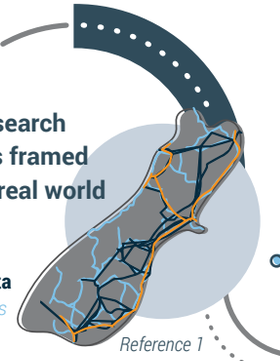
Spatially-distributed Infrastructure

Developing tools to assess the performance of spatially-distributed infrastructure lifelines networks subject to extreme natural hazards.

"Lifelines infrastructure are fundamental to Aotearoa New Zealand's communities + economy.

The importance of these assets and the services they provide cannot be overstated, and the impacts of their failure has been evidenced in many recent events."

Reference 3



▶ **With research projects framed around real world data...**

Layered network data
Rail *State highways*
Power transmission

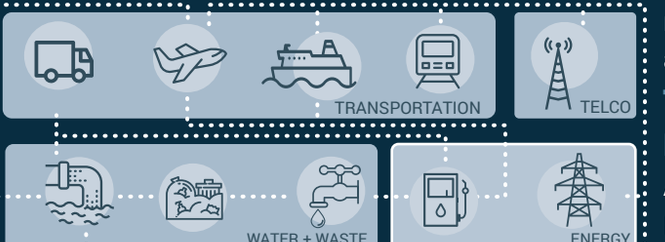
Reference 1

there are strong partnerships and

case histories with industry across this project...

Post-Kaikōura Earthquake researchers worked with local and central government...

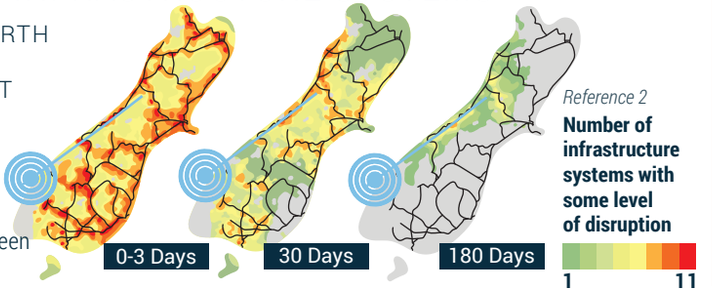
The **resilience of lifelines networks** play a critical role in the ability of society **to rapidly recover** AFTER A MAJOR EARTHQUAKE.



DISRUPTION TO INFRASTRUCTURE SYSTEMS

IN THE SOUTH-TO-NORTH RUPTURE SCENARIO OF THE ALPINE FAULT

For pre-event mitigation and post-event repair strategies we need to further understand the interdependencies between different networks.

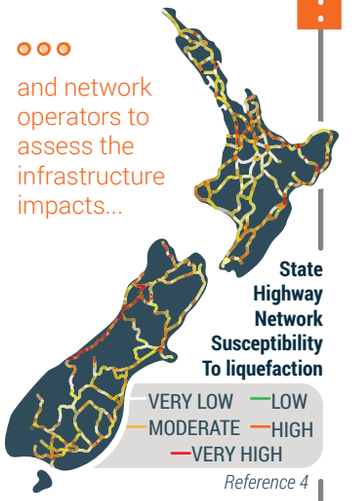


Reference 2

Number of infrastructure systems with some level of disruption

Partnerships have enabled the development of a **National Collaboration Hub**

...for **Lifelines Network Resilience Research**



State Highway Network Susceptibility To liquefaction

Reference 4

and network operators to assess the infrastructure impacts...

and collate valuable user experiences...

and evidence of the performance of components...

and impacted communities.

MĀTAURANGA MĀORI

Researchers are working with a number of hapū to understand...

...the potential **adaptations that marae can make...**

...and the support they can provide **following natural hazard events.**

The use of real world data to improve our understanding of infrastructure lifeline components and networks.

Te Hiranga Rū | QuakeCoRE
Aotearoa New Zealand Centre for Earthquake Resilience

Te Hiranga Rū QuakeCoRE: New Zealand Centre for Earthquake Resilience. It is a Centre of Research Excellence funded by the New Zealand Government.