

Resilience of Transport Infrastructure

Date: 1 December 2016

Venue: Pullman Hotel, Auckland

Seosamh Costello, Suzanne Wilkinson and Liam Wotherspoon



ENGINEERING

Sponsors



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National
SCIENCE
Challenges

RESILIENCE
TO NATURE'S
CHALLENGES

Kia manawaroa
– Ngā Ākina o
Te Ao Tūroa



Objectives



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- Create a network of researchers, stakeholders and end-users to help shape future research in this area.
- Encourage direct and active involvement of end-users and stakeholders in ongoing research in this area.
- Involve and introduce research students and emerging researchers to the end-users and stakeholders.

Introductions



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- Emerging Researchers and Students
 - Mohammad Aghababaei (Auckland), Mujaddad Afzal (Auckland), Alistair Davies (Canterbury), Temitope Egbelakin (Massey)
- Other RNC Researchers and Stakeholders
 - GNS, NIWA, OPUS, Massey, Market Economics, AECOM, Tonkin & Taylor, E&Y, Downer, FH
 - MoT, NZTA, Kiwi Rail, NIU, Auckland Transport, Auckland Council, Lifelines
 -have I missed anyone.

Objectives



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- Document past, current and planned research in this area.....and to develop a roadmap of the future research requirements along with possible funding sources.
- Use Resilience to Nature's Challenges/QuakeCoRE outcomes to help focus future research in this area in New Zealand.
- Explore the possibility of leveraging funding from stakeholders.

Agenda



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12:00 – 12:30pm	Registration - Morning Tea	
10:00 – 10:10am	Welcome	Seosamh Costello (UoA)
10:10 – 10:30am	The National Science Challenge (NSC), QuakeCoRE and where Resilient Transportation fits in	Suzanne Wilkinson , Liam Wotherspoon and Seosamh Costello (UoA)
10:30 – 11:00am	NZTA Perspective on Resilience	Mark O'Connor (NZTA)
11:00 – 11:20am	Valuing Resilience in Infrastructure	Monique Cornish (T+T), Nathan Bittle (EY) and Sandy Fong (NZTA)
11:20 – 11:40am	Emergency Evacuation Modelling for Auckland	Prakash Ranjitkar (UoA)
11:40 – 12:00pm	MERIT for Transport	Garry McDonald (Market Economics)

