agresearch
āta mātai, mātai whetū

Our Science   Doing Business   About Us   News   Contact

Our Science

DIGITAL AGRICULTURE

Improving productivity, quality, security and safety of agricultural systems through digital technologies and advanced data analytics.

SMART FOODS

Understanding and designing high-value protein-based foods and ingredients whose intrinsic properties bring demonstrated functional and health benefits for consumers.

CONSUMER INTERFACE

Fusing consumer insights with our science and innovation to optimise the design, development, value and uptake of novel agri-food products, technologies, processes and solutions.
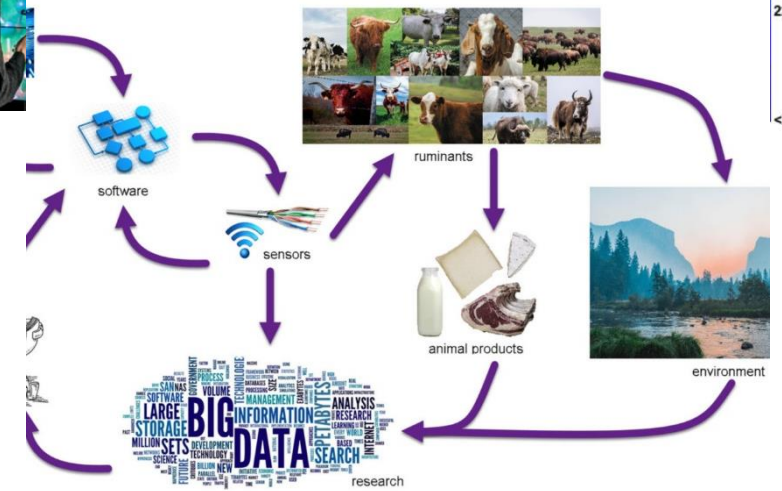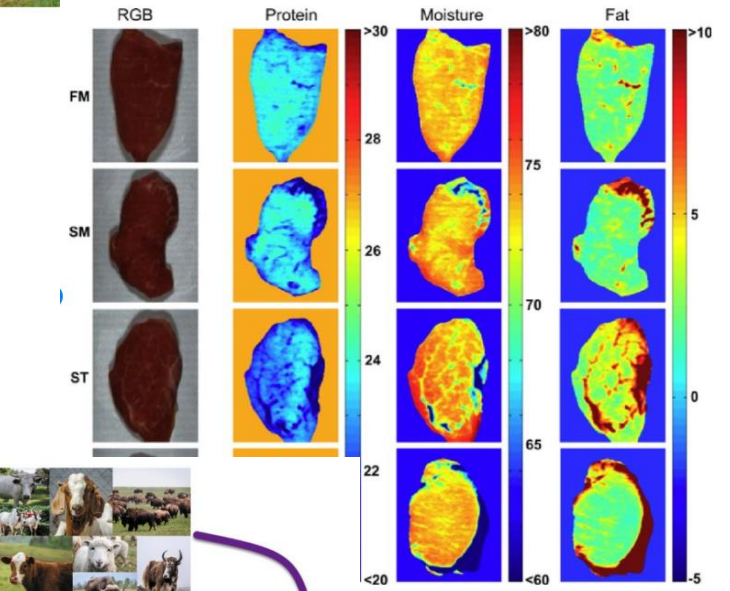
RESILIENT AGRICULTURE

Empowering sectors and communities to respond and adapt to changes in the environment, regulations and economic conditions.

ETHICAL AGRICULTURE

Ensuring our agricultural systems align with societal, customer and consumer values and our sector processes are robust and defensible.

BEYOND FOOD

Developing value-added bio-based products from pastoral agriculture bioresources, maximising the utilisation of resources and delivering verified attributes to the consumer.

RGB   Protein   Moisture   Fat

FM   SM   ST

software   sensors   ruminants   animal products   environment

BIG DATA   research

Data Intensive Research

- Data deluge

  - Capture, transfer, storage and management

  - Sharing, publishing, preservation and archiving

- Computing Infrastructure - Pace and scale

- New tools due to changing needs

- Support

- Capability
  - Domain experts, data engineers, architects, DBA, data scientists, RSEs

