

Lessons learned from one of New Zealand's most challenging civil engineering projects: rebuilding the earthquake damaged pipes, roads, bridges and retaining walls in the city of Christchurch 2011 - 2016.

Innovative commercial model delivers value for money

Story: The Commercial Model

Theme: Finance and Business Systems

A document which describes development and success of the SCIRT commercial model.

This document has been provided as an example of a tool that might be useful for other organisations undertaking complex disaster recovery or infrastructure rebuild programmes.

For more information about this document, visit www.scirtlearninglegacy.org.nz



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Innovative commercial model delivers value for money

How could an unlikely alliance of three funders and five contracting companies achieve the best value for money in rebuilding the horizontal infrastructure of an earthquake-pummelled city?

For SCIRT, it was the \$2.2 billion question.

With a multi-billion-dollar plan on the table to repair and restore Christchurch's damaged roads and underground services, SCIRT recognised the need for innovation, quickly setting the scene for a new commercial reality that would ensure money was always well spent.

The main question was: How do you control the money in a post-disaster rebuild context?

Under the SCIRT Alliance Agreement, a unique commercial model was developed, from a belief that the horizontal infrastructure rebuild programme could function more effectively if a balance was struck between competition and collaboration to drive the best value for money outcome.

The owner participants (OPs) – the Canterbury Earthquake Recovery Authority (CERA), later the Department of the Prime Minister and Cabinet (DPMC); the Christchurch City Council and the New Zealand Transport Agency – provided the money, while non-owner participants (NOPs) City Care, Downer, Fletcher Construction, Fulton Hogan and McConnell Dowell delivered the projects.

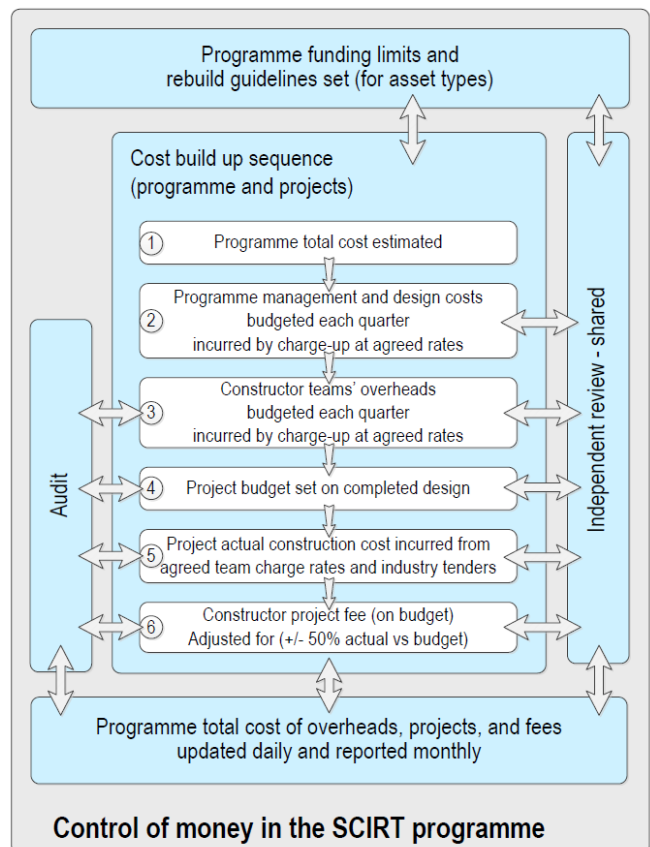
For SCIRT, an innovative commercial process would develop positive behaviour while restricting costs.

On target

Intrinsic to the agreement were multiple objectives and goals:

- Shared innovation
- Value for money
- Best for project decisions
- Shared goals

- Open book reporting to the SCIRT Board and stakeholders
- Shared risk and reward
- Performance incentives



SCIRT introduced several unique commercial features into an alliance model:

- Promoting the natural competitive tension between construction teams by way of key result areas (KRAs) and key performance indicators (KPIs) to influence future work allocation.
- Encouraging innovative collaboration between construction teams and sharing of lessons, which,

in turn, delivered value for money and delivery of the work within target out-turn cost (TOC) budgets.

- Ensuring all alliance signatories shared in the programme pain/gain (see Limb 3, below).

Model matters

Under the SCIRT commercial model, a cost estimate (TOC) was determined for each of the 634 construction projects by SCIRT estimators. The estimators utilised internally generated designs and Delivery Team input regarding construction methodology and schedule. Each TOC was reviewed and agreed on by an independent estimator engaged by the funders. See the [Estimating](#) story for further detail.

Each project was then allocated to a delivery team based on:

- Cost performance as measured on all projects in construction or handover by calculating an aggregate earned value per Delivery Team.
- Schedule performance measuring, for projects in construction and handover; the performance to date against the baseline schedule.
- Non-cost performance as measured by the relevant KPIs established in the SCIRT KRA Management Plan.

The five KRAs were:

1. Safety
2. Value for money
3. Our team
4. Customer satisfaction
5. Environmental

The measure was calculated for each Delivery Team as a weighted average over the previous six months and termed the Delivery Performance Score (DPS).

