



**Winston Churchill Memorial Fellowship
December 2019/January 2020**

Best Practice in National, Virtual Scientific Networks



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Churchills' War Rooms, London



Best Practice in National, Virtual Scientific Networks

Executive Summary

In order to “understand national, virtual, scientific network best-practice in governance and management in well-established UK and North American networks to compare with and apply to the New Zealand context”, in December 2019/January 2020, I was privileged to travel over 27,000 miles, visiting 26 people within 16 organisations in six countries, to listen to, learn from, talk to and establish connections with a succession of committed individuals across a variety of Networks and organisations during the Northern Hemisphere winter. Despite the challenges of jet-lag, rain, hail, sleet and heavy snow, I was stimulated and energised by the meetings I had set up. I was humbled by the time and effort my hosts put into arranging involvement of colleagues to ensure I was exposed to a breadth of experience.

The Networks visited encompassed the food sector, forestry sector and agricultural sector, the nature of the structure being the factor of greatest importance, with the scientific discipline less so. Introductions to appropriate networks and individuals were provided by senior members of the NZFSSRC network. Other organisational meetings, leveraged from these introductions, provided a strategic perspective to inform this Fellowship.

The areas of interest discussed at Fellowship meetings ranged across governance, operational and research management, stakeholder engagement, communications and outreach and key issues. Some valuable insights were gleaned as a consequence of meeting with such a broad range of experts. This report with its 19 recommendations has been disseminated to the NZFSSRC Governance Board and will be considered and next steps determined at its meeting on 26 June 2020. The reach of this report is broad, particularly given the industry, government, academic and Trans-Tasman composition of the Board.

Examples of best practice observed during my Fellowship include the UK Food Standards Agency’s open-access system; overtly building legacy-thinking into Government-facilitated research funding bidding processes resulting in tighter focus on desired project outcomes; the EU’s contractual foundations for projects while on the one hand, are comprehensive and time-consuming to develop, streamline project management activities in the medium to long term. The commonalities across networks in terms of governance, structure, review processes and international collaboration are affirming for the New Zealand context. There was a desire across the researchers and individuals I met with to collaborate with Kiwis – our work and our people are well respected internationally. In the New Zealand food safety-specific eco-system, the issues we are dealing with are common across the institutions I met with; traceability, governance and management of data, climate change, confidentiality and commercial sensitivity of publicly-funded projects, food waste, consumer-driven changes in diet, labelling, preservatives and packaging, and food fraud are prime examples. A key take-home message for me was the commonality across the pain points and key issues that relate to the evolution and lifecycle of virtual networks. These include security of funding, industry’s desire for immediate outcomes vs longevity of the research and development process, reluctance by industry to invest in research, the impact of confidentiality provisions on sharing knowledge and the residual legacy of projects. And lastly, whether in Canada, the USA, Belgium, Scotland, the Netherlands or New Zealand, we are all human, doing the best job we can with the resources we have, for the greater good.

It is not often that an opportunity arises to step back from business-as-usual to compare and reflect on best practice. Thank you to the Winston Churchill Memorial Trust for making such an opportunity possible by contributing to the cost of my journey. Thanks also to Massey University, my employer, for providing discretionary leave that enabled this experience; to the former Director of the New Zealand Food Safety Science & Research Centre (NZFSSRC), Distinguished Professor Nigel French FRSNZ, for encouraging me to pursue this Fellowship as part of my professional development; and to the new Director of the NZFSSRC, Dr Cath McLeod, for her support of my Fellowship. Thank you to Joy Tracey, Winston Churchill Fellowship Trustee, for taking the time to meet with me to talk about the Trust and its activities. I would be very pleased to discuss how I might support the functioning of the Winston Churchill Memorial Trust in some way in the future.

Wendy Newport-Smith
04 March 2020



Best Practice in National, Virtual Scientific Networks

"Neither snow, nor rain, nor heat, nor gloom of night stays these courageous couriers from the swift completion of their appointed rounds" (Herodotus, 500 BC)

This quotation best describes the climatic conditions within which my Winston Churchill Memorial Fellowship was completed during December 2019/January 2020.

