SCIRT Rebuilding Infrastructure

LEARNING LEGACY

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.

Administration Plan

Story: SCIRT Management Plans

Theme: The SCIRT Model

A plan which outlines the processes and IT applications and services required to manage the SCIRT programme.

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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SCIRT
Rebuilding Infrastructure

Administration Plan

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ACRONYMS, ABBREVIATIONS AND DEFINITIONS

Term	Definition
AA	Alliance Agreement
BOARD	SCIRT Board of Directors
CCC	Christchurch City Council
GM	General Manager
IRMO	Infrastructure Rebuild Management Office
IST	Integrated Services Team
IS	Information System
JDE	JD Edwards Accounting System
MT	Management Team
NZTA	New Zealand Transport Agency
SA	Supply Agreement
SCIRT	Stronger Christchurch Infrastructure Rebuild Team
TOC	Target Out-turn Cost

1 INTRODUCTION

1.1 PURPOSE

The Administration Plan outlines the processes and IT applications, and services that the SCIRT requires to manage the infrastructure rebuild programme so that it meets its obligations and commitments as outlined in the AA. A detailed list of all the other Plans is included in the SCIRT Programme Management Plan.

1.2 OBJECTIVES

The Stronger Christchurch Infrastructure Rebuild Team is referred to as a program alliance with its work being many separate rebuilding projects, managed over a four-to-five year timeframe. This timeframe has therefore been taken into account as part of the supporting IT architecture, services and selection of enterprise applications.

The goal of the program is summarised in the words of the SCIRT Board:

Creating resilient infrastructure

that gives people security and confidence

in the future of Christchurch

1.3 RELATIONSHIP TO OTHER MANAGEMENT PLANS

The Administration Plan outlines the systems that will collect, sort, and report on data, turning it into information that supports and enables control and monitoring within SCIRT and all Management Plans.

2 INFORMATION TECHNOLOGY

2.1 IT SYSTEM DESIGN PRINCIPLES

The following guiding principles are used to guide the implementation of the IT systems:

- **The IT Provider is one of the Delivery Teams–** to accelerate the implementation of the systems this guiding principle requires one of the Delivery Teams to provide the required infrastructure.
- **IT Systems chosen are already in use by a Delivery Team –** to accelerate the implementation of required systems this guiding principle requires that the system is already in place with one of the Delivery Teams.
- **Centralise Data–** when introducing new systems this guiding principle encourages approaches that ensure data can be entered from any location, entered only once, and can be analysed consistently and managed centrally.

- **Stable At The Core, Innovative At The Edge –** an approach to information systems which mandates conservatism, stability, and rigorous attention to doing things once and doing them right at the business core (e.g. financials, project management, line of business applications), but tolerates a certain degree of innovation, diversity, risk, and learning by doing at the edge by actively collaborating with the Delivery Teams.
- **Roll it up, Connect it up –** when selecting and implementing systems, this guiding principle encourages approaches that make financial and line of business information visible and summarised, allows drill down, and connects information with other relevant information (e.g. policies with procedures, project plans with resource cost information).
- **Outsource Commodity Activity –** this guiding principle discourages the development of a large internal Information System (IS) team, by encouraging the development of the existing internal IS staff to focus their efforts on understanding SCIRTs requirements.
- **Be Accountable –** IS projects will be accurately justified, providing clear short term and strategic business benefit. Information systems performance in terms of availability, security and utilisation will be monitored and reported on. IS projects will be run on time, on budget and will deliver what they promise to.
- **Build on existing processes** – CCC's IRMO office had developed a range of processes and systems to manage the early rebuild. SCIRT will utilise and build on IRMO processes and systems where possible. However, as SCIRT has added responsibility for designing and pricing of projects and the contract arrangements are different to IRMO, it will require new systems and ways of operating to meet the outcomes outlined in the Alliance Agreement.

2.2 IT DELIVERABLES

There are two distinct areas of IT deliverables:

1. General IT setup - for the staff who work within SCIRT; and
2. Enterprise Applications - needed to manage the entire programme of work.

The deliverables associated with these two areas are described in the next two sections of this document.

