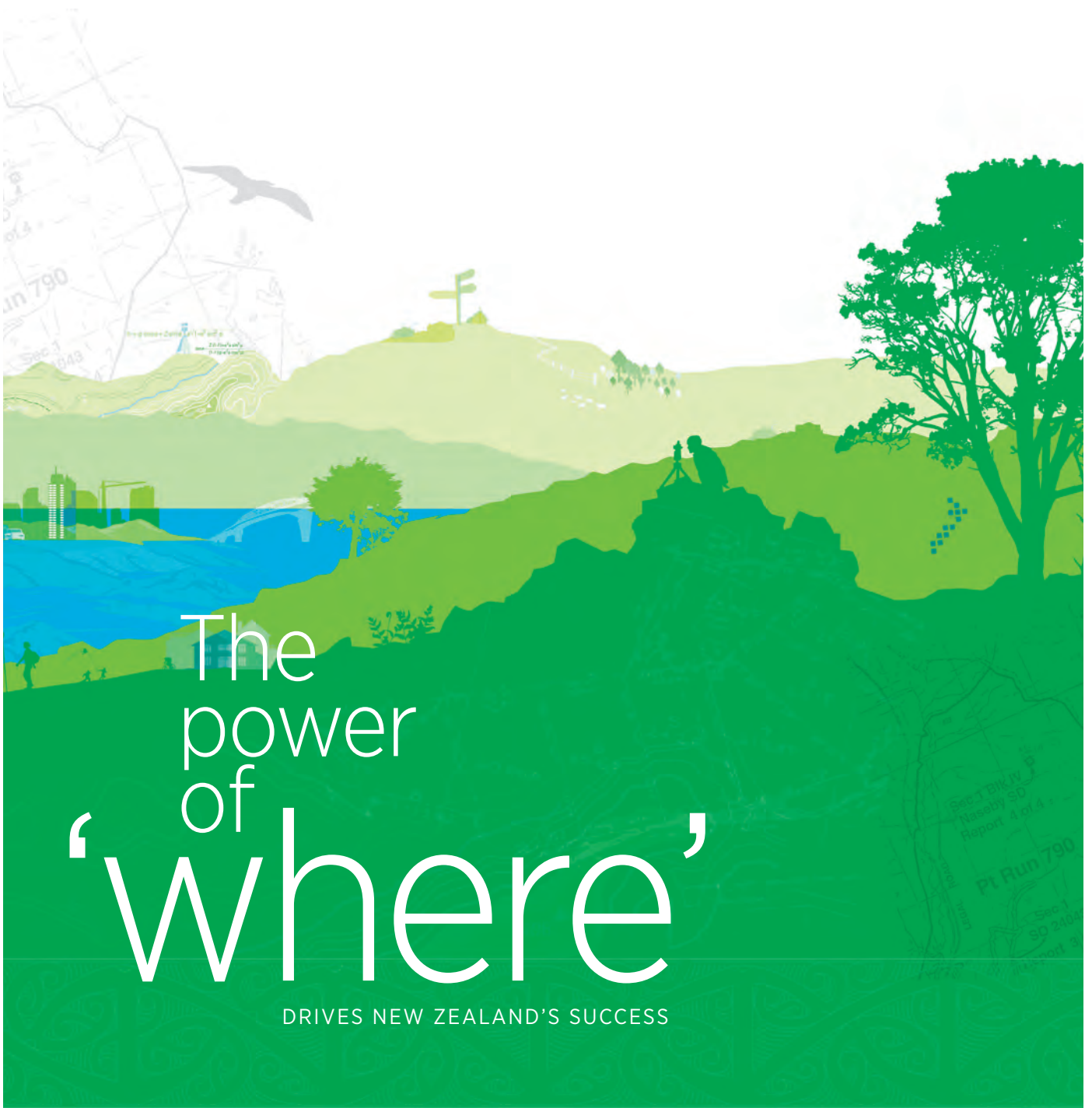




Land Information
New Zealand
Toitū te whenua



The
power
of
'where'

DRIVES NEW ZEALAND'S SUCCESS

Tēnā tātou katoa



I'm pleased to present our 10-year view which highlights the biggest difference we can make for all New Zealanders over the next decade.

