

Workforce of the future



At AgResearch, we have already begun reimagining what a future Research Science and Innovation (RSI) workforce may require including:

- Equity, diversity and inclusion
- Capability mapping – technical and soft skills
- Science vitality – a broader view of science excellence
- Role of research organisations in transformative research
- Diverse career pathways

Included are some considerations and discussion from the work we've done in these areas to date. We welcome the opportunity to contribute to a broader conversation.

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Section 1

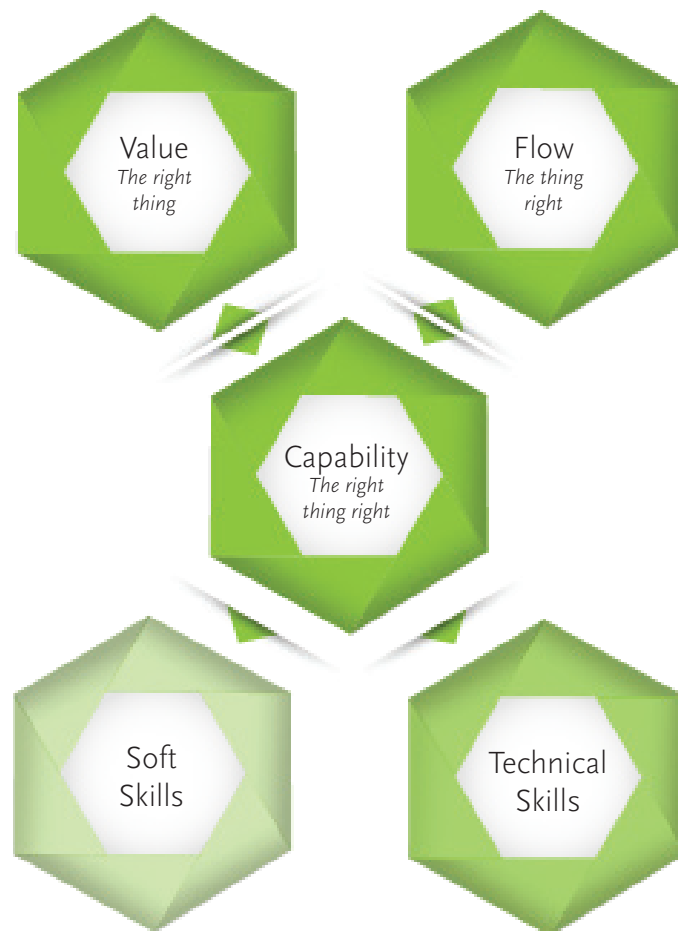
Capability Mapping

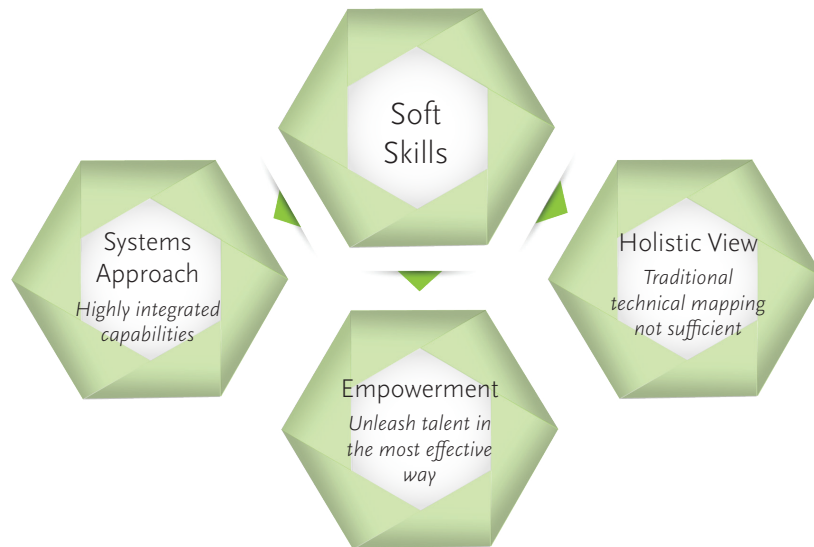
Before effective changes can be made, a full review of capability needs to be completed and then cross-referenced to the needs of stakeholders. We believe that this is an integral step for the future of New Zealand's science system. At AgResearch, we started this process in 2019.



Soft skills and technical skills?

