



## **ENGAGE**

**What is it and why?**

**March 2019**





### **Executive summary**

This document describes ENGAGE as a summary of the needs for preparedness for disaster and a fresh approach to infrastructure rebuild following an event, enabling quicker and more effective community recovery. ENGAGE is based on the career and SCIRT and NCTIR experiences of the writers and on local and international observation and research.

It is asserted that New Zealand is ill prepared for disaster rebuild, from the absence of strategies and plans, the siloed state of government, industry and societal structures, together with a lack of industry capability, processes and systems+ to manage and carry out rebuild.

The ENGAGE model is proposed to address the challenges of disasters and to create collaborative, informed and thoroughly prepared framework for rebuild action and a related information and business management system to support it.

ENGAGE is conceived as a not-for-profit, enduring entity which will provide advice and support to local and central government and asset owners, to help set up an appropriate rebuild capability following a disaster. The concept for the existence, structure and functions of ENGAGE is explained and the current state of development is described.

### **Disaster rebuild capability problems**

New Zealand, like most countries in the world, is not well prepared for the demands and complexities of infrastructure rebuild that is necessary for recovery following a disaster.

Probably the most fundamental problem involved is lack of awareness that there is a problem at all. The authors strongly assert that there is. Rebuild will not happen effectively by conventional process, as explained following.

Within New Zealand society, at the highest levels, organisations, government sectors and industry are siloed from each other and fragmented in their operations. They are not experienced in working together for the needs of society, as required when whole communities are impacted by a disaster.

Additionally, both the design and construction industries are fragmented. They need to be brought together for a single project in normal times and don't have proven methods for approaching large scale projects, or for programmes of projects. Processes and contractual arrangements don't exist that can deliver intended outcomes reliably, and this results in a common situation of poor track records of achievements of built outcomes against initial plans.

Neither does any sector have proven information systems to integrate planning, design and construction activities to manage and report on programmes, of any scale. In addition, there is no cross-sector information system.

All these facts mean that the special needs of funding, governance, management and delivery of post-disaster rebuild are unlikely to be met consistently or well.

Furthermore, current recovery legislation does not recognise the demands and complexity of central government involvement with local government and asset owners, which is always needed when disasters require a collaborative approach and shared funding arrangements that match the scale and complexity of the damage to a variety of affected assets.



### **Fresh start**

The result of all these aspects is that rebuild following a disaster of any size in New Zealand currently must start from scratch, bringing parties together as seems appropriate at the time, creating working arrangements, then focusing on the work needed, how to fund it and how to get it done, with a purpose-built system for managing and reporting on the activities.

With this 'build from nothing' approach, with a fresh set of uncertainties involved in each case, creates a slim chance of knowledgeable and organized thought processes being present and a very slim chance of efficient and effective outcomes.

More commonly there is erratic and disconnected activity, with project funding not aligning with needs and priorities, skills and resources not matching demands, and planning and sequences not focused to shorten and enhance recovery of the communities in need.

Not only does the fresh start process have a poor chance of good outcomes, but the significant costs involved in the set up and creation of entities and systems to do the work involve very significant sunk costs – every time.

### **Experience**

The experience of all these factors playing out in Christchurch and Kaikoura earthquakes has reinforced for the authors, who are very experienced project and programme delivery professionals, that there is much to learn for New Zealand when rebuilding following disasters. They have taken their experiences of the purpose-built enterprises of recent rebuilds, captured their lessons and developed a concept of how to do things better.

There is no motive of personal gain in this initiative. The concept is open to all to share. It is envisaged as a not-for-profit entity, serving New Zealand.

### **Proposal**

The proposal is for deliberate cross-sector and community collaboration before and after events, the active sharing of knowledge and creation of networks of players, the discipline of a shared framework for action that shapes the overall process, all supported by a comprehensive information and business management system which can reach across society, accessible to all who need it.

