05 April 2023

Australia's science and research priorities: conversation starter
Department of Industry, Science and Resources

Submitted via Consultation Hub

RE: Submission – Developing Australia's Science and Research Priorities and National Science Statement – a National Conversation Starter

The Australian Institute of Food Science and Technology (AIFST) is a not-for-profit organisation representing food industry professionals working in all facets of the food industry including food science, food technology, engineering, sensory, new product development, innovation, regulatory, QA, nutrition, microbiology, and food safety, as well as those in leadership positions within the academic, industry, public and private sectors.

AIFST's mission is to advance and inspire all food sector professionals through education, collaboration, and recognition, to champion a robust, innovative, science-based Australian food industry to meet future food needs.

The AIFST welcomes the opportunity to provide this submission on *Australia's science and research priorities.*

Our feedback and comments are set out in the document provided with this covering letter.

Thank you for the opportunity to provide this input to the consultation. If you require any further information, please do not hesitate to contact me.

Sincerely

Fiona Fleming
CEO
Australian Institute of Food Science and Technology Limited (AIFST)

Executive Summary

The Australian Institute of Food Science and Technology (AIFST) welcomes the opportunity to contribute to the *Australia's science and research priorities – conversation starter.*

Historically, Australia has enjoyed a high level of food security with most Australians having access to an affordable, safe, nutritious food supply catering to the diverse multicultural and lifestyle needs of the community.

In October 2020, the AIFST was commissioned by the Page Research Centre (PRC) to deliver a paper discussing the potential to grow Australia's food manufacturing sector and proposing focus areas to support this growth.

AIFST worked with RDS Partners to deliver a report which synthesised current key reports related to the future of Australia's agricultural and food production system with a series of conversations with 26 industry leaders, scientists, and stakeholders deeply embedded in the sector.

The resulting report, *Exploring the growth potential of Australia's food manufacturing sector: a new narrative for Australia's agrifood system,* published in January 2021, provides the basis for the AIFST submission to this consultation.

The report presented a series of recommendations arising from our review of contemporary information and from our discussions with industry experts. While priorities will change as the operating environment also inevitably changes, these recommendations point to some key activities that will help governments develop a clearer picture about what their food policy is and how they are going to support it.

The main recommendation coming out of the report was:

The AIFST calls upon the Government urgently to *work with food system stakeholders to establish an industry-led, food system strategic advisory body, chaired at the Ministerial level, to develop a National Food Plan.*

Recommendations

Recommendation 1: That the Australian Government works with food system stakeholders to establish an industry-led, food system strategic advisory body, chaired at the Ministerial level, to develop a National Food Plan that:
i) prioritises and guides activities supporting Australia's food system
ii) identifies and drives programs so that Australia's food system is supported as a cohesive, nationally important whole, and
iii) guides government on all aspects of policy that impact Australia's food system.

Recommendation 2: That the Australian Government's work on international trade negotiations and relationships actively supports, and is actively supported by, the Australian food system.

Recommendation 3: That the Australian Government works with food system stakeholders to identify reforms that will make the Australian tax environment more attractive, especially to those food system companies considering capital and/or R&D investments.

Recommendation 4: That the Australian Government works with Australian food system stakeholders to identify reforms to simplify and streamline the regulatory environment in which the food system operates.

Recommendation 5: That the Australian Government works with industry to identify key domestic and export growth opportunities for the national food system, alongside ways that government can support the Australian food system to capitalise on these opportunities over the longer term.

Recommendation 6: That the Australian Government works with industry to mitigate ways that existing Australian policies and regulations are inhibiting the Australian food system's potential to upcycle waste and participate more fully in circular economy projects.

Recommendation 7: That the Australian Government substantially increases its prioritisation and support for food system capability and capacity building programs across schools, VET institutions and universities.

Recommendation 8: That the Australian Government recognises formal industry clusters as best practice in fostering collaboration and growth and works with food system stakeholders to identify and support meaningful food system clusters.

Recommendation 9: That the Australian Government works with food system stakeholders to design and deliver flexible support mechanisms and packages for small, medium, and large food system companies and collaborations.

Recommendation 10: That the Australian Government works with Australia's food system stakeholders to promote to domestic and international consumers the 'Australian-ness', the safety, quality and provenance attributes of Australian food products (in whatever way is best for specific products) – to boost domestic sales, exports, onshoring and import replacement.

Recommendation 11: That the Australian Government works with Australia's food system stakeholders to identify and mitigate key logistic infrastructure bottlenecks.

1. Introduction

Australia's food manufacturing sector has enormous growth opportunities. Food Innovation Australia Ltd (FIAL), amongst others, have provided strong evidence to propose a potential increase of AUD$200 billion by 2030 … "*which would almost triple the current size of Australia's food and agri-business sector*".

In October 2020, the AIFST was commissioned by the Page Research Centre (PRC) to deliver a paper discussing the potential to grow Australia's food manufacturing sector and proposing focus areas to support this growth.

AIFST worked with RDS Partners to deliver a report which synthesised current key reports related to the future of Australia's agricultural and food production system with a series of conversations with 26 industry leaders, scientists, and stakeholders deeply embedded in the sector.

