The Government's Investment Goals for the New Zealand Data Science Research Programmes

The New Zealand Government wants to advance the development of a dynamic and world-class data science research capability for New Zealand. Capability will be built through a strategic portfolio of up to 4 multidisciplinary, use-inspired data science research programmes that address big challenges for the environment, society and economy.

What is Data Science?

Data science is the scientific methods, processes, algorithms and systems to extract knowledge and insights from data in various forms, both structured and unstructured. It is a multidisciplinary endeavour, drawing on computer science statistics, mathematics and other disciplines. We understand data science research as research that develops and extends the data science body of knowledge and toolkit. Data science is applied in multiple application areas, across all research disciplines, and the economy, environment and society.

Why are We Investing in Data Science Research?

Data science is changing how things are done at an extraordinary rate, providing new ways to improve prosperity and wellbeing. To harness the benefits, New Zealand needs to be at the forefront of the emerging technologies. While New Zealand has pockets of world class expertise in data science, current capability is dispersed and small scale.

This investment is intended to significantly lift New Zealand's advanced data science capability.

The Investment Goals

1. **Deliver excellence**: Produce excellent, cutting edge, dynamic and paradigm-shifting data science research.
2. **Grow capability**: Grow the scale, depth, excellence and impact of New Zealand's data science research. The programmes will have strong leadership and multidisciplinary teams. They will attract top international researchers and support emerging researchers
3. **Deliver additionality**: Provide fresh and ambitious thinking, new people, new collaborations, new and expanded research, and new impacts that would not have happened without this investment.
4. **Leverage strategic collaborations**: Foster and grow international and national partnerships amongst data science researchers, and between data science researchers and end users. Partnerships should support research excellence and grow capability.
5. Give effect to the **Vision Mātauranga** policy practically and meaningfully for Māori.

The Research Focus

The data science programmes' research will focus on addressing profound and complex data science challenges to expand the data science body of knowledge.

Each research programme will concentrate on defined **data science areas or challenges**, inspired by **real world domains/use cases** where advanced and stretchy data science will help solve key challenges for New Zealand.

> Areas of data science include machine learning; statistical learning; data mining; image processing; language processing; visualisation; transparency and metrics; and Te Ao Māori and data science.
> Application domain areas that are of interest to government include agritech, environment/conservation, urban systems, space technologies, precision health, and energy technologies. Other domain areas that inspire advanced and stretchy data science can be considered.

The programmes will have appropriate systems and tools to enable access to data.