

From: no-reply@mbie.govt.nz
To: [Research, Science and Innovation Strategy Secretariat](#)
Subject: Draft Research, Science and Innovation Strategy submission
Date: Friday, 8 November 2019 2:30:56 p.m.
Attachments: [Online-submission-form-uploadsdraft-research-science-and-innovation-strategy-submissionsubmission-form-RSI-strategy-FINAL-as-submitted.docx](#)

Submission on Draft Research, Science and Innovation Strategy received:

Are you making your submission as an individual, or on behalf of an organisation?

Organisation

Name

Richard Capie

Name of organisation or institutional affiliation

BRANZ

Role within organisation

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Which of the below areas do you feel represents your perspective as a submitter? (Please select all that apply)

If you selected other, please specify here:

Gender

Ethnicity

Name of organisation on whose behalf you are submitting, if different to the organisation named above

In which sector does your organisation operate: (Please select all that apply)

Research , Industry, Interface of research and industry

If you selected other, please specify here:

How large is your organisation (in number of full-time-equivalent employees)?

110

Please indicate if you would like some or all of the information you provide in your submission kept in confidence, and if so which information.

Please upload your submission document here

submission-form-RSI-strategy-FINAL-as-submitted.docx - [Download File](#)



Research, Science and Innovation Strategy

Submission form

The Government is developing a Research, Science and Innovation (RSI) Strategy to set out our vision for RSI in New Zealand and its role in delivering a productive, sustainable, and inclusive future.

We are keen to hear the views of New Zealanders on the draft Strategy so that we can get a better understanding of what our country needs from RSI. We also are looking for feedback on how we can take action to ensure New Zealand's RSI system is optimised for success. These views will inform the direction of Government investment in RSI and the research and innovation areas for us to focus on as a country, as well as help us understand the challenges we need to overcome.

We encourage anyone with an interest to make a written submission.

How to have a say

We have included a number of questions in the draft RSI Strategy document to highlight issues on which we would like further input. We encourage you to use these questions as a guide when submitting your feedback.

This document provides a template for you to provide your answers. Please upload the completed document using our [online submission page](#).

You do not have to fill out every section – we welcome submissions on some or all of the questions.

The closing date for submissions is 10 November 2019.

After the consultation period finishes, we will analyse the submissions received and incorporate the feedback in the final version of the strategy.

Confidentiality

Please note: All information you provide to MBIE in your submission could be subject to release under the Official Information Act. This includes personal details such as your name or email address, as well as your responses to the questions. MBIE generally releases the information it holds from consultation when requested, and will sometimes publish it by making it available on the MBIE website.

If you do not want some or all the information you provide as part of this consultation to be made public, please let us know when you upload your submission. This does not guarantee that we will not release this information as we may be required to by law. It does mean that we will contact you if we are considering releasing information that you have asked that we keep in confidence, and we will take your reasons for seeking confidentiality into account when making a decision on whether to release it.

If you do not specify that you would prefer that information you provide is kept in confidence, your submission will be made public. While we will do our best to let you know that we plan to publish your submission before we do so, we cannot guarantee that we will be able to do this.

BRANZ response to Research, Science and Innovation (RSI) Strategy consultation

Introduction

Thank you for the opportunity to respond to the consultation on the new Research, Science and Innovation (RSI) Strategy.

BRANZ's vision is "inspiring the building industry to provide better buildings for New Zealanders". BRANZ has a coherent and long-term strategy to support this vision, which is designed to keep pace with the emerging needs of the industry. BRANZ invests the Building Research Levy in research and knowledge dissemination initiatives to develop solutions to the issues facing the building industry.

The building and construction industry is of particular importance to New Zealand society and our economy. It accounts for around 6% of GDP and employs around 235,000 people. It is instrumental in delivering much needed new homes and commercial buildings. It has a key role to play in improving and re-purposing existing buildings. The performance of the industry touches all of us. All New Zealanders are affected, both positively, and negatively, by the homes and buildings in which they live, work and play.