The resulting report, *Exploring the growth potential of Australia's food manufacturing sector: a new narrative for Australia's agrifood system,* published in January 2021, provides the basis for the AIFST submission to this consultation.

Perhaps the most important message arising from this review was the need to reimagine the way we understand and manage food production in Australia – to think about an Australian food system, not just 'agriculture', 'production' or 'manufacturing' silos.

There has been, in recent years, a plethora of reports and papers and opinion regarding the opportunities and threats facing Australian food producers – typically focussing on either side of an artificial divide between what have become known as "pre- "and "post- "farm gate domains. These reports all provide their own value, and – reassuringly – their narratives all seem to be pointing us in the same direction. But there is something missing – there does not appear to have been any great call to action.

To that end, the report presented a series of recommendations arising from our review of contemporary information and from our discussions with industry experts. While priorities will change as the operating environment also inevitably changes, these recommendations point to some key activities that will help governments develop a clearer picture about what their food policy is and how they are going to support it.

The main recommendation coming out of the report was:

That the Australian Government works with food system stakeholders to establish an industry-led, food system strategic advisory body, chaired at the Ministerial level, to develop a National Food Plan.

The recommended industry-led advisory body would be responsible, amongst many other things, for reviewing the recommendations in this and contemporary reports, and for developing and delivering against its own priorities.

There was a strong call for a well-coordinated and resourced national food system plan and strategy covering what, how and why we grow, harvest, store, value add, market, regulate and export our agricultural, aquacultural and wild harvest primary products and to be rid of the siloed, often piecemeal ways in which these activities are designed and delivered.

In short, we must view and integrate all these largely disparate activities under the auspices of a single, national food system. We need to decide what that system should do – what success looks like – and then design policies and effective actions to achieve that vision.

If the Australian food system is to be positioned to take advantage of the huge opportunities foreseen by our experts, and to mitigate the threats, a serious, nationally coordinated approach to food must occur.

A nationally coordinated approach to food needs to be prioritised so that it is led by industry with true commitment, collaboration, and support from the highest levels of government.

Setting the scene - Terminology

In the preparation of this paper, several terms to describe the whole of the food supply chain were used interchangeably in both the literature and by those interviewed. For this paper, we chose to use the term *"agricultural and food production system" or "food system".*

Taking a lead from Bardsley *et al*. (2020), "*the use of the word 'system' as a singular unit is intentional. It conveys an approach to the food sector as an interconnected whole, encompassing agriculture, horticulture, aquaculture, and fisheries and ranging from production through distribution, marketing, selling, consumption, and disposal."*

AIFST consider that it is vitally important to recognise a single *food system* and we encourage the adoption of this terminology.

2. Conversation starter - what are Australia's greatest challenges, opportunities, and strengths?

In this section of our submission, we address the 'conversation starter' questions.

2.1 Challenge - the Australian Regulatory Environment

> **Recommendation:** That the Australian Government works with Australian food system stakeholders to identify reforms to simplify and streamline the regulatory environment in which the food system operates.

Like many Australian industries, the food system is regulated by different levels of government and several different portfolios as set out in Table 1.

Australia's food and grocery policy and regulatory system is large and complex, involving 10 Governments, and at least 20 Departments, developing policy and regulations as well as numerous agencies responsible for enforcement (AFGC 2012).

Regulation touches a broad range of areas across the Australian food system, from paddock to plate—from controlling which chemicals can be applied to a crop, to setting compositional and labelling requirements for foods, to food safety for both local and overseas manufactured products.

Development of food policy and regulation is hampered by different jurisdictions having different expectations and institutional arrangements. Each of these agencies imposes regulatory requirements on the food system that place a burden on the ability of business to achieve and maintain sustainable growth (AFGC 2012).

Table 1: Australia's food and grocery policy and regulatory system

AGENCY	Department	Regulations
Food Standards Australia New Zealand (FSANZ)	Australian Government Department of Health	FSANZ Act 1991 FSANZ Regulations 1994 Australia New Zealand Food Standards Code Food composition, labelling and claims
Department of Agriculture, Water and the Environment		Biosecurity Act 2015 Imported Food control Act 1992 Biosecurity Act 2015 Biosecurity Regulations 2016
Australian Industrial Chemicals Introduction Scheme (AICIS)	Australian Government Department of Health	Industrial Chemicals Act 2019 Industrial Chemicals (General) Rules 2019
Australian Pesticides and Veterinary Medicines Authority (APVMA)	Australian Government	Agricultural and Veterinary Chemicals Act 1994 Agricultural and Veterinary Chemicals (Administration) Act 1992 Agricultural and Veterinary Chemicals Products (Collection of Levy) Act 1994
Office of the Gene Technology Regulator	Australian Government Department of Health	Gene Technology Act 2000
Therapeutic Goods Administration (TGA)	Australian Government Department of Health	Complementary Medicines Therapeutic Goods Act 1989 Therapeutic Goods Regulations 1990
National Measurement Institute (NMI)	Australian Government Department of Industry, Science, Energy and Resources	National Measurement Act 1960 National Measurement Regulations 1999 National Trade Measurement Regulations 2009
The Australian Competition and Consumer Commission (ACCC)	Australian Government	Competition and Consumer Act 2010 Country of origin labelling Competition Policy Recalls
Safe Work Australia	Australian Government	Safe Work Australia Act 2008
Fair Work Australia	Australian Government	Fair Work Act 2009
National Transport Commission		
IP Australia	Australian Government	Intellectual property rights and legislation relating to patents, trademarks, registered designs, and plant breeder's rights in Australia
Department of Agriculture, Water and the Environment		Environment protection
Department of Home Affairs	Australian Government	Immigration Employment of overseas workers
Department of Agriculture, Water and the Environment	Australian Government	Water Act 2007 Waster Regulations 2008
Australian States and Territories	**State governments**	**Compliance and enforcement**
• ACT Health		Food Act 2001; Food Regulations 2002
• NSW Food Authority		Food Act 2003; Food Regulation 2015

