



# 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

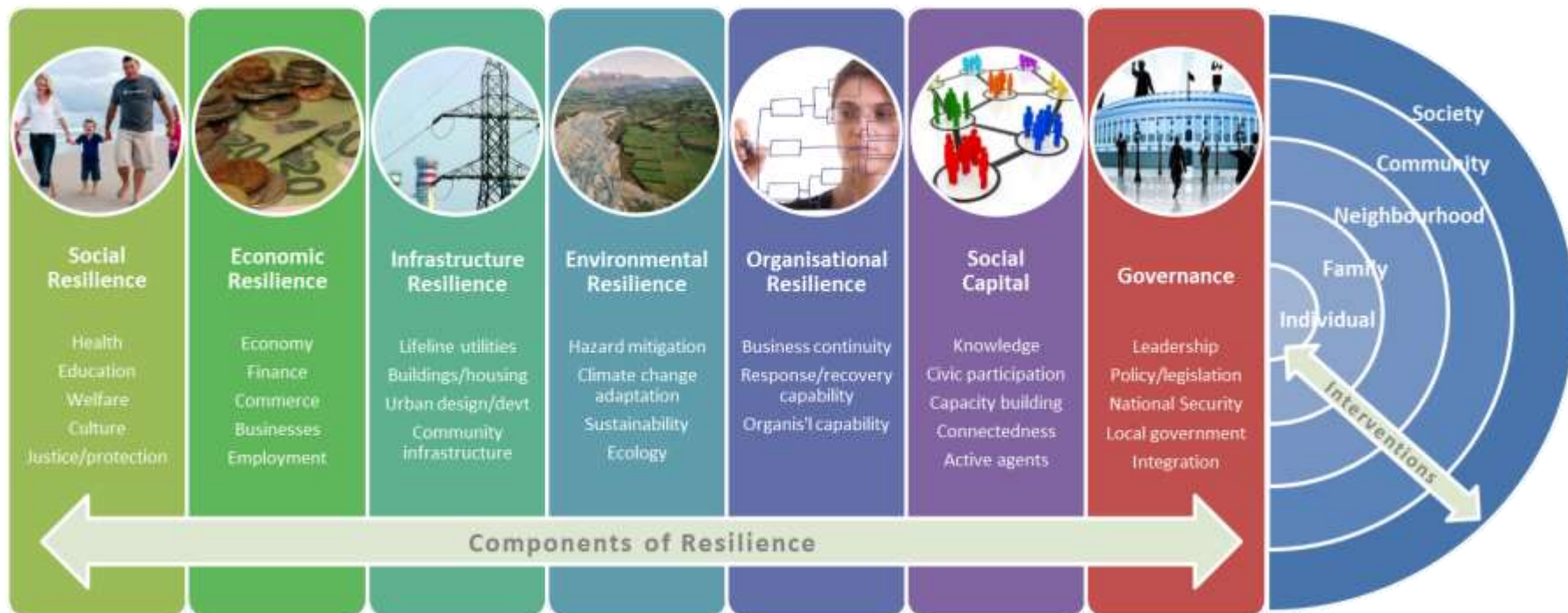
6: Underway in this financial year (5 are updates)

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.