It is well documented that the industry is struggling to meet current demands for high-quality homes and buildings. Government and industry are working hard to address this through activities identified under the Construction Industry Accord. Looking ahead, future demands of the industry look set to place further demands on a sector already struggling to meet existing needs. New challenges will come to the fore as society moves to accelerate its response to significant issues such as climate change.

It is therefore pleasing to see the contribution of the built environment to New Zealand society being identified amongst national priorities in the proposed RSI strategy. Our science system needs to recognise the importance of the built environment to our living standards and the importance of research to improve its performance.

BRANZ's response to this consultation is tailored. We provide comment on the following areas:

- Contribution of Research, Science and Innovation
- Researching and innovating towards the frontier
- Guiding Policy – Excellence
- Guiding Policy – Impact
- Guiding Policy - Connections

Contribution of Research, Science and Innovation

This strategy is about New Zealand's Research, Science and Innovation (RSI) at a high-level. Its aim is to identify challenges and opportunities that will have the broadest impact on our research and innovation activities. For this reason, it mentions few specific areas or sectors of research and innovation. For this draft version of the Strategy, we are keen to hear from researchers, innovators, businesses, and providers of public services on what the RSI system could be doing to accelerate progress on Government's priorities.

BRANZ is supportive of the focus of the RSI system on key national priorities. This mirrors the approach that BRANZ has implemented with its portfolio model.

The building and construction industry is of particular importance to New Zealand society and our economy. The living standards and wellbeing of New Zealanders and the vibrancy of our regions, towns and cities are inextricably linked with our buildings and the places they help shape.

The building and construction sector has a key role to play in underpinning two of the key priority areas discussed in the consultation.

Transition to a clean, green carbon neutral New Zealand

- New Zealand's absolute contribution to global emissions is small, but our per-person gross emissions are one of the highest among developed countries.
- It has been estimated that buildings are directly and indirectly responsible for up to 20% of New Zealand's greenhouse gas emissions.
- These emissions arise from many sources. These include the manufacture and transport of the materials used in construction. They also include the use of fossil fuels for heating and cooking and the use of electricity for space heating and cooling. Water heating, lighting and plug loads all contribute to our emissions.
- If New Zealand is to meet our zero-carbon goals the building industry needs to have the information and support required to play its part. It needs support for better informed decisions about the products and material used. Science and research has a key role to play in underpinning a successful transition to a low carbon built-environment.
- BRANZ has a strong track-record of both investing in and carrying out such research. Using the Building Research Levy, BRANZ has invested for many years in work to support the industry to improve its sustainability performance. With growing awareness of climate change and the importance of carbon, our work has accelerated and re-focused. BRANZ is currently investing and driving forward a national programme of work to develop cost effective low carbon solutions for new and existing dwellings. This work is critical if New Zealand is to decarbonise across the building lifecycle, implement cost-effective solutions and encourage leadership to manage the built environments contribution to climate change. This national programme of work is underpinned by Building Research Levy investment. It is tapping in to existing national and international expertise as well as investing in the much-needed next generation of researchers.
- BRANZ's research around the built environment and climate change is the cornerstone of much of our understanding in New Zealand. It has been highlighted by the Productivity Commission. It is informing policy at Ministry for Business, Innovation and Employment (MBIE) and the Ministry for the

Environment.

- The research we conduct and invest in has a strong emphasis on providing industry solutions. In this, we feel we have a key responsibility in ensuring that our research provides accessible, actionable knowledge. To this end, we have used our science to develop tools to support the industry to change. For example, our tool “LCA Quick” enables designers to assess the whole of life cycle environmental impacts of building designs, including climate change. This tool is increasingly being used by a range of end users.