It is a complete packaged solution that will frame and support readiness and rebuild, it is ENGAGE.

### **ENGAGE**

Engage is a concept for an enduring, nation-wide disaster readiness and rebuild capability to support and enable recovery, from large or small events. It is proposed as a working collaboration of central, regional and local governments, agencies and non-government organisations, asset owners, operators and industry concerned with built infrastructure, all working together with community organisations and iwi.

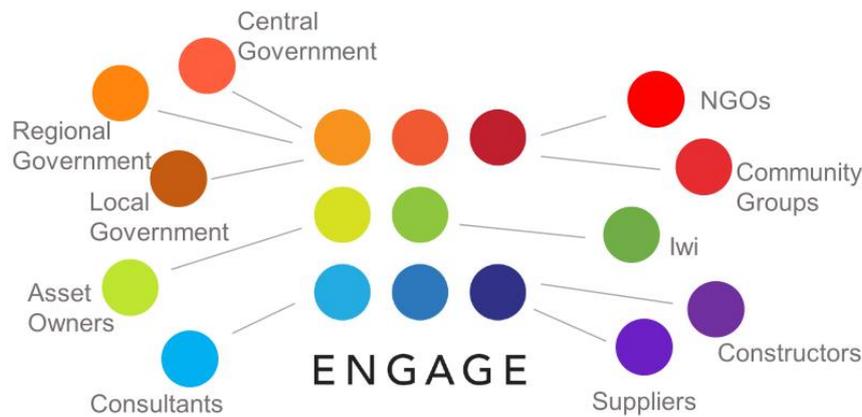
ENGAGE is envisaged as a small, not-for-profit enterprise which will facilitate collaboration, support education and preparedness for disasters, then bring its knowledge and networks forward after an event, to help shape the optimum rebuild recovery structure and functions.

The features of ENGAGE apply to all infrastructure from public facilities such as three-waters and roads, river stop-banks, harbours and ports, to public buildings and housing.

ENGAGE is intended to work collaboratively with other disaster response and recovery enterprises, to share comprehensive information about the damaged or impacted assets, to ensure that the rebuild startup is as early as possible, with communities linked together, with decision-making, planning and progress visible to all.

**Participants**

All the major stakeholders in disaster, and specialists in asset creation, are intended to be involved in ENGAGE. This collective commitment is a vital element throughout the sequences of rebuild and recovery.



**ENGAGE Participants**

Collaboration enables joint identification of rebuild work scope, criticalities, priorities, shared funding arrangements, resource managements, delivery of throughput, and communication of intentions and progress, to all parties.

Immediately after a disaster, ENGAGE will commence a facilitation phase, leading collaboration of required funders and impacted asset owners to form a parent group, defining recovery funding and outlining a broad set of objectives within a draft initial agreement, for a rebuild entity to answer, through its board of governors. That group is likely to require a secretariat and a structured relationship to civic leaders in the region.

**Framework for action**

Chief among the lessons leading to ENGAGE are benefits of a framework for action, defining the rebuild enterprise structure and functions – ‘how everyone can work together to get rebuild done’.

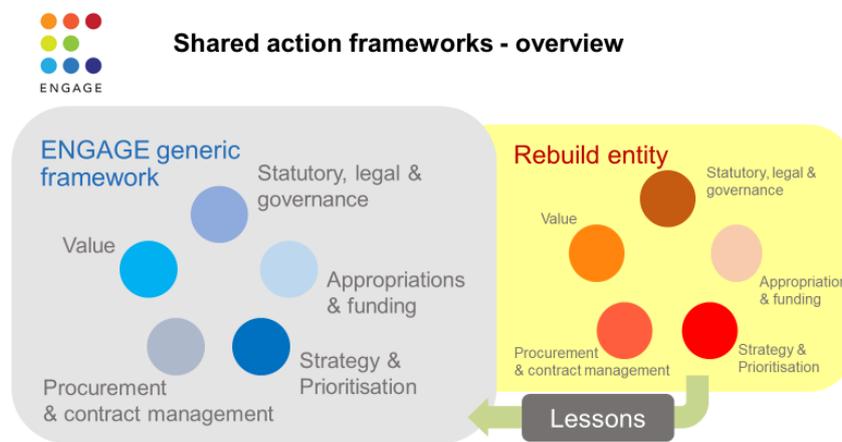
A generic framework will be created and maintained in a non-event period, and a specific framework will be created during the establishment phase, to apply to the rebuild entity, tailored to the event.

