).

In the construction literature, it has been widely accepted that post-disaster reconstruction is poorly managed and requires improvement (Pelling et al., 2004; Meding et al., 2011; Barakat, 2003; Von Meding, 2008; Zhang et al., 2015). It is not uncommon for reconstruction projects to fail to achieve their objectives (Lyons, 2009; Ika et al., 2012). This is due to the fact that reconstruction activities can be slow, expensive and complex (Koria, 2009). Improving
reconstruction programs needs better systems and methods (Sun and Xu, 2011), and updated management processes (Prieto and Whitaker, 2011; Rapp, 2011).

There is a common belief that continuous improvement in delivery of contracting services is to be achieved through analysing client values and satisfaction. For example, according to Sirkin and Stalk (1990) and Ahmed and Kangari (1995) having knowledge of what clients value, contractors are able to understand the causes of their services’ issues, and provide changes to address these issues. However, the subject of understanding client values has not been well developed for post-disaster situations. This is because construction literature is focused on business-as-usual situations and rather than reconstruction situations.

While the New Zealand construction industry is very important for the overall economy of the country (Construction Strategy Group, 2015), it is particularly essential for the country’s post-disaster reconstruction programs. The current paper aims to help contractors to provide better value to their clients by identifying key values for successful delivery of contracting services in post-disaster reconstruction projects. This study was conducted in two steps based on a review of the literature. The first step was about identifying client values for post-disaster reconstruction situations. In the second step, a comparative analysis was conducted to investigate how the importance levels of the identified values differ between public and private clients in New Zealand.

2. IDENTIFICATION OF CLIENT VALUES FOR DISASTER RECONSTRUCTION

In value theory, value definition is an issue (Perry, 1914), as value may have different meanings to different individuals such as internal and external construction stakeholders (Kelly et al., 2009). This is due to the subjective and ambiguous nature of value. According to Thomson et al. (2003) values are the principles and standards by which individuals live and by which the decisions of individuals and organisations are formed.

In construction literature, the term construction “refers to a process of delivering value to the client through a temporary production system” and the term client “is a representative for a number of – often conflicting – values, interests and time perspectives” (Bertelsen and Emmitt, 2005). Construction client values can be divided into two types such as process values and product values (Emmitt et al., 2005; Kelly, 2007). In construction value management theories, product value is a well-known discipline. However, process value is not paid the same amount of attention and, hence, “there is need for more focus on process values” (Wandahl and Bejder, 2003). Figure 1, shows the difference in perception of product values and process values form different stakeholder perspectives.

Product values are based on physical and environmental attributes (Emmitt et al., 2005). Process values are about giving the client the best experience over the construction project and includes soft values (such as communication and problem solution skills) and hard values (such within time and budget delivery). While the hard values are key to achieving client satisfaction, the soft values play an essential role in bringing satisfaction to the client (Volker, 2010). Clients perceive construction process values through the service provided by, for example, contractors. Wandahl and Bejder (2003) stated that little effort has been made to understand how process value can be used actively in construction value management.
In construction literature, Boyd and Chinyio (2008) categorised values into instrumental and terminal values under the means-ends principle. They determined terminal values by referring to client final goals, while describing instrumental values as means to achieve the terminal values. The terminal values and instrumental values seem to explain the differences between two elements of process values such as hard values and soft values. Client satisfaction can be perceived by achievement of terminal values through instrumental values.

To develop a basis for identifying key client values, some important distinctions must be drawn between the various types of values that need to be considered. The following, using a literature review, highlights what clients value within contracting services in a post-disaster environment.

2.1 Conduct of the review

Continuous improvement of construction services requires concerted effort to deliver client values (Ahmed & Kangari, 1995). Client values should be the key point of reference for project participants throughout the project life cycle (British Standard Institute, 2014). To help achieve this, a comprehensive review of relevant literature on client values was conducted by Aliakbarlou et al. (2017a). Using systematic reviews, 171 (out of 898) research studies were critically analysed. A systematic review can assist in collecting empirical evidence in order to answer a specific research question (Higgins & Green, 2010). Employing such a methodology in construction studies could assist in reviewing the available literature and providing better solutions, particularly in construction management area. This helped in identifying the construction client values by which a service provider can manage the relationships and the service transaction. Further details, including the sample-selection procedure, can be found in Aliakbarlou et al. (2017a).