Scores for cost, schedule and non-cost performance were then combined to determine a “target work share” percentage for each team.

Several other factors were considered in project allocation:

- Capability
- Capacity
- Proximity
- Safety
- Context (i.e. value to the programme as a whole)

However, matching Delivery Team actual work share to target work share was the primary determinant for project allocation.

This was easier said than done because not only did target shares vary from month to month, but completion of projects could also cause big swings in actual share.

The allocation process nevertheless achieved its objective.

All teams started with a 20 per cent target share. Actual shares of the work for the whole programme varied from 15 per cent to 23 per cent.

This was not entirely a reflection of Delivery Team performance. Other factors such as how quickly projects were completed also influenced these results.



On schedule: For each project, schedule performance has been a measure of success.

Using that competitive spirit, each Delivery Team strove for more work by ensuring those measures placed the team in the best position to be awarded more projects.

Swings and roundabouts

In all, the commercial model comprised three limbs:

Limb 1:

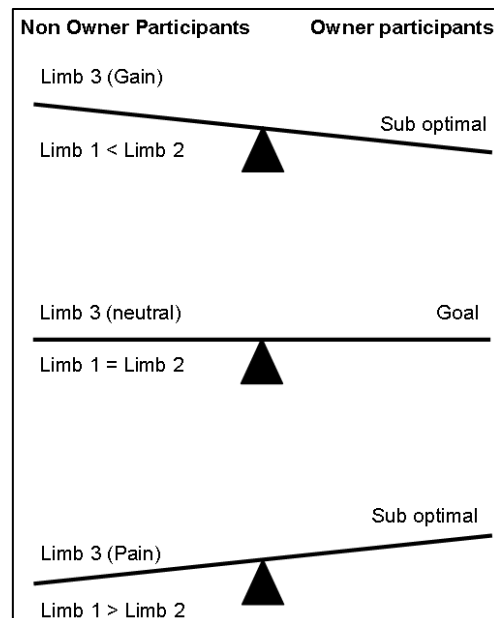
- Delivery teams were paid (monthly) for the actual project construction and off-site administration costs incurred (Limb 1 payment).
- The final cost of each project was referred to as the actual out-turn cost (AOC).

Limb 2:

- Delivery teams were paid (monthly) a corporate overhead and profit fee.
- The fee was applied from day one and the percentage never changed.
- The fee was calculated, at the agreed percentage, on the Limb 1 costs, but limited in total to the percentage of the TOC (or revised TOC if work scope changes were made); (i.e. TOC overruns did not attract a Limb 2 payment).
- Delivery Team off-site overheads also attracted a fee payment at the same percentage. A budget was approved annually for the off-site overheads and this effectively became a TOC. The fee was paid on all off-site overheads, but limited to the approved budget (Limb 2 payment).
- Delivery Teams were also paid a Limb 2 payment on the cost of running the Integrated Services Team (IST), based on construction performance and their direct input to the IST costs (e.g. seconded staff).
- Any cost to the programme incurred directly by the funders was excluded from the Limb 2 payment calculation (e.g. staff and insurance).

Limb 3:

- At the end of the SCIRT programme, a final fee amount was either paid to, or by, the non-owner participants (NOPs) to, or by, the owner participants (OPs). This was the “pain share/gain share” (Limb 3 payment). If a project’s AOC was less than the TOC, then the value was termed a “gain” and added to the gain/pain share “pot”.
- If the AOC was more than the TOC, then the value was termed a “pain” and deducted from the gain/pain share “pot”.
- At the end of the SCIRT programme, the net value remaining in the pain/gain “pot” was shared.
- The residual “pot” was nominally shared between OPs and NOPs equally.
- An overall performance score (OPS) moderated the distribution of the pain/gain share between the OPs and the NOPs by plus or minus 10 per cent.
- The OPS applied the correction based on overall performance in the five key KRAs.



Pain or gain? An aggregated Delivery Team project performance determines whether or not the financial outcome for the SCIRT programme has been a pain share or gain share situation.

Lessons learnt

For SCIRT, there were several lessons in the successful development of the commercial model:

- The measures that determined work allocation drove competitive behaviours from Delivery Teams, providing value for money by ensuring Delivery Teams maximised their own performance.
- The limitation of paying the Limb 2 fee to the TOC (or revised TOC if work scope changes were made) ensured the strong financial management of each project.
- The end of programme shared Limb 3 mechanism provided value for money by incentivising Delivery Teams to help other teams to improve their performance.
- As most workers were seconded from the five NOPs, the payment of the Limb 2 fee on seconded staff costs was the reward for NOPs ensuring the programme was correctly staffed throughout the work.
- Similarly, remuneration rates for Design and Geographic Information System (GIS) specialist staff from numerous consulting entities were independently agreed, ensuring engagement throughout the programme.
- The governance role of the independent estimator – reviewing each TOC, wage and salary rates and work scope changes every six months – worked extraordinarily well.



Road to success: Multiple incentive measures have powered SCIRT Delivery Teams. Woodham Road, North Linwood, Christchurch.