Our vision – The Power of ‘Where’ drives New Zealand’s success – expresses our view that putting location information at the heart of our strategic direction will have tremendous benefits for the economy, the environment, our communities, and government.

Our 10-year view is the result of a year of conversations with stakeholders, the LINZ leadership team and all of you. It builds on the important work we do, and identifies the opportunity we have to help create a location information system that will benefit all New Zealanders by driving better decision-making and inspiring innovation. Through this work the economy will prosper and we'll achieve improved social, environmental and cultural outcomes.

I want to thank all of you for the energy, enthusiasm and innovation demonstrated in the Our Future sessions, LLT breakfast sessions, 'Post It' notes in kitchens, and in feedback at team meetings and directly to me. Your contributions reflect the robust and collaborative culture of our organisation and have been instrumental in developing this document.

Transforming our vision into reality will mean changes about how we do some things and how we work with our customers and stakeholders. However, our core outputs underpin our organisational success and it is only by continuing to do them well that we will be able to make this difference over the next 10 years.

I look forward to working with you all as we begin our 10 year journey – considering the shape of the business model we need to give effect to our vision and translating the vision into a revised Our Place picture. Your ongoing input is essential.

Nāku noa nā

A handwritten signature in black ink that reads "P. Mersi". The signature is written in a cursive, flowing style.

Peter Mersi
Chief Executive/Tumuaki Matua
Land Information New Zealand

LINZ 10-year view

The value of location information comes from its interplay, and combination with other kinds of data, to uncover new patterns and knowledge. For some questions, only location information tools provide the answers.

Global uptake in using location information is growing rapidly. It has the proven ability to drive innovation across economies and tackle the most complex long-term issues facing countries.

LINZ aims to **double** the value created for New Zealand through the use of location information over the next decade.

We will do this by leading the creation of a world-class location system that can provoke better decisions and inspire innovation.

We want the location system to benefit **anyone** making **any** decision where location matters.

Two key concepts in this 10-year view are location information and the location system

Location information (also known as geospatial information) is information about 'where'.

It is information that can be linked to a location reference point. It includes physical features which are on, above or below the earth's surface, things which have passed over it or through it (from traffic and people, to weather, medical symptoms and hazards) and intangible features (such as place names and property rights).

The location system includes people, information and technology, working together to capture, store and make available any information that can be location-enabled. By ensuring the system develops and operates in a seamless, integrated way and the information is widely accessible, it will provoke better decisions and inspire innovation

The location system is explained in more detail on pages 9 – 11.

The
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Introducing our 10-year view

LINZ's 10-year view shows the part we play in driving success for New Zealand.

Land Information New Zealand (LINZ) has looked a decade ahead at how we can apply our focus, funding and people to the greatest benefit. Our explorations have been grounded in the expertise of our staff, research and targeted conversations with a broad range of stakeholders and key thinkers. All have provided invaluable, fresh insight into an exciting future for New Zealand and LINZ.

Location information is the opportunity we must grasp

Through the thinking and insight we have gained, LINZ has come to a simple and compelling conclusion: putting location information at the heart of our strategic direction can have tremendous benefits for our economy, communities, Māori/Iwi and government.

Products and services built off the back of location information already generate hundreds of billions in revenue across the globe. However, New Zealand has yet to use the full potential of this information. It has the power to drive innovation and greater productivity across the economy, underpin **all and any** planning and decision-making, and improve the safety and prosperity of communities.

Over the next ten years, LINZ's primary purpose will be to create a world-class system of integrated, seamless location information. We are confident that the impacts of such a system could be as large as the problems it can help tackle, from climate change to use of New Zealand's natural resources, to the country's most pressing health problems.

This is the direction for our investments, planning and priorities

We do not fully know the path from 2013 to a seamless location system in 2023. That is what makes our goal challenging and rewarding, an aspiration as well as a 'to-do' list.

