FoodHQ submission to MBIE:

Te Ara Paerangi - Future Pathways Programme Green Paper

14 March 2022

FoodHQ welcomes the opportunity to provide a submission to MBIE on the Te Ara Paerangi - Future Pathways Programme Green Paper.

1. Introduction to FoodHQ

FoodHQ is a collaborative partnership involving most of New Zealand's capability in food science-based innovation, and includes public and private sector research, education and industry organisations. It is headquartered in Manawatū with extensive national and international networks.

FoodHQ was founded by AgResearch, Plant & Food Research, Massey University, The Riddet Institute, Fonterra and The Factory, along with the respective local authorities in Palmerston North and Manawatū, and the Central Economic Development Agency. Other partners have subsequently joined including Cawthron, ESR, Sprout, B.Linc and the New Zealand Food Safety Science and Research Centre.

Inspired by Foodvalley in Wageningen (The Netherlands) but adapted for the New Zealand context, FoodHQ aims to facilitate food and beverage companies to embed science and technology within their innovation pathways, enabling the development of premium, differentiated and validated products.

FoodHQ works to encourage collaboration and knowledge sharing across its Partner organisations and more broadly. In 2021, FoodHQ facilitated pan organisation discussions and actions on some of the key topics for New Zealand's food sector, including emerging proteins, sustainable packaging and the application of genetic technologies within the agrifood. It also seeks to identify gaps and new opportunities for the development of our food and beverage ecosystem, and has been focusing recently on a range of activities related to the diversification of New Zealand's protein sector.

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2. Aspects FoodHQ is pleased to see addressed in the Green Paper

Many of the comments within the Green Paper resonate with our own observations regarding the challenges and opportunities for the New Zealand RSI sector. These include the value of connections (both within New Zealand and internationally), the importance of world class facilities and capability in talent attraction and retention, and the need to make it easier for New Zealand businesses to access the full value of our science and innovation ecosystem. These observations were key to our Partners' decision to establish FoodHQ in the first place, and remain key to their decision to continue to support FoodHQ in 2022 and beyond.

We agree that while there are many aspects of the current system that work well, there are aspects that are not delivering the desired outcomes and that it would be of benefit to New Zealand for the former to be strengthened and the latter to be improved.

Other aspects that FoodHQ is particularly pleased to see discussed in the Green Paper include:

a) Setting of research priorities that clearly articulate areas of national importance and underpins longer-term certainty for researchers and stakeholders.

b) Provision of enhanced career pathways for researchers, and the attraction of more talented young people into RSI related careers, something that has been a focus for FoodHQ also.

c) More efficient use of infrastructure through co-location or shared use of research assets in order to minimise unnecessary duplication, hopefully to not only reduce costs but also increase the potential quality of new assets.

d) Embedding of Te Tiriti and Te Ao Māori throughout the RSI system. We look forward to deepening our understanding of how this will work in practice.

3. Areas for further discussion

Some areas that FoodHQ would like to see further discussions on prior to the finalisation of changes to the RSI system are discussed below. A summary of the Recommendations is provided in the Appendix.

a) **The importance of government funding for applied RSI in order to achieve impact.**
FoodHQ would like to emphasise the importance of applied RSI in the New Zealand context. We define applied RSI as that which is driven by the impact it aims to make or the change it seeks to achieve and is within line-of-sight of achieving this. In most cases, applied RSI builds off existing knowledge but requires the development of new information and insights that enable the knowledge to be tailored to specific circumstances.

We cannot lead the world in everything related to RSI, nor do we need to. There are some areas where 'new to the world' RSI can be very valuable, for instance where we have a unique situation that requires a unique solution and no one else is going to fund the work required to achieve that; or where we see a feasible opportunity to capture additional benefit for New Zealand through the development of the new knowledge.

However, in many instances it would be more efficient and effective in terms of achieving impact for New Zealand to be undertaking applied RSI that starts with existing knowledge (generated here or overseas) and seeks to bridge the gaps to enable its successful application in a New Zealand context.

A balanced portfolio of applied RSI requires a range of levels of government and industry funding options. At the moment, applied RSI projects fall through the gaps in our science system. The Endeavour Fund assessment criteria generally equates scientific excellence with 'new to the world' knowledge, and funds such as Sustainable Food and Fibre Futures or Callaghan Innovation Project Grants require significant industry co-funding.

We feel that there is a lack of awareness of how challenging, potentially risky but ultimately necessary this type of applied science can be, and of the disadvantages to NZ Inc of requiring significant co-funding from individual (generally large) companies who then (understandably) expect at least some degree of exclusivity.

We believe there are significant opportunities for government to support industry to increase innovation uptake and thus increase the impact achieved per $ investment by funding more applied RSI projects, including more of these with a broader NZ Inc lens.

FUNDING theme recommendation: Applied RSI projects fall through the gaps in our current funding system due to the emphasis on 'new to world' knowledge or significant co-funding requirements. A new funding mechanism is required for potentially high-impact applied RSI to be realised, especially for small or emerging sectors.

b) The importance of considering the end users of the RSI in its design and implementation.

Much of the Green Paper appears to come from a perspective of public good research, which is an important part of the New Zealand RSI landscape; but does not acknowledge the significant amount of RSI undertaken by and for other end users, including NZ firms who ultimately drive value for New Zealand.

We would like to see more explicit recognition of the value of an end user focus, including the need for input from end users (which will include industry and overseas or local consumers at relevant parts of the value chain) into the broader RSI process, including the establishment of priorities. It is important that as well as current end users, future end users are included in this process (younger generations, emerging sectors, etc.).

PRIORITIES theme recommendation: There needs to be explicit recognition of the value of an end user focus. End users (both current and future) should have a strong voice in the establishment of priorities.

c) The importance of a balanced, stable and responsive RSI portfolio.

We agree with the idea of creating national priorities, and that a portion, but not all, of New Zealand's RSI capability should be directed towards those priorities.

Within each priority, there needs to be a balance of different types of RSI (i.e. fundamental, strategic, applied). The funding commitment for a priority area will need to be sufficiently long (i.e. 10 years) to support the development of capability and capacity, but with sufficient flexibility in the scope to enable responsiveness to the new information and changes in external environment that will inevitably happen over such a period. When an area is to be no longer considered a priority, there must be sufficient lead-time and support for the RSI workforce to be upskilled and/or redeployed.

It is vital that there be funding available outside the priority areas. It is essential that there is opportunity for researchers to have some freedom to explore new ideas and support emerging industries. We need to retain enough diversity to enable resilience within both our RSI ecosystem and our broader society and industries, as well as protecting the ability to respond to new opportunities and challenges.

As alluded to above (3b), ideally end users should be able to access RSI in areas outside the priorities which are still of importance to them, especially where there is a broader New Zealand benefit. However, it is understandable if this is at a smaller scale and/or requires a more significant contribution to the work from the end user than would have been possible within a priority area..

PRIORITY theme recommendation: New Zealand needs a balanced portfolio of RSI activity spread across different levels of risk, time horizons, sectors and end users. Long term commitments of portion of RSI funding to priority areas will support the development of critical mass in capability and capacity. But RSI funding must also be available outside of priority areas to provide resilience and enable future-proofing of the RSI system.

d) The importance of food and fibre as a priority area for New Zealand RSI.

We agree with the idea of creating national priorities, and that a portion, but not all, of New Zealand's RSI capability should be directed towards those priorities. We believe than New Zealand needs a balanced portfolio of RSI activity spread across different levels of risk, time horizons, sectors and end users.

We understand that MBIE has a lot to work through in its Future Pathways process, and at this stage we do not know what areas MBIE will choose as strategic priorities. However, there have been concerns expressed by many FoodHQ Partners, stakeholders and collaborators that MBIE is categorising New Zealand's food sector as 'old economy' and that it will subsequently not feature as a strategic priority area for RSI.

FoodHQ would like to note that food is a critical part of the key RSI strands of sustainability and social wellbeing, New Zealand already has a significant amount of established internationally-relevant RSI capability and capacity, and the sector is already at scale terms of employment and export earnings. Yes, there are challenges ahead for the sector, but also massive opportunities for New Zealand to leverage its existing strengths in food and fibre to set us up for long term future success. RSI is at the heart of this success.

PRIORITIES theme recommendation: Food is a critical part of the key strands of sustainability and wellbeing and is already at scale with established RSI capability. There are challenges that need addressing and enormous opportunities to be realised, many of which require RSI. Food should be at the core of one of New Zealand's RSI priorities.

e) Learning from others – but adapted to the New Zealand context

New Zealand is not alone in grappling with the challenges outlined in the Green Paper. FoodHQ strongly supports looking at what has (or has not) worked overseas, while ensuring that we do not lose sight of the specific New Zealand context and how this may impact the effectiveness of solutions employed elsewhere.

A couple of examples of the insights previously provided to MBIE from FoodHQ's discussions with our international colleagues (including Foodvalley, Wageningen University and Research, Unilever, Nestle, Arla and others) that are still pertinent to this conversation are: -

- That 'magic happens' at the intersection of areas of deep expertise, and that the logical way to achieve this is to support the development of concentration and critical mass with a model that facilitates collaboration and the connections of science to business in order to disperse knowledge, particularly into regions.

- There is a virtuous circle of excellence - facilities, capability, research, talent attraction/retention and funding. Once this circle gains momentum it continues to strengthen, as high quality and exciting research attracts top people from across the world, who come up with exceptional ideas generating impact and attracting funding from both government and industry and further enables investment in gold-standard facilities and high-quality research. The challenge is in getting this cycle started, which usually requires significant investment over an extended period. The amount of investment and the time frame it is needed over will vary significantly depending on the depth, breadth and calibre of the existing capability and facilities in a particular area.

- The above two points apply both to virtual clusters and those where there is physical co-location. International best practice demonstrates that although virtual collaborations are increasingly common, there is significant value in a physical 'concentration of critical mass and specialist capability'. However, it is also vital to have a physical presence close to and accessible by end users, especially for more applied RSI. In the last few years, Wageningen has moved to a 'hub and spoke' model, with its strong main campus complemented by regional satellite sites co-located with end users.

  Food is a key area where New Zealand already has a strong RSI and industry foundation in place. In addition, New Zealand's most significant existing concentration of RSI capability is in Manawatū and focuses on food. There are already extensive national connections to regional sites co-located with end users from various sectors. There are also well-established international connections to most of the leading RSI organisations in food related disciplines. This provides an established platform from which to efficiently and effectively build and should not be lost as we look to the future.

<u>INFRASTRUCTURE theme recommendation</u>: International best practice suggests the most impact is achieved through leveraging concentration, critical mass, collaboration and connection to business – which can be achieved through a combination of virtual and physical clustering of expertise. The hub and spoke model also recognises the importance of being accessible to end users. The most significant existing physical cluster of RSI capability in New Zealand is in Manawatū and focuses on food. It already has extensive national (and international) linkages.

4. Existing FoodHQ knowledge base on accelerating and enhancing the RSI system related to food.

While we do not wish to get ahead of the process, should it be decided that food was to remain a priority RSI area, then there is a significant body of work that FoodHQ has undertaken in recent years that may provide a useful starting point in identifying key areas of focus and new initiatives.

One component of this work is the FoodHQ PGF application *Whāia te pae tawhiti kia tata mai: Future-proofing the New Zealand food industry through science-based innovation.* This sought co-funding for activities that further intensify and accelerate development of the Manawatū Science and Innovation Campus (as New Zealand's centre of gravity for food science and innovation) into a global 'top 5' centre for research, development and commercialisation of food products. Its operational model was designed to translate access to and benefits from the enhanced capability across New Zealand, with a focus on regional and Māori businesses.

The proposal was designed to:

- Future-proof New Zealand's food science capability.
- Accelerate rates of science-based innovation in New Zealand food businesses.
- Enrich extension to and engagement among food sector participants.
- Unleash the collective potential of the FoodHQ Partners for the development and growth of the New Zealand food sector.

A graphic summarising the various elements of the application is shown in Figure 1.

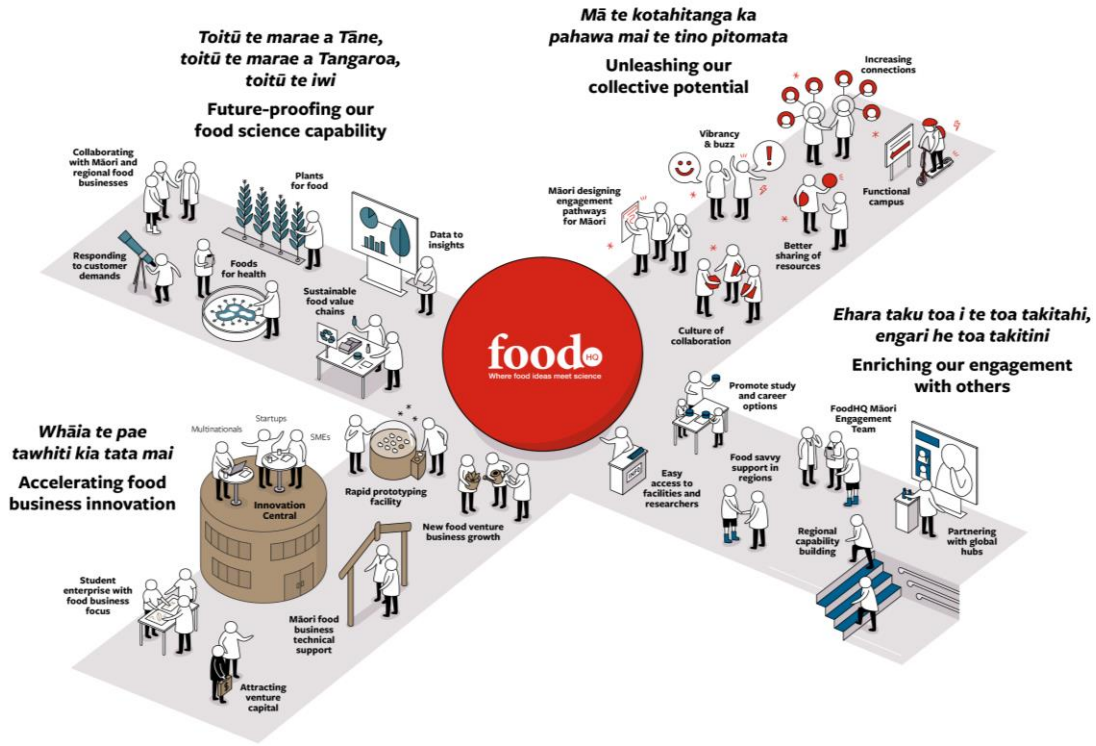


Figure 1. A summary of the key initiatives within the FoodHQ 2019 PGF application.

While this was not successful in obtaining the funding sought from the PGF, the development of the proposal catalysed discussions between FoodHQ Partners and the wider food and beverage sector and identified a range of key initiatives to achieve these goals. Many of these are closely aligned with the ambitions of MBIE for the RSI sector as outlined in the Green Paper.

We have continued to further develop our ideas since then, and would welcome the opportunity to discuss these with MBIE

5. Concluding remarks

There is much within the Green Paper and the proposed outcomes from it that FoodHQ is very positive about. As is often the case, it will be in the translation of the high-level principles into the details where it is more likely that different opinions will come to the fore.

FoodHQ Partners strongly believe that success in our food sector will be key to New Zealand's short, medium and long term success, and that RSI is a vital part of that. We have gathered an extensive knowledge base related to how to accelerate and enhance our RSI related to food over the past few years, and would welcome the opportunity to share some of our insights and ideas with MBIE for their consideration.

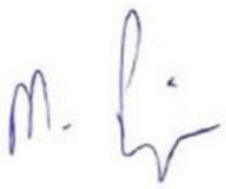
FoodHQ understands that MBIE is currently engaged in seeking feedback on the Green Paper, and that this feedback needs to be worked through before the details of strategy, implementation and execution become the focus.

We look forward to further opportunities to engage with MBIE as the implementation pathways and frameworks are developed.

6. Signatories

This submission on MBIE's Te Ara Paerangi - Future Pathways Programme Green Paper is signed on behalf of the FoodHQ Partners by the FoodHQ CEO and Chair.

Abby Thompson
FoodHQ CEO



Mark Piper
FoodHQ Chair

Appendix: Summary of Recommendations

Theme	FoodHQ Recommendations
Priorities	There needs to be explicit recognition of the value of an end user focus. End users (both current and future) should have a strong voice in the establishment of priorities. New Zealand needs a balanced portfolio of RSI activity spread across different levels of risk, time horizons, sectors and end users. Long term commitments of RSI funding to priority areas will support the development of critical mass in capability and capacity. RSI funding must also be available outside of priority areas to provide resilience and enable future-proofing of the RSI system. Food is a critical part of the key strands of sustainability and wellbeing and is already at scale with established RSI capability. There are challenges that need addressing and enormous opportunities to be realised, many of which require RSI. Food should be at the core of one of New Zealand's RSI priorities.
Funding	Applied RSI projects fall through the gaps in our current funding system due to the emphasis on 'new to world' knowledge or significant co-funding requirements. A new funding mechanism is required for potentially high-impact applied RSI to be realised, especially for small or emerging sectors.
Infrastructure	International best practice suggests the most impact is achieved through leveraging concentration, critical mass, collaboration and connection to business – which can be achieved through a combination of virtual and physical clustering of expertise. The hub and spoke model also recognises the importance of being accessible to end users. The most significant existing physical cluster of RSI capability in New Zealand is in Manawatū and focuses on food. It already has extensive national (and international) linkages and should considered a critical part of the future RSI focus.
All themes	FoodHQ has undertaken significant work looking at how the existing food RSI ecosystem could be leveraged to create significantly more value for New Zealand. Much of our thinking was captured in the 2019 FoodHQ PGF application *Whāia te pae tawhiti kia tata mai: Future-proofing the New Zealand food industry through science-based innovation.* We have continued to further develop our ideas since then, and would welcome the opportunity to discuss these with MBIE.