A science system with a strong grasp of *soft skills* will provide a desirable and productive workplace for its people, and a science system with wide, deep and strong *technical skills* will be able to provide its stakeholders with the answers they require.





Soft skills

A science system with a strong grasp of soft skills will provide a desirable and productive workplace for its people.

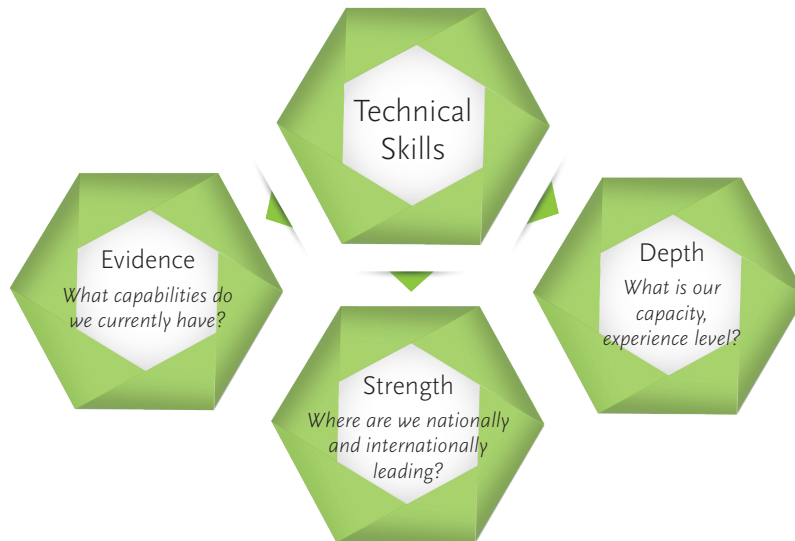
At AgResearch, a working group consisting of representatives from Research and People and Culture, developed a Soft Skills Assessment Framework that was incorporated into the Hogan Competency Model. Workshops were held with all Line Managers to calibrate their understanding of soft skills (specifically interpersonal, business enablers and leadership), and to provide examples of how to rank people across the spectrum (both science and science support).

We used this framework to complete assessments of all our people, with the resulting data compiled and analysed to a macro and micro level. Team dashboards were generated for our People Leaders, and all data informed our organisational capability framework.

This works helps us deliver science that has impact. It allows us to focus more holistically, not just on a person's technical ability, but also on behaviour. Managed within the new Human Resources Information System (HRIS), it supports two-way engagement between People Leaders and their staff. Ultimately, it provides a more consistent and integrated approach for employee experience.

It is expected that the Capability Framework will provide many benefits for the organisation, such as:

- Helping empower our people to reach their potential in their current roles, or prepare them for future positions at AgResearch by providing a consistent roadmap for career development supported by aligned learning opportunities
- Linking various employee lifecycle activities, e.g., recruitment, on-boarding, development, succession planning
- Providing Leaders with a common language to have feedback, coaching, and career development conversations with their people (and vice versa)
- Understanding the capability present in the organisation to inform Strategic Workforce Planning decisions and ensure we have the requisite skills to deliver on our strategy and science plan
- Supporting targeted recruitment to help ensure the right people are selected for the right roles and set up for success from day one.



Technical skills

A science system with a wide, deep and strong capability will be able to provide its stakeholders with the answers they require.

AgResearch looked at the strength, depth and evidence of the technical skills within the organisation to identify where we had layers of capability and also where we had omissions.

Its important to recognise that technical skills are not solely focused on science. AgResearch looks at the depth of its commercial technical skills. Within the future workforce

the business leaders of our organisation will be crucial, embedding best practice on stakeholder management, and bringing their business development expertise. Including leadership, analytics, high degrees of interpersonal skills and applied business collaboration.

We used a thorough process to analyse our technical skills. Five areas of interest were identified and a series of metrics allocated to each to enable analysis.

Some of the considerations that we used to map our technical skills for each area of interest are shown below.