2.2 Results of the review

Based on a comprehensive literature review, a list of construction client values (140 in total) was developed. The identified values were then classified as either terminal values or instrumental values. The identified values were also validated by conducting interviews with seven expert practitioners from the New Zealand construction industry. The interviews confirmed that all identified values are important to ensure the success of construction services delivery. The list of the client values can be found in Aliakbarlou et al. (2017c).
Despite the availability of various studies that explore client values, they were focused on business-as-usual construction situations and, hence, limited research information exists that could assist participants in the post-disaster reconstruction situation. There are a number of guidelines for post-disaster reconstruction, “but hardly any which are widely endorsed and can be followed by humanitarian agencies” (Ahmed, 2011). Consequently, there is a need to conduct researches to develop critical factors for success in post-disaster reconstruction projects (Coffey & Trigunarsyah, 2012).

3. PRIORITISATION OF TERMINAL AND INSTRUMENTAL CLIENT VALUES FOR DISASTER RECONSTRUCTION

A concerted effort was required to identify the most important and suitable values for post-disaster situations. While client values in business-as-usual construction which be useful for post-disaster reconstruction, it is the weightings of these values to specific circumstances of reconstruction programmes that are lacking. The following, using interviews, highlights client values and their prioritisation within contracting services in a post-disaster environment.

3.1 Conduct of the interviews

After developing the 140 client values through the literature review, interviews with a total of 16 expert reconstruction practitioners in New Zealand were conducted with the aim of exploring client values within contracting services for post-disaster reconstructions (Aliakbarlou et al., 2017c). This is due to the fact that the client values and their prioritisation can be identified based on expert opinion. The significance of the project experts’ experience in relation to project results has been accepted in the literature to assess construction project outcomes (Ibrahim et al., 2014; Chua et al., 1999). “It would be legitimate then to assume that experienced practitioners could compose a set of critical success factors after testing against their experience” (Chua et al., 1999).

In total, 16 established experts, including senior managers and key decision makers from leading reconstruction-related public and private client organisations in New Zealand, participated in the interviews. The sample of participants shows a wide range of experts with significant experience in post-disaster reconstruction projects. The number of participants is dictated by the study characteristics, such as geographic representation and the number of available experts (Hallowell & Gambatese, 2009). Finally, the research sample depends on the participants’ expertise and the collective consensus outcomes, rather than statistical power (Ibrahim et al., 2013a; Okoli & Pawlowski, 2004).

Each interview was started by clarifying the research domain. The list of client values identified from the literature review was provided to the interviewees, who were requested to select the most important values for post-disaster reconstruction, from the list. They were also asked to recommend as many additional suitable and practical candidate values which were not included in the list (Aliakbarlou et al., 2017c). The interviews lasted about 45 to 60 minutes. The interviews were audio recorded and transcribed into written dialogue. Finally, the results were imported into NVivo for further analysis that helped in categorising the identified values.
3.2 Results of the interviews

The interview findings resulted in a substantial list of 39 values. The identified values were then grouped the identified values into terminal and instrumental values. Table 1 shows the terminal and instrumental client values identified from the interviews. Further details of the interviews can be obtained from a study conducted by Aliakbarlou et al. (2017c).

Table 1: Client terminal and instrumental values for post-disaster reconstruction services (Aliakbarlou et al., 2017c)

<table>
<thead>
<tr>
<th>Category</th>
<th>Client values within contracting services</th>
</tr>
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<tbody>
<tr>
<td>Terminal</td>
<td>Shorter contract time</td>
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<tr>
<td></td>
<td>Timeliness</td>
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<td></td>
<td>Delivery speed in construction process &amp; lead-time</td>
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<td></td>
<td>Lower initial contract price</td>
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<td>To budget delivery/appropriate to budget</td>
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<td></td>
<td>Whole life cost/Value for Money</td>
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<td>Higher of standard quality</td>
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<td>Information system adequacy</td>
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<td></td>
<td>Accuracy of decision making and process</td>
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<td></td>
<td>Improved organisational culture</td>
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<tr>
<td>Instrumental</td>
<td>Corporate commitment</td>
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<td></td>
<td>True friendship/partnerships with all parties</td>
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<td></td>
<td>Closer relationship/flexibility in relationship</td>
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<td></td>
<td>Building a trust based relationship</td>
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<td></td>
<td>Long-term business relationship</td>
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<td></td>
<td>Continuous learning &amp; improvement</td>
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<td></td>
<td>Minimised aggravation &amp; litigation</td>
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<td></td>
<td>Efficient problem resolution procedure</td>
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<td></td>
<td>Efficiency of construction methods &amp; techniques</td>
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<td></td>
<td>Appropriate tangibles (site facilities, documentations, claims &amp; reports)</td>
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<td></td>
<td>Competency (planning and implementing reconstruction programmes)</td>
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<td></td>
<td>Understanding client</td>
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<td></td>
<td>Accuracy of variations/invoices &amp; claims</td>
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<td></td>
<td>Potential for innovation &amp; creativity</td>
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<td>Internal teamwork development</td>
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<td>Productivity</td>
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<td>Efficiency of leadership &amp; coordination</td>
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<td>Employee empowerment</td>
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<td></td>
<td>Perceived prosocial behavior</td>
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<td>Communication technique &amp; documentation</td>
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<td>Accessibility &amp; responsiveness</td>
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<td>Security, health &amp; safety</td>
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<td>Environmental protection</td>
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<td>Providing necessary guarantees/assurance</td>
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<td>Financial strength &amp; stability</td>
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<td></td>
<td>Risk management skills &amp; techniques</td>
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<td></td>
<td>Availability of resources (material, labour, &amp; plant)</td>
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<td></td>
<td>Capability of sourcing</td>
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<td>Willingness of use of local resources</td>
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The 39 identified values provide a comprehensive set of client values within contractor services and form the basis for developing good client-contractor working relationships in post-disaster reconstruction projects. Reviewing the interview results shows that there is emphasis on instrumental values, such as integration, procurement and communication in post-disaster reconstruction. This is due to the characteristics of post-disaster reconstruction, such as complexity, public pressure, limited resource availability, and unstable economic and chaotic conditions.

