

BUILDING FUTURE FIT ORGANISATIONS

Construction sector
performance measurement
Learning lessons and finding opportunities

CASE STUDY Stronger Christchurch Infrastructure Rebuild Team

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Contents

Project background	1
Case study: SCIRT	2
1. Introduction	2
2. Measures	2
3. Implementation	4
4. Effectiveness	4
5. Key lessons	5
6. References	5

Project background

This case study is part of a BRANZ-funded project which aims to inform the development of a performance measurement framework for the New Zealand construction sector. In this research we analyse a number of international and cross-sectoral performance measurement systems. In each case study we seek to understand why performance is measured, how and what is measured, how the system is implemented, and how effective the system is at monitoring and driving performance improvement in the sector. We have synthesised lessons from across the case studies to develop guidance for the New Zealand construction sector on how to curate and implement an effective construction sector performance management system.

This is one of the case studies that contributes to this project.

The full report is available at <https://www.branz.co.nz/pubs/research-reports/er55/>.

Acknowledgements

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We are also grateful for the time and insight offered by industry practitioners, peak body representatives, government officials, and researchers that have contributed to this research. We hope that this project contributes toward a more sustainable and resilient future for the construction sector.

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Case study: SCIRT

1. Introduction

SCIRT (Stronger Christchurch Infrastructure Rebuild Team) was an organisation created to manage the infrastructure rebuild following the 2010/2011 Canterbury earthquakes. SCIRT was a Project Alliance between national and local government funders and infrastructure owners and five civil contractors (SCIRT Learning Legacy, 2020).

Performance measurement was an integral part of SCIRT as it was used as a mechanism to 1) improve performance across all project delivery teams and 2) ensure competition between project partners. Competition between partners was achieved through allocation of work based on performance in both cost and non-cost Key Result Areas (KRAs). Project delivery teams who performed better were allocated more work. In addition, financial gains and losses on projects were shared across alliance partners. Consequently, there was a shared imperative to improve performance across all project teams. The SCIRT value framework provided a mechanism for assessment of non-financial performance.

The overall performance framework consisted of two overlapping performance frameworks:

- Project Performance was calculated according to project finances (50%) and KRAs (50%) and was used to set the future share of work (assessed quarterly)
 - Finance was measured according to the project cost vs budget
 - KRAs consisted of Key Performance Indicators (KPIs) which were established by the Board and monitored and changed over time to measure and improve performance. These measures were not only used to measure project performance and determine the allocation of work but were also assessed over time to determine an Overall Performance Score (OPS) which was used to modify the value framework.
- Value Framework encompassed the whole SCIRT project portfolio and was used at the end of the rebuild to determine how much financial pain or gain each team would be allocated
 - Financial performance from each project actual cost vs budget differential determined the pain share/gain share value. This was reported monthly, was accumulated over time, and only distributed at the end of the rebuild after being modified by the OPS
 - This portion of the framework was used as a strong incentive to drive performance and competition.

2. Measures

The SCIRT Alliance Agreement specified in commercial agreements the Key Result Areas (KRAs) and Key Performance Indicators (KPIs) used to evaluate the overall performance of delivery teams. This included how KPIs were scored, and the formula used to build up the Overall Performance Score (OPS) (SCIRT, 2016).

The KRAs chosen were based on the Alliance Agreement objectives (SCIRT, 2016), and the KPIs were designed to be leading, rather than lagging measures. KPIs were set annually, monitored quarterly or monthly, and reviewed/updated annually by the Board. Timing of how often KPIs were measured by project teams varied for each KPI (There were two to four KPIs for each KRA, and these were subjectively

scored on a four-point scale from unsatisfactory to outstanding set out by the Board (an example of what was required to achieve an outstanding score can be seen in **Error! Not a valid bookmark self-reference.**). Although KPIs were mainly quantitative, KRAs such as Teamwork and Customer Service used semi-quantitative surveys (with staff and customers) to assess alignment, involvement and customer satisfaction. The scores were used in monthly reporting of delivery team performances across their projects. The scores were weighted and combined for each delivery team and together with financial performance, this shaped work allocation. The Alliance Agreement KRAs and KPIs are shown in **Error! Not a valid bookmark self-reference..**

Table 1).

There were two to four KPIs for each KRA, and these were subjectively scored on a four-point scale from unsatisfactory to outstanding set out by the Board (an example of what was required to achieve an outstanding score can be seen in **Error! Not a valid bookmark self-reference.**). Although KPIs were mainly quantitative, KRAs such as Teamwork and Customer Service used semi-quantitative surveys (with staff and customers) to assess alignment, involvement and customer satisfaction. The scores were used in monthly reporting of delivery team performances across their projects. The scores were weighted and combined for each delivery team and together with financial performance, this shaped work allocation. The Alliance Agreement KRAs and KPIs are shown in **Error! Not a valid bookmark self-reference.**

Table 1: SCIRT Key Result Areas (KRAs) and the associated Key Performance Indicators (KPIs) and measures (SCIRT, 2016)