By stating the value LINZ wants to create for New Zealand, our 10-year view will become the lens through which we will develop detailed strategic and operational plans. It will help us to prioritise our resources and staff efforts, and to determine the co-investments and partnerships we will develop with stakeholders.

Every person at LINZ will play a part in our success over the next decade, whether through working directly or indirectly **on** or **in** a world-class location system for New Zealand.

Indeed, the expertise and dedication of the LINZ workforce and our reputation for delivering world-class services provide a solid foundation for us to attain a challenging, aspirational goal for location information.

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Drivers of growth in location information

Globally, businesses and government are investing in location information because of its proven ability to unleash innovation and greater productivity, and because of its importance for evidence-based decision-making.

Location information does not create economic growth or higher living standards by itself. The value comes from the interplay of location information, and sometimes its combination with other data, to uncover new patterns and knowledge. For this reason, it is a powerful enabler for productivity, wellbeing and increased economic growth across many sectors.

Location information-based services are growing at an estimated 30% a year globally.¹ This growth is fueled by rapid technological advances such as mobile apps that remove everyday hassles for consumers and systems that save precious seconds in emergency response situations.

A strong driver for investment comes from businesses seeking to innovate and squeeze the greatest productivity from their assets. It is said that up to 80% of the information managed by businesses is connected to a location in some way.²

A 2013 study by Oxera¹ highlighted the sizeable economic impact of location information services. They are estimated to generate between \$150-270 billion in global revenue a year. Just some of their benefits include:

- saving the world an annual 1.1 billion hours in travel time and 3.5 billion litres in gasoline
- saving \$8-22 billion in agricultural irrigation costs a year, and
- helping to speed up emergency responses, saving an estimated 152 lives in the UK alone.

Location information drivers in New Zealand

New Zealand is a leading part of this rapid global growth in location information. When last measured, its use was estimated to add \$1.2 billion in economic benefits to the country.³ In addition, it is thought that the worth of non-economic benefits from using location information is much higher.

Over the next decade, New Zealand organisations in every sector will continue to invest in location technologies and data that increase innovation and productivity. Uptake will also be driven by the need to understand and tackle long-term, complex challenges that do not respect administrative boundaries or the capabilities of the organisations tackling them.

These challenges will cross our economy and society, covering natural resources use, health, education, or crime. The diagram on the next page illustrates some of these challenges, as well as a few of the many insights from stakeholders and research that have helped to shape our thinking.

¹ *What is the economic impact of geo services?*, a report prepared for Google by Oxera, January 2013. Geo services are defined here as an industry comprising all interactive digital mapping and location-based services.

² Geospatial Information and Technological Association, 2008.

³ *Modern spatial information in the NZ economy*, a report prepared for LINZ by Acil Tasman, August 2009.

STAKEHOLDER INSIGHTS

Finding data is difficult, but essential. Someone needs to care about the system that generates this data. Better firms invest in data and business intelligence.

STAKEHOLDER INSIGHTS

New Zealand needs to improve our long-term thinking on land and cross-generational issues.

STAKEHOLDER INSIGHTS

Māori economic development is focused on more productive use of resources and improved management of assets.

Accurate, timely information and analytical tools will be essential.

WHAT THE ENVIRONMENTAL SCANNING TELLS US

New Zealand's long-term horizon will be dominated by a complex range of strategies for infrastructure development, spatial planning including hazard management, water management, science, developing exports, and stimulating productivity.

drivers for growth

IN LOCATION INFORMATION

STAKEHOLDER INSIGHTS

Farming will remain the key driver of GDP. Hyper-accurate information on things such as soil chemistry or the slope of your land underpins everything as it improves productivity.

WHAT THE RESEARCH TELLS US

It is hard to put a value figure on the benefits enabled by location information that are not related to productivity.

However, ACIL Tasman (2009) suggests there is "almost unimaginable potential for it to become 'mainstream'."

For example, "Planning and building 'smarter' cities and transport systems that will not only cut down fuel costs, but could also avoid accidents, reduce emissions, enable changes in travel behaviour, make for a better living space and so on, will add much more in terms of value."