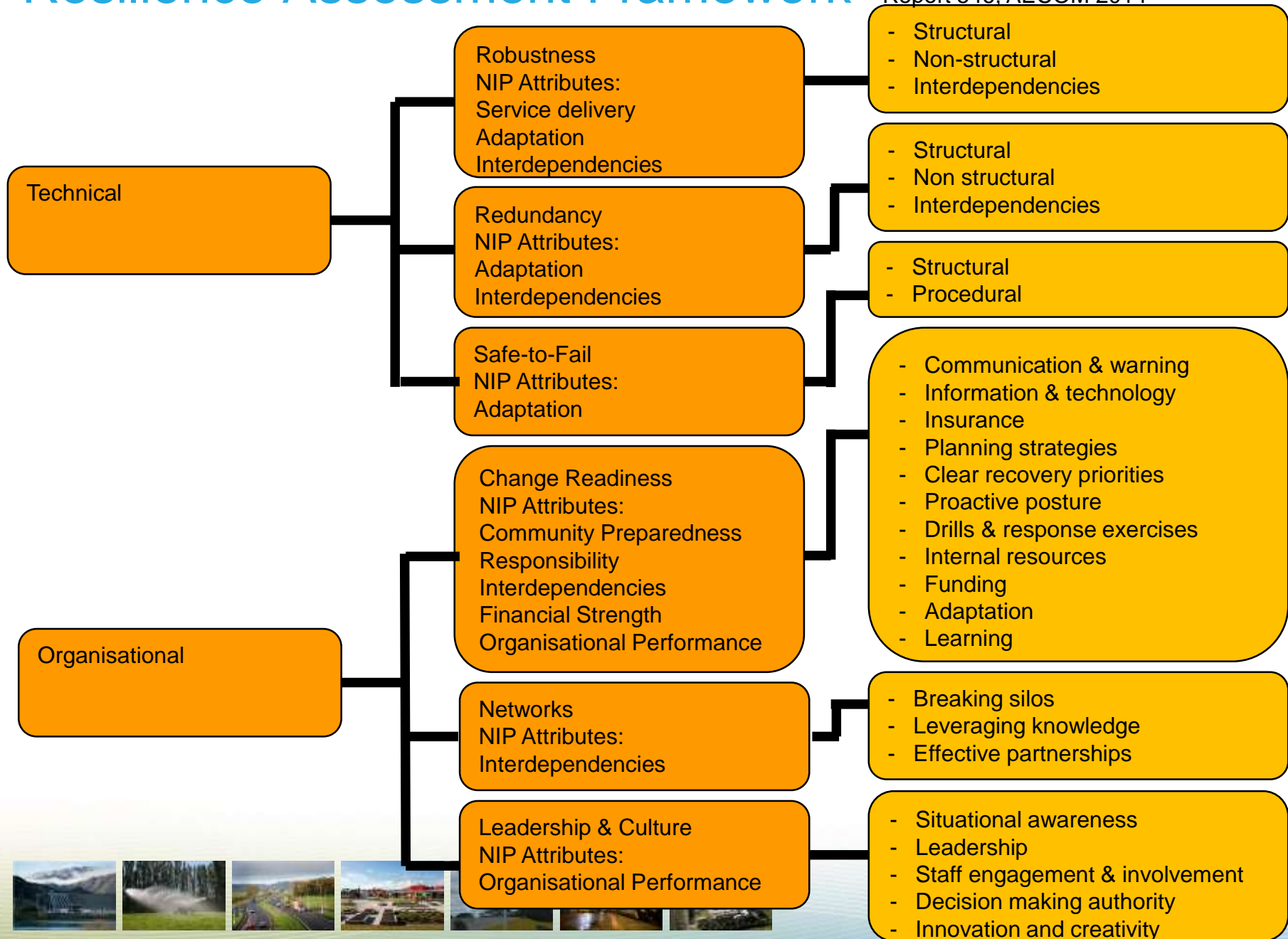
# Resilience Attributes

National  
Infrastructure  
Plan



# Resilience Assessment Framework

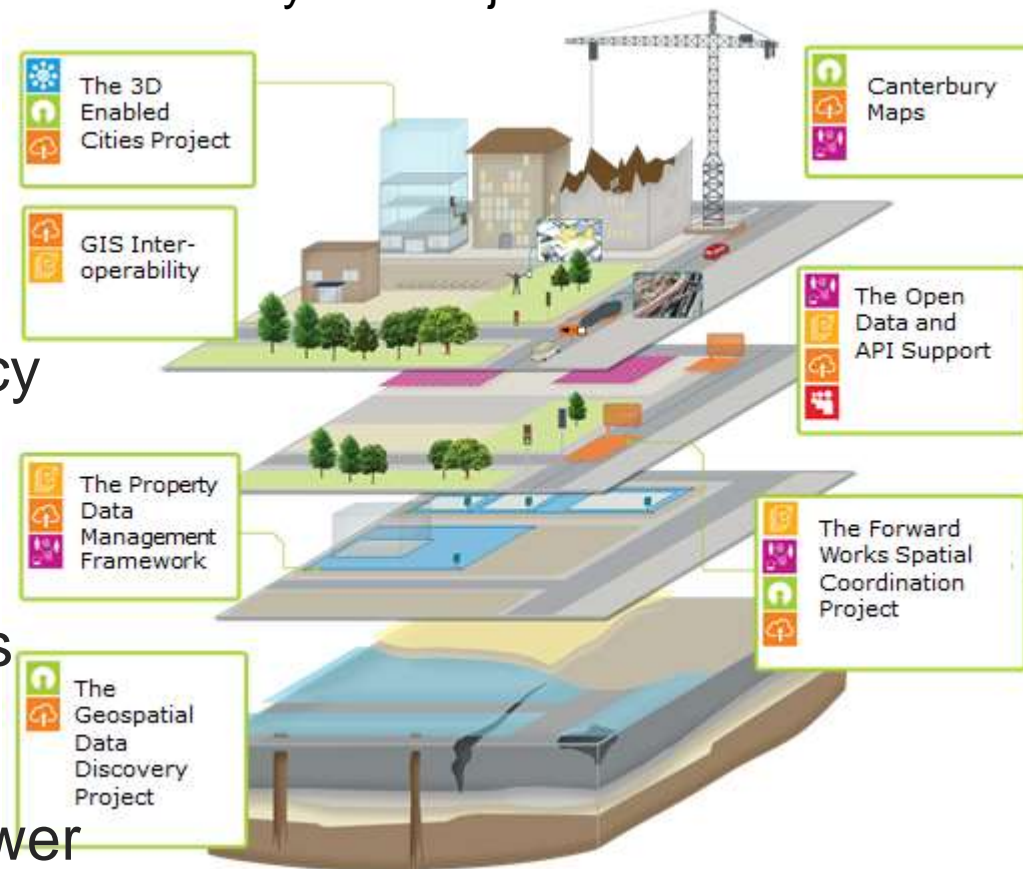
Source: Measuring the Resilience of Transport Infrastructure, NZTA Research Report 546, AECOM 2014