2.3 GENERAL IT SETUP

2.3.1 IT Services

IT hardware, software and support are provided by Fulton Hogan IT following a nomination and selection process from all SCIRT participants. Fulton Hogan has a stable and reliable underlying architecture that supports the majority of our systems and applications. SCIRT utilises Fulton Hogan disaster recovery and business continuity plans and service level agreements.

Fulton Hogan has been engaged to provide the following services to SCIRT:

- IT&S Procurement and Software Licence Management;
- Infrastructure Management;
- Systems Management;
- Business Analysts/Development and Report Writing;
- Data Warehouse Design;

2.3.2 Procurement

SCIRT will leverage Fulton Hogan's existing procurement partners where possible and the following guidelines will be implemented:

- Special bids will be obtained for all major purchases and all margins with key suppliers transparent to SCIRT;
- User environment laptop / desktop hardware will be leased on a three year term;
- All other user environment items (i.e. screen, keyboard, docking station, cell phone, laptop bag etc) will be purchased outright;
- Server infrastructure that cannot be obtained as a service will be leased on a three year term; and
- Networking infrastructure that cannot be obtained as a service will be purchased outright as it is normal to get a 4 to 5 year life out of this equipment.

2.3.3 IT Network

The following guidelines have been used to assist with the design of the network support SCIRT's operations:

- **Utilise existing datacentre infrastructure**–Given the speed required to get systems in place, coupled with ensuring stability and availability, leveraging existing datacentre infrastructure that has geographical failover is essential. The following datacentres will be leveraged to support SCIRT:
    - Fulton Hogan Datacentres based at Orbit Data Centre, Albany and Kapua Data Centre, Hamilton.
- **The majority of backend systems to be running from Christchurch Datacentre and SCIRT Offices** –To ensure continuous system availability, backend systems will have manual failover to the Auckland datacentre at Orbit Data Centre. The exceptions to this are the records management system being provisioned as cloud based access, hosted in Australia, the local storage systems for the design teams and IT server infrastructure involved with account and access control. These primary servers are hosted at the SCIRT office with sufficient resilience based at the Orbit and Kapua Data Centres.

- **High speed access for designers–** Enable's dark fibre (part of CCC) will be leveraged to connect SCIRT's Christchurch office with the Christchurch based datacentres.

3 PRODUCT LIFECYCLE

The systems and processes that have been identified by SCIRT have been designed to support a programme management methodology. This methodology is underpinned by the structuring of work in distinct projects, through a structured lifecycle, which is reflected in system design. Projects by definition are unique undertakings with distinct start and end points, a fixed budget with defined quantitative tests for outputs that can be measured and can gauge success or failure.

A Programme, on the other hand, is made up of a number of projects. The Programme's start and end points can change depending on the number and type of project within it, its budget may change and the success or failure of a Programme is measured in terms of outcomes which are the aggregation of outputs.

The Project Lifecycle has a number of phases which in turn have discrete stage gates to ensure appropriate governance on all projects in the programme. The phases are as follows:

1. Investigation - Includes all work associated with assessing asset condition, specifically CCTV surveys, topographic surveys and visual inspections of assets.
2. Scoping - Based on the outputs from the investigation phase, confirmation of areas of known damage and asset deterioration will be assessed and grouped into Projects.
3. Conceptual Design - Projects are assigned to designers for further investigation and potential remediation/rebuild options.
4. Detailed Design - Approved remediation or rebuild works for the project are designed in more detail for construction.
5. TOC - The cost of delivering the project is developed within IST with input from the Delivery Team. Once agreed the TOC is then loaded into JDE and all construction related information made available to the Delivery Team.
6. Construction Allocation – Projects are assigned to a Delivery Team for construction once the Owner Participants have confirmed funding availability and is based upon the allocation process outlined in the Procurement Management Plan.
7. Construction - Project construction commences. All monthly progress claims from the Delivery Teams are submitted to IST, which are consolidated and the total claim submitted to the Clients for payment. Other non-financial data associated with the project is also submitted to IST for consolidated reporting. Payments are then distributed back amongst the Delivery Teams and once construction is complete, practical completion is submitted to IST.

8. Handover - All documentation and information is transmitted to the Client. Project Final Completion is requested after completion of the required defects liability period.

