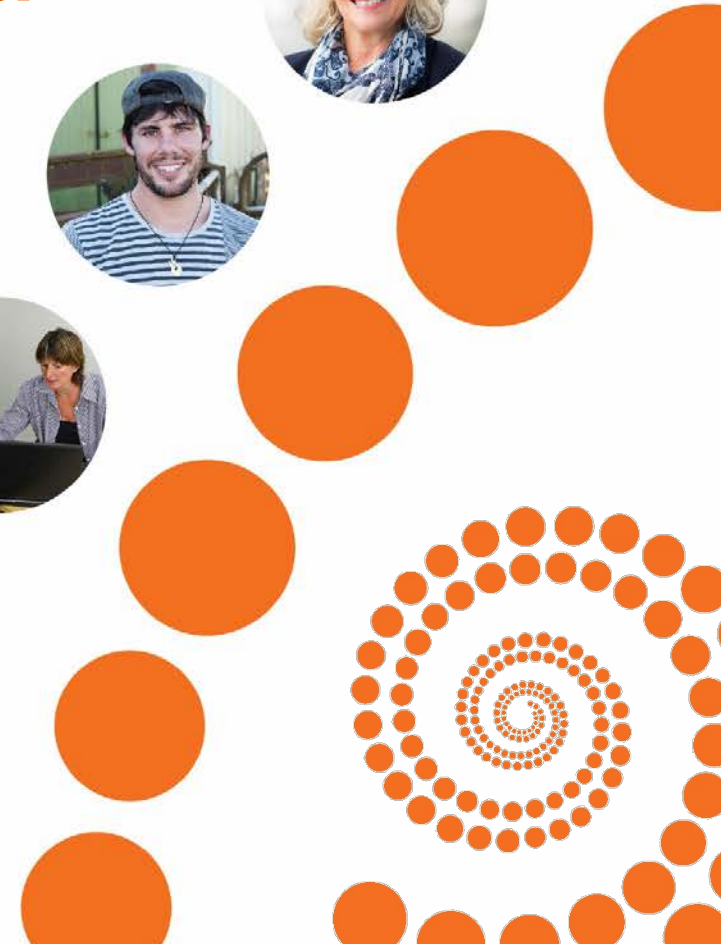


The New Zealand context and data infrastructure

Alison Stringer,
Principal Policy Advisor
System Integrity and
Engagement

April 2018



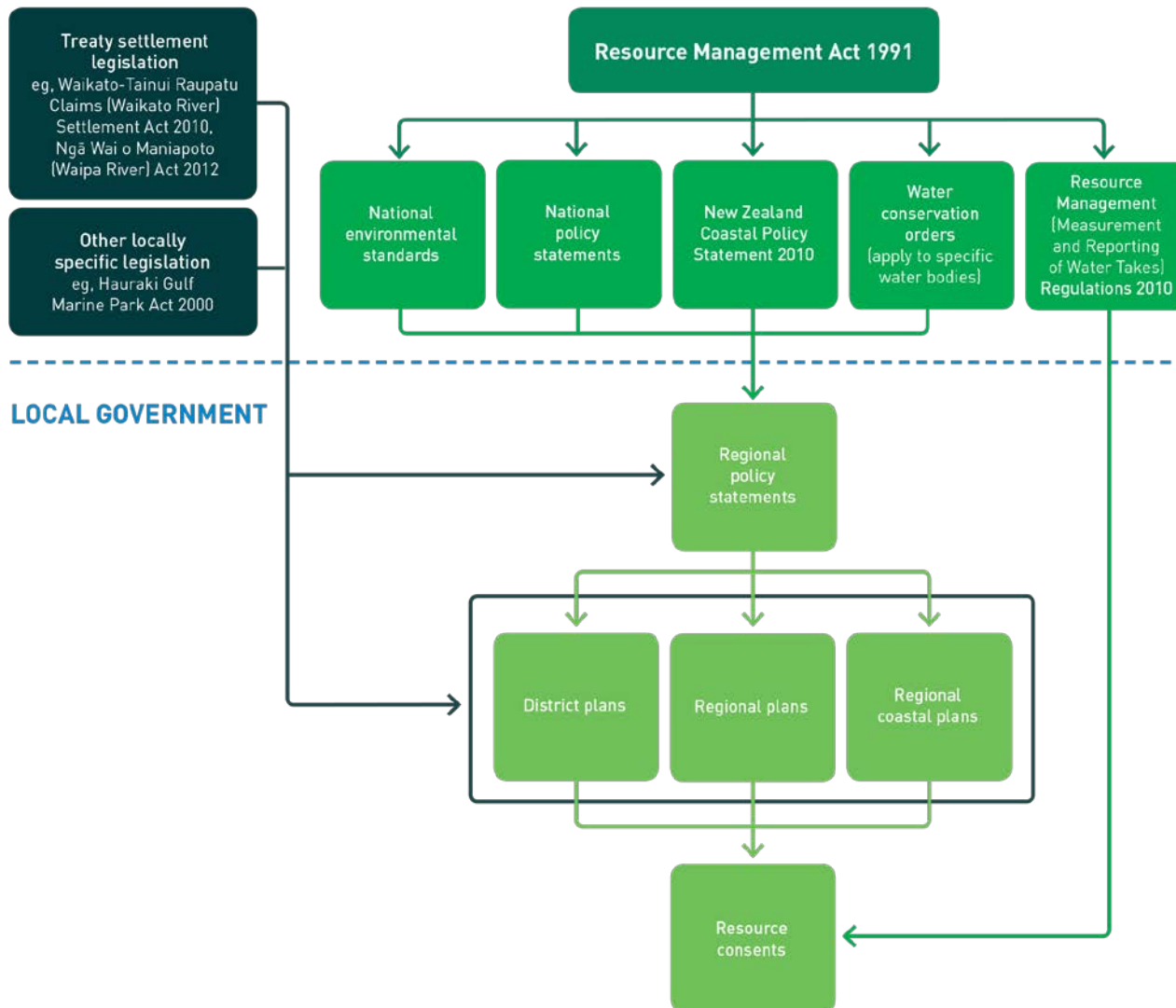


SUSTAINABLE DEVELOPMENT GOALS