4. COMPARISON OF PUBLIC AND PRIVATE CLIENT PERSPECTIVES

Much has been written in the construction literature about the client-contractor relation and how clients perceive value in a contractual relationship. However, it is not clear how the identified values contribute and localise to the context in New Zealand, or challenge existing knowledge in the New Zealand construction industry. Hence, to understand construction client values, the perspective of different types of clients need to be taken into consideration. The following, indicates how the importance levels of values represented in the previous section differ between public and private clients in New Zealand.

4.1 Conduct of the comparative review

The values identified from the interviews were incorporated into a questionnaire. The purpose of the questionnaire was to quantify the importance of the identified values. The questionnaire survey was then conducted with 59 participants from public and private sector clients. The five-point Likert scale was used to assess the importance of each value (on a scale of 1 to 5 where 1 = least significant, 2 = slightly significant, 3 = significant 4 = very significant, 5 = most significant). The Likert scale is used for rating the relative significance of factors, based on assessing experts’ opinions (Chan & Kumaraswamy, 1996; Park, 2009). Further details of the questionnaire survey can be obtained from a study conducted by Aliakbarlou et al. (2017c).

The analyses of importance levels of the values obtained from the questionnaire survey showed a high degree of agreement between public and private client’s perspectives. However, in this study, further comparative analysis, using quadrant analysis method, was conducted in order to help post-disaster reconstruction participants to better understand the client values.

The quadrant analysis, as a managerial tool (Sohn et al., 2014; Chapman, 1993; Chéron et al., 1989; Abeke and Ochieng’Abeke, 2012), was employed in this study to graphically compare the identified values. The analysis included two measurements, mean value scores from public clients’ perspective and mean value scores from private clients’ perspective, which provides four quadrants as shown in Figure 1.

Quadrant 1 includes values whose importance levels are higher than average as perceived by public clients, while their importance levels are lower than average as perceived by private clients. Quadrant 2 includes values whose importance levels are higher than average as perceived by both public and private clients. Quadrant 3 includes values whose importance levels are lower than average as perceived by both public and private clients. Quadrant 4 includes values whose importance levels are higher than average as perceived by private clients, however their importance levels are lower than average as perceived by public clients.
4.2 Results of the comparative review

The result of the comparative review, using the quadrant analysis, illustrated the similarities and differences exist between public and private client’s perspective regarding the importance levels of the 39 client values. Figure 2 represents the importance levels of the values shown in Table 1. The values’ importance for public clients is represented on the y-axis while the values’ importance for private clients is represented on the x-axis. The importance levels of the values are obtained from a study by Aliakbarlou et al. (2017c).

![Quadrant Analysis Diagram]

**Figure 2: Comparison of public and private client perspective for importance levels of values**

The values that fall into Quadrant 1 are true friendship/partnerships with all parties, efficiency of construction methods and techniques, security, health and safety, and willingness to use local resources. Quadrant 2 includes corporate commitment, flexibility in relationship, building trust based relationship, minimised aggravation & litigation, competency (planning and implementing reconstruction programmes), shorter contract time, timelines (progress schedule), delivery speed in construction process and lead-time, to budget delivery/appropriate to budget, higher standard of quality/exceed quality standards, teamwork development, productivity of resources, efficiency of leadership and coordination, communication technique and documentation, financial stability during a relationship, risk management skills & techniques, availability of resources (material, labour, & plant), and capability of sourcing. Quadrant 3 includes long-term business relationship, continuous learning & improvement, appropriate tangibles (site facilities, documentations, claims & reports), understanding client, accuracy of variations/invoices & claims, potential for innovation & creativity, whole life cost.
and Value for Money, information system adequacy, accuracy of decision making, improved organisational culture, employee empowerment, perceived prosocial behavior (friendly environment, no blame culture, respect, fairness, good faith & attitude), environmental protection. Finally, values such as efficient problem resolution procedure, lower contract price, accessibility & responsiveness, and providing necessary guarantees/assurance were located in Quadrant 4.