Our Science Plan

- Focus on trans disciplinary research
- Integrative Initiatives and platforms

(Source: AgResearch Science plan 2019)
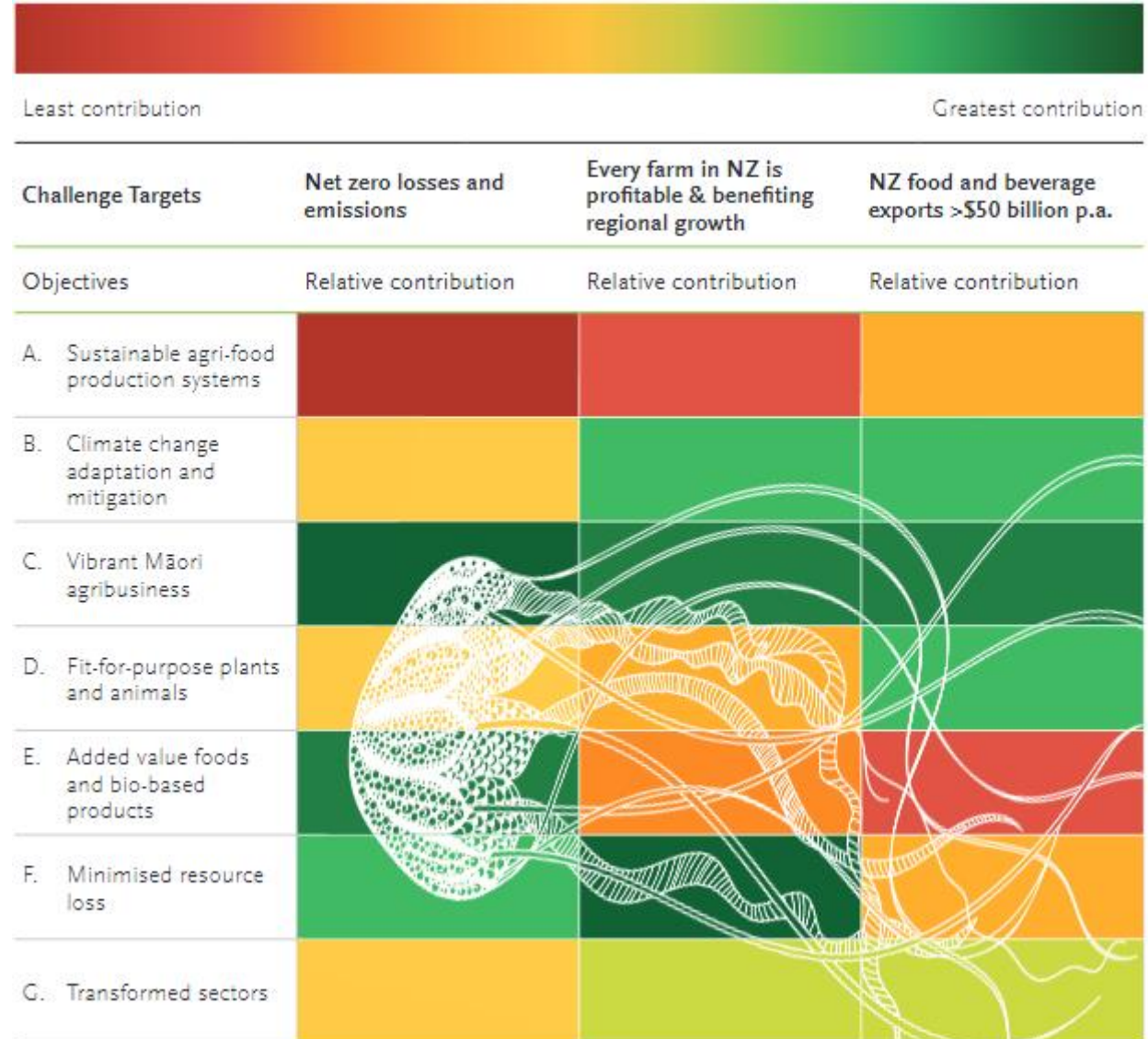
AgR eResearch Platform

Lots of Data

- IoT, Omics, GIS, LiDAR, Hyperspectral images, HD Videos and various other

- High velocity and volume

- Network connectivity

- Storage and HPC

- Real time analytics

- Data integration & visualisation

Governance & Management

- Research Data lifecycle - stewardship and management

- FAIR and CARE of research data

- Māori data sovereignty

Capability Challenge

- Developing data savvy workforce
  - Data management
  - Data science

- Other related skills e.g. HPC, data architects & data engineers

Developing efficiencies for researchers
Improving researchers' ability to collaborate nationally & internationally
Supporting open science

AgR eResearch Platform

eResearch Platform Strategy

June 2020

- Develop current state picture and identified gaps
- F... ... ...
- D... ... ...

ng Platform
erating Model
FY21 - FY25

Research Planning → **Execution & Data Generation** → **Process & Analyse Data** → **Publish & Share**

Current State

Infrastructure	Aged HPC No longer fit for purpose
Capability	Fragmented and siloed
Support Model	Disjointed
Data Management	No clear Framework
Digital Tools & Services	Lack of clear understanding

Strategic Objectives

- eResearch Infrastructure
- Growing Capability
- Digital Services
- eResearch Sector Leader

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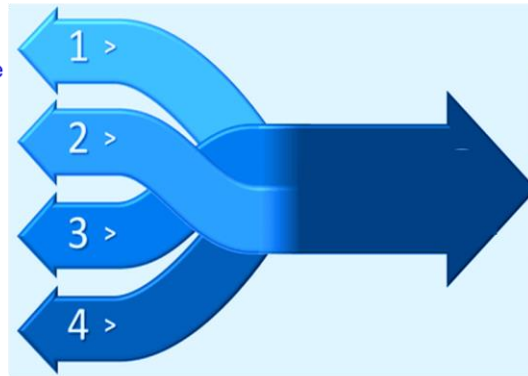
Future State