4 ENTERPRISE APPLICATIONS REQUIRED

4.1 OVERVIEW

The applications selected by SCIRT are needed to manage the entire programme of works from investigation to handover, including the integration of all programme data into CCC systems and Delivery Team systems.

4.2 DESIGN GOALS

The systems selected are required for holistic programme management at all levels to ensure visibility, replication of success and doing the right thing at the right time. The development of the system architecture and the processes it supports has been established to deliver and reinforce these tenants.

4.2.1 Visibility

At any stage in a project or programme lifecycle a number of stakeholders will require information on what has happened, what is currently happening and what is planned to happen. This request may be of a financial or non-financial in nature but it is essential that the systems record the correct information in the right format in such a way that it is current, accurate and accessible.

4.2.2 Replication of Success

As programme and project management matures over time, successes and mistakes will be made, risks will be realised and innovations made. The systems and processes have been developed with this in mind. Systemic coding structures and metadata have flexibility in-built, structures and nomenclature are replicated throughout the system suite to ensure a consistent user experience. Exception reporting will lead to effective management intervention where it is needed.

During the early phases of the Programme, many incremental changes to the systems and processes have been managed through configuration management. Systems are now typically in a stable state, with more of a step change approach in limited areas occurring.

4.2.3 Doing the Right Thing at the Right Time

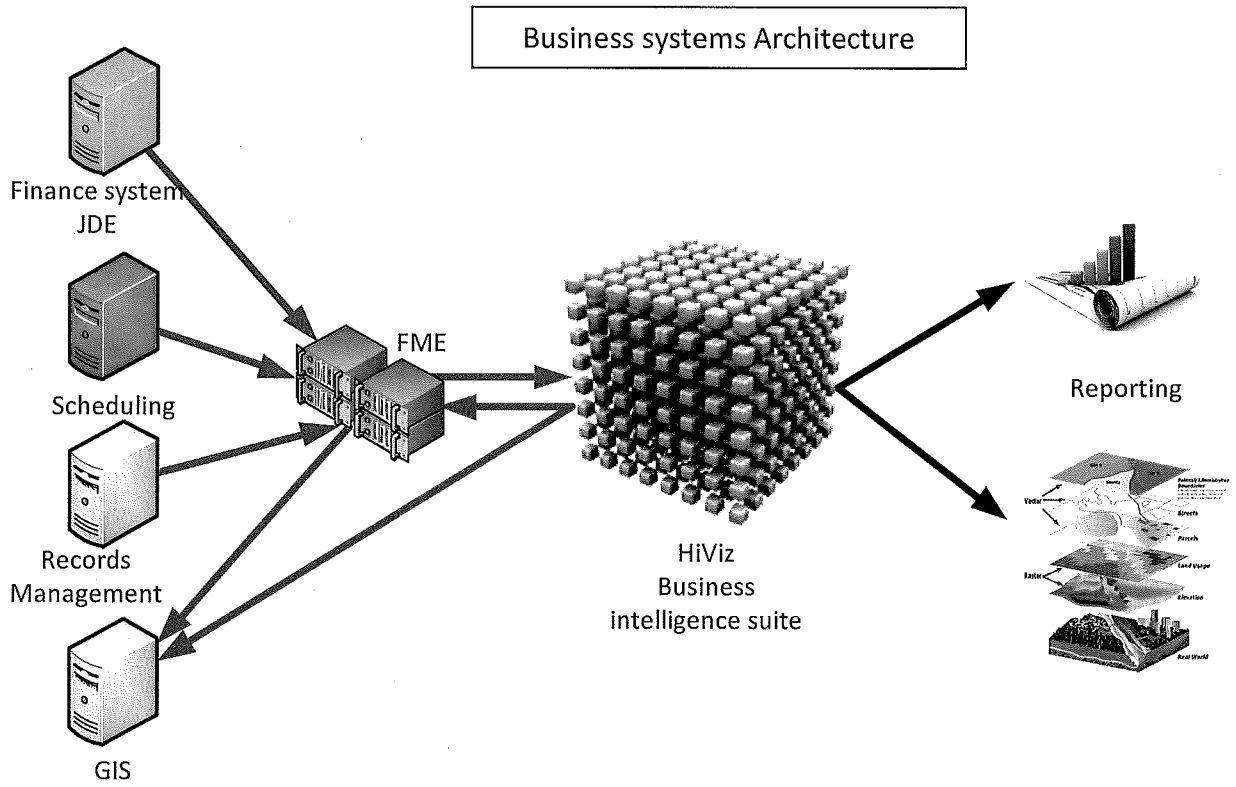
The benefits of Programme delivery are best demonstrated through appropriate planning and prioritisation. By describing and managing programme constraints, doing what is important first and planning with awareness of precedencies and

antecedences, will maximise utilisation of resources and minimise disruption to the community as a whole.

