

# Distributed Infrastructure Resilience Challenge

Group Meeting

11/7/2016

# Summary

- **Introductions (All)**
  - Existing and new attendees
- **Research Update (Liam)**
  - Distributed Infrastructure toolbox + aligned projects
  - RNC toolbox projects
  - Integration with other Distributed Infrastructure research
    - Distributed Infrastructure Workshop
  - Existing end user relationships and data
- **Presentations**
  - Conrad Zorn (UoA) – Dependence of NZs Transport Infrastructure on Electricity
  - TBA
- **Discussion (All)**
  - QuakeCoRE Annual Meeting
  - Monthly meetings
  - Trajectories Toolbox

# Introductions + Projects

- University of Auckland
- University of Canterbury
- Massey University
- GNS Science
- Market Economics
- OPUS
- Neoleaf

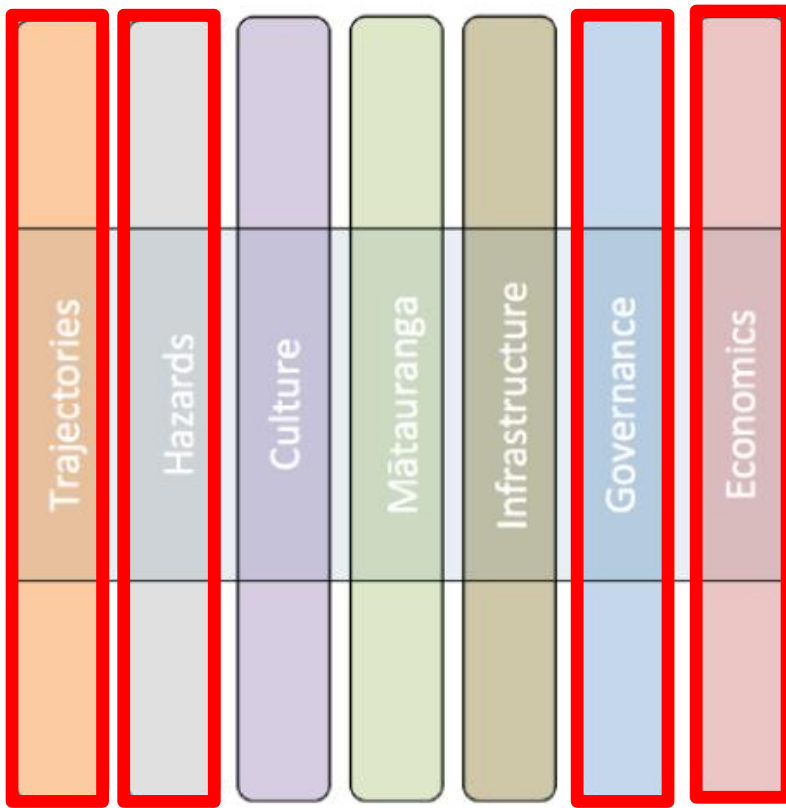
# Projects

- Project Summaries
- <https://docs.google.com/spreadsheets/d/1XZb5g3EWSefP32JXtKqqWWieEeOamjTVmrj1OVUF648/edit?pref=2&pli=1#gid=353165261>

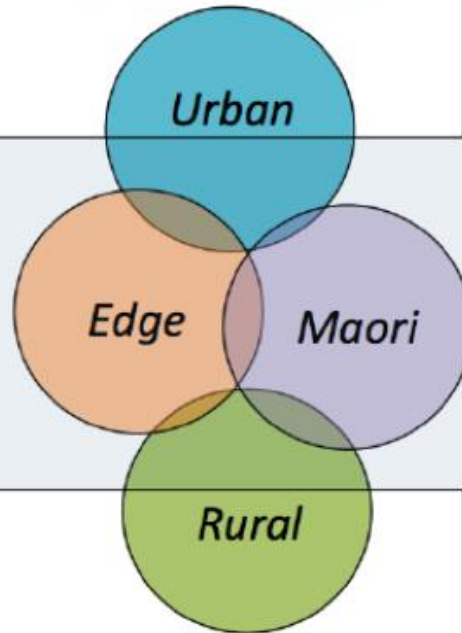
# RNC

## Research Strategy – Resilience to Nature’s Challenges

Underpinning Resilience Disciplines



Co-creation Labs



Priority Partnerships

Resilience Pipeline

**A Resilient  
New Zealand**



Innovative Enabling Technologies

# Hazards Toolbox

- Generate (by co-creation with end users and priority laboratory programmes) fit-for-purpose hazard knowledge and tools across all hazard types.
- Develop new consistent frameworks and methods to express all parts of the low-magnitude/high-frequency to high-magnitude/low-frequency hazard impacts spectrum.
- Evaluate dynamic shifts in the hazard spectrum due to climate change, societal change, and geological activity, including cumulative, cascading and unexpected hazards.

# Economics Toolbox

- To provide economic decision-support tools that enable New Zealand to more effectively and quickly transition to resilient investment approaches at multiple scales;
- Building tools to simulate economy-wide consequences of infrastructure (horizontal and vertical) failure with and without alternative mitigations/adaptations;
- Extending widely-practiced benefit/cost approaches/conventions to economic decision/policy analysis for better appraisal of alternative resilient-building strategies;
- Identifying a set of best-practice risk-sharing and financial interventions to motivate resilience.