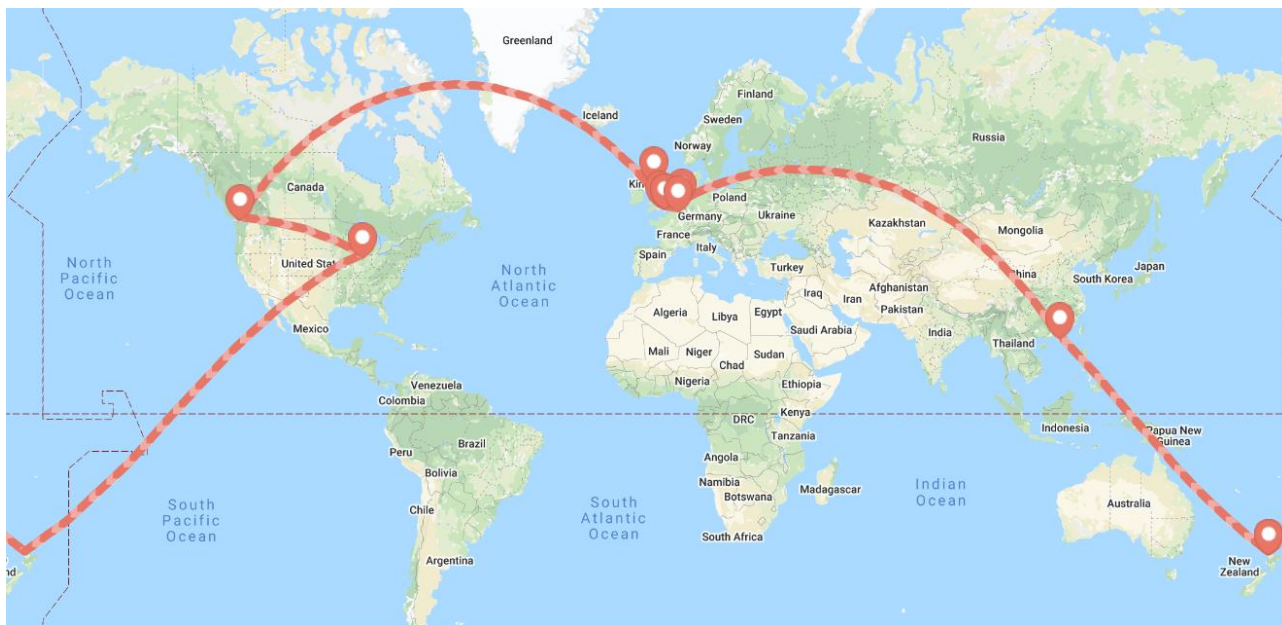


Figure 1: A Journey of more than 27,000 miles: Auckland → Hong Kong → Amsterdam → Ghent → London → Oxford → Edinburgh → York → Guildford → Vancouver → Chicago → Auckland

Travelling over 27,000 miles, visiting 26 people within 16 organisations in six countries, and indeed braving rain, hail, sleet and snow, the Winston Churchill Memorial Fellowship provided a unique opportunity to listen to, learn from, talk to and establish connections with a succession of committed individuals across a variety of Networks and organisations, each of whom was very generous with their time and organisational information.

The purpose of the Fellowship was, “to understand national, virtual, scientific network best-practice in governance and management in well-established UK and North American networks to compare with and apply to the New Zealand context” and directly spoke to my dual role as Manager of the New Zealand Food Safety Science & Research Centre (NZFSSRC), a national virtual, scientific Network launched in May 2016, co-funded by Government and Industry and hosted by Massey University; and the New Zealand-China Food Protection Network, also a national, virtual scientific Network launched in 2016, funded by the Ministry of Business, Innovation & Employment (MBIE). Prior to this role, I spent six years managing one of New Zealand’s Centres of Research Excellence (CoRE), also hosted by Massey University.