The entity framework will include statutory and legal arrangements to bring parties together with power to act, and likely including an initial agreement to bind them. It will set governance structures, appropriations and funding processes, procurement, project management and a value framework against which entity performance can be measured.

Tools and processes will be embedded within the framework to ensure preparedness is of a high standard and rebuild delivers best value for the affected communities and the nation.

The establishment phase will create the Board of the rebuild entity and set its key parameters, enabling it in turn to set rebuild objectives and key result areas for the management team.

The following diagram illustrates the generic and specific examples and the capture of lessons to better prepare for the future.



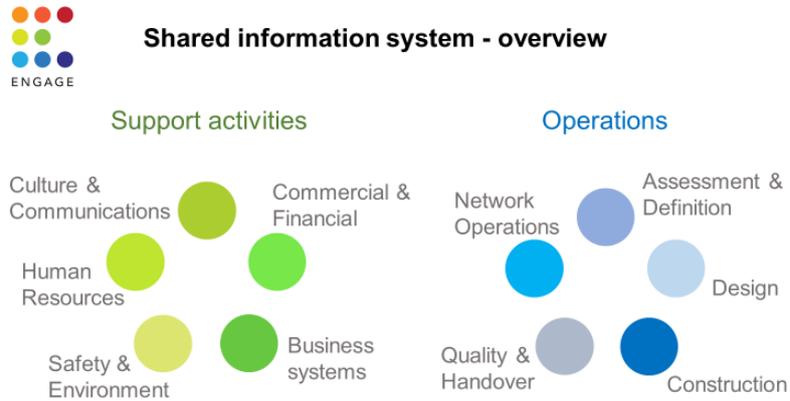
**Information System**

A comprehensive information system is an essential component of ENGAGE, serving preparedness for disaster and enabling a replica system to be set up immediately after an event. The system is needed for the framework implementation and the framework is needed to define and structure the system. They are symbiotic resources.

The system functions as a ‘single source of truth’ relating to ENGAGE and the replica system similarly for the rebuild. In each case it is the only system. There are no separate records or processes within a rebuild that risk duplication, gaps or lack of transparency.

The system enables a visibility of the impacted assets and environment, and the replica views the assets similarly and the whole of the rebuild enterprise and its work, in preparedness, for setting scope and priorities and for carrying out and monitoring the rebuild, all of which are vital to achieve confidence within the affected communities, funders and New Zealand as a whole.

The replica system provides support to specific rebuild activities such as HR, safety and environment, culture and communications, as well as the operational aspects of commercial and financial process and business systems, shown following.