AGENCY	Department	Regulations
• NT Department of Health & • Department of Primary Industries and Resources		Food Act
• Queensland Department of Agriculture and Fisheries; Queensland Health; Safe Food Queensland		Food Act 2006; Food Regulation 2006 Food Production (Safety) Act 2000 Food Production (Safety) Regulation 2014
• SA Health		Food Act 2001; Food Regulations 2002
• Tasmanian Department of Health and Human Services • Department of Primary Industries, Parks, Water and Environment		Food Act 2003; Food Regulations 2012
• Department of Health and Human Services Victoria • Dairy Food Safety Victoria		Food Act 1984
• Health Department of WA • WA Department of Agriculture and Food		Food Act 2008; Food Regulations 2009

Examples of the complexity of the food and agriculture regulatory systems in Australia can be seen in:

- Figure 1: Regulation across the agricultural supply Chain (Productivity Commission 2016)
- Figure 2: Australia-New Zealand food safety regulatory system (Productivity Commission 2009).

Key Australian Government involvement/regulation	*Key stages of the agricultural cycle*	*Key state/territory government involvement/regulation*
• native title • environmental protection – biodiversity conservation – international treaties – natural, cultural and world heritage	Acquisition, leasing and preparation of land 	• land tenure and use – *land use planning* – *building regulations* – *pastoral leases* • environmental protection – *native vegetation* – *natural and cultural heritage*
• agricultural and veterinary chemical standards • biosecurity – pest surveillance • export control • environmental protection – biodiversity conservation – international treaties – natural, cultural and world heritage • national land transport regulatory frameworks • water access and regulation • welfare of exported animals	Agricultural production and on-farm processing 	• agricultural and veterinary chemicals • animal welfare • biosecurity – *pest and disease control and response* • food certification for export • *building regulations* • genetically modified crops • land use planning • livestock regulation and identification • transport – *road access* – *transport and use of machinery* – vehicle licensing • water access and regulation
• biosecurity – pest surveillance • export control • national land transport regulatory frameworks • shipping and maritime safety laws • welfare of exported animals	Transport and logistics 	• transport regulations – *road access* – *transport and use of machinery* – vehicle and machinery licensing • animal welfare • livestock regulation and identification
• biosecurity – pest surveillance • export control • food labelling • food standards • welfare of exported animals	Marketing 	• *food safety* • food packaging • biosecurity – pest and disease control and response • food certification for export • statutory marketing

[A] *Italics* denote local government responsibility in at least one jurisdiction. [b] There is also a range of issues and regulations that affect all stages of the agricultural supply chain. Cross-cutting issues include investment opportunities and access to capital, as well as regulations relating to competition, foreign investment, immigration, industrial relations, work health and safety, and taxation.

Figure 1: Regulation across the agricultural supply Chain (Productivity Commission 2016)

