



Electricity Supply Resilience in NZ

New Zealand Wind Energy Association

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New Zealand Lifelines (Utilities) Council

- Energy, Transport, Telecommunications, & Water
- Supporting regional Lifelines Groups
 - Focus on improving the consistency of output from regional vulnerability assessments
- Providing information to national lifeline utilities to assist them in their resilience work
- Liaising with relevant Government agencies on infrastructure resilience



Lifelines (Utilities) Vulnerability Studies

- ‘To assess the potential impacts of hazards on lifelines infrastructure and identify mitigation strategies to reduce that risk.’



4: Completed in last 3 years

6: Underway in this financial year (5 are updates)

5: Multi-hazard vulnerability assessment not undertaken (3 focussed on single hazard)



Concept of National Resilience

Source: MCDEM



This diagram is designed to illustrate that:

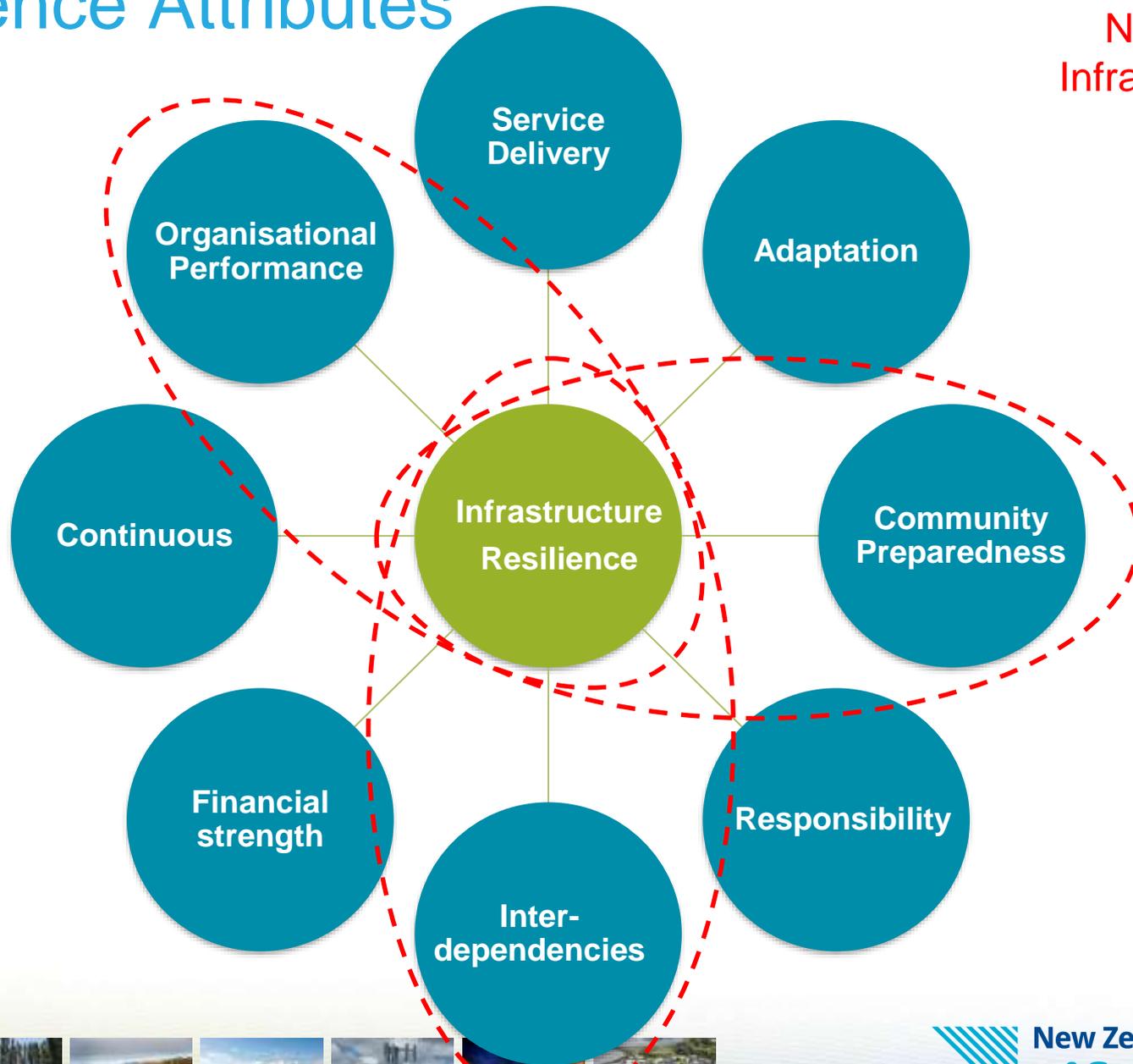
1) **resilience crosses a range of portfolios**; your team or organisation's work might contribute to a particular aspect of resilience, but it is important to look at things holistically and to put what we do in the wider context of what makes communities – and the nation – resilient. This also illustrates the range and breadth of potential partners in your resilience work – there is no need to work in isolation, there will be synergies to working with others who have similar goals.