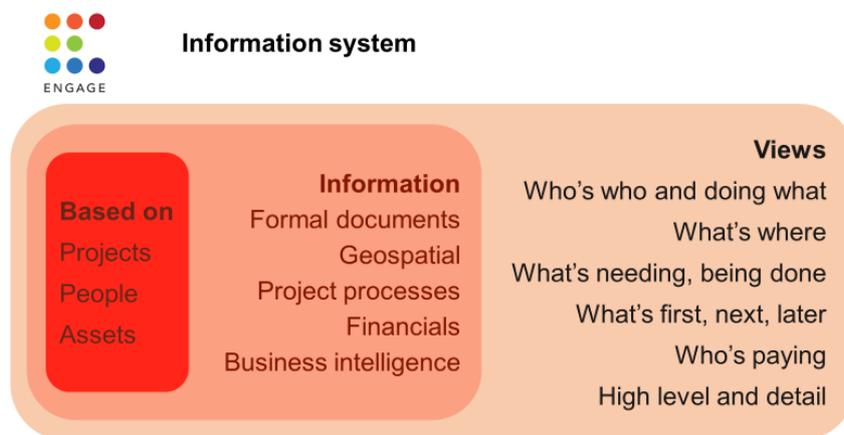


The foundation unit of the system is a project. All rebuild activities are defined by a project, a programme of projects or portfolios of programmes, as needed. A project can range from a very small quantity of work such as clearing debris, through to creating a conventional facility like a building, bridge or bypass road.

The system defines and channels operational matters through a series of project gateways, from initial asset assessment and work definition, through prioritisation, design sequences, construction, to final hand over to asset owners, project by project.

The system captures information and costs for each project from start to finish. It retains all data for the work and the built outcomes, for records and on-going use in management of asset life. It aggregates projects into whatever programme groupings are required and can report common information across projects.

At the same time as projects are managed and monitored, people and asset information are gathered for the total enterprise, across all projects and areas of activity.



The views are available to taxpayers, government, governors, operations, asset owners and users and the communities at large, to appropriate levels of detail.

This makes it a very powerful tool in the generation of a confident, trusting interaction of funders and the affected communities with the rebuild entity, breaking down silos.

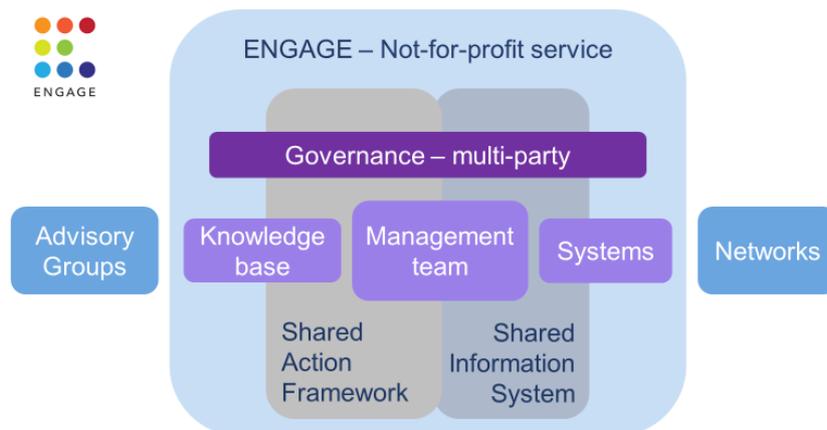
**Culture**

A special and vital feature of the framework and system is the creation of a positive culture of enterprise teamwork, mutual support, shared trust, enthusiasm, and the promotion of individual self-worth and value, which are imperative for those working in a post-disaster environment. The culture enhances the capabilities of the entity and benefits the interacting communities.

**The ENGAGE model – how it will work**

ENGAGE is envisaged as a capability that exists in ‘peace time’ as an enduring national presence. It will have the skills, knowledge, networks and information necessary to react quickly following a disaster, to facilitate early commencement of the rebuild activity, by whomever carries it out.

It is intended to be governed by representatives of a wide range of stakeholders with disaster and resilience understanding, managed by a small team of people with relevant expertise, using shared information systems, with a raft of advisory groups and a wide network resource of similarly experienced people who can be called on to help after a disaster. It will be connected to all other relevant disaster preparedness and response initiatives.