KRA	KRA Weighting towards OPS	KPIs	KPI Weighting	Measures	Timing	Score required to be Outstanding
Health and safety	0%	Measure of Safety Engagement Awareness	60%	Quality of safety auditing	Recorded Monthly Reviewed 6 monthly	90-100%
		Protection of Utility Services	40%	Utility strikes per services passed	Recorded Monthly Reviewed 6 monthly	100%- No Strikes
Environment	15%	Legacy Achievement Goal	60%	Monthly assessment of progression against legacy achievement goal framework	Recorded Monthly Reviewed 6 monthly	>21 points
		Environmental Assurance	40%	Quality of environmental auditing	Recorded Monthly Reviewed 6 monthly	Audit score 90-100%
Value	35%	Delivery Performance	50%	Rate of completion of projects measured by spend from 5%-95% of baseline	Recorded and reviewed monthly	110% and above capped at 125%
		Quality of Construction	50%	Scoring from the monthly project verification audit, values based on quality of actions recorded in a wide range of site quality control processes	Measured for one project per delivery team per month	80-100% Score
Customer satisfaction	30%	Community satisfaction with communication and product	75%	Combination of results from two surveys <ul style="list-style-type: none"> - Community in areas where work has finished - Representative sample from wider Christchurch community 	KRA scores updated whenever new survey is completed	85-100%
		Stakeholder satisfaction with communication and product	25%	Identified representatives from key stakeholder organisations	Six monthly	85-100%
Teamwork	20%	Alignment and Involvement of the Team	50%	Survey of the team to assess levels of involvement and interaction between client, board, management team and delivery teams	Recorded Monthly Reviewed 6 monthly	85-100% positive feedback from survey
		Developing a Skilled Workforce	50%	Number of operatives enrolled in and completing NZQA qualifications pathways.	Data collected and reviewed bi-monthly	40+

An important thing to note is although Safety KPIs were measured, the Safety KRA was not included in the calculation of the OPS score. SCIRT considered safety to be a non-negotiable, assumed to be performed at the highest level and not used in either work allocation or pain/gain share remuneration (SCIRT, 2016).

3. Implementation

The KRAs and KPIs were a major component of the commercial agreements within the Alliance Agreement, therefore all delivery teams were mandated to supply measurement data to SCIRT and be audited as part of the Alliance Agreement process. And because delivery teams shared in gains and losses there was a shared imperative to better understand performance and to improve over time.

During the development of the framework there was a keen awareness of the challenge of measuring performance. Therefore KPIs were designed around what was measurable and what data was already being collected and held. Some of the initial measures proved to be unsatisfactory (e.g. waste minimisation due to the limited opportunities to cost-effectively reduce waste) but led to an evolving system that made improvements and adjustments over time to produce/include more relevant measures and become a more effective performance measurement framework

Each delivery team collected data separately and reported directly to the SCIRT management team through the SCIRT system. The SCIRT management team then scored delivery teams qualitatively based on the KRAs and KPIs. This performance score was then used to determine which delivery teams got which jobs, with the better performing teams getting allocated more work (SCIRT Learning Legacy, 2020). To ensure compliance, and avoid gaming, all delivery teams had to provide open-book financial reporting and KPI data, which were audited.

4. Effectiveness

The measures utilised in SCIRTs alliance agreement created a basis for organisations to monitor their own performance. In conjunction with the incentives generated between performance measures and financial reward, this led to performance improvements within delivery teams. The performance of each delivery team trended up over the six-year period. SCIRT management continually raised the bar on expected performance to push teams to improve. It created an environment where all delivery teams were focused on getting the job done for the best price, while maintaining value/performance across a wider set of measures.

Some of the measures (e.g. risk management) were found to be extremely useful in benchmarking the delivery teams and evaluating their progress over time. These measures were being actively observed, reported on and discussed every month, including being reported to the board. A powerful component of the Alliance Agreement was that not only was information reported up to the board but also actively fed back into each delivery teams.

Having clear measures linked to some of the less tangible Alliance values encouraged positive behaviour change. For example, by including community satisfaction as a performance measure there was a marked increase in community engagement by delivery teams. It also created a sense of pride in delivery teams' projects and reinforced a culture that said, "we are going to do the right thing by the community".

Although auditing processes limited the ability for delivery teams to ‘game the system’, there were some instances of perverse behaviour where some individuals/delivery teams were trying to take short-cuts to improve performance measures. For example, one particular quality measure was the time to close out a “Request for Information (RFI)”. Some individuals were failing to log RFIs, instead using private phone calls or emails to resolve issues. For a short time, this led to problems not being addressed properly, impacting quality.

Overall, the performance measurement framework has had long lasting impacts. Good practices developed during SCIRT have carried on beyond SCIRT. All five delivery teams recognised that safety could be done better within their own industry. Many of these delivery teams also now cooperate and collaborate on projects they never would have prior to SCIRT, having consultants in mixed teams when resources are lacking. The performance measurement system contributed to this, in part, by demonstrating a clear link between processes and value.

5. Key lessons

There are several key lessons that emerge from the SCIRT framework:

- Success was largely achieved through a highly mandated process
 - Performance was an integral part of the overall alliance agreement, with the SCIRT board determined to make this work
 - Performance KRAs, KPIs and measures were part of SCIRT commercial agreements
 - All levels of SCIRT were fully aware of what the organisation was trying to achieve.
- The framework was built on existing measures and adjusted if they were not working
- There was clear linking between performance measures and financial reward and this contributed to positive and sustained behaviour trends in delivery teams
- Direct and ongoing monitoring of measures from teams to board and back to teams, reinforced good behaviour and provided timely indications of where improvements were needed
- Some indicators that focussed on ‘time taken’ to measure the effectiveness of a process, led to quality issues. For example, there were some perverse behaviours where short-cuts were taken to meet a KPI
- Audit process provided transparency and fairness.

6. References

SCIRT (2016). *KRA Management Plan*, SCIRT Learning Legacy, New Zealand, viewed 7 April 2020 https://scirtlearninglegacy.org.nz/sites/default/files/qsr-part_335860.pdf

SCIRT Learning Legacy (2020). *All for One, One for All: The SCIRT Collaborative-Competitive Model*, SCIRT Learning Legacy, New Zealand, viewed 7 April 2020, <https://scirtlearninglegacy.org.nz/attachment/all-one-one-all-scirt-collaborative-competitive-model>