2) **resilience acts on a range of scales**, from individual to societal, and it follows that interventions and initiatives should be on a range of scales, and include "bottom up" and "top down" efforts.



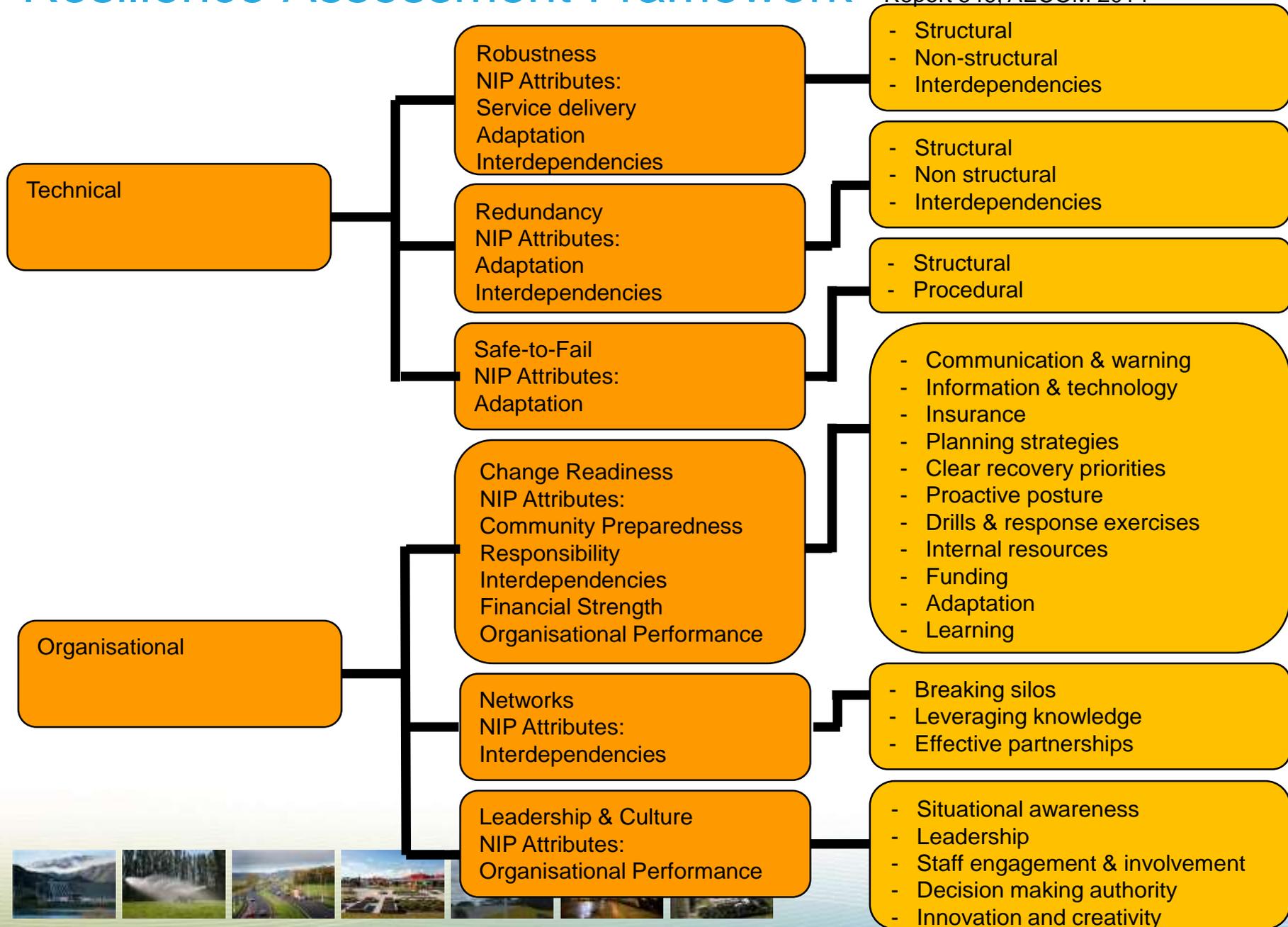
Resilience Attributes

National
Infrastructure
Plan



Resilience Assessment Framework

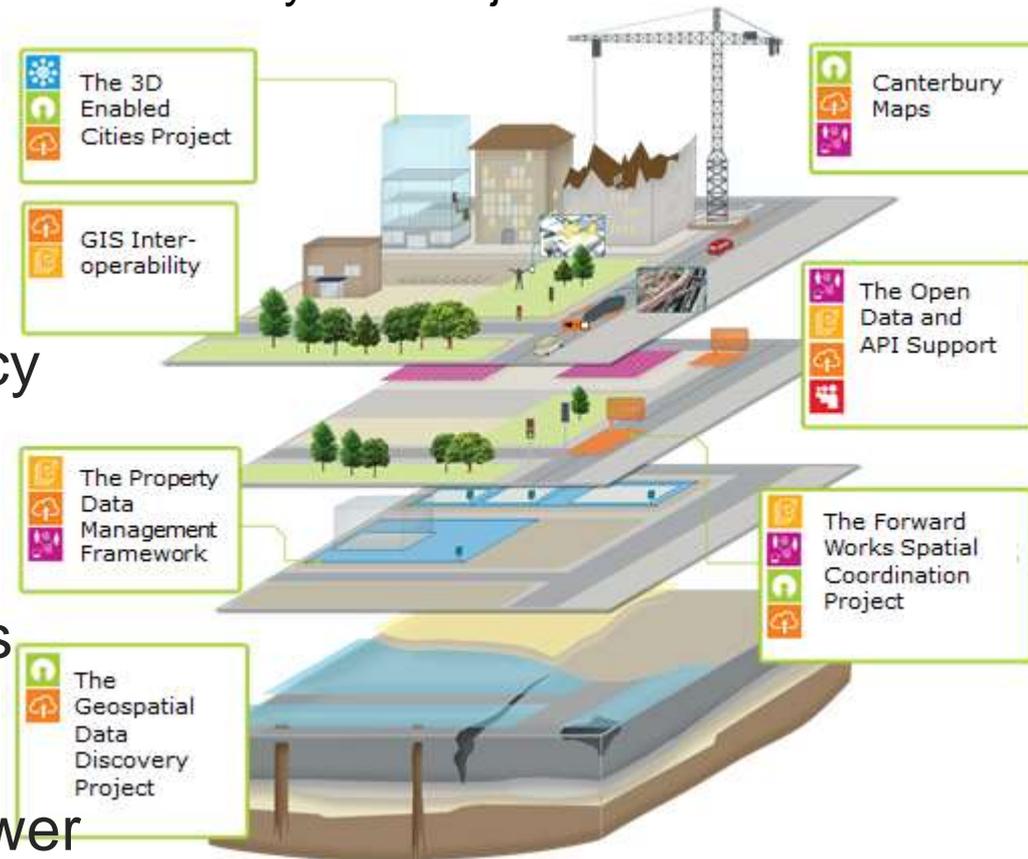
Source: Measuring the Resilience of Transport Infrastructure, NZTA Research Report 546, AECOM 2014



Geospatial

- “The Power of Where”
- National Geotech Database
- Smart Cities
- Greening the Greyfields
- Incident response, emergency services
- Aviation
- Intelligent Transport Systems
- Crowd sourcing
- National Forward Works Viewer