WHAT THE RESEARCH TELLS US

Oxera (2013) highlights some of the award-winning and innovative ways in which location information is being put to use:

- helping to predict natural disasters
- logging the location of ship crew members if they fall overboard, and
- helping search-and-rescue coordinators to determine which areas rescue dogs have searched.

WHAT THE ENVIRONMENTAL SCANNING TELLS US

Developments in the use of location information are occurring all the time. Recent work in the UK is investigating using location enabled Twitter to provide alerts about train delays or social issue warnings. We cannot anticipate what might be next.

WHAT THE ENVIRONMENTAL SCANNING TELLS US

The potential of location information to tackle health problems can be seen in a Canterbury study which is investigating potential asthma triggers.

The study is using location technologies to track where and when asthma sufferers are using inhalers alongside data on weather and environmental conditions such as pollution or pollen levels.

STAKEHOLDER INSIGHTS

When a person decides to plant a forest, how do they know to do this, as opposed to establishing a dairy farm?

How does a person buying a house find out about the property they are taking on, or the land under it? Should it not be easy to find out what standards a house was built to, how many times it has been sold, or whether it is prone to flooding?

The opportunity for LINZ

New Zealand will benefit extensively from innovative location information use, **if** we can ensure any decision-maker who needs it, in fact anyone with a good idea, can access it easily.

Since 2007, the New Zealand government has recognised the need to make location information freely accessible and re-useable, and to treat our location assets as important knowledge infrastructure.

While many organisations in government and business are investing, New Zealand needs to focus more than ever on driving location data away from locked-up applications, in making it shareable, and ensuring it can be put to wider innovative uses. The barriers that currently prevent this cost an estimated \$500 million to New Zealand.⁴

This \$500 million is just the costs we can quantify. It includes the time and money spent by businesses and government agencies trying to find and process the location information they need.

More broadly, barriers to sharing location information limit the ability of New Zealand to put it to much greater innovative uses, or to address our most challenging issues systematically, with long-term thinking and robust evidence.

The impact of making location information shareable – or interoperable – “is potentially as large as the problems that geospatial data describes (e.g. climate change, AIDS, SARS, and Avian flu).”

2005 report for NASA on the geospatial interoperability return on investment

The opportunity LINZ must grasp

LINZ creates much of New Zealand’s most valuable location information, and is a government leader of digital service delivery. If we did nothing more in this space, the value we would add from our services would continue to grow over time.

However, our work on this 10-year view makes it clear that New Zealand’s location assets need to be led more strategically, as a **system** with users at its centre.

LINZ is committing fully to ensuring New Zealand has an enduring, seamless system of location information, and to working on that location system as a whole to ensure there are no limitations on its innovative potential.

We want New Zealand to have a location system that benefits **anyone** making **any** decision where location matters.

⁴Acil Tasman, August 2009.

The value we will create

In committing to this opportunity, LINZ has set a clear vision, purpose and goal for the next decade.

Our vision is: the power of ‘where’ drives New Zealand’s success.

Our purpose will be to: lead the creation of a world-class location information system, used to provoke better decisions and inspire innovation.

Our goal will be to: double the value created for New Zealand through the use of location information.

We will achieve it through: creating an integrated, seamless location system and connecting participants across the system.

After 10 years:

- location information will be widely and seamlessly available to any decision-maker, and used to make better decisions, and
- it will generate increased, value-adding innovation.

Our work will support increased:

- GDP (through improving productivity)
- living standards for New Zealanders (in helping to drive enduring, informed decisions that balance economic, environmental, social, and cultural factors)
- empowerment of all New Zealanders to make informed decisions.