In addition, the line of equality determines the points that have the same value from both a public and private client perspective. As shown in Figure 2, the diagonal line identifies two areas. The area above the diagonal line includes values that are more important for public clients. The area below the diagonal line includes values which are more important for private clients. Distance from the line indicates the extent to which the importance level of each value criterion is different based on public and private client perspective.

Analysing the four quadrants as well as the two areas determined by the line of equality indicate there is strong agreement between all public and private respondents. For example, 80 percent of the values (31 out of 39) fell into quadrants 2 and 3 which show these values are highly important for both types of respondents. Also, it appears from Figure 2, that most of the values are located close to the line of equality.

5. DISCUSSION

During post-disaster reconstruction projects clients deal with greater uncertainty (Hayles, 2010; Sun and Xu, 2010) and complexity (Bello, 2006; Boano and Garcia, 2011; Coffey and Trigunarsyah, 2012; Ye and Okada, 2002), in comparison with business-as-usual situations. Hence, managing construction activities in post-disaster situations, are modified from business-as-usual situations (Le Masurier et al., 2006; Prieto and Whitaker, 2011) inducing changes to client prioritisations (Aliakbarlou et al., 2017d). For example, meeting client expectations, particularly within terminal values (e.g. time, cost, and quality), has been the focus of several studies in business-as-usual construction literature (Holt et al., 1994; Hatush and Skitmore, 1997; Topeu, 2004; Plebankiewicz, 2010; Shen et al., 2006; Marzouk, 2008). However, this study’s findings indicate that the New Zealand client perception of contractor assessment for post-disaster reconstruction differs from business-as-usual. For example, one of the key recurring themes from this study is the recognition of the instrumental values as a key strategic variable to meet New Zealand client expectations in post-disaster situations.

In business-as-usual, where clients have a deep rooted cost driven agenda (Taylor, 1998), the lowest bidders are awarded the contracts. However, according this study’s findings price is not considered to be a core client value in the post-disaster situation. This highlights the need for the New Zealand construction industry to reduce its emphasis on lowest contract price and seek an approach which can provide better services to clients.

In post-disaster reconstruction situations, clients put more emphasis on values such as availability of resources, timeliness, competency, building a trust based relationship, financial stability, and communication techniques in comparison with contract price (Aliakbarlou et al., 2017c). Assessing instrumental values as intangible aspects of contractual relationships is of interest in various industries (Jin et al., 2013). Through this study its importance for New Zealand construction clients has also been highlighted. While terminal values can still remain as clients’ important values within contacting services, assessing instrumental values as
intangible aspects of contractual relationships is essential for clients in post-disaster reconstruction projects (Aliakbarlou et al., 2017b). In other words, improving instrumental values within contractual relationships can be seen as a powerful strategic approach that service providers should use to improve their competitiveness, particularly for post-disaster reconstruction projects.

6. CONCLUSION

This study highlighted the client terminal and instrumental values within contracting services in post-disaster situations. It is suggested that developing appropriate strategies for delivering the identified values can help contractors to provide better value to their client. The findings indicate that contractors should not perform only based on terminal values, as there are other (instrumental) values, which make one contractor more valuable than another to clients.

The study’s findings indicate that New Zealand public and private clients have similar perceptions regarding the importance levels of the identified values in assessing their post-disaster reconstruction contracting services. In addition, the study, using quadrant analysis, highlighted that partnerships with all parties, efficiency of construction methods and techniques, security, health and safety, and willingness to use local resources are slightly more important for public clients. Also, efficient problem resolution procedures, lower contract price, accessibility & responsiveness, and providing necessary guarantees/assurance are slightly more important for private clients.

The main research limitations and recommendations for further research are as follow. The client values identified in this study were based on New Zealand experts’ perspective, which could be different from other countries. It would also be interesting to see how the result of this study can be generalised across other countries. In addition, investigating how contractors comply with the identified values in post-disaster situations is an important further research area.

7. REFERENCES


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