The Networks visited encompassed the food sector, forestry sector and agricultural sector, the nature of the structure being the factor of greatest importance, with the scientific discipline less so. Introductions to appropriate networks and individuals were provided by senior members of the NZFSSRC network. Other organisational meetings, leveraged from these introductions, provided a strategic perspective to inform this Fellowship.

Table 1 summarises the organisations and Networks visited during this Churchill Fellowship:



Organisation	Location	Organisation Type	Funders
Food Valley NL	Wageningen, The Netherlands	Foundation Geographical Cluster	Industry Provincial & Municipal Government
Agrotechnology & Food Services Group, Wageningen University & Research	Wageningen, The Netherlands	University Department	N/A
Wageningen Food Safety Research Centre	Wageningen, The Netherlands	University Department	N/A
DISARM Project	Ghent, Belgium	EU H2020 Thematic Network	EU
LIAISON	Ghent, Belgium	EU H2020 Thematic Network	EU
ILVO Living Lab	Ghent, Belgium	Institute Initiative	ILVO
NEFERTITI	Ghent, Belgium	EU H2020 Thematic Network	EU
e-Bug	London		European Commission Directorate General for Health & Consumers Public Health England
SafeConsumE	London	EU H2020 Network	EU
Agricultural & Horticultural Development Board	Edinburgh	Company Non-departmental Government Body	N/A
Centre for Innovation & Excellence in Livestock	York	Company	Government Industry (Membership)
UK Food Standards Agency	London	Government Department	N/A
MED-VET-NET	Guildford	Non-Profit Association (formerly EU Network)	Members
One Health Joint European Project	Guildford	EU H2020 Network	EU
University of British Columbia ▪ BioDesign ▪ BIRNet		National Cluster Network	Industry-led (Incubation phase) Industry-led (In recess)
BC Bio-Alliance	Vancouver	Network	Industry
Innovation, Science & Economic Development, BC ▪ Clean Growth Hub ▪ Forest Products Innovation ▪ The Pathfinders ▪ BC Bio-Energy Guild ▪ Innovation Super Clusters ▪ Ocean Networks Canada	Canada British Columbia Vancouver British Columbia Canada Canada	National Government Network Industry Cluster Informal Network Informal Network National Clusters	N/A Government N/A N/A Industry & Government
Institute of Food Safety & Health	Chicago	Society Network	IBM, Government, UV

Table 1: Network Visits

The areas of interest discussed at Fellowship meetings were, in broad terms:

- governance
- funding
- stakeholder engagement
- operational and research management
- outreach
- key issues
- pain points and
- food safety-specific issues for those organisations involved in this sector

A discussion of each of these areas of interest follows, highlighting what I believe we do well, and where we might learn from our international colleagues, with recommendations and considerations at the end of each section.

1. Governance

A typical governance structure for New Zealand Centres of Research Excellence, National Science Challenges and the NZFSSRC is an Advisory/Governance Board (representative or skills-based), an International Science Advisory Panel, a Science Leadership Team and/or Chief Scientist. This structure was reflected in each of the organisations visited with Board composition a mix of representation of funders, research collaborators or government or a mix, or independent members. Boards of H2020 projects, for example, may be comprised of workstream leaders with overarching governance provided by the European Union.



In New Zealand these Networks are required by legislation to be hosted by a University. The European Union (EU)-funded Horizon 2020 (H2020) projects visited are also hosted by Universities given the complex nature of project application development, contracting and reporting involved in these initiatives and the level of expertise that resides in large tertiary institutions. Three of the Networks discussed in Vancouver are Industry-led in various stages of their life-cycle. The MED-VET-NET Network was transitioned to the status of Non-Profit Association in order to ensure the valuable work of the organisation continued beyond the funding life of the original project.

A stand-out feature of the Agricultural & Horticultural Development Board (ADHB, Scotland) and the United Kingdom Food Standards Agency (FS) is the level of transparency adhered to by those organisations, albeit legislated for. Meetings are held in open session, with papers publicly available.