Our location system will improve New Zealanders’ lives by:

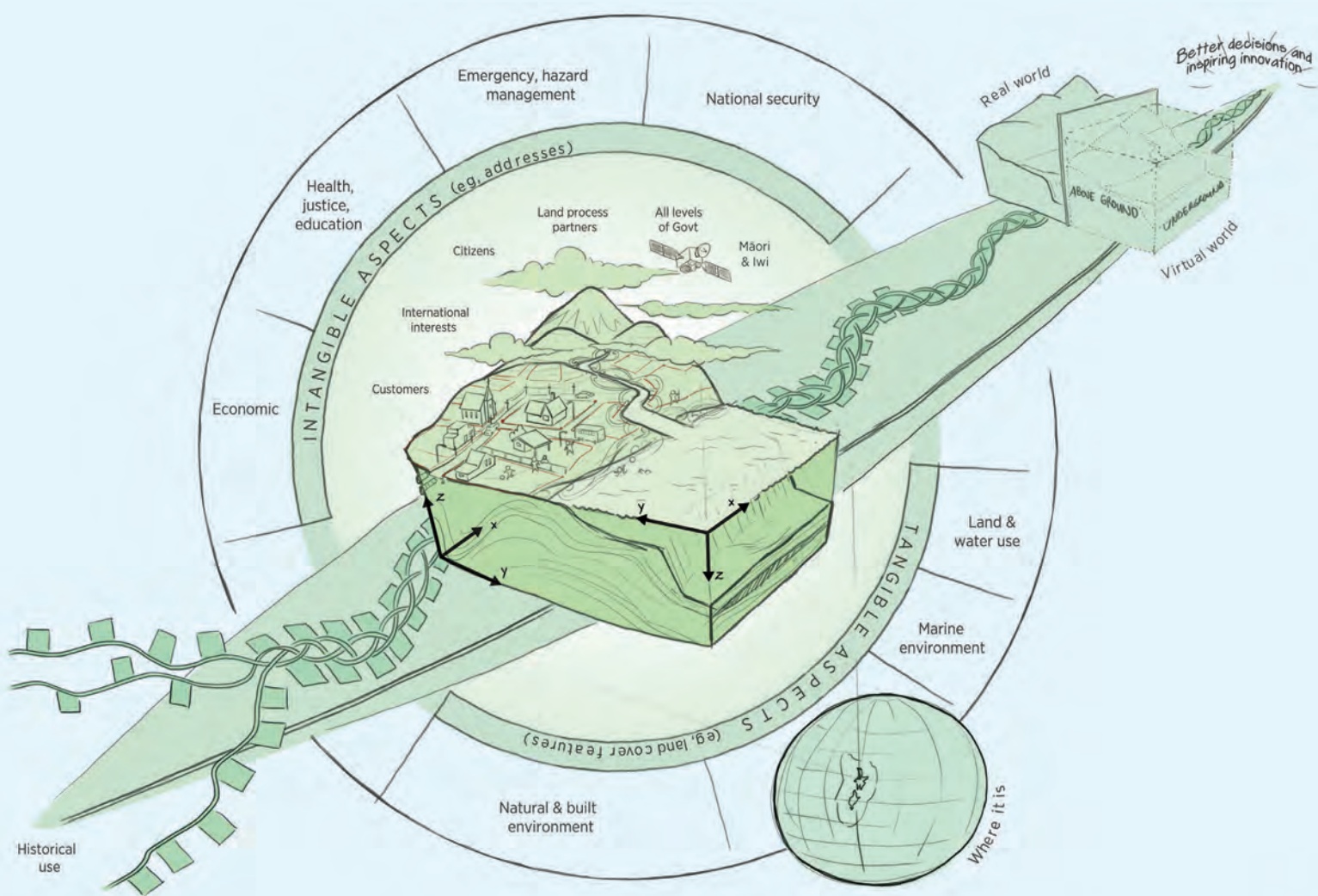
- reducing transaction costs and the frustrations in finding information
- speeding up planning and decision-making
- aiding more sustainable decisions that benefit future generations, and
- driving greater resilience and faster recovery from national events.