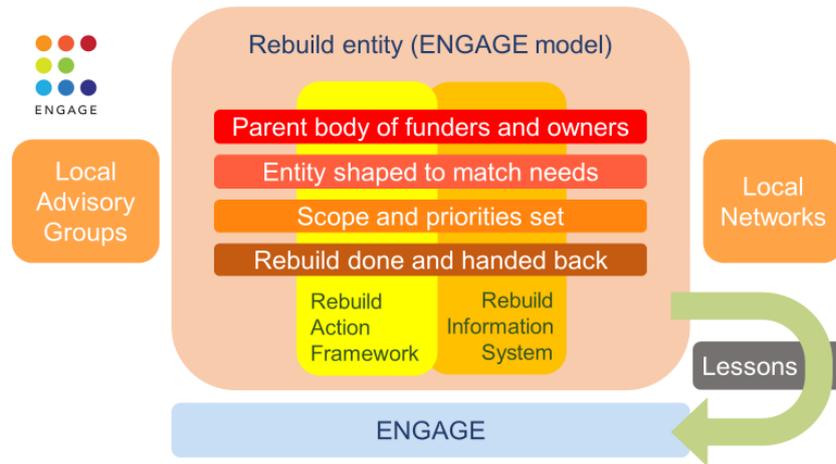


**Rebuild entity**

When an event occurs and as the understanding of the impact emerges, ENGAGE will work with funders, asset owners and key stakeholders firstly to support the creation of a parent body described previously, to define recovery funding and cost sharing, which it will pass to the board of governors of the new entity.

It will then to support the creation of a specific rebuild entity involving all interested parties, to use a tailored framework and a replica of the information system, both shaped to meet the needs of the disaster.

The entity will be structured, governed, lead, managed and resourced to match the nature and demands of the disaster, to suit the community. As much as possible, it should be populated and run by locals, to ENGAGE principles.



**Rebuild entity**

As the rebuild is carried out, lessons will be actively captured and fed back to ENGAGE.

**Outcomes**

The framework provides a support system of rebuild expertise and experience for the recovery decision makers, such as a national recovery manager, local government mayors, CEOs, recovery managers at local or group level, and to key infrastructure providers such as NZTA, councils (three waters and roads), ports, rail etc.

This enables the creation of a rebuild entity that is entirely appropriate for the job, with people with the right skills and experience, drawn from the networks, to run it.

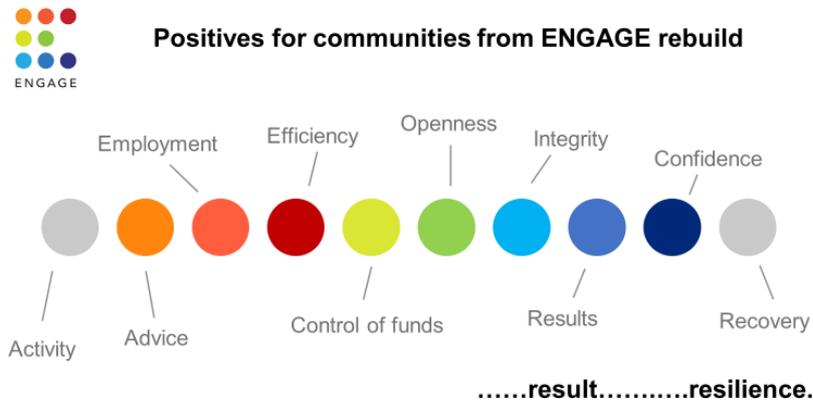
The shaped rebuild model then supports those decision makers with information on progress, tradeoffs, and value for money.

It provides this at whatever level and scale is needed, it's adaptable. In smaller recoveries ENGAGE might limit its involvement to advice for local councils at start up, to enable them to manage it alone, with whatever systems are needed.

In larger disasters ENGAGE can provide the framework and systems for setting-up and running an effective recovery.

Preparedness that follows ENGAGE principles will deliver rapid deployment of capability and resources, focus on strategic issues and priorities, community buy-in, faster recovery, and ultimately provide assurance and value for money.

When the preceding elements are done well, the most important result will be earlier recovery, adding to community resilience.