4.3 THE SYSTEMS MAP

Business systems Architecture

The System Map below illustrates how the enterprise systems interact at a high level. Applications were selected based on utilising where possible existing Delivery Team systems due to time constraints during initial set up. Reliance therefore has been made on previous experiences, common knowledge and understanding, simplicity and compatibility, and as much as possible, an out-of-the-box implementation.



4.4 APPLICATIONS

4.4.1 System Navigation and Standard Logic

There is expected to be a constant flux of staff in SCIRT and a degree of reliance on external consultants and interaction with many external parties due to the scale of the work. Therefore, applications must be as simple, consistent and intuitive as possible to prevent a high reliance on training.

All applications have been developed to provide a consistent experience in terms of navigation and structure. This structure is based on the programme and project management approach and follows a similar structure, Programme > Project > Project Phase > Detail Specific to the system.

4.4.2 General Communication Tool – Microsoft Outlook

SCIRT will use Microsoft Exchange Server to manage email. This is seen as a common platform which interfaces well with client and supplier organisations. Minimal training is required, and exchange also has an Active Directory function enabling easy sharing of contact details and access setup to systems.

4.4.3 Asset Condition Register

All asset assessment information collected is reviewed and validated before being loaded into InfoNet, and then synchronised with SCIRT GIS to enable viewing by all SCIRT users.

4.4.4 Integrated GIS Viewer

GIS viewer (ArcGIS) will collate and sort all geographic information about infrastructure, geotechnical, and community information. Included in this information is all data sitting in existing Delivery Team maintenance systems (e.g. RAMM Contractor).

With all data and information linked geospatially it will be presented in map format, to aid planning and reporting at all project phases.

4.4.5 Designer Collaboration

For Designer Collaboration existing file servers shall be utilised to store, share, and collaborate on drawings or documents. All mark ups and revisions will be managed within the file server, with final approved files being uploaded and stored in ProjectCentre's document register.

4.4.6 Project Control

ProjectCentre is the Project Control System. It provides work flow and a repository of all records that are involved in project delivery, enabling basic dashboard reporting of projects through the project phases.

It is a core tool in SCIRT as all correspondence between all parties (i.e. CCC, SCIRT, Delivery Teams, and SubContractors) will be transmitted and tracked in it. This includes the following:

- Notification of new projects
- Allocation of Projects to Design Teams
- Allocation of Projects to Delivery Teams
- Requests for Information

- Collection of monthly Health, Safety, and Environmental
- Collection of Value for Money innovations and initiatives

ProjectCentre is also a document library, and will hold:

- All the Management Plans
- CCC Construction Standard Specifications (CCS)
- Infrastructure Design Standards (IDS)
- All final project documents, including reports, drawings and specifications.

4.4.7 Estimating

Candy, a proprietary estimating tool, is to be used to prepare the TOC using a database of first principle elements under a process outlined in the Estimating Management Plan.

4.4.8 SCIRT Financial Management

JD Edwards (JDE) has been chosen as the accounting software for SCIRT. It will manage accounts payable (including Delivery Team claims) accounts receivable and provide a source of data for monthly profit and loss reporting, balance sheet, cash flow reporting, loading of TOC and Revised TOCs.

4.4.9 CCC Financial Management

All cost information in regards to progress claims will be provided to CCC and the other clients, on a monthly basis and at the completion of projects which shall be recorded in client financial systems.

4.4.10 Time and Resources

Microsoft Project is the schedule management system and will be used to provide Gantt Chart functionality and resource levelling of key resources.