The FS website contains a wealth of information about the agency, its purpose, strategy and functioning. Of particular interest to the NZFSSRC and its industry partners is the issue of building foresight capability for emerging risks and opportunities (Horizon-Scanning). The 11 March FS Board Meeting will consider a Horizon-Scanning Update from the Strategic Projects Team.

Considering and articulating the legacy of a project during its development is a useful way of focusing the desired outcomes. Thinking beyond the funding life of a project to what should remain or continue in tangible terms is a logical approach to take. There is rarely sufficient public monies to fund research needs therefore thinking in legacy terms could work to manage expectations regarding funding entitlement and ensure that mechanisms are put in place during the life of a project to ensure the value of the investment is not wasted or lost post-funding.



Sir Winston Churchill, Parliament Square, London



As the development of a Horizon-Scanning system for the food industry in New Zealand is considered, it could be of value to consider the methodology of our UK colleagues



The open access to information is useful from an end-user and learner perspective. The NZFSSRC could consider transitioning to a system of open access for some of its governance-related activity



Building legacy thinking and terminology into large-scale funding-bid applications could ensure more focused outcomes on investment eg Centres of Research Excellence, NZFSSRC, National Science Challenges

2. Funding & Contractual Arrangements

Almost without exception, “in-kind contributions” by industry partners and research collaborators are recognised by the Networks I visited. The ability to recognise these contributions would have a positive impact for the NZFSSRC given the goodwill extended to the Network by both research collaborators and some industry partners.

With the exception of the informal Networks and several of the Industry-led and funded Forestry Networks in British Columbia, Government funding covers operational costs for the Networks visited. Despite Government covering these costs, challenges remain. As Richard Sones from the University of British Columbia pointed out, no one wants to pay for administration or operations, but everyone wants the outcomes. Security of operational funding was specifically cited as a pain point for several of the Networks. Overhead costs are a fact of life for those Networks affiliated with universities, however the funding and political challenges faced by universities can have downstream impacts on these Networks.



EU-funded H2020 projects are reported as providing adequate funding, in particular for operational costs and staffing. The size and complexity of these projects that range from €2M - €91M for periods of two to five years is such that Government-funded financial, project leadership and administration roles are fundamental to their success.

Linked to the funding issue is that of contractual arrangements. Most of the Networks have a single contract encompassing research collaboration, governance, and funding arrangements, to give effect to their projects (Networks), despite those projects containing multiple workstreams within which competitive research bid processes are run.

The single contract binds the host institution, collaborating researchers and other parties. While significant in size and scope and the time taken to negotiate, ultimately one contract represents a considerable saving of time and effort longer-term.

The NZFSSRC, for example, passed the 100 contract mark in its second year of operation - these include foundation documents with Government, Industry partners, Research Collaborators, the Centre itself and between the Centre and the NZFSSRC's Governance Board, contracts for each of the Governance Board Members, and for the funders and providers of each and every research project. The NZFSSRC's legal work represents 0.2FTE of a University staff member, funded via the Network's overhead contribution.






Project deliverables in EU H2020 projects are clearly defined, few in number, and simply communicated – an example being the 3 year, €2M DISARM Project: Develop 600 member community of practice; Produce 10 best practice guides; Work with 40 farms in 8 countries; Run 80 events; Deliver 3 annual reports. This project is a Thematic Network which is defined as one which collects knowledge, compiles knowledge ready for practice and translates the knowledge into user-friendly materials.

The simplicity of the deliverables belies the volume of underpinning work, however Network activities and consequential reporting requirements are tightly focused as a consequence.

The use of data trusts to manage data was raised by the UK Food Standards Agency. A data trust is a legal structure that provides independent stewardship of data. It would be worthwhile learning about these instruments given the sensitivity around data governance, management and sharing among key stakeholders in New Zealand.