Agenda

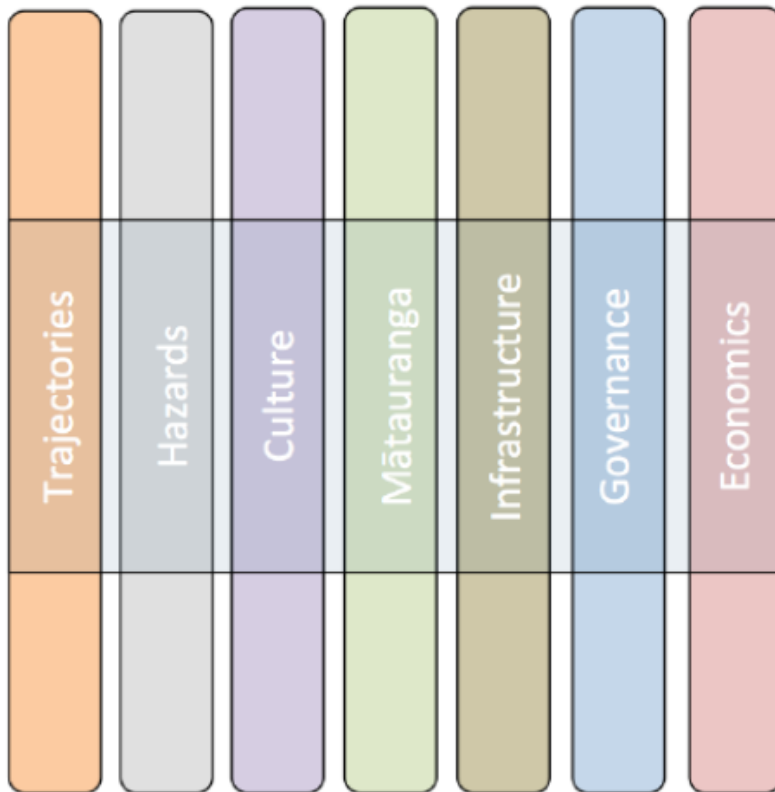


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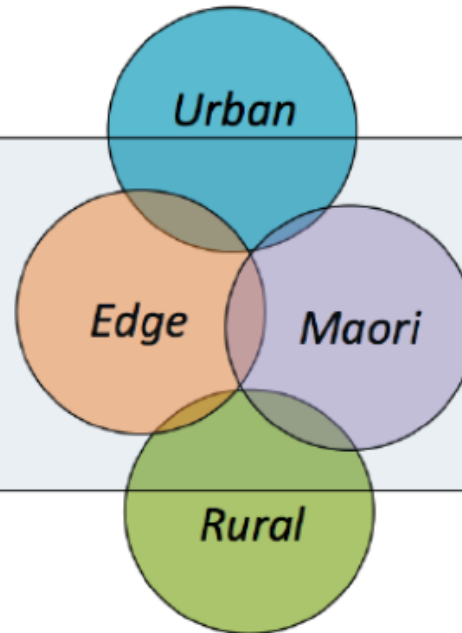
12:00 – 12:30pm	Lunch	
12.30 – 1.00pm	Workshop Session 1	All Attendees
1:00 – 1:30pm	Workshop Session 2	All Attendees
1:30 – 2:00pm	Workshop Session 3	All Attendees
2:00 – 2:15pm	Afternoon Tea	All Attendees
2:15 – 2.45pm	Workshop Session 4	All Attendees
2:45 – 3:15pm	Workshop Session 5	All Attendees
3:15 – 4:00pm	Discussion and Close	All Attendees