Technical skill analysis: interest areas and analysis metrics

<p>1. Define core capabilities</p> <p>Generate key words representative of each core capability area</p> <p><i>Identify high-level key capability criteria; compile data and core capability key words refined, prioritise sub-set key words.</i></p>	<p>2. Compile publication data</p> <p>Confirm evidence of science publication metrics in core capability areas</p> <p><i>Data mine topic words across Scopus, total number of publications in core capability, compile top cited papers, calculate average field weighted citation impact score.</i></p>	<p>3. Verify strength</p> <p>Verify publication strength in core capability areas comparative to the external research domain.</p> <p><i>Perform top-down assessment of leading capabilities and interrogate comparative metrics, determine contribution to science areas of high international prominence, compile top organisations in each area.</i></p>	<p>4. Assess depth</p> <p>Work through assessment of depth with some form of standardisation</p> <p><i>Profile ANZSRC descriptors to core capability areas, identify which descriptors best describe the core capability area, perform analysis on exemplar teams</i></p>	<p>5. Analyse outputs</p> <p>Perform summary analysis and design visual representation</p> <p><i>Generate overview documents of publication outputs per core capability area (data tables and graphs), upload output data into Power BI, generate high level analysis and score-card/dashboards.</i></p>
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Section 2

Career Pathways

To ensure that our research workforce is at the centre of a connected, resilient and adaptable research system, we need to be able to attract and retain world-class talent while also offering flexible careers and career pathways.



Refreshing science career descriptors

Traditional science is being reimagined to meet the needs of the sectors we serve. Our careers are being reimagined too. Consideration needs to be given to how each area of the workforce is described.

Over the last 12 months, AgResearch has embarked on reimagining career pathways within science. We want to achieve:

- Dynamic and flexible career pathways
- Simplicity–clarity of criteria and progression transitions
- The current and future needs of individuals and the organisation
- Future focus by helping our people and organisation stay up to date with the latest thinking to ensure we are future proofing careers
- Positive, collaborative, and inclusive research culture.

We have recently completed a six-month process of seeking feedback from within our business around current issues and challenges related to science career descriptors. This included a combination of surveys and discussion groups.

Some of the general feedback from these included:

- General support for more focus on science impact.
- Great to provide different options to progress careers and remove barriers for our people
- The proposed career pathway framework is complex and it was difficult to provide feedback
- People could work across all pathways – how exactly would that work?

We invited Dr Frances Downey, Head of Research and Innovation Culture at UK Research and Innovation, to talk with us about creating a positive research culture and different ways of measuring science impact.

This was a very insightful talk about the flow of ideas and how we support the flow of ideas, regardless of where and who those ideas are coming from, and as a funder this really speaks to, ‘are we funding to our values’. This talk sparked some innovative thinking around how we might measure impact and the wider contribution of our science. We’re pleased to make this talk available to you and encourage you to listen to it here (~45 minutes):



<https://youtu.be/ZE4K4f3U32g>

Work continues in this space for AgResearch as we begin working with a small cross-section of science employees to refresh and redraft our career descriptors.

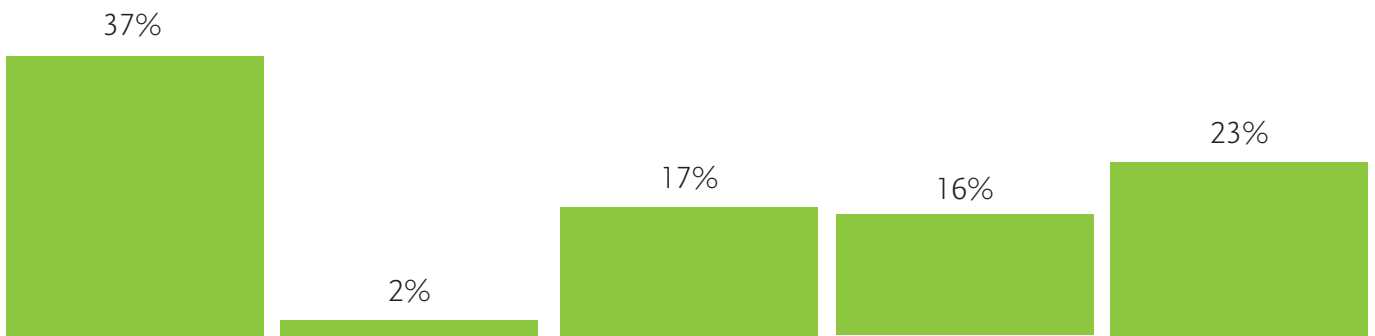
AgResearch is the first New Zealand research organisation to sign up to the San Francisco Declaration on Research Assessment (DORA)—a commitment to valuing the scientific content of a paper rather than publication metrics or journal indices, valuing all research outputs and considering impact measures.

Refreshing science career descriptors

New career pathways needs to be identified for the workforce. They need be designed to both reflect and reward.