IFSH, Chicago

-  Recognising “in-kind” contributions, at least for the NZFSSRC, would place value on partner contributions and assist in meeting Key Performance Indicators
-  Long-term Government commitment to fund the operations of the NZFSSRC would ease pressure on the Centre to source funding for this aspect of operations, allowing greater focus on collaborating with Industry to undertake world-class food safety research
-  Compare and contrast the contractual foundations for New Zealand-based scientific networks (eg CoREs) with the EU model to validate or improve the way scientific networks are given effect
-  A concise number of well-defined deliverables communicated in simple language would be more effective in focusing project/network activity
-  Investigate data trusts as a mean of providing secure stewardship for data



3. Industry & Stakeholder Engagement

For the purposes of this report, the words, “industry”, end-user” and “stakeholder” are used inter-changeably. Ground-up engagement by Industry/targeted end-users was identified as critical to the success of the Network/organisation. That said, even some Industry-funded or Industry-led Networks indicated that funding challenges were top-of-mind.

An Industry Insight was offered by Richard Sones, University of British Columbia, given his extensive background within Industry. “Industry thinks in terms of customers and suppliers. They view universities as suppliers. Industry is not just contributing cash. They are contributing time, ideally for a long-term relationship. Universities train future employees – another reason for industry to be more involved with academia. Industry representatives within the Network need to be of sufficient seniority at manager or director level. Researchers should get in alongside the industry to get to know the company and understand the issues a company has – developing a long-term relationship and building trust. Likewise, Industry needs to think long-term regarding relationships with researchers – ideally a five year timespan. Pragmatically, researchers will go where there are opportunities so therefore industry can influence researchers over time. The fact that industry and Government agendas don’t necessarily align was highlighted. Another valuable insight is to have multiple touch-points at multiple levels within each organisation.



Chicago

Some network participants, eg non-scientists, need to understand they are part of solution creation in addition to being a receiver of information.

The issue of commercial sensitivity and confidentiality surrounding research into foodborne pathogens is a concern for some companies in the New Zealand food sector. Balancing industry needs with co-funding of industry-driven research by public money is a tension for the NZFSSRC.

As an example of how other organisations might deal with this issue, Wageningen Food Safety Research Centre publishes research as the default position. If publishing research is not possible, the research will not proceed. A time lag of 3-6 months may be possible, but no longer.

The model of industry engagement with academia in Germany, Sweden and Finland was held up as an exemplar by two Network participants in Vancouver. It would be useful to explore the elements of this engagement to understand how the NZFSSRC could facilitate enhanced connections between New Zealand industry and researchers.

The BC Bio-Alliance has an industry champion for each research project and this has been key to the success of projects channelled through the Alliance.

An important prompt is to understand the motivation behind players participating in the organisation.



Explore German, Swedish and Finnish industry engagement with academia

4. Outreach

The main aim of the e-Bug project (<https://e-bug.eu/>), led by Public Health England’s (PHE) Primary Care Unit in England, is to educate children and young people at junior and senior school level across the globe, about microbiology, hygiene and the spread, treatment and prevention of disease. The e-Bug resources comprise teacher and student educational packs reinforcing an awareness of essential hygiene and antibiotic issues through detailed interactive lesson plans and an interactive website hosting complementary games, interactive quizzes, disease fact sheets.



Dr Alicia Demirjian is the lead for both the e-Bug and SafeConsumE projects under the banner of Public Health England. The SafeConsumE project aims to “provide effective, science-based and sustainable strategies for food authorities, market actors and the research community to help consumers mitigate risk, thus reducing the health burden from foodborne illness in Europe”. Age-specific resources regarding food safety risks are being produced for educators and children through this project. Alicia is very open to the NZFSSRC linking to the resources produced through the SafeConsumE project and in fact would be grateful for the promotion. The NZFSSRC has a limited budget for Outreach activities, therefore it is recommended that these resources be reviewed for relevance in the New Zealand context, and if applicable, the three Networks be linked up.