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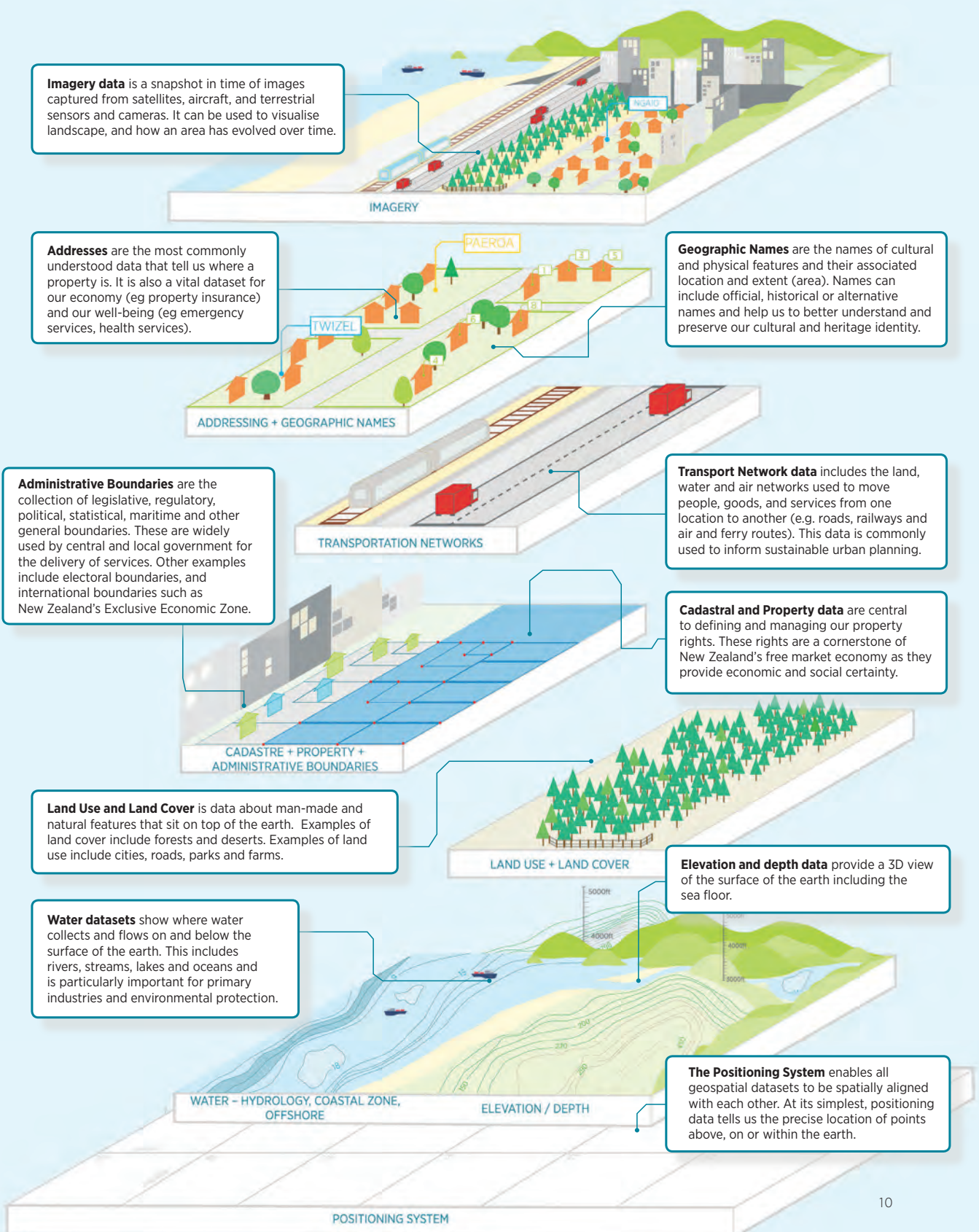
Scope of New Zealand's location system in 2013



The whāriki design used in this visual references He Whāriki Maurua, the title given to LINZ's Business with Māori Strategy. He Whāriki Maurua means "the bringing together of two pieces or sections of a whāriki or mat". The maurua therefore is the seam. He Whāriki Maurua expresses the different cultural values Māori and the Crown ascribe to the land (like two pieces of the same mat), merged together through a special thread, creating a resilient seam, and also a stronger and more enduring whāriki. The seam and whāriki symbolise the weaving together of a range of perspectives about location and acts as a foundation design element for New Zealand's location system.