AgResearch has completed some preliminary work around career pathways for science, having identified five primary pathways. The next step is to identify the career pathways for our non-science workforce. As these two parts of the organisation work in synchrony in our organisation bringing skills that grow and develop our entrepreneurship, delivering engagement with stakeholders and industry impact. Providing crucial balance of skills to the workforce.

Results of question: "What career pathway do you identify with most?"



Science Excellence

Focused primarily on scientific/research areas resulting in new knowledge. Focused on becoming a global leader in chosen research field by leading large projects of work, providing thought leadership, mentoring and advising others.

Entrepreneurship

Focused on commercialisation and driving ideas through to market.

Industry Impact

Focused on building and managing relationships with partner individuals or organisations.

Specialist

Focused on expanding technical capability and knowledge in chosen field

Research Management

Focused on strategy, planning and providing direction, knowledge and motivation to influence others and execute plans.

Section 3

Science Vitality

A future science system needs to be enduring and have the capacity to develop to the needs and wants of its sector.



We must retain and grow science vitality

The sectors our science serves have fluid needs. What is pertinent to today's climate will change in the future and we need to be able to easily shift focus as required without losing quality of output.

We must look to consistently achieve strong and enduring science vitality, within any future science organisations and across the whole science system.

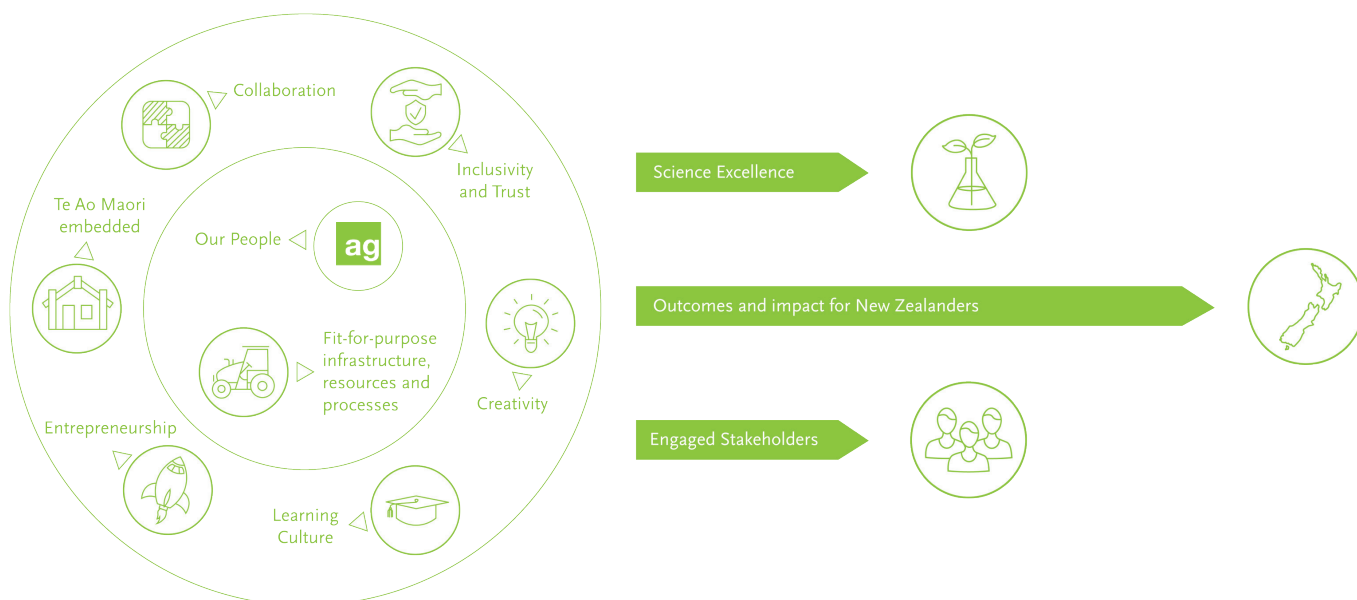
At AgResearch we took a co-design approach in ascertaining how best we tackle science vitality. We looked to:

- Describe what excellence in Science Vitality looks like
- Identify a balanced set of indicators; leading and lagging measures of quality and quantity
- Identify and prioritise supporting activities to create, sustain and grow science vitality.

We understood that to obtain this information we needed insights both internally from our people (focus groups, staff engagement survey, responses to calls to action and internal social networking), and externally from across the Crown Research Institute network, Science Advisory Panel and other organisations.