Fit for purpose Infrastructure
Progress made towards Data and digitally savvy workforce
Structured Advice, Consultancy and Training
Data Catalogue RDM Framework Data Lifecycle
Domain Specific Tools & Services

- Develop an eResearch Advisory Service
- Design and implement the eResearch Infrastructure
- Roll out a capability growth plan in all data & eResearch related areas
- Establish Communities of Practice to support capability development
- Implement a data catalogue and data repository

NZ eResearch Landscape – Collaboration with NeSI

- AgR-NeSI MoU
  - Ensuring eResearch platform objectives are met
  - Developing an exemplar for the research sector

- Infrastructure
  - Hosted by NeSI (more on this in the next talk)

- Capability growth
  - Data Science
  - HPC
  - Data Management

A collaboration model

- **Shares and fosters expertise** across both organisations
- **Mutual support networks** for platform operations, user support, and in **establishing Critical mass** through training and community-building
- Both organisations are discovering and **learning** about how best to support and develop a rich national eResearch ecosystem
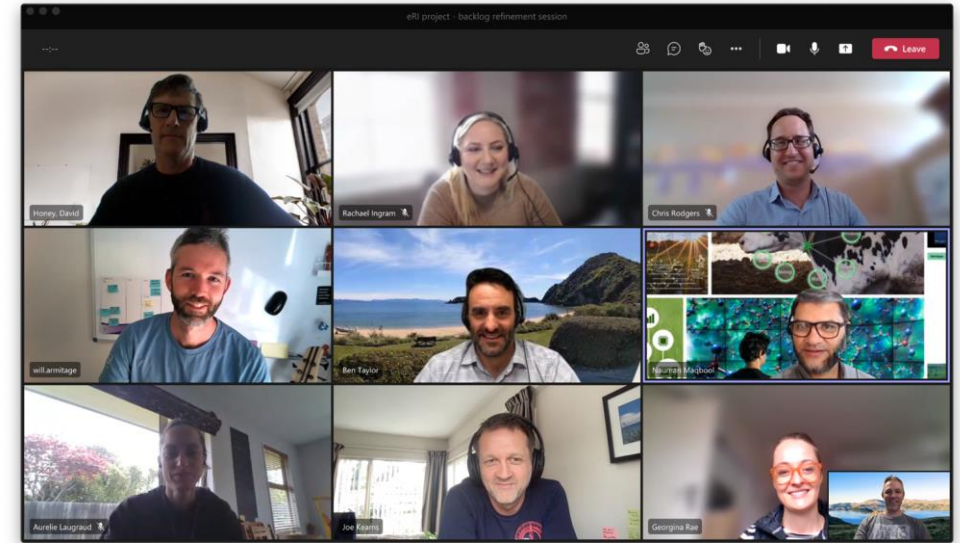
Core Services

High Performance Computing & Data Analytics

Consultancy

Training

Data Services

Benefits of partnering

- Leveraging everyone's expertise
  - Different skills in the two organisations
  - Learning from each other

- New ways of working - Agile by stealth

- User-focus

Challenges of partnering

- Bringing together 2(/3) organisational cultures in a shared approach
  - build relationships
  - build trust
- Energy intensive; resourcing challenges
- This is new for both organisations
- This is a risk for both organisations as well!

Image from:https://www.educba.com/itil-vs-agile/
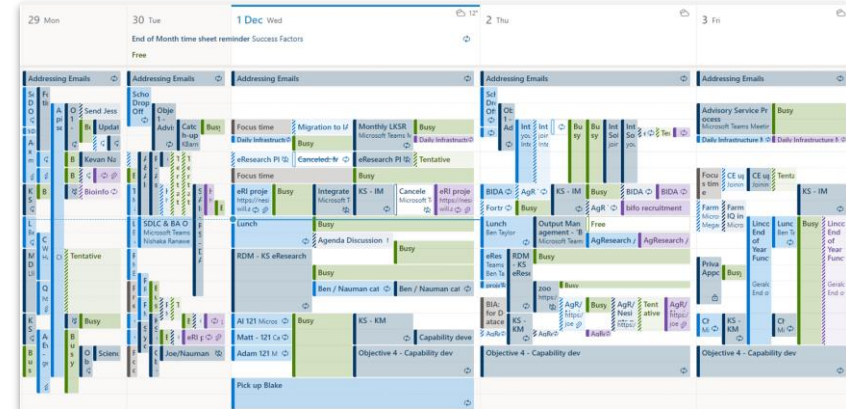
Benefits to the wider research sector

- New way of providing infrastructure - multi-tenanted hosting service
- But much more than the infrastructure alone
  - leveraging existing skills
  - bringing researcher needs to the fore
- De-risking the shortage of skills
  - NeSI has a whole team to help
  - local IT expertise
  - wider pool is de-risking
  - closer to the research
- This model / approach could be an exemplar for other research organisations in the sector - on us to keep sharing our learnings