NATIONAL SCIENCE CHALLENGE: Building Better Homes Towns & Cities

National Science Challenges: genesis

"We are keen for the public and the science community to tell us what they think are New Zealand's most important science challenges are over the next 5-10 years, so we can focus our investment on solving these challenges for the benefit of New Zealand" (Steven Joyce Minister for Science and Innovation November 2012)

National SCIENCE Challenges

The 11 Challenges

- **Building Better Homes, Towns and Cities**

Building Better Homes, Towns and Cities

"The knowledge created by this Challenge will transform our urban environments into more vibrant places to live and give us affordable, well-located houses and buildings that meet the demands of our diverse population and are resilient to change and shocks such as natural disasters."

Minister of Science and Innovation

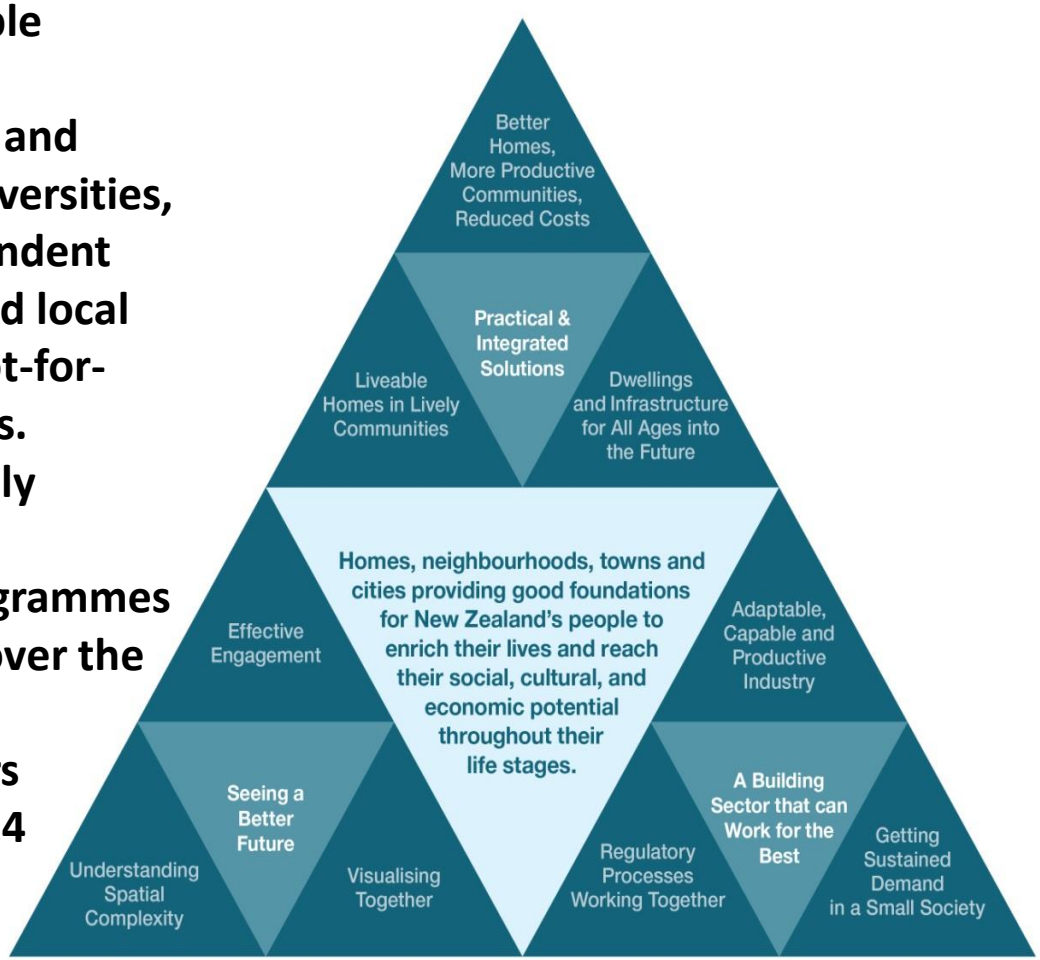
Vision

- **The Challenging Vision for this proposal is:**

- ***Ka ora kainga rua: Built environments that build communities.***
- ***Homes, neighbourhoods, towns and cities providing good foundations for New Zealand's people to enrich their lives and reach their social, cultural and economic potential throughout their life stages.***

Research Programme

- **Programme is structured around 3 Research Domains & 9 Research Pathways**
- **Domains and Pathways are linked, with research projects traversing multiple domains and pathways.**
- **The Challenge is multi-disciplinary and multi-organisational, including universities, Crown Research Institutes, Independent Research Organisations, central and local government, private sector and not-for-profit businesses and organisations.**
- **Detailed research design is currently underway**
- **The initial tranche of research programmes will be developed and confirmed over the next six months.**
- **Total budget is $47.9M over 9 years**
- **Timeframe – July 2015 to June 2024**



Six Strategic Research Areas

- 6 Themes:
  - Transforming Decision-making
  - Next Generation Data
  - Transforming the Building Industry
  - He Papakāinga Ora
  - Shaping Places
  - Connecting Across Scales for Success

Connecting Across Scales for Success

- What are the systematic drivers of success and lack of success of New Zealand's settlements?
- How can Māori connections across scales be enhanced to facilitate successful economic outcomes and enhance wellbeing?
- What forces and interventions cause some places to materially out-perform or under-perform compared to expected performance based on the identified systematic forces?
  - What 'works' and what hasn't 'worked'?
  - And is it replicable in other places and/or at other scales?