The key themes identified as integral for science vitality at AgResearch have people and fit for purpose infrastructure at their core. From those two pillars, the other themes (creativity, inclusivity and trust, collaboration, learning culture, the embedding of Te Ao Māori and entrepreneurship) inter-relate to provide three desired outcomes for the organisation—science excellence, outcomes and impact for New Zealanders, and engaged stakeholders.

Using each theme's own set of excellence criteria, initial benchmarking has been completed and will be followed by regular ongoing assessment that will give us the ability to identify strengths and areas for development, to inform priorities for action.



Creating science excellence

Science excellence is more than an output - it encompasses all the parts that sit in the background to ensure that quality science can be created.

The themes of science vitality directly contribute to creating science excellence. We know that for science to thrive, efficient processes, an enabling organisational culture, quality infrastructure and skilled support staff are needed.



Creativity

- Outstandingly innovative environment with new ground-breaking approaches likely to attract international attention
- Always time, opportunity and resource available to test, contemplate, and play with concepts and ideas
- All interactions are respected; criticism is constructive and freedom of expression the norm; contribution to ideas and work are always recognised and attributed.



Inclusivity and trust

- All people feel valued for their contribution
- High level of trust exists across the whole organisation and all staff feel empowered to do their work
- All staff hold a shared understanding of our purpose, our common goals, and how they contribute to its delivery.



Collaboration

- Always apply a 'right teams' approach
- Exceptional ability to seek and embrace new and different people and perspectives both within and external to AgResearch
- Always respect and value diverse knowledge systems; apply with full cultural awareness.



Learning culture

- International reputation for attracting world class people across the research career pathway.
- Excellent differentiated career pathways that allow staff to achieve their full potential
- Culture of continuous learning.



Te Ao Māori embedded

- Mātauranga Māori knowledge systems are embraced and valued by all
- Te Tiriti o Waitangi and Tikanga Māori are respected in all AgResearch's practice
- Outstanding ability for Māori needs and interests to guide research with genuine co-design.
- Demonstrated impact for Māori in social, environmental and economic wellbeing
- Whanaungatanga is built and AgResearch is recognised by Māori as a trusted, long-term research partner.



Entrepreneurship

- Speed, flexibility and fast fail are fully embedded into relevant activities
- Entrepreneurial skills always encouraged, supported and incentivised
- Start-ups and links with business always cultivated.



Engaged stakeholders

- From the outset, genuine partnerships are formed, and co-design principles always heeded
- Researchers always approachable, accessible and engaging with society and stakeholders
- Strong reputation and recognition as an effective science partner.



Fit for purpose infrastructure, resources and processes

- World class infrastructure and resources to undertake state of the art science
- Administrative systems and processes always enable and add value to science
- Enabling team skills and activities always aligned with science needs.



Outcomes and impact for New Zealanders

- Always understand the needs for of those to whom research is directed towards and plan and monitor for impact
- Always have in place implementation pathways to guide and contribute to uptake of research
- Excellent demonstration of research being used and associated impact cases
- Excellent examples of science communication and translation to bring science alive for society.



Science Excellence

- Excellent scholarly achievement relevant to the topic context
- Recognised world class capability
- Transformative science in terms of risk, novelty, scientific and technical stretch
- Generating internationally renowned new knowledge.

Section 4

Supporting transformative research

Organisations within the science system have a role to respond to a rapidly evolving innovation landscape.



The role of science organisations

Future researchers need to be enabled to use transdisciplinary and transformative approaches that allow them to work in what is a constantly changing environment.

Research organisations are working in an environment with factors that are constantly changing. There are increasingly complex societal issues (e.g. climate change), in a time of rapid change that require radically different approaches to innovation and research.

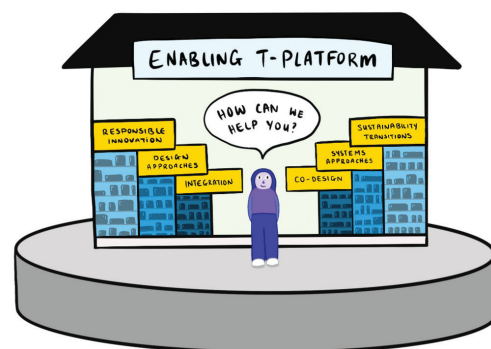
We face challenges at the societal scale rather than industry/ sector scale and face increased demand by public, partners, iwi Māori and stakeholders for more values-based research approaches that deliver societal, cultural, environmental, and economic outcomes.