Ensure everyone has a warm dry home

BRANZ’s research has, and continues to play, a leading role around warmer, drier, healthier homes and buildings. The performance of New Zealand’s housing stock is a key focus of BRANZ’s portfolio. It is an area where BRANZ has a long, highly respected track-record of research. Most recently this has been driven forward through a multi-year programme of work in this area. A core component of this is New Zealand’s key longitudinal research in this area – the House Condition Survey. This Survey provides over two decades of information about New Zealand’s housing stock. As such, it is the key source of information of the performance of New Zealand homes. It shows that:

- Around 50% of New Zealand homes are affected by mould;
- Bedroom temperatures measured by BRANZ in homes across the country showed that 84% of the bedrooms were below 18°C between 11 pm and 9 am;
- Results from repeated condition assessments show that the rental housing stock is typically in a poorer state of repair than owner-occupied houses;
- Only around two-thirds of homes are even partially insulated;
- Installing insulation may save up to 129 lives per year and see ongoing health benefits of \$500 million.

BRANZ’s research has been instrumental in supporting recent policy changes targeting improvements in New Zealand homes. The evidence base provided by BRANZ has underpinned changes to the Residential Tenancy Act and the development of the Healthy Homes Guarantee Act. We have also played a leading role in providing evidence to MBIE to support Building Code changes. Most recently BRANZ has been working closely with Statistics New Zealand, MBIE and the new Ministry for Housing and Urban Development to further enhance our ongoing understanding of housing condition and its impact of New Zealanders lives.

What else could be done?

BRANZ suggests there are a number of ways the RSI system could do more to support and accelerate the priority areas outlined in the consultation.

First and foremost, there is an opportunity for MBIE to consider how it can better focus its research investments on these key areas.

The research activities outlined above have been critical to making in-roads on these key national issues. The activities described have been overwhelmingly funded by the Building Research Levy with some limited government research investment.

BRANZ would welcome the opportunity to explore with MBIE further ways to leverage Building Research Levy investment alongside MBIE investment. We feel there is an opportunity to grow the total investment in research by the building industry on the key issues identified in this consultation.

There are excellent examples of where previous MBIE science investment has been able to

partner with Building Research Levy investment. For example, joint investment was critical in kick starting the Household Energy End-Use Project (HEEP) and the Building Energy End-use Study (BEES).

Looking beyond investment, we also feel there is an opportunity for MBIE to help ensure that policy settings encourage improved collaboration and co-operation on these key national matters. Competitive science funding rounds can be costly to operate and engage with. Competition between institutions can undermine a “right team” approach.

This is a core part of BRANZ’s investment ethos and approach. We are committed to a right team approach and working to ensure that we make the best use of the capability available in the science system. It is also reflected in the mindset we have brought to our work as the host of the National Science Challenge on Building Better Homes Towns and Cities.

We welcome the recognition in the consultation on the importance of unlocking and deepening collaboration amongst New Zealand’s research communities.

Researching and innovating towards the frontier

Do you agree that the RSI Strategy should be focused on innovation at the “frontier” (creating new knowledge) rather than behind the frontier (using existing knowledge to improve the ways we do things)?

The building industry in New Zealand faces a range of challenges. These include low productivity, an environment of very significant natural hazards, population increases and a movement to higher-density housing. There continues to be a strong demand for practical solutions and new ideas backed by solid testing and research. Much of BRANZ’s current work is responding to these issues and is highly valued by industry and stakeholders.

Our experience of working with an industry where there is an acute demand for solutions suggests there is a need for balance between frontier and behind the frontier research.

A science system that is skewed too heavily towards innovation at the frontier or creating new knowledge can fall short in ensuring that existing insights are fully utilised.

BRANZ is committed to ensuring that our research is both accessible and actionable. This means that when we are looking at our portfolio we also place considerable emphasis on looking at research uptake and usage. We want to ensure that our research is well used and delivers impact and change. We increasingly recognise that research investment needs to be framed more broadly – it needs to include solutions that utilise research and deliver behaviour change.