Connecting Across Scales for Success

- If successful interventions are replicable in other places at various scales, who may take on the intervention roles
  - i.e. who are the urban and regional regeneration stakeholders
  - What are their objectives
  - At what scale(s) should the interventions occur
  - And should they be coordinated across relevant networks of places?

- What information sharing mechanisms should be used to connect settlement regeneration practitioners and researchers from across the country to create a community of practice to share information about the development of successful urban regeneration and advance those approaches?

Hei Papakāinga Ora / The Potential of Papakāinga for Community Wellbeing

- The research proposes to unpick the complex history and barriers that continue to frustrate papakāinga development (in all its forms) and to highlight contemporary solutions.
- We will create a range of papakāinga typologies that reflect the diversity of people who want to live in them as flexible dwellings (which can change over time).
- The SRA will provide alternatives to individual home ownership on individual titles, which then challenge reductive, ‘nuclear family’ housing models as the ‘required’ standard across Aotearoa New Zealand.

Shaping Places: Future Neighbourhoods

- The overall objective of this SRA is to promote and enable development of innovative, collaborative and effective place-shaping practices and strategies to achieve better homes, towns and cities through two interrelated work programmes.
- The first programme involves the opportunity for longitudinal study and the evaluation of innovative neighbourhood developments as placed-based learning spaces, and evaluation of the roles played by a variety of stakeholders and end-users including the private sector and building industry, local and central government, policy-makers and planners, iwi and hapu, communities and NGOs.

Shaping Places: Future Neighbourhoods

- The second work programme evaluates factors that will impact on future neighbourhoods from a space-based perspective investigated through an enquiry by design process.
- Both work programmes are aimed at producing a Pātaka (toolbox) of strategies, methods and procedural guidelines to facilitate meaningful participation of end users and stakeholders in the building of future neighbourhoods. Impacts on the community will be studied in the short (with 3 years), medium (5-10 years) and long term (beyond 2025).

Transforming the Building Industry

- The challenge this SRA tackles is to create a healthy, smart and innovative building industry fit for the purpose for the 21st Century through reinventing the conservative, constrained, fragmented and inward-focussed building industry in New Zealand.

- This SRA will create a more productive and fit for purpose building industry that is capable of delivering value on multiple levels, and at all stages of the building lifecycle and with a competent workforce utilising quality products appropriately, guided and monitored by strong processes. The research will engage with industry to:
  - Co-create better technical solutions
  - Co-create products, tools and techniques that can generate better technical solutions for homes, towns and cities of the future.
  - Enhance skills and capabilities of people in the building industry, creating more and better employment options and thus additional social.
  - Re-engineer its delivery processes in order to streamline production and improve quality.

Next Generation Data

The premise to drive the development of better homes, towns and cities:

- What data are needed and available; who owns it and how (and by whom) is it being used; what are the access and intellectual property implications of privately owned data?
- In areas of limited information and resources, which data is essential to collect/collate?
- How can the essential new data be collected, standardised and managed to make it interoperable with other building and property data so that it is useful for end users?
- What are the different understandings of data, specifically by Maori?
- How can sensor and crowd-sourced data be used to help usefully inform urban decision making?
- How can data be used such that:
  - Organisations and people learn from each other's experiences
  - Appropriate, fit for purpose geospatial planning tools are developed
  - There is increasing knowledge available about where we live
  - Value is delivered to for policy makers, planners, communities & New Zealand?

Transforming Decision Making

- If our Challenge is to achieve more and better homes in smarter more liveable towns and cities, the decisions and the logics and the tools we use to make them will have to change.
- This SRA is focused on that aspect of the Challenge's transformational task and is framed around the architecture of decision-making. That is, who makes decisions that influence the functionality, accessibility and affordability of our homes and the productivity and liveability of our towns and cities, how decisions made by some affect the choices and decisions of others now and in the future, the sorts of logics and tools used by different players in this complex architecture, and how those together drive the functionality, performance and affordability of our homes towns and cities.

Transforming Decision Making

The research components of this SRA are directed to:

- Explaining how the relative positioning of these resources holders, critical actors, and regulating agencies, the path dependencies between them, the tools and logics they use to inhibit or promote desirable outcomes at various scales from homes to neighbourhoods to towns and cities.
- Identifying practical ways in which the relations between decision nodes and their logics and tools can be adapted, adjusted or developed in ways in which reduce inertia and perverse outcomes and encourage processes that build shared outcomes and logics, tools and practices which can achieve those outcomes.

Questions

- What are the issues, related to the challenge, that you think that are the most intractable; and where research would have a significant positive impact on developing solutions?
- What additionality would partnerships between end-users and the challenge add to achieving the challenge mission and improving outcomes for NZ? What would successful partnerships look like?
- What are the key opportunities for you / your organisation, as an enduser, to engage with the challenge?
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