Integrated (including transdisciplinary) approaches are suited to responding to complex issues but require researchers and research organisations to work differently.

We also know that the New Zealand agri-food sector is transitioning towards more sustainable food production systems, yet the role of the researcher and the research organisation in the transition is often unclear.

Traditional ways of doing research are becoming defunct. Now, researchers need to use transformative approaches to meet the needs of our sectors. We need to:

- Not focus on immediate outputs/outcomes and look longer term; the 'big picture'
- Look past incremental change in a specific area, but find multi-dimensional system changes (technological, social, cultural, policy)
- Move from using fewer sources of knowledge (mainly science) and involve many diverse knowledge sources (beyond science)
- Include Kaupapa Māori research; mātauranga valued as an equal knowledge source
- Switch from being planned and certain to emergent and uncertain
- Not just business as usual, we need to be transformative
- Switch from being non-adaptive to agile and experimental
- Start reflecting on the direction of innovation (possible futures)
- Learn by doing.



We acknowledge that this change cannot happen overnight. For us it has been an evolutionary journey that started in 2013 and has most recently seen AgResearch establish an Enabling Platform to support this transdisciplinary and transformative research based on key concepts:

- Integrative Approaches
- Responsible Innovation
- Sustainability Transitions
- Monitoring, evaluation, reflection and learning.

This platform looks to:

- Enhance capacity and capability of our staff and partners to lead and participate in integrated research
- Provide an integrative 'hub' to connect existing and new related initiatives in our organisation and beyond
- Assist our researchers to share learnings, build capacity and capability to develop and strengthen relationships with Māori partners and te ao Māori
- Equip our organisation and its partners to engage with and help shape the transition towards a more sustainable agri-food system
- Monitor, evaluate, reflect and learn from what is working and what isn't within an AgResearch context and to share this within our organisation and externally.

Section 5

Equity, diversity and inclusion

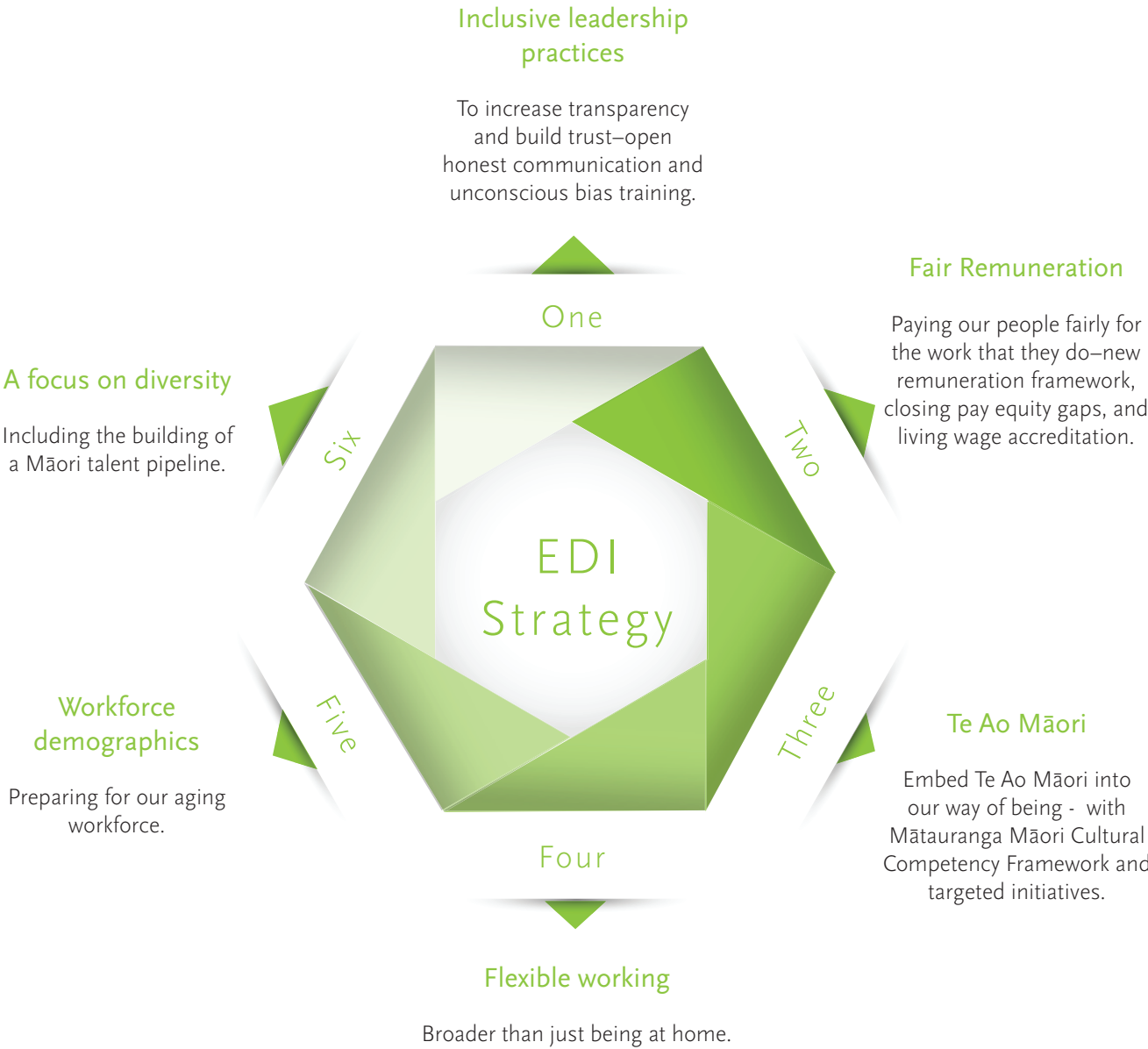
People are the biggest asset of the current New Zealand science system, and supporting them in their careers provides an environment where impactful science can flourish to the benefit of wider New Zealand. We think that a strong Equity, Diversity and Inclusion (EDI) strategy is paramount to the retention and growth of this valuable workforce.