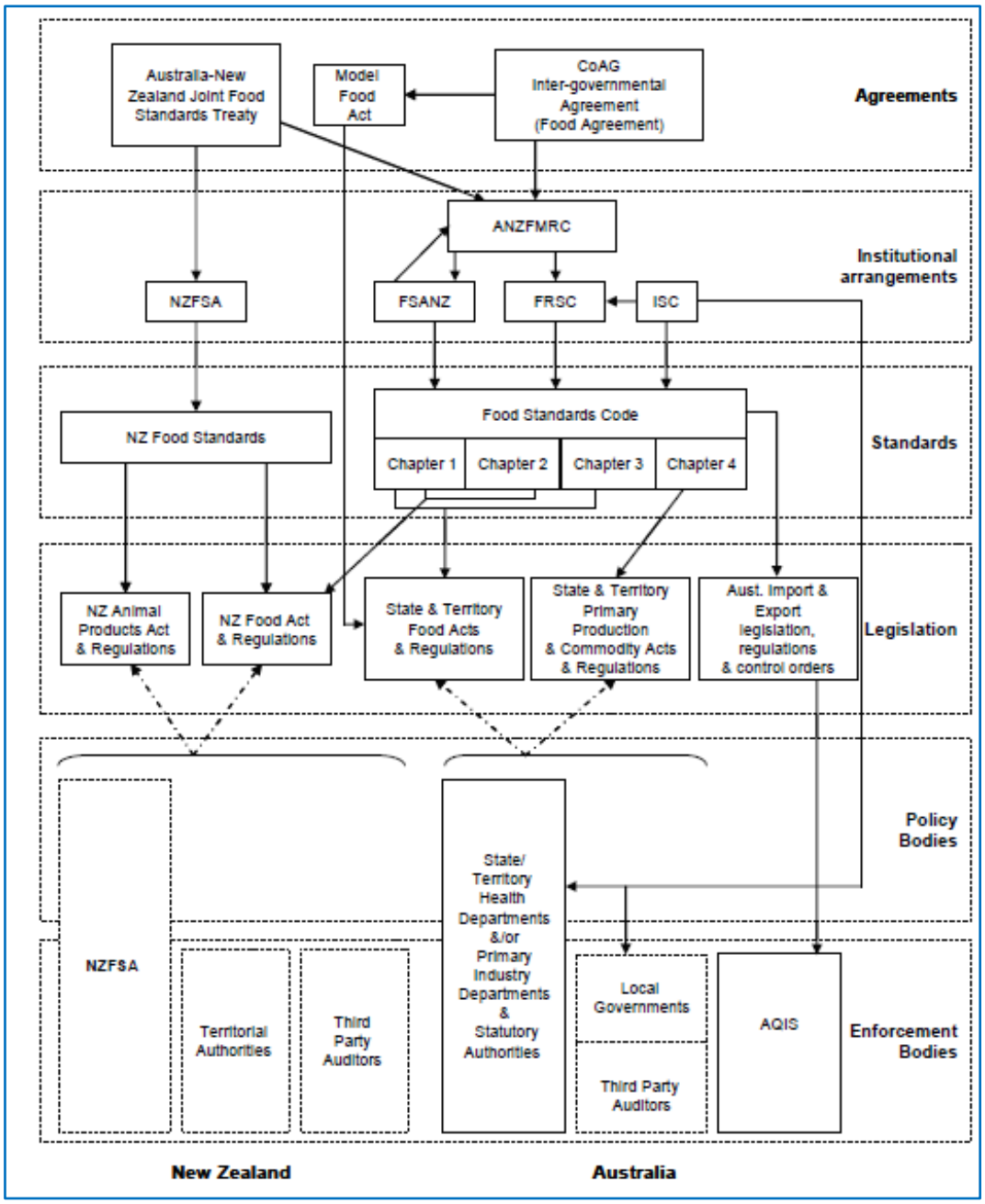

Figure 2: Australia-New Zealand food safety regulatory system (Productivity Commission 2009)

The Productivity Commission (2009) noted that Australia's regulatory and institutional structure is complex – as shown in Figure 2 for the food safety regulatory system. While this information is from 2009, it is still relevant.

There is strong and clear evidence that investment of time and money into collaboration, framed carefully and allowing room for some competitive tension, provides worthwhile returns. For the Australian agrifood system to grow, focussed governmental support for collaboration along the value chain and with peripheral sectors is needed. And in saying this, our understanding of successful collaborative ventures from overseas shows that the way in which specific collaborations are formed and delivered must be industry-led.

There are myriad papers and reports regarding the benefits of collaboration and ways in which this can be supported. The Australian food industry growth centre, FIAL, has spent considerable effort in researching how the food system can garner the best return on investments to support true and worthwhile collaboration.

Recommendation 8 of the AIFST/RDS report states:
That the Australian Government recognises formal industry clusters as best practice in fostering collaboration and growth and works with food system stakeholders to identify and support meaningful food system clusters.

2.2 Challenge - The impact of supply chain distribution on the cost and availability of food

In the 1960s, total manufacturing accounted for almost 30% of Australia's gross domestic product. Recent data puts manufacturing at 5.6% of Australia's 2019 economy. With recent events exposing major risks in the global value chain, the notion of 'reshoring' has gained added impetus.

Reshoring, as defined by the Cambridge Dictionary, is: "*The practice of moving a business or part of a business that was based in a different country back to its original country. Reshoring is essentially the opposite of offshoring."*[1]

While many stakeholders believe that international competition will mean that a return to large scale manufacturing on Australian shores is unlikely, the impact of COVID-19 on supply chains means that reshoring or near shoring must be considered as a strategy for Australian food manufacturers.

FIAL (2020b) have identified the following triggers for change:

- Reshoring can assist to strengthen domestic manufacturing resilience, and create local employment, developing new skills
- Trade tensions prompting companies to rethink supply chain models, and
- Supply chain disruptions due to COVID-19.

In that paper, FIAL also identified domestic challenges for Australia in relation to a move to reshoring:

- Lack of economies of scale
- Vocational education system decline
- High operational costs – for example – energy and labour
- Geographical distance from large export destinations.

The actions identified to make reshoring successful could also apply to the future success of the food system more generally.

Section 2.2 of the AIFST/RDS report addresses this further.