### Acceptance

ENGAGE has been discussed and reviewed with a variety of audiences in New Zealand and internationally over recent months. There has been widespread feedback that the concept is much needed for the benefit of disaster-prone New Zealand. The authors are therefore confident in the usefulness and appropriateness of the concept.

### In More Detail

The preceding summary explanation describes over-arching principles of disaster rebuild, a framework for action and an information system. It also touches on the scope of activities of the ENGAGE entity.

It should be noted that ENGAGE also anticipates setting common, industry-wide methods, processes and standards for the framework. This includes:

- a suite of enterprise management plans
- prioritisation tools for timely delivery of rebuild projects
- design standards
- construction standards
- procurement processes and contracts
- internationally recognised supply arrangements, based on performance reputation
- business intelligence reporting
- value frameworks.

ENGAGE will also use, or create for itself and others, standard documentation and process for the support activities of the information system. It will facilitate

- consistent taxonomy of asset descriptions
- assessment methods for data gathering
- methods of measurement
- asset management plans
- financial processes.

All of these can be adopted and used by industry generally, reducing duplication of effort and cost.



The system can curate and manage asset condition information and other data, collect and combine long-term plans and investment programmes and overlay this against the baseline so that planning outcomes could be compared to the planned investment.

With this baseline data and view of the future, investment planners, economists and use modelers can determine gaps and issues compared to a national long-term strategy and desired outcomes.

The system can be used to provide much of the information required from a single source to assist with the future planning and procurement of New Zealand infrastructure creation and management, locally or nationally.

### **Industry Practices**

ENGAGE has the strong prospect of being a catalyst for the development of uniformity of processes and protocols across creation and management of the built environment.

When this is achieved it will generate behavior changes for industry, giving clarity of purpose and process, reducing uncertainty, allowing greater efficiencies.

Engage can be a game-changer for design, building and construction and asset management.

All these features and outcomes could be adopted by the recently proposed Infrastructure Body, for the benefit of New Zealand. ENGAGE is enthusiastic to support this adoption.

### **What is needed to create ENGAGE**

#### **Business Case**

A business case is under development, conforming with government Better Business Case guidelines and templates and is planned to continue over coming weeks.

#### **Pilot studies**

Work is intended to start as soon as funding is available to fully develop the structure and function of the information system to utilise latest software applications. This involves a study of 'people and project information systems', using specialist Microsoft consultants, the outcomes of which will be shared with Christchurch City Council (CCC) and Civil Defence and Emergency Management (CDEM) Canterbury, who are taking a direct interest.

An initial submission has been made to CCC and a follow up meeting has been held with CCC and CDEM. This has a natural follow-on from current CCC system updates. Discussions are continuing.

ENGAGE principles are being brought to the development of Auckland Council emergency recovery planning via a consultancy agreement, to identify commonalities and synergies to enhance both.

An idea of mirroring of existing projects has been contemplated but discarded due to existing data structures not being suitable for a generic model.

### **Shaping concepts**

The current ENGAGE team who have shaped the core concepts need to bring together a variety of experienced professionals and operators in a development plan, to create and document the entity. These include the following, which are not sequential activities, but have multiple overlaps:

- Government policy mapping – to identify coverage, overlaps and gaps of current and planned policy compared with ENGAGE
- Legislation - to formulate principles of enabling legislation, before and after an event
- Framework scoping – including interaction with government asset owners
- Procurement - to shape broad contractual strategies to bind parties
- Design and construction management – creating process templates and specifications to support workflow
- Geospatial expertise to create data storage, analysis, processing and views
- Enterprise and business information architecture - to shape information system fundamentals
- A comprehensive data model, covering each of the elements identified above, allowing interoperability, currently absent
- Documentation and people management software – to incorporate latest developments
- Financial system – for integration with funding entity / asset owner systems
- Reporting specialists - to shape report templates
- Strategic alignment focus – to work with any similar activities to the ENGAGE concept.

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