# 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

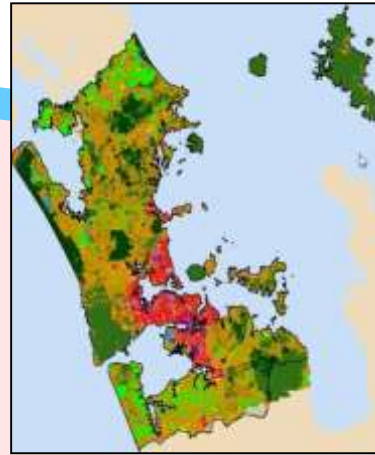
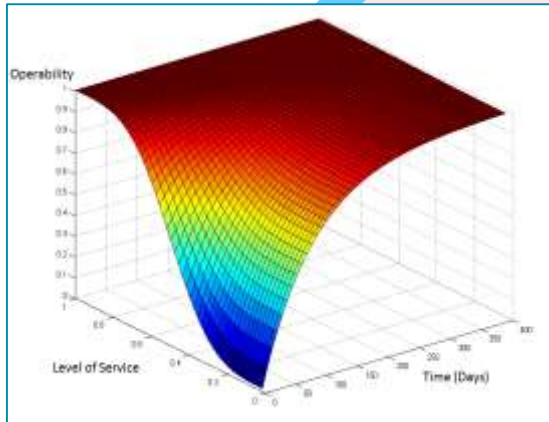
Identify and explore:

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

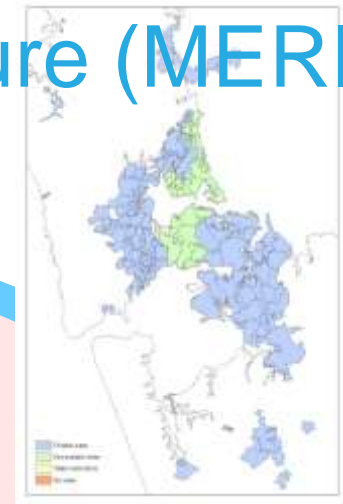




# Economics of Resilient Infrastructure (MERIT)



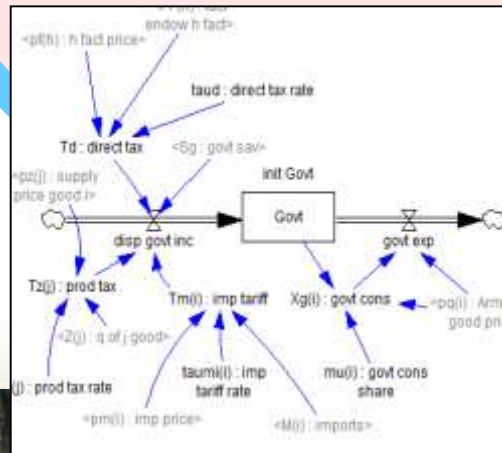
Impacted Business



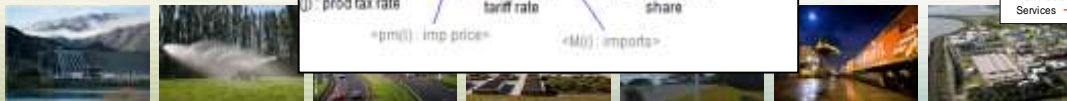
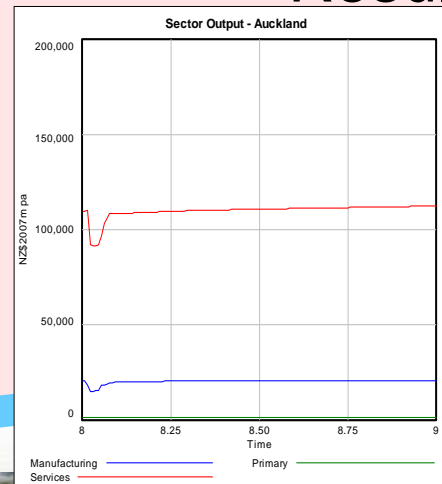
Outage maps

Business Operability

MERIT



Results



Your feedback is most welcome.

**Resilient is something you are not something you do**



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