[1] https://dictionary.cambridge.org/dictionary/english/reshoring

2.3 Opportunity – Food Science and STEM

The Conversation Starter paper notes that:

The priorities should reflect Australia's biggest challenges and opportunities today and into the future, and the role of science in addressing these issues.

AIFST's mission is to advance and inspire all food sector professionals through education, collaboration, and recognition, to champion a robust, innovative, science-based Australian agrifood industry to meet future food needs.

The role of STEM and food science and technology will be critical to transforming Australia's agrifood system.

Education, research, and skills

The food sector is regarded as a critical source of economic growth and job creation in Australia. Strategic investment in research capacity, innovation, infrastructure, and a skilled workforce have been identified as crucial to strengthening the productivity and competitiveness of the food industry and capturing trade opportunities in Asia (DAFF 2013).

Education

In the context of this paper, the scope of education relates to vocational education and training (VET), apprenticeships and traineeships and higher education from undergraduate to post graduate levels.

The majority of Food Science and the associated science disciplines in the Australian Food System encompass elements spanning many of these fields. Employment growth over the past five years has been in occupations that generally require post-school qualifications – either VET or higher education. In 2017 VET enrolments were 3.4 million and 1.08 million domestic students enrolled in higher education (DJSB 2019).

In 2016, 9.6 million Australian adults held a post-secondary qualification – 56% VET and 44% university. Just over one quarter had a Science, Technology, Engineering and Maths (STEM) qualification. The definition of STEM qualifications used by the Office of Chief Scientist encompasses the fields of:

- Natural and Physical Sciences
- Information Technology
- Engineering and Related Technologies
- Agriculture, Environment and Related Studies.

Each of these areas has a critical role to play in developing the future of manufacturing in Australia and contribution to the growth of Australia's food system.

Australia's STEM Workforce report (Leigh *et al*. 2020), provides a comprehensive overview of people with STEM qualifications in Australia.

Agriculture

In 2016 there were 32,418 people with university qualifications in Agricultural studies, an increase of 4,200 since 2011.

Other Natural and Physical Sciences (Other NPS)

The 2020 STEM Workforce report included a section on the field of Other Natural and Physical Sciences (Other NPS) which include food science and biotechnology. In 2016, there were 42,311 people in Australia with university qualifications in ONPS fields with 25% of these food science and biotechnology graduates.

Research

Research and development expenditure by government and business in Australia as a percentage of GDP was 1.79% (2017-18)[2]compared to the OECD average of 2.4%.[3] Further, in the 2015 Global Innovation Index, Australia ranked 72nd (out of 141 countries) in "innovation efficiency": the ratio of innovation output (e.g., commercial outcomes) to innovation input (e.g., R&D spending) (Cornell University 2015). When compared against OECD peers, Australia's innovation efficiency rank is 30 out of 34.

In 2018-19 total business expenditure on research and development in the Food System was AUD$797 million of which AUD$490 million was in food and beverage manufacturing and AUD$307 million was in agriculture (FIAL 2020b).

The Australian Government provides support for the research workforce through various mechanisms including grant funding and tax transfers to industry, paying the salaries of researchers in government agencies and departments, and providing both grant funding through research councils and block funding to universities. In 2019–20, this was budgeted to be a total of $9.6 billion – $2.1 billion to industry, $2.1 billion for Australian Government research activities (including CSIRO, Australian Institute of Marine Science, Australian Nuclear Science and Technology Organisation and Defence), $3.6 billion to universities, and $1.8 billion to medical research institutes and other sectors like agriculture and energy.[4]

A report from the Australian Academy of Science Rapid Research Information Forum on the impact of the pandemic on Australia's research workforce (Larkins *et al.* 2020) found that Australia's research workforce will be severely impacted by the pandemic and the effects are likely to be felt for an extended period. Industry sectors including food may experience a reduced capacity to innovate given that universities perform approximately 43% of all applied research in Australia. A decline in innovation may limit economic growth by slowing the development of new technology, skills, and efficiency gains in service and production processes and place Australia at a greater disadvantage to its OECD peers.

[2] https://www.abs.gov.au/statistics/industry/technology-and-innovation/research-and-experimental-development-businesses-australia/latest-release

[3] https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm

[4] https://www.industry.gov.au/data-and-publications/science-research-and-innovation-sri-budget-tables

Skills

The skills of those employed in Australia's food system are a key enabler of industry growth. Businesses need the right people with the right skills to create new products and services and business models that will increase exports and productivity.

Securing enough people with the right skills will be a growing challenge to 2025. The food industry needs to expand the size and skills base of its workforce or, if this is not possible, must adapt to a smaller labour pool (DAFF 2013).

Over the past two decades, there has been a shift away from medium-skill jobs towards higher-skill jobs. This is potentially due to the increasing use of technology leading to automation, creating the need for workers to develop, use or supervise new technologies – for example – use of 3D printing.[5]

3D printing is a technique used for the manufacture of three-dimensional objects with high accuracy and quality finishing in their dimensions. The technique finds applications in industries, including aviation, automotive, packaging, construction, pharmaceuticals, and food. In the food sector, 3D printing is widely investigated across areas, such as customized food designs, personalized and digitalized nutrition, simplified supply chain, and broadened source of available food material.