Two Networks communicate research through the use of Webinars: ADHB and IFSH. It would be useful to connect with these series from an interest perspective but also to source international speakers for the newly-launched NZFSSRC Webinar series.



Roger Hoesel, Food Valley NL, Wageningen

Through the Food Safety Preventative Controls Alliance (FSPCA), a public-private partnership created by the FDA and IFSH involving 150 representatives from industry, academia and government, over 100,000 people have been trained in four years – 60% nationally and 40% internationally including China, SE Asia, Japan, Africa and South America. This initiative is set up as a franchised model and is targeted at industry who make food for the US market. IFSH trains the lead providers. An electronic manual is available on the website. A trainer is currently sought in Australia or New Zealand and the question was asked as to whether Massey University might be interested. A steering committee oversees this programme which supports safe food production.

In relation to education and training, it was pointed out by one of the H2020 Network researchers that a coaching approach is considered most useful in effecting lasting behaviour change. In working with end-users on issues related to foodborne illness, this is a useful insight.



Review e-Bug and SafeConsumE resources for relevance in the New Zealand context



Link e-Bug, SafeConsumE and NZFSSRC



Connect with ADHB and IFSH webinar series as the NZFSSRC continues to develop and refine its own series



Provide information to Massey University regarding Food Safety Preventative Controls Alliance (FSPCA) training provider opportunity

5. Operational & Research Management

There are common challenges inherent in getting networks underway – the primary challenge being underestimating the time it takes to get them started and fully functioning. Some useful insights regarding Network or cluster establishment were provided by the Chief Executive of Food Valley NL, Roger Hoesel.

“Developing an effective innovation cluster takes time. Government agencies and departments as well as other pioneers often do not want to commit themselves financially for more than 2-4 years. During such a short period of time it is unreasonable to expect miracles to be performed. The implication is that a lot of attention has to be dedicated to managing expectations, as well as to searching for other sources of funding. Argue with government funders for a relatively long development path for establishing and carefully building the cluster organisation (preferably longer than 5 years). During the start-up phase of a cluster, many companies and knowledge institutions are sceptical about the usefulness of such an initiative. The added value must be clear. It is important not to raise the initial bar of expectations too high to avoid a perception of failure”.



The NZFSSRC is transitioning from start-up to growth mode and this insight from Roger neatly encapsulated the challenges inherent in a start-up. From comments made by some of the H2020 Network leaders, the sense is that one-two years at least is needed to get a programme of work up and running. This represents a significant chunk of a three to five year project horizon.

A Network and its value proposition need to be dynamic and not be restricted by stakeholders with their own agendas. Success is dependent on a range of factors including relationship management and influence. According to Roger Hoesel, while key performance indicators and plans are important, membership is the most important accountability mechanism. In fact, Roger is of the belief that opportunities are more important than plans.

Another important insight from Roger is that the pace of the decision-making process needs to match that of the business sector. For a range of reasons, the timeliness of decision-making within a University-hosted environment combined with the need to align with Government policy can be less than optimal when compared to a commercial environment.

6. Key Issues & Pain Points

There is a lot of similarity between the pain points expressed by the Networks visited, and the NZFSSRC, and more broadly, possibly other national virtual scientific networks in this country, for example:

- security of operational funding
- alignment with University structures
- political whims
- contract negotiation
- intellectual property negotiations
- industry's desire for immediate outcomes vs longevity of the research and development process
- the cyclical nature of the business environment
- ensuring all parties are on the same page in terms of priorities
- the very nature of the virtual scientific network model
- developing foresight capability
- short-term funding horizons
- reluctance by Industry to invest in research
- sectors not wanting to share knowledge
- reporting requirements, and
- the legacy of projects.