Build an EDI Strategy

We understood a long time ago that our employees were our greatest strength. We partnered with Diversity Works (the national body for workplace diversity and inclusion in New Zealand) and developed an EDI Strategy from stocktake, which our EDI Committee oversee.

Our EDI Strategy incorporate the following six principles:



Flexible working

We believe that inclusivity should be woven into the way that we work, providing options for employees across all stages of their career.

At AgResearch we have introduced Flexi-career, Flexi-work and Flexi-place options for all our people.

Flexi-Career

- Phased entry or exit for emerging and returning talent, parents, and our aging workforce.

Flexi-Work

- Job sharing, varying hours of work to promote wellbeing, or working part-time
- Purchase of additional annual leave up to eight weeks a year—uptake provides promotional opportunities for employees
- Sabbaticals and ongoing development.

Flexi-Place

- Blend of working on-site and home, in another location or overseas
- Promotes collaborations and access to global communities of practice
- Potential to tap into the gig economy to access specialised skills.

Diversity

We need to retain diverse thought and experience, and attract future talent by providing career pathways for all.

AgResearch is actively trying to retain our diverse experience and attracting future talent by providing career pathways for women, Māori, and minority groups to move into more senior leadership roles by:

- Redesigning career descriptors and promotions process
- Improved recruitment practices – consistency for remuneration for men and women in like for like roles, diverse recruitment panels, unconscious bias training for hiring managers.

Workforce demographics

The science system has an aging workforce and we need to be prepared for potential loss of knowledge.

At AgResearch, 39% of our science staff are over the age of 50, and 17% older than 60 years of age. Many have an in-depth knowledge of core areas and we aim to retain this knowledge longer to allow the opportunity for it to transfer to their successors.

We aim to do this by:

- Prolonging working life of our older employees through targeted wellness programmes and workplace ergonomics
- Phased retirement programmes for greater flexibility
- Mentoring programs to leverage our aging workforce's tacit knowledge
- Reverse Mentoring—early career staff as mentors to senior leaders to transform mindsets, provide a fresh perspective on rising trends in areas of technology or the future of work
- Continue to support flexibility through migration into our contingent worker network.

Build a Māori talent pipeline

An accessible, effective pipeline is required to attract Māori into science where they are currently grossly under represented.

For AgResearch only three staff identify as Māori from 429 practicing Scientists or Technicians.

Collective pan-CRI initiative to:

- Understand drivers and barriers faced by Māori graduates choosing a career in science and with CRIs
- Understand cultural change required to improve Māori participation in science
- Develop a broad pan-CRI Māori graduate development programme
- Establish mentoring program across all CRIs for Māori graduates
- Work with universities to align CRI pathways and promote science careers.