Section 2.5 of the AIFST/RDS report addresses this further.

[5] https://www.futurebridge.com/industry/perspectives-food-nutrition/3d-printing-and-its-application-insights-in-food-industr/#:~:text=In%20the%20food%20sector%2C%203D,source%20of%20available%20food%20material.&text=Currently%2C%203D%20food%20printers%20make,%2C%20lasers%2C%20and%20robotic%20arms.

Food Science skills requirements

AIFST conducted an industry survey in July 2022 to gain an understanding of the core competencies the food industry values in new food science and technology graduates from Australian universities and TAFE. The survey was based on the graduate criteria identified by the Institute of Food Technologists. A summary of the findings is provided in Figure 1.

The full report is available on the AIFST website.

The revised science and research priorities developed must recognise the necessity of investment in higher education to ensure learning and training is reflective of these critical knowledge areas.

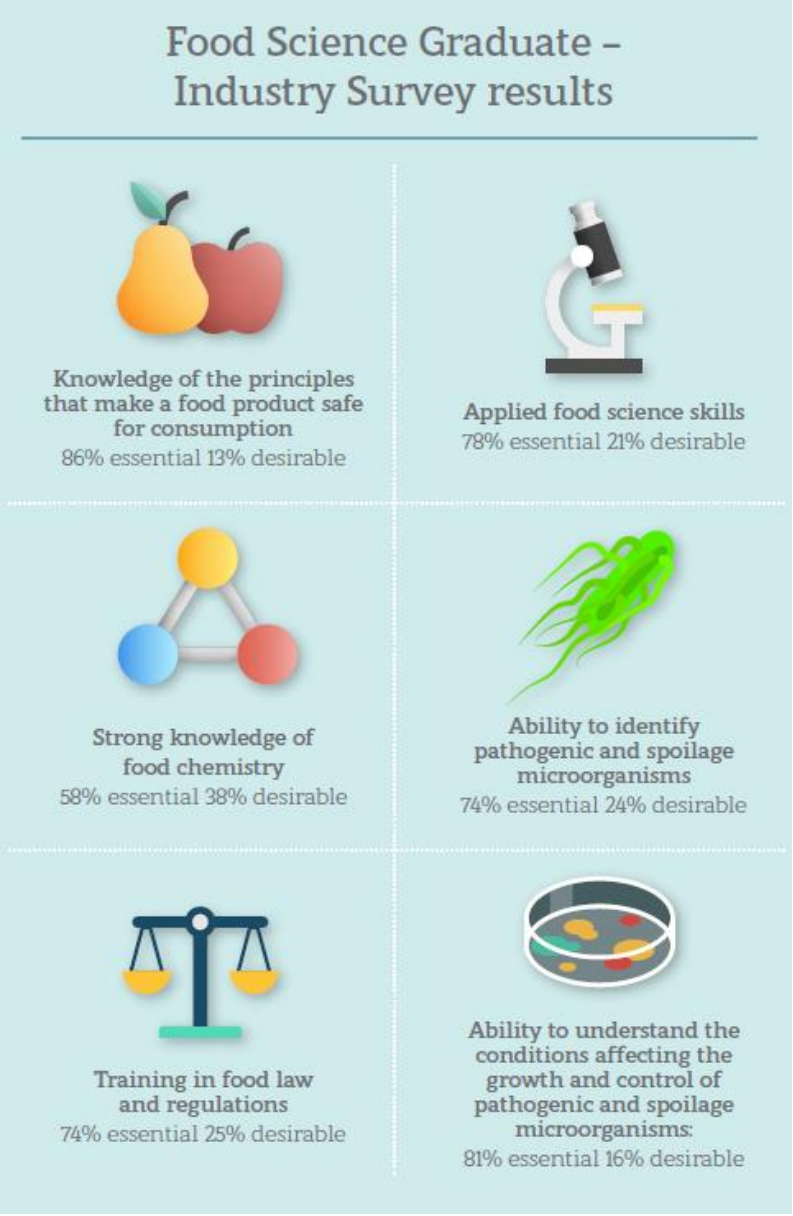

Figure 3: Food Science Graduate - Industry survey results

2.3 Opportunity – Food research

In 2013 the *National food and nutrition research and development and technology transfer strategy* was published. It was noted that this strategy was possibly the first endeavour to develop a coherent national research strategy for the entire food and nutrition sector. While there were several organisations representing important parts of this sector, (for example the Australian Food and Grocery Council, The Australian Industry Group and the Australian Institute of Food Science and Technology), there was no one organisation that represents this huge portion of the economy in its entirety.

National Food and Nutrition RD&TT Strategy represented important opportunities to create a vision for the entire industry to foster growth in the food and nutrition sector through focussed collaborative research, and establish the representation needed to guide it into the future.

The National Food and Nutrition RD&TT Strategy identified six priority research areas to realise the Vision:

- Future markets and industry competitiveness
- The intersect between food, nutrition and health
- Climate change and resource efficiency - sustainability
- Food safety – integrity and traceability
- Technology translation and adoption – barriers and mechanisms
- Skills and training.

