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Briefing: Affirming alliancing procurement for Christchurch rebuild, New Zealand

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Following £20 billion of earthquake damage in 2010 and 2011, rebuilding of roads, water and wastewater infrastructure in Christchurch, New Zealand, is being carried out by an alliance called the Stronger Christchurch Infrastructure Rebuild Team (Scirt). This paper aims to demonstrate that alliancing, as an unconventional procurement option locally, provides the best value and possibly the only feasible solution, given the local market conditions.

1. Introduction

It has been postulated that alliancing is the most appropriate procurement approach for post-disaster reconstruction (Le Masurier *et al.*, 2006) and an alliance model was chosen for the infrastructure rebuild in Christchurch, New Zealand (NZ). This paper affirms alliancing as the most appropriate procurement choice for two main reasons: first there is the argument that can be made for alliancing in any circumstance, in terms of cost optimisation and contractual collaboration, and second the argument for alliancing in the particular circumstance of a post-disaster situation, in terms of the engagement and coordination of limited industry resources.

The allocation of estimating and efficiency risks on construction projects is generally determined by the method of paying for the work. Broadly, there are two possible payment mechanisms: cost based or price based. The former can be subdivided into cost reimbursable and target cost; these three are described below.

In a post-disaster reconstruction situation, there has historically been a tendency to use a cost-reimbursable payment mechanism to accommodate the high degree of uncertainty over the scope and cost of the work. Under such an arrangement the contractor keeps records of all its costs and then applies to the client for reimbursement. The actual reimbursement will include an additional agreed component, for example a percentage fee, to cover overheads and profit. As an alternative to cost-based payment, procurement of construction services can be price based. In the face of uncertainty, which is the case in many construction projects and in particular in a post-disaster situation, putting a price on the work can be a futile attempt to gain certainty. A price-based payment mechanism for reconstruction, with contracts usually awarded after competitive tendering, is a paradox. There is so much uncertainty and inevitable scope change, that any tender price would be prohibitively expensive due to the tenderers' need to incorporate large contingencies. During construction under a price-based contract, whether post-disaster or otherwise, the contractor's focus tends to be on increasing the price to cover its costs, with the client trying to restrict increases in price, rather than helping to reduce the contractor's costs. Consequently, both parties will focus on managing the contract change mechanisms (reactive price containment) rather than optimising the work (proactive cost minimisation). In normal construction, if minimising cost is not the main priority and a traditional cost-reimbursable contract is used, the final cost may be 10% more than that with a price-based contract (Broome, 2002), although in situations of high uncertainty costs would inevitably be higher.

A development and refinement of the cost-reimbursable mechanism is the target cost contract. Target cost contracts are used when there is some uncertainty over the final cost of the project, but with sufficient certainty to allow a confident prediction of the cost to be made (the target). Under this mechanism the client and contractor can work together, to assess in advance the most likely cost of the works (the target) and agree on a mechanism for sharing any cost overruns or cost savings. This share, known as pain/gain, gives an incentive to the contractor to identify efficiencies and make savings, and the client an incentive to help reduce the contractor's costs. The extent of the pain/gain can be varied depending on the degree of confidence in the target prices and the effect of any pain/gain on different parties, for example their ability to bear downside risk. Target cost contracts rely on and therefore promote a collaborative working arrangement between the parties. Project alliances are a further development of target cost contracts (Broome, 2002) and align all major participants' objectives, to achieve the optimum cost in the most efficient way. Target cost alliances tie the rewards of all alliance members to the success of the project, through a pain/gain sharing mechanism.

As the contractor is not tied down to a fixed price, people unfamiliar with alliancing may criticise it as potentially costing more than price-based payment. However, criticism of the alliance model based on cost concerns is unfounded. Uncertainty is inherent in all construction, so it is impossible to predict the final cost in advance with certainty. By definition, a target means that uncertainty is accounted for in the prediction, and as the work progresses the alliance will iteratively home in on the final cost, with the risk of finishing over or under the target cost being shared between the participants.

In a post-disaster situation, particularly in a country like NZ, resources are often limited and there is a need to mobilise a high proportion of all available resources. In such circumstances it is important to coordinate and prioritise the work demands of a number of clients, all needing work done, based on the capacity of the local industry to meet their demands. The Stronger Christchurch Infrastructure Rebuild Team (Scirt) has achieved this with an alliance; bringing together a number of clients with the industry supply chain, creating a holistic entity to achieve the city's horizontal infrastructure reconstruction objectives. The organisational structure of Scirt is shown in Figure 1. Scirt comprises three owner participants – Canterbury Earthquake Recovery Authority (CERA), New Zealand Transport Agency (NZTA) and Christchurch City Council (CCC), along with five non-owner participants (NOPs) named on Figure 1 as delivery teams. Top level management of Scirt is by a board formed of the eight participants. The head contractual agreement within Scirt is an alliance between owner participants and non-owner participants. An integrated services team provides the overarching tactical co-ordination – planning, designing and estimating the cost of the infrastructure rebuild work that is constructed by delivery teams from the NOPs.

