Distributed Infrastructure RNC/QuakeCoRE

Monthly Meeting

12/2/2018

QuakeCoRE
NZ Centre for Earthquake Resilience
infrastructure
National SCIENCE Challenges
RESILIENCE TO NATURE'S CHALLENGES
Kia manawaroa – Ngā Ākina o Te Ao Tūroa

Summary

- Introductions
- Infrastructure program update and new project summaries.
- Presentation: " Infrastructure Failure and Recovery Strategies from an Alpine Fault Scenario." Conrad Zorn and Ali Davies
- Presentation: “Ground motion simulation and geospatial co-seismic hazard modelling – QuakeCoRE updates.” Liam Wotherspoon
- Resilience to Nature’s Challenges – Natural Hazards Research Platform Merger
- Advisory Group Updates
- Other updates
- Discussion

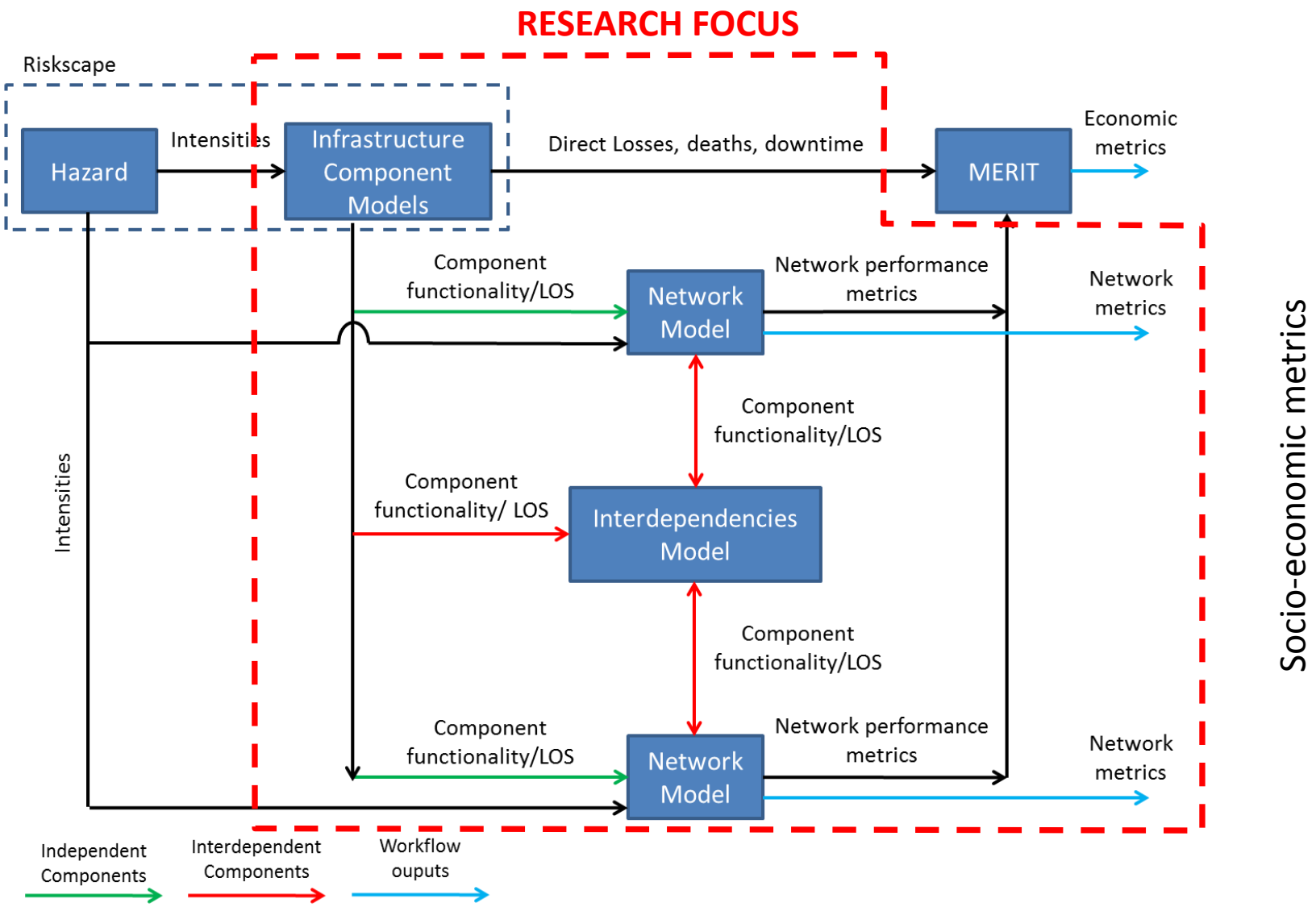