Figure 5 shows the mapping of these priorities against global food mega trends.

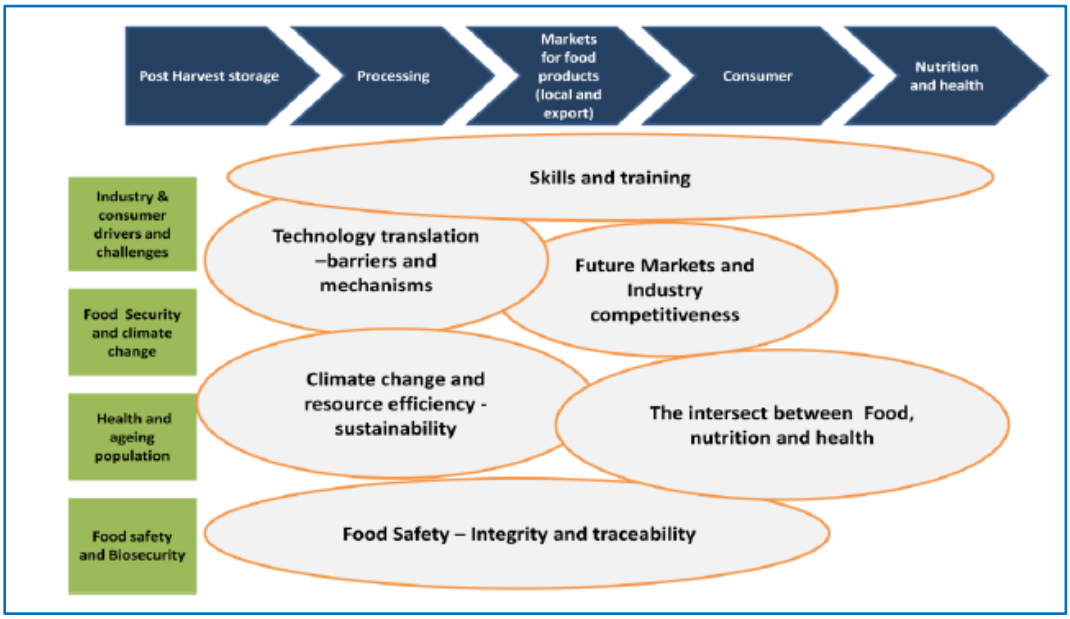

Figure 4: Mapping of the cross-cutting priorities against the global food mega trends and the food supply chain (NFNR&R and TT Strategy 2013)[6]

[6] https://www.npirdef.org/content/33/8700b4c8/Food-and-Nutrition-RDTT-Strategy.pdf

2.4 Opportunity – Complementary reforms

To leverage Australia's natural and competitive strengths and support the development of strategically important industries and shore up supply chains, technology innovation and policy innovation will be key.

The AIFST/RDS Partners paper set out a series of recommendations arising from our review of contemporary information and from our discussions with industry experts.

While priorities will change as the operating environment also inevitably changes, these recommendations point to some key activities that will help governments develop a clearer picture about what their food policy is and how their support through the NRF will ensure growth and resilience across the food system.

The recommendations are as follows.

Recommendation 1: That the Australian Government works with food system stakeholders to establish an industry-led, food system strategic advisory body, chaired at the Ministerial level, to develop a National Food Plan that:
i) prioritises and guides activities supporting Australia's food system
ii) identifies and drive programs so that Australia's food system is supported as a cohesive, nationally important whole, and
iii) guides government on all aspects of policy that impacts Australia's food system.

Recommendation 2: That the Australian Government's work on international trade negotiations and relationships actively supports, and is actively supported by, the Australian food system.

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Recommendation 6: That the Australian Government works with industry to mitigate ways that existing Australian policies and regulations are inhibiting the Australian food system's potential to upcycle waste and participate more fully in circular economy projects.

Recommendation 7: That the Australian Government substantially increases its prioritisation and support for food system capability and capacity building programs across schools, VET institutions and universities.

Recommendation 8: That the Australian Government recognises formal industry clusters as best practice in fostering collaboration and growth and works with food system stakeholders to identify and support meaningful food system clusters.

Recommendation 9: That the Australian Government works with food system stakeholders to design and deliver flexible support mechanisms and packages for small, medium, and large food system companies and collaborations.

Recommendation 10: That the Australian Government works with Australia's food system stakeholders to promote to domestic and international consumers the 'Australian-ness', the safety, quality, and provenance attributes of Australian food products (in whatever way is best for specific products) – to boost domestic sales, exports, onshoring and import replacement.

Recommendation 11: That the Australian Government works with Australia's food system stakeholders to identify and mitigate key logistic infrastructure bottlenecks.

In addition, the report "Trade transformation supporting Australia's export and investment opportunities" (JSCTIG 2020) presented a list of recommendations relevant to Australia's food system, as set out in Table 2.