At the core of the location system are the fundamental data themes.

The ten fundamental data themes below are the location information equivalents of New Zealand's roads of national significance. They offer the highest value in terms of enabling productivity in our economy and society. These data themes comprise a range of data sets.



Key components of the location system

Because we do not want to limit its innovative potential and users, the location system is a broad concept. Here are some of its key components.

Scope

The scope of the location system encompasses information about tangible features (such as New Zealand's natural and built environments, including what is below or above the ground), intangible information that can be created about a location (for example, property rights or place names), and information about things that pass through a location at a point in time (such as motor vehicles and people).

In a geographical sense, New Zealand's location system encompasses the country's Exclusive Economic Zone, including continental shelf, and provides a way of showing where New Zealand is relative to the rest of the world.

Time

Time is inherent to a location system. An effective location system captures points in time – such as when an event happens – and provides these points in a time-series, as trends or movements in time. Analysis of past trends is critical to effective long-term planning and decision-making.

Fundamental location information at the core

The core datasets for a location system are called fundamental data (see page 10). Trusted, high-quality fundamental datasets are needed to underpin the overlaying of other important issue-specific location information.

Many participants

A location system is not just technology or datasets. It is made up of many people who create, manage or interpret data, develop innovative tools from it, and who use the services created from the system.

Key players in a location system are the Stewards of the 10 Fundamental Data Themes, taking responsibility for ensuring data is accurate, accessible and interoperable. Within each Data Theme are a range of datasets looked after by Custodians.

Standards make sharing possible

Location information can only be overlaid if it is shareable or 'interoperable'. Standards are the common formats that organisations use to describe their datasets and release them.

Tools for thinking spatially

Location information tools allow us to overlay and understand huge amounts of data, visualise problems or operations in radically different ways, and improve our decisions.

How we will drive for a seamless location system

LINZ will need to work **on** the location system as a whole, and continue delivering high-quality services **inside** it.

We are one of the key players who deliver location information, data, products and services. LINZ needs to keep doing this while we make the step-up to working **on** the system as whole.

Working inside the location system

LINZ is responsible for a range of enduring functions and highly trusted services. For instance, the property rights system we oversee is noted for its robustness and efficiency. It underpins a well-performing economy, safeguarding \$672 billion in residential wealth alone.⁵ In addition, it generates core information for the location system, such as addresses and cadastral information.

LINZ will continue to provide, and improve, a range of accurate location datasets. We will ensure the continuous development of our technical capability and technologies.

LINZ will understand the value chain within this system, the key players and where Government priorities lie within it.

This 10-year view may mean making changes to our operating model in some areas, however the extent and quality of our functions will remain the same. They are the foundation of credibility on which LINZ can operate.

Working on the system

The leadership commitment LINZ is making in this 10-year view means we will need to work **on** and **across** New Zealand's location system. This will include:

- working in partnerships on investments in data and system development priorities
- deepening our understanding of the location system and its users
- assisting others to, not only act as a data theme steward, but to also understand their role in the system and where they can best add value to it
- meeting demand at various points where we can demonstrate what is possible from the use of location information
- undertaking long-term planning in line with the significant lead-times needed for creating and managing location systems, and
- overseeing development of the standards that ensure disparate datasets can be connected and shared.

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The location information goal will drive investments, planning, priorities, and partnerships

The purpose and goal outlined in this 10-year view will be achieved through the efforts of our entire workforce. It will be the primary lens for LINZ's four-year and annual business planning, for developing our operating model, for implementation and monitoring, and for evaluating progress against our goal.

Like other rapidly growing and changing technologies such as broadband, the exact applications and impacts created by location information are hard to foresee a decade out. Stakeholders have given us fresh insight into just some of its potential uses and benefits in this 10-year view.

We thank them for this insight, and invite them to join us in creating a seamless location system that is recognised as a critical component of New Zealand's infrastructure, and utilised to its full innovative potential.