The horizontal infrastructure construction sector locally has a small number of large contractors and so in the disaster recovery situation demand is high in proportion to supply. (The total value of the Christchurch construction market has been between NZ$300 million (NZ$1 5 £0·49, 20 October 2014) and NZ$400 million per quarter over the last decade, peaking at NZ$500 million during the last construction boom in 2007. Scirt is typically spending NZ$150 million per quarter, which is between 33% and 50% of Christchurch's quarterly average total construction output). Under these circumstances traditional free market competition would be ineffective. Scirt is proving that the most efficient and possibly the only feasible rebuild solution is to bring the local contractors together in a collaborative alliance. Because all local contractors are needed and to overcome a common criticism that alliances are non-competitive, Scirt has introduced an element of competition within the established alliance. Competition would normally only occur before the alliance was formed, between NOPs that might wish to belong to the alliance. However, the large scale of work being carried out by Scirt means five NOPs are needed, giving the opportunity to introduce competition within the alliance. Competition is based on relative performance, with the best performing NOPs being allocated a higher proportion of follow-on work packages. Performance is measured using a set of key performance indicators, which reflect the alliance objectives

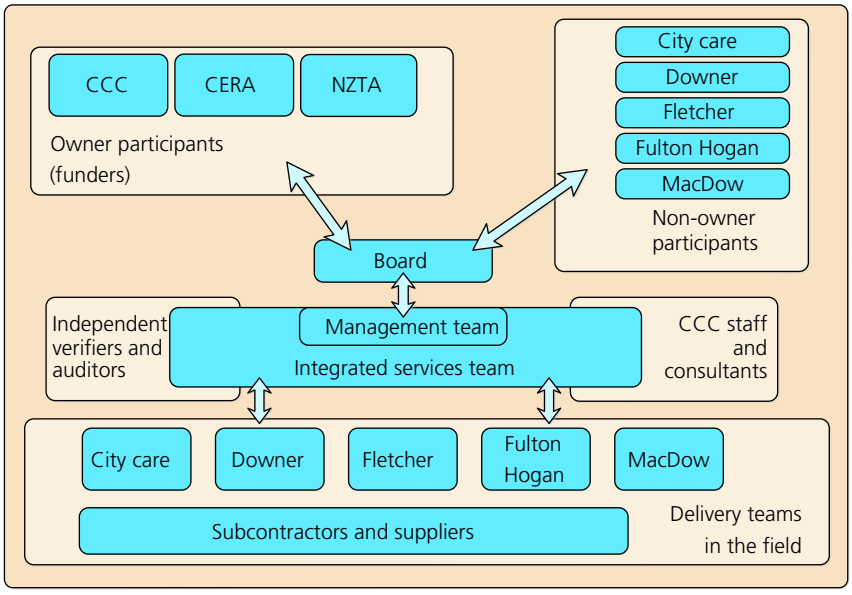

Figure 1. Scirt structure

and values. Whereas individual packages of work would normally, in Christchurch, be allocated by tendering in the open market, in Scirt the competition is within a ring-fenced environment among NOPs, preselected as the best/most competitive in the market. This is akin to prequalification before bidding in a tendering process, but taking this forward to the construction stage. Such competition has been used before in alliances in which there is a long programme of work, for example for highway maintenance over many years (often called a framework or strategic alliance); however, it is exceptional for a single project. Scirt is unusual in using a competitive alliance for a relatively short programme of work and can thus be seen as a hybrid between a single project alliance and a long-term strategic alliance. Scirt has a programme of smaller projects, each going through a production line from asset assessment to handover, which allows for continual improvement, as innovations and learnings from previous projects are passed on to subsequent projects. Workloads are smoothed over the full programme so that resource demands can be optimised. The competition between NOPs creates the very strong incentive to perform well, to get follow-on work, as well as the incentive to perform well on cost, to enhance fees.

2. Conclusion

Notwithstanding the above arguments for alliancing, there is a cultural predisposition against alliances in Canterbury, based on tradition, and this paper now concludes with a reflection on construction industry cultural evolution, as summarised in Henriod and Le Masurier (2002).

While there has been progress towards relational contracting in other parts of New Zealand, in Canterbury there has always been some resistance to alliancing. Clients in Canterbury have traditionally chosen transactional forms of contract and selected contractors by competitive tendering (Productivity Partnership, 2011). This often presents difficulties on even the simplest of projects, let alone under the challenging uncertainties faced on post-earthquake reconstruction projects. Nevertheless, because the construction sector market in Canterbury is relatively small, there has traditionally been a degree of mutual respect and trust between clients and contractors. In the post-earthquake circumstances the supply chain has been effectively turned on its head, with contractors able to choose which clients they will work for, rather than a client choosing their contractor by competitive tendering. As the work horizon is short in the Christchurch rebuild, instead of maintaining trust, contractors (with their new role in the supply chain) might be more inclined to try and 'make a quick buck', as has been seen in the property rental market, with some Christchurch landlords price gouging. In view of the risks of leaving reconstruction procurement to the vagaries of normal open market forces, it can be argued that it is better to promote trust in the relatively short-term work horizon, by bringing together a number of carefully selected participants in an alliance, as has been done by Scirt, forming a team of people with aligned objectives who are working to achieve the optimum reconstruction solution together. As a result Scirt should provide the best value for money reconstruction solution achievable, in a severely constrained market, and through this experience it is hoped the Scirt example will help inculcate relational contracting into the industry culture in Canterbury.

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