Canterbury SDI Project





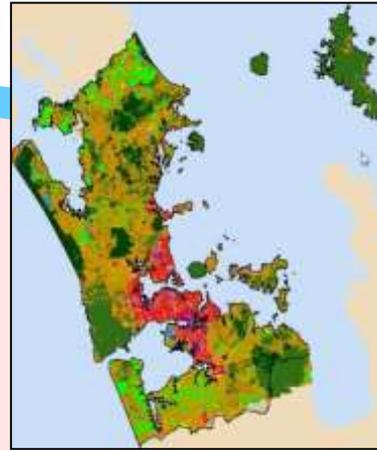
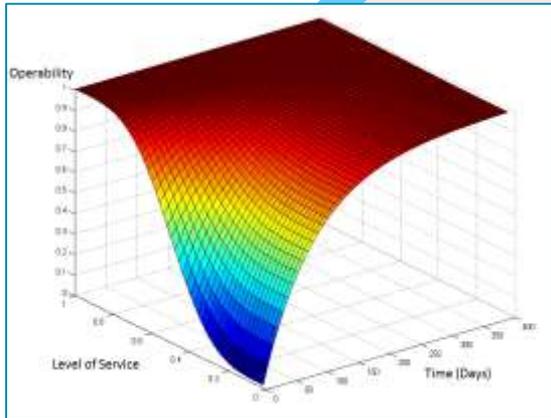
ECONOMICS *of* RESILIENT INFRASTRUCTURE

Identify and explore:

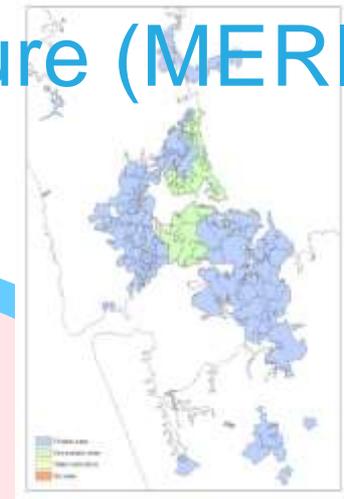
1. Temporal and spatial changes in GDP, employment, income, labour/capital markets etc. from different types of failure
2. Causal mechanisms through time (interdependencies, cascading effects, feedbacks and lags)
3. The effect different mitigation (pre-event)/response (post-event) options (policy, infrastructure, business) have on the economic impacts



Economics of Resilient Infrastructure (MERIT)



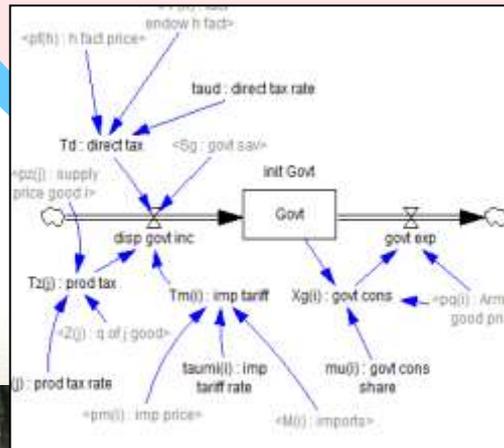
Impacted Business



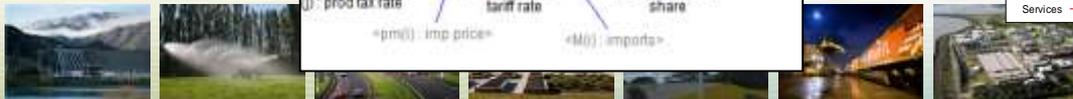
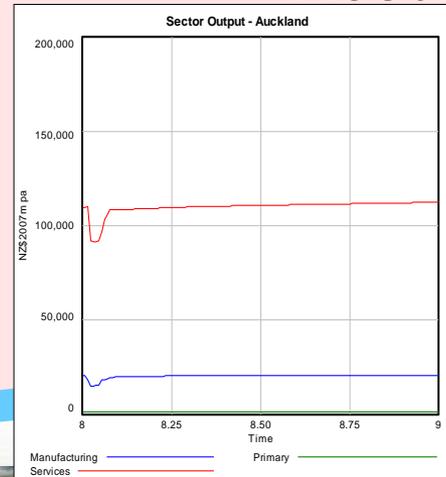
Outage maps

Business Operability

MERIT



Results



Your feedback is most welcome.

Resilient is something you are not something you do



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