Table 2: Recommendations relevant to Australia's food system (JSCTIG 2020)

1	The Committee recommends that the Australian Government identify new and emerging trade opportunities and seek to apply the lessons learned from the Biomedical Translation Fund to help attract industry investment to those opportunities, as part of an updated trade and investment strategy.
2	The Committee recommends that the Australian Government continue to progress its tax reform agenda, particularly by reducing the company tax rate, as a priority.
4	The Committee recommends that the Australian Government investigate improvements that could be made to the Research and Development Tax Incentive, particularly to meet the needs of small and innovative businesses.
8	The Committee recommends that the Australian Government consider further options to support small and medium enterprises to enter (and remain) in export markets, including: • Greater support targeting start-ups and entrepreneurs • Consideration of current government support for small businesses in the defence export industry, and whether this support could be replicated in more broadly to other industries, and • Greater education and communication (including via digital means), particularly for new exporters, on how to enter and succeed in specific export markets.

10	The Committee recommends that the Australian Government permanently increase funding for the Export Market Development Grants scheme by $60 million per year, or alternatively by an amount which will meet the expected demand and reflects the needs of business following the post COVID-19 resumption of economic activity.
11	The Committee recommends that the Australian Government continue to push for new export market opportunities, including by: • the signing of new trade agreements, with a preference for multilateral and regional agreements where possible • considering options to harmonise or streamline regulations where Australia has overlapping trade agreements with the same country, and • prioritising the needs of small and medium sized businesses in the context of trade negotiations.
12	The Committee recommends that the Department of Foreign Affairs and Trade develop and release a plan for boosting Australia's exports and investment once the vast majority of Australia's trade is covered by FTAs (in line with the government's goal of achieving this by 2022).
13	The Committee recommends that the Australian Government conduct an assessment of Australian export industries that are over-exposed to a single market and work with industry towards diversification.
14	The Committee recommends the Department of Agriculture, Water, and the Environment, in collaboration with state and territory governments, conduct an audit of the regulatory arrangements for agricultural exports (including seafood) and identify and implement actions in order to: • Harmonise export regulation across local, state and federal jurisdictions, with an aim of achieving a best practice outcome • Increase competitiveness for the agricultural industry, including assessing whether cost-recovery arrangements and export registration costs are deterring exports, and a comparison between Australia and its international competitors, and • assess the impact of red and green tape (at the state and federal levels) on the ability of the sector to reach its goal of growing Australian agriculture to $100 billion by 2030.

2.5 Strength – Harnessing the power of collaboration

There is strong and clear evidence that investment of time and money into collaboration, framed carefully and allowing room for some competitive tension, provides worthwhile returns. For the Australian food system to grow, focussed governmental support for collaboration along the value chain and with peripheral sectors is needed. Successful collaborative ventures from overseas shows that the way in which specific collaborations are formed and delivered must be industry-led. An environment supporting this model should be encouraged and supported.

3. Conversation starter - does Australia have the capability and capacity needed to address these challenges, opportunities, and strengths?

The skills of those employed in Australia's food system are a key enabler of industry growth. Businesses need the right people with the right skills to create new products and services and business models that will increase exports and productivity.

Securing enough people with the right skills will be a growing challenge to 2025 and beyond.

As noted earlier in this submission, the revised science and research priorities developed must recognise the necessity of investment in higher education to ensure learning and training is reflective of these critical knowledge areas.

4. Conversation starter - are the principles the right principles to shape the priorities.

AIFST generally supports the principles proposed to guide discussion on the priorities and the statement. We have provided our comments in the following table. We have proposed two additional principles - #8 & #9 for consideration.

#	Principle	AIFST comment
1	**Be community informed.** To build community ownership of the priorities, a public conversation about the challenges and opportunities facing Australia will inform the priority setting process. The process will recognise and support First Nations perspectives on science, technology, and innovation.	The community need to be educated about the importance of robust, evidence-based science informing decisions about public health and safety. A populist led narrative will result in a skewed approach that may result in suboptimal outcomes.
2	**Be ambitious and purpose driven.** The priorities should be ambitious and address Australia's biggest challenges and opportunities. They should have meaningful impact and reflect Australia's competitive and comparative advantages.	Agree
3	**Be evidence-based.** The priority setting process will consider all national challenges and opportunities that are supported by evidence, which includes supporting and embedding First Nations knowledge and knowledge systems.	Agree
4	**Be enduring and responsive.** The priorities should be enduring and designed to address ambitious, long-term priorities for Australia. They should provide system-level stability. The priorities should also be responsive to scientific progress and emerging issues (for example, natural, social, or economic emergencies).	Given the primacy of the agri-food system to the sustenance and livelihood of Australia it should be considered a priority as a system.
5	**Be relevant.** The priorities will be reviewed on an ongoing, regular basis to ensure they remain relevant for Australia.	Relevant to whom? The broad community, government, scientists?
6	**Be bounded.** The priorities are not intended to be exhaustive nor include all science that should be undertaken in Australia.	Agree
7	**Inform investments.** The priorities will be used to guide government policies and investment in science. They will also act as a signal to inform industry, international, research and community decision-making and investment.	Investment by government? At what level of government? Over what time frame?
8	Additional principle: Enabled by regulatory reform	
9	Additional principle: Enabled by education	

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