Research Strategy – Resilience to Nature’s Challenges

Underpinning Resilience Disciplines



Co-creation Labs



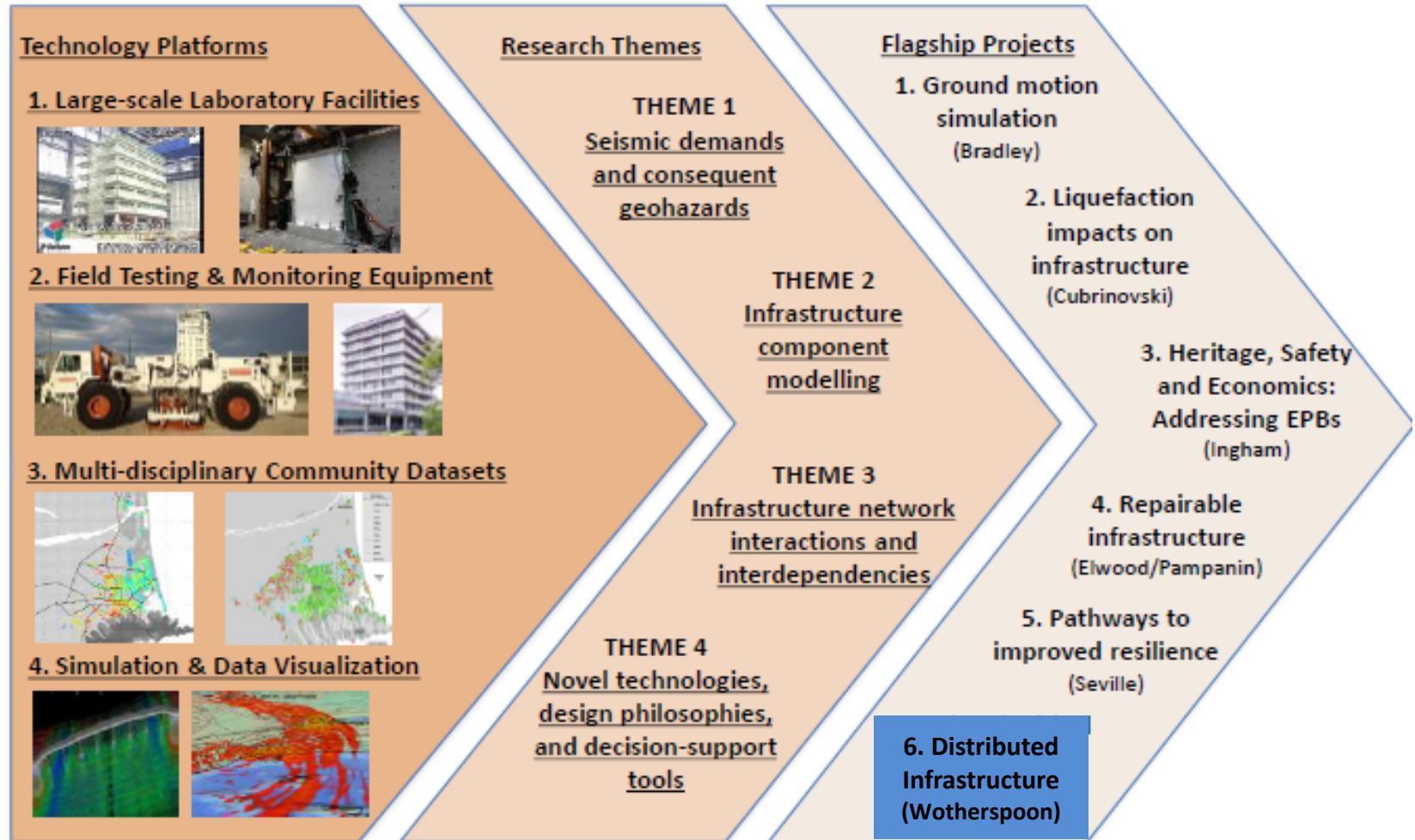
Priority Partnerships



**A Resilient
New Zealand**



Innovative Enabling Technologies



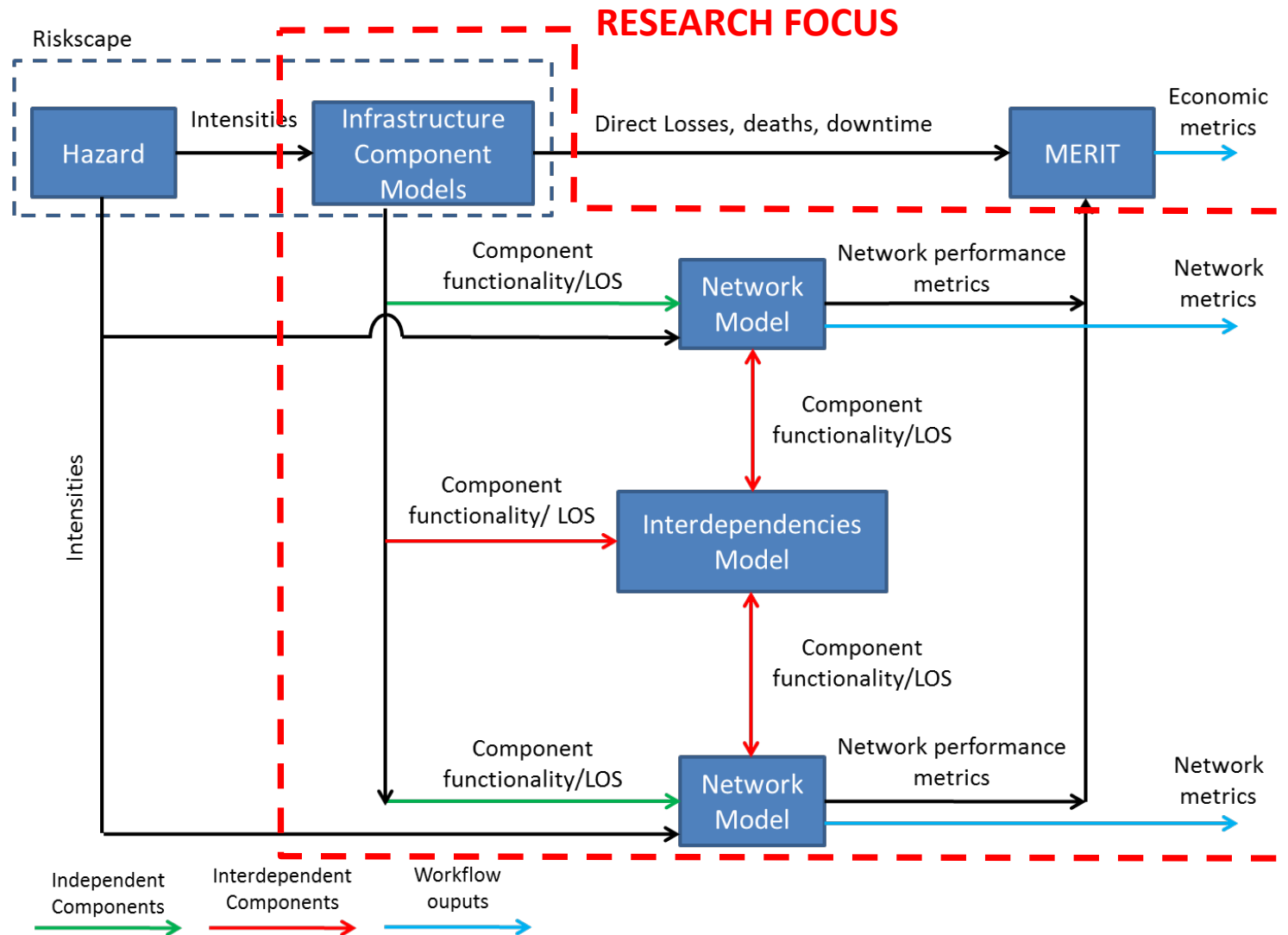
Distributed Infrastructure



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- Develop an improved understanding of the resilience of spatially-distributed infrastructure networks to extreme natural hazards
- Geologic and extreme weather related natural hazards
- Collaboration between Resilience to Nature's Challenges and QuakeCoRE

Distributed Infrastructure





1. Case studies and relevant hazards identified
2. Infrastructure datasets acquired
3. Methodology developed to quantify damage to networks
4. Simulations performed to quantify damage to networks and service disruption – do nothing scenario
5. Simulations performed to understand pre-disaster mitigation and post-disaster actions to minimise service disruption – do something scenarios

Urban



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1. NZTA Resilience Indicators tested on trial site in Auckland's transport network
2. Indicators tested broadly across the NZTA and AT transport network
3. Most vulnerable roads in Auckland's transport network identified



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NEW ZEALAND

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Thank You