Infrastructure Program Updates

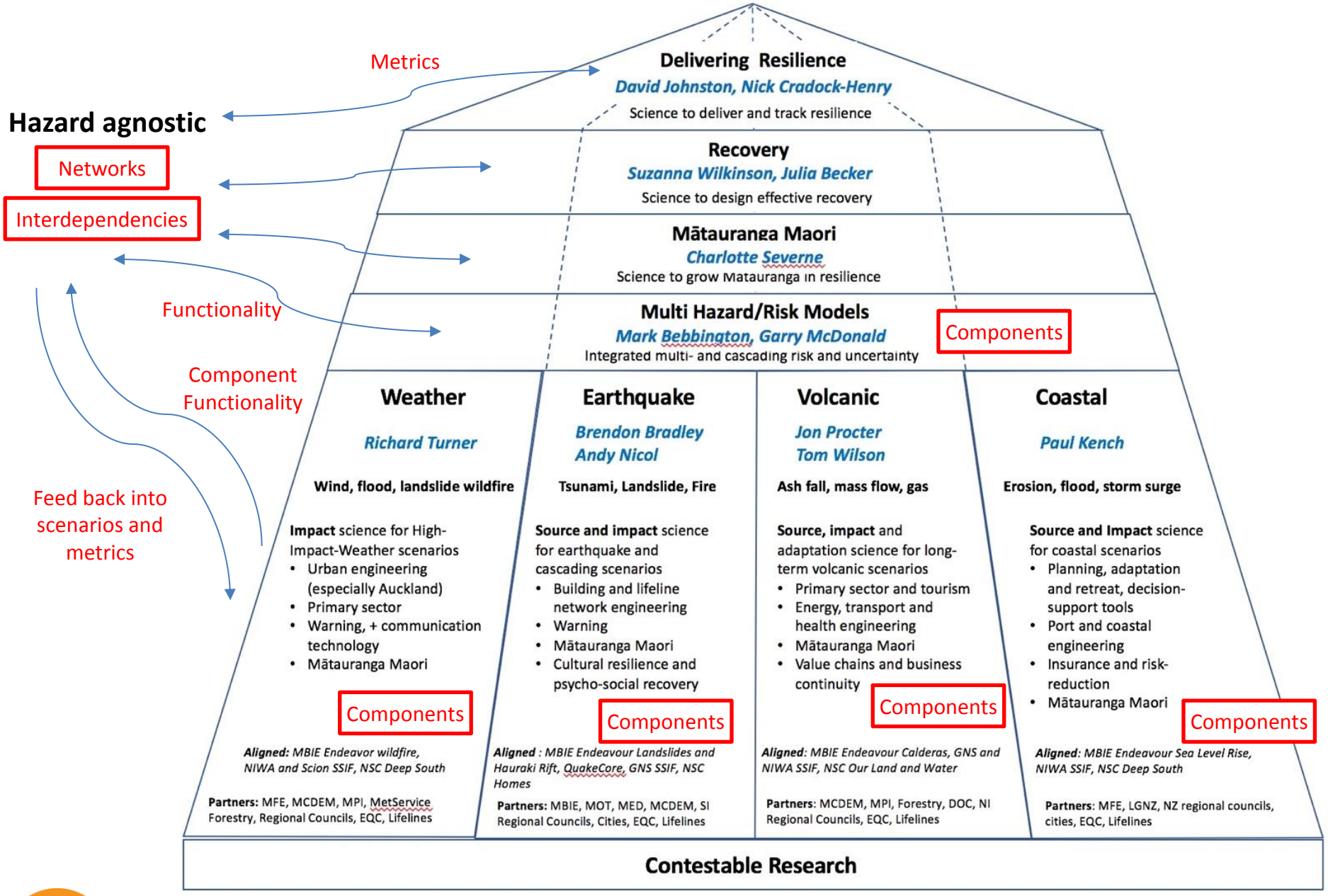
- 2018 Projects
  - Assessing the impact of undocumented stopbanks on flood routing and catchment performance
  - Understanding evacuation and travel behaviour under emergency situations in Auckland, New Zealand
  - Seismic resilience for fast-changing telecommunication networks
  - Tsunami vulnerability of key infrastructural assets
  - Critical infrastructure impacts & adaptations in small towns following earthquakes
  - Dynamic reconfiguration of communication networks following natural hazard events
  - Development of criticality frameworks for infrastructure networks
  - Infrastructure flood vulnerability models
  - Geospatial hazard characterisation