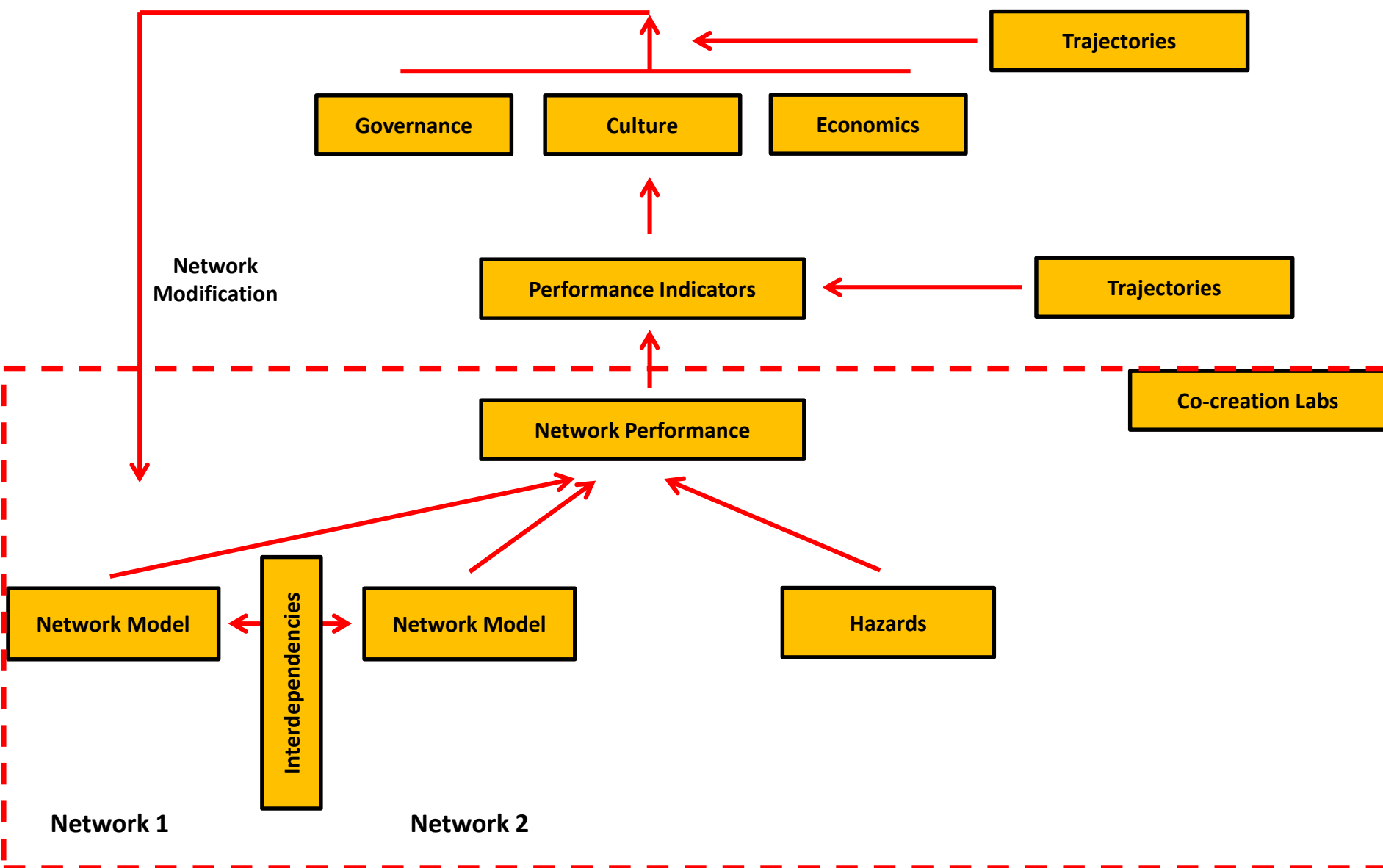
# Governance Toolbox

- Using lessons from natural hazard events to reveal resilient success and failure, empirically and conceptually, and use these to highlight governance-related enablers and develop evidence-based resilient decision-making.
- Creating Future Pathways to resilient decisions and governance by working with Priority Laboratories case studies to develop and test opportunities and processes for change with key governance actors especially under contexts of climate change and changing circumstances.



# Trajectories Toolbox

- Develop a “Resilience-pathways” heuristic in the form of a resilience information utility that aggregates, organises, and facilitates sharing of pertinent data to support resilience solution development in New Zealand;
- Build an expandable suite of resilience indicators across a multi-capital model including the seven-capital Community Capital Framework, the Treasury’s Living Standards Framework, and inputs from MCDEM and other key players in NZ.



# Aligned Research

- Proposal
  - Bring together distributed Infrastructure research
  - Alignment across programmes
- Groups
  - Riskscape, DEVORA, VISG, Lifelines, CDEM, LINZ, AF8, Its our Fault, East Coast Labs, Hazard Hub, etc
- In the weeks prior to the QuakeCoRE Annual meeting
  - TBD

# Distributed Infrastructure Workshop

- Alignment across NZ research environment
- Representatives from research groups
- Map research environment
- Map engagement with stakeholders
- Identify gaps and collaborations
- Indicators and pipeline development

# Information Repository

- Stakeholder relationships
  - Lead contact for stakeholder and researcher
- Calendar of meetings with stakeholders
  - Enable efficient engagement
- Researcher lists
  - Academic, post-grads + projects
  - Summary of linkages with international projects
- Data repository
  - Infrastructure, hazards, impacts
  - GIS data and reference documents
  - Link into QuakeCoRE systems