

# Economics

**Programme Title:** Economics - Creating an Economically Resilient New Zealand (CERNZ)

**Programme Leader:** Dr Garry McDonald (Market Economics)

## Programme Overview

This toolbox programme aims to provide economic decision-support tools that enable New Zealand to more effectively and quickly transition to a nation resilient to natural hazards. These toolsets, which will be operate at multiple scales and for multiple stakeholders will:

- offer capabilities to simulate economy-wide consequences of infrastructure (horizontal and vertical) failure with and without alternative mitigations/adaptations;
- extend widely-practiced approaches/conventions to economic decision/policy analysis (benefit-cost analysis) to allow for better appraisal of alternative resilient-building strategies; and
- identify a set of best-practice risk-sharing and financial interventions to motivate resilience.

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## Programme Outcomes

**Contribution to Challenge Mission:** Provides state-of-the-art economic tools to drive resilience by enabling decision-makers to build better business and value cases for, and to assess the potential of, alternative resilience-building initiatives and pathways.

**Vision Mātauranga (“VM”) outcome:** Co-production of the resilience-based BCA framework will occur under the Rural priority research area in collaboration with the Valuing Resilience Initiatives work-stream and Mātauranga toolbox. Specifically, Māori businesses will assess alternative resilience-based BCA frameworks to assess farming, forestry and potentially treaty settlement investment options.

**10-year outcome:** By 2025 New Zealand’s ‘GDP at risk’ as reduced further through resilience-building initiatives. Aggregate measures from multi-capital frameworks, which provide a holistic assessment of resilience, are more widely adopted and utilised. Resilience measures are now mainstreamed in public and private infrastructure Benefit Cost Analyses.

**5-year outcome:** By 2020 New Zealand’s ‘GDP at risk’ is reduced through resilience-building initiatives. The ‘GDP at risk’ measure will be assessed for various events, adaptations, mitigations and so on relative to a carefully constructed counterfactual.

## Specific Projects within Programme

**1. Enabling Pathways to Resilience.** This project aims to create the first ever interface between the Multi-hazard toolbox developed in the Resilience challenge and existing tools: Riskscape and MERIT (Measuring the Economics of Resilient Infrastructure Tool) to enable the rapid assessment of economic consequences of resilience-building strategies to be assessed through time and across space.

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**2. Valuing Resilience Initiatives.** This project will design and test a modified benefit-cost analysis (BCA) framework to enable better business case development in the context of resilience to natural hazard in a range of New Zealand organisational contexts.

**3. Motivating Resilience.** This project aims to propose a toolkit of best practice risk-sharing and alternative financial interventions. It will expand the empirical evidence base for risk-transfer/financial mechanisms towards resilience, and draw on the emerging field of behavioural economics, which seeks to understand the systematic biases, heuristics and market failures underpinning inefficient behaviour.

**4. Flow-on impacts.** This project, funded from the Challenge's contestable funding process in 2017, is developing a transferable method for identifying resilience enhancing characteristics of local economies and 'hot spots' (critical industry sectors and inter-regional links) that amplify the flow-on impacts from natural hazards through the economy.

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