Presentations

- " Infrastructure Failure and Recovery Strategies from an Alpine Fault Scenario." Conrad Zorn and Ali Davies
- Presentation: “Ground motion simulation and geospatial co-seismic hazard modelling – QuakeCoRE updates.” Liam Wotherspoon

RNC-NHRP Merger




Metrics
Hazard agnostic
Networks
Interdependencies
Functionality
Component Functionality
Feed back into scenarios and metrics
Delivering Resilience
David Johnston, Nick Cradock-Henry
Science to deliver and track resilience
Recovery
Suzanna Wilkinson, Julia Becker
Science to design effective recovery
Mātauranga Maori
Charlotte Severne
Science to grow Matauranga in resilience
Multi Hazard/Risk Models
Mark Bebbington, Garry McDonald
Integrated multi- and cascading risk and uncertainty
Components
Weather
Richard Turner
Wind, flood, landslide wildfire
Impact science for High-Impact-Weather scenarios
• Urban engineering (especially Auckland)
• Primary sector
• Warning, + communication technology
• Mātauranga Maori
Components
Aligned: MBIE Endeavor wildfire, NIWA and Scion SSIF, NSC Deep South
Partners: MFE, MCDEM, MPI, MetService Forestry, Regional Councils, EQC, Lifelines
Earthquake
Brendon Bradley
Andy Nicol
Tsunami, Landslide, Fire
Source and impact science for earthquake and cascading scenarios
• Building and lifeline network engineering
• Warning
• Mātauranga Maori
• Cultural resilience and psycho-social recovery
Components
Aligned : MBIE Endeavour Landslides and Hauraki Rift, QuakeCore, GNS SSIF, NSC Homes
Partners: MBIE, MOT, MED, MCDEM, SI Regional Councils, Cities, EQC, Lifelines
Volcanic
Jon Procter
Tom Wilson
Ash fall, mass flow, gas
Source, impact and adaptation science for long-term volcanic scenarios
• Primary sector and tourism
• Energy, transport and health engineering
• Mātauranga Maori
• Value chains and business continuity
Components
Aligned: MBIE Endeavour Calderas, GNS and NIWA SSIF, NSC Our Land and Water
Partners: MCDEM, MPI, Forestry, DOC, NI Regional Councils, EQC, Lifelines
Coastal
Paul Kench
Erosion, flood, storm surge
Source and Impact science for coastal scenarios
• Planning, adaptation and retreat, decision-support tools
• Port and coastal engineering
• Insurance and risk-reduction
• Mātauranga Maori
Components
Aligned: MBIE Endeavour Sea Level Rise, NIWA SSIF, NSC Deep South
Partners: MFE, LGNZ, NZ regional councils, cities, EQC, Lifelines
Contestable Research

RNC-NHRP Merger

- 16th Feb – Planning Workshop
  - Discuss 1st Draft work packages
  - Researcher and stakeholder feedback
  - Further plan development

Infrastructure Advisory

- Meeting 22nd February
- Project updates
- Discuss RNC-NHRP Merger

Other Items?

- Wiki:

https://wiki.canterbury.ac.nz/display/QuakeCore/Special+Project+1%3A+Spatially-distributed+Infrastructure