4.4.11 Business Intelligence Reporting Tool

Utilising a Microsoft SQL based data-cube with attributes to interrogate different applications, all linked by the unique project number, enables real time reporting where appropriate in a number of formats. Logi Analytics, a software reporting tool, is used to graphically display this information.

4.4.12 CCC Document Management

On completion of projects all required information will be handed over as per CCC requirements into TRIM and SAP.

4.4.13 Stakeholder Management

A customised application developed within Salesforce's CRM environment will be used to manage all stakeholders associated with SCIRT.

4.4.14 IT Help desk monitoring

ZenDesk is used as an online tool to track issues internally for the SCIRT IT, this is a cloud based system which has workflow tracking and reporting functionality.

5 MONITORING, MEASUREMENT AND EVALUATION

5.1 MONITORING & MEASURING

The core systems selected have auditing reports which will enable usage and exceptions to be monitored and measured.

5.2 EVALUATION

The Commercial team will evaluate the administration processes to ensure they are relevant and efficient, with adjustments and refinements made on a regular basis.

6 MANAGEMENT PLAN CONTROL

6.1 AUTHORISATION

Initial authorisation is in accordance with the AA, Section 6.1.1. All plans are also authorised by the GM and will be submitted to the SCIRT Board for approval in the first SCIRT Board meeting following the execution of the AA.

Subsequent revisions to plans will be authorised by the MT unless the GM deems the revision requires endorsement by the SCIRT Board.

6.2 DISTRIBUTION

The Administration Plan is a controlled document and shall be distributed and revised in accordance with the SCIRT Quality Management Plan. Hardcopies are Un-Controlled copies. The Controlled copies are maintained in "Project Centre" which is a secure website which supports various project management functions for the Programme including "configuration management" i.e. version control of documents.

6.3 AUDITING

Systematic internal audits will be undertaken to monitor compliance with this plan and to allow the plan to be assessed for suitability, relevance and effectiveness.

Various audits are undertaken, including but not limited to:

- IST-level Internal Audits
- Delivery Team-level Internal Audits

Refer to Quality Plan Audit section for more details

6.4 MANAGEMENT PLAN REVIEW AND REVISION

This plan is a dynamic document that is current at the time of issue. The process for monitoring and review of the plan or its implementation and operation are detailed within the SCIRT Quality Plan.

Site management will conduct a reassessment for the purpose of continuous improvement. The review will consider the results of management monitoring, audit results, analysis of data, corrective and preventive actions as well as feedback from the SCIRT Board, MT, IST, Design Team, Delivery Teams and site personnel. The frequency of the review will typically be as detailed in the Review and Audit section of the Quality Plan

Implementation of resolutions from the review will contribute to continuous Improvement.

Revisions to any management plan will always involve the Quality Manager who will take responsibility for ensuring the management plan set remains co-ordinated when revisions occur.

The document may be revised and updated in response to areas identified for improvement, such as;

- Changes in the Requirements and Minimum Standards defined in Schedule 5 of the AA
- Substantial changes in design or scope, construction sequence, staging, methodology, process or resource
- Requests by any Statutory Authority
- Internal and external audits
- Suggestions and comments from personnel
- Preventative action following a non-conformance
- Necessity for corrective action
- Senior management review
- Recommendations of the Independent Design Verifier, Independent Estimator or Strategic Review Panel

7 RECORDS AND REPORTING

7.1 RECORDS

ProjectCentre is the core correspondence system, through which all important and project specific documents will be transmitted. This system allows SCIRT to record all information, track who has received and read it, and thereby search it.

7.2 REPORTING

The suite of applications selected, and the method by which all data shall be recorded and tracked within them, enables SCIRT to meet reporting requirements. All financial and non-financial information shall be completed from the BI Tool, whilst using the following supporting systems:

- GIS
- ProjectCentre
- JDE
- Microsoft Project

8 ROLES AND RESPONSIBILITIES

SCIRT Quality Management Plan	Role								
	General Manager	Human Resources Manager	Community Stakeholder Manager	OHSEQ Manager	Delivery Managers	Professional Services Manager	CCC Interface Manager	Value for Money Manager	Commercial Manager
Plan Issue / Revision authorisation					Assist	Assist			Owner
Performance Monitoring and Evaluation					Assist	Assist			Owner