Since 2014 BRANZ has been undertaking a rolling programme of impact assessments. This has helped us quantify the impact of our work and highlight areas where our portfolio requires adjustment.

Our impact assessment approach has also highlighted where “completed” research is still able to deliver impact, but where further work is required. This has highlighted for BRANZ the importance of striking a balance between developing further (new) knowledge and ensuring that existing knowledge is fully utilised so that impact can be achieved. Based on this experience, we would urge some caution in putting too great an emphasis on frontier research at the expense of behind the frontier.

Guiding Policy – Excellence

Do you agree with the definition of excellence presented here as the best thing possible in its context? Why or why not?

BRANZ is broadly supportive of the definition of excellence provided in the consultation.

We welcome the recognition that excellence is a term that can apply just as easily to applied research as it can to basic or fundamental investigation.

We also agree with the three broader pillars of excellence identified in the consultation, People, Global outlook and Partnership. In considering these three pillars there are a number of observations we would make:

People - As an organisation BRANZ has a strong commitment and focus on attracting, developing and retaining a highly skilled and diverse workforce. Our commitment to developing our own research excellence is enshrined in a “scientific growth” model that was co-designed by our researchers and management. It provides clear pathways for our researchers and technical staff to explore what research excellence means in their context of their careers and work. We feel that this broader experience of research excellence needs to be more clearly acknowledged and recognised in our RSI system. Not all researchers will publish in academic journals. Some do not work in institutions where their outputs are directed in this way. The focus of their efforts will still be on high-quality science, reviewed and respected by their peers, but with a heavier focus on practical implementation. In looking at the breadth of New Zealand’s research community, we need to ensure that we recognise excellence in our people beyond narrow, traditional metrics such as publication. If we are looking to foster a culture of research impact, we should be including in our understanding of excellence an assessment about the role of researchers in delivering change.

Global outlook – BRANZ is proud of the contribution we make to international building research through collaboration with colleagues across the world. The expertise and insights we share with colleagues in the Pacific, Asia, North America and Europe is valued and respected. We also enhance our own research expertise through our international relationships. While New Zealand has particular environmental, cultural and social characteristics that are unique, our work benefits from international knowledge, techniques, standards and products.

Partnership – BRANZ has strong national and international networks and relationships which enable us to develop, test and shape our research. We collaborate with other research organisations in authoring work which is published. In considering the RSI strategy, we feel strongly that the characteristics of partnership set out in the consultation (p26) are too narrow. There is an overwhelming focus on publication and co-authoring of work as evidence of what excellence in partnership looks like. This feels like a missed opportunity, in particular in light of other priorities set out in the RSI strategy. Excellence in partnership should be framed more widely. BRANZ is currently collaborating on joint research with over 30 other New Zealand research providers. While publications may result from this work, the motivation and intent behind these partnerships is a more important characteristic to emphasise. Our goal is to work closely with industry and government partners in the design and delivery of our research. We do this because we know that co-design is fundamental to helping to ensure that the benefits and impact of

our research can be maximised. We feel these broader considerations should be reflected much more clearly in the characteristics of what excellence in partnership looks like.

PROACTIVELY RELEASED

Guiding Policy – Impact

How can we improve the way we measure the impact of research?

BRANZ does not have a strong view about how MBIE can improve the way it measures the impact of research. What we can share is our approach to measuring impact and some insights that have come from this. This is an applied model that has been in place since 2013/14. It is a model that continues to evolve as BRANZ learns from the impact work we have undertaken. Understanding the impact of our research is a core component of our commitment to effective stewardship of the Building Research Levy.

In 2013 BRANZ commissioned Motu to develop a framework for BRANZ to help us assess and monitor the impact of our research. We note, many facets of this model have also been picked up in subsequent MBIE impact thinking.

In applying this framework, BRANZ now takes an end to end approach to impact.

At the front end there is a “design for impact” approach that places a clear emphasis on designing research with impact in mind. Our investment signals are explicit about the weighting given to co-design and impact pathways. Research proposals are developed with stakeholders - from proposal generation through research implementation. There is a strong emphasis in our assessment about clarity around target audience and consideration given to accessibility of research. We require proposals to set out their impact aspirations (as much as is possible) and these are reviewed during proposal assessment.

Once research has been complete BRANZ conducts impact assessments. Since 2014 BRANZ has been undertaking a rolling programme looking back on finished research. These “impact reports” look back on research to assess whether the desired impact from the work has been achieved. This involves interviews with stakeholders and end-users to explore how the research is being used and what difference it is making. This work has a strong focus on looking beyond use and uptake. The aim is to assess whether change and improvements have been achieved and whether the impact goals of the research have been met. This has been a learning process and has prompted us to reflect further on what we mean by research being “complete” or “finished”.

This work has highlighted strong examples of where BRANZ research has delivered impact that can be quantified. These provide us with information we can share with our stakeholders and researchers to celebrate the difference our work and Levy investment is making.

We also identify areas where impact hasn't been achieved. Through this work we have been able to revisit these projects and explore why this is the case. Sometimes the research may not have been successful. As an organisation we want to learn from this. Other times it can be that the need has changed and the work does not need to progress further. We also find that sometimes the research still has potential to deliver change, but for one reason or other things may have stalled. In these instances, we actively look to identify the further action required – from BRANZ, end-users or stakeholders. As discussed earlier, this “behind the frontier” effort can be instrumental in ensuring that the research is fully supported to deliver impact – action that is beyond the research itself.

As an organisation BRANZ is committed to focusing on how our work makes a difference and continuing to assess what “impact” looks like for our research. A key learning has been that we have identified that to shift industry behaviours requires more than just

accessible and actionable information. At times it needs complete solutions that drive system wide improvements. Under our new strategy, we have identified the need to have the capability to understand underlying behaviours and influence behavioural norms in the industry using a range of models and theories.

PROACTIVELY RELEASED

Guiding Policy – Connections

Where do you think weak connections currently exist, and what are the barriers to connections at present?

We agree that a key challenge for the RSI system (and indeed other systems) is connectivity and connections. The basis for our support for this statement is BRANZ's insight from our own developing work around systems thinking.

BRANZ has been undertaking significant work exploring a systems approach to the building and construction industry. The insight from our work has led to systems thinking being embedded as a new priority in our business strategy.

This has highlighted to us the critical importance of understanding the interactions of all parties that have any interest or stake in the built environment. This includes providers, suppliers, customers, building users, regulators, financiers & insurers. Our systems work has challenged us to thinking much more laterally about the connections that are critical to improving the industry. It has highlighted that while we have excellent connections in some areas, we also have weak connections that need addressing.

Understanding these connections is fundamental to being able to identify pain points and move to address systemic issues.

While the building and construction system is a different system to the RSI system, inter-relationships and connectivity is a common challenge.

From our experience of undertaking our own systems mapping and systems thinking we feel this approach could also add value in improving connectiveness and success in the New Zealand science system. It may provide different insights and challenge assumptions around key connections required to make the system a success. Mapping the system and making this visible can help identify critical connections and uncover where these are falling short.

We also recognise that real and sustained system improvement will require a concerted effort by many system players, not just MBIE. However, as stewards of the RSI system, MBIE can play a key role in supporting change to happen and tracking whether improvements are taking hold. In this, we can see a stronger role for MBIE to be more active in working with system players to buy into a vision and work towards the goals for the RSI system set out in the consultation.

This could apply at the system level, but it could also apply (and the behaviours could be modelled) at a targeted level around the national priorities set out in the consultation. Where connections are fragile or weak, we feel there could be a more active role for MBIE to actively broker connections amongst the research community. For example, using its influence and expertise to help create opportunities to bring people together to focus effort on these key national issues.

PROACTIVELY RELEASED