University of British Columbia, Vancouver

The list is long and the issues complex. On one hand it is affirming to know that these issues are common across national, virtual, scientific networks. Some may be addressed through education, others through developing longer-term relationships leading to a greater level of trust. Time is typically of the essence, however. A three or five year funding horizon makes building trusting relationships between researchers and industry, for example, pressured. The competitive nature of the funding environment for researchers, and the commercial environment for industry are complicating factors. The ability to engage with other Networks at a similar stage in the lifecycle to discuss the ways in which these issues are navigated is a valuable approach to take. International connectivity with similar organisational structures affirms and validates environmental issues.

New Zealand and New Zealanders appear to be well respected in the organisations and countries I visited. The openness and willingness of people to engage with me was impressive. Most are keen to develop further collaborations with New Zealand research organisations and individuals.

An example of “co-opetition” was cited by Eric Barker, Vancouver, whereby competitors came together to solve a problem on agreed terms, defining the competitive and co-operative parameters.



The NZFSSRC's workshopping approach to research project development in relation to foodborne pathogens common to several food sectors is perhaps analogous.



Creating a climate of co-opetition amongst researchers and industry partners alike will help with two-way education, trust-building, communication and project development



Developing and maintaining relationships with other national, virtual, scientific networks would assist in validating and affirming current practice and life-cycle-related issues



When scoping a national Horizon-Scanning system for NZFSSRC industry partners, consider an NZFSSRC organisational stream of work to stay abreast of political and macro-environmental Network trends

7. Food Safety-Related Issues

Having the opportunity to learn about consumer trends in Europe and the UK was a really interesting aspect of the Fellowship, the key issues emerging from a range of conversations being:

- consumer mistrust of the food system including food labelling
- an increase in plant-based foods and vegan diets (particularly for urban European women under the age of 30)
- food waste
- a back-lash against food additives and preservatives
- most disturbingly, the rise of environmental depression among young people in Europe as a consequence of the issue of climate change, and
- the divorcing of families from the food production system.

While I understand this is not a dissimilar situation to that in parts of New Zealand, the notion of a “food desert” where no fruit nor vegetables are available, or even recognisable is hard to comprehend. The Netherlands Government needing to invest in experience centres, or programmes so that children may taste good food is both alarming and commendable.

The research issues identified by the Networks and organisations were aligned with those that are top-of-mind for New Zealand food sector researchers and industry;

- Traceability
- Big data approaches; Data Governance; Artificial Intelligence; Data Mining, Open Data
- Climate change
- Confidentiality
- Food fraud

Food safety issues of concern currently include the rise of the Dark Kitchen (restaurant quality meals, ordered via an App and delivered by motorbike from businesses not registered as a restaurant or takeaway (<https://www.bbc.com/news/business-47978759>)) and implications for food safety by elimination of single-use plastic bags.

Several researchers expressed an interest in linking up with New Zealand-based equivalents.

For interest to some members of the NZFSSRC Network, CIEL has provided funding to a collaborating institution to equip a mobile sensory lab that is used in public places, for example supermarket carparks, to collect real-time product data from consumers, rather than a static institution-based facility.



Connect interested researchers from New Zealand, Europe and the UK



Connect with colleagues regarding the mobile sensory lab concept for interest



Ongoing liaison to monitor key issues and trends – establish an informal, virtual network to foster best practice management and governance and basis for research collaboration opportunities to be identified and/or shared

8. Concluding Statement

It is not often that an opportunity arises to step back from business-as-usual to compare and reflect on best practice. Thank you to the Winston Churchill Memorial Trust for making such an opportunity possible by contributing to the cost of my journey. Thanks also to Massey University, my employer, for providing discretionary leave that enabled this experience; to the former Director of the New Zealand Food Safety Science & Research Centre (NZFSSRC), Distinguished Professor Nigel French FRSNZ, for encouraging me to pursue this Fellowship as part of my professional development; and to the new Director of the NZFSSRC, Dr Cath McLeod, for her support of my Fellowship. Thank you to Joy Tracey, Winston Churchill Fellowship Trustee, for taking the time to meet with me to talk about the Trust and its activities. I would be very pleased to discuss how I might support the functioning of the Winston Churchill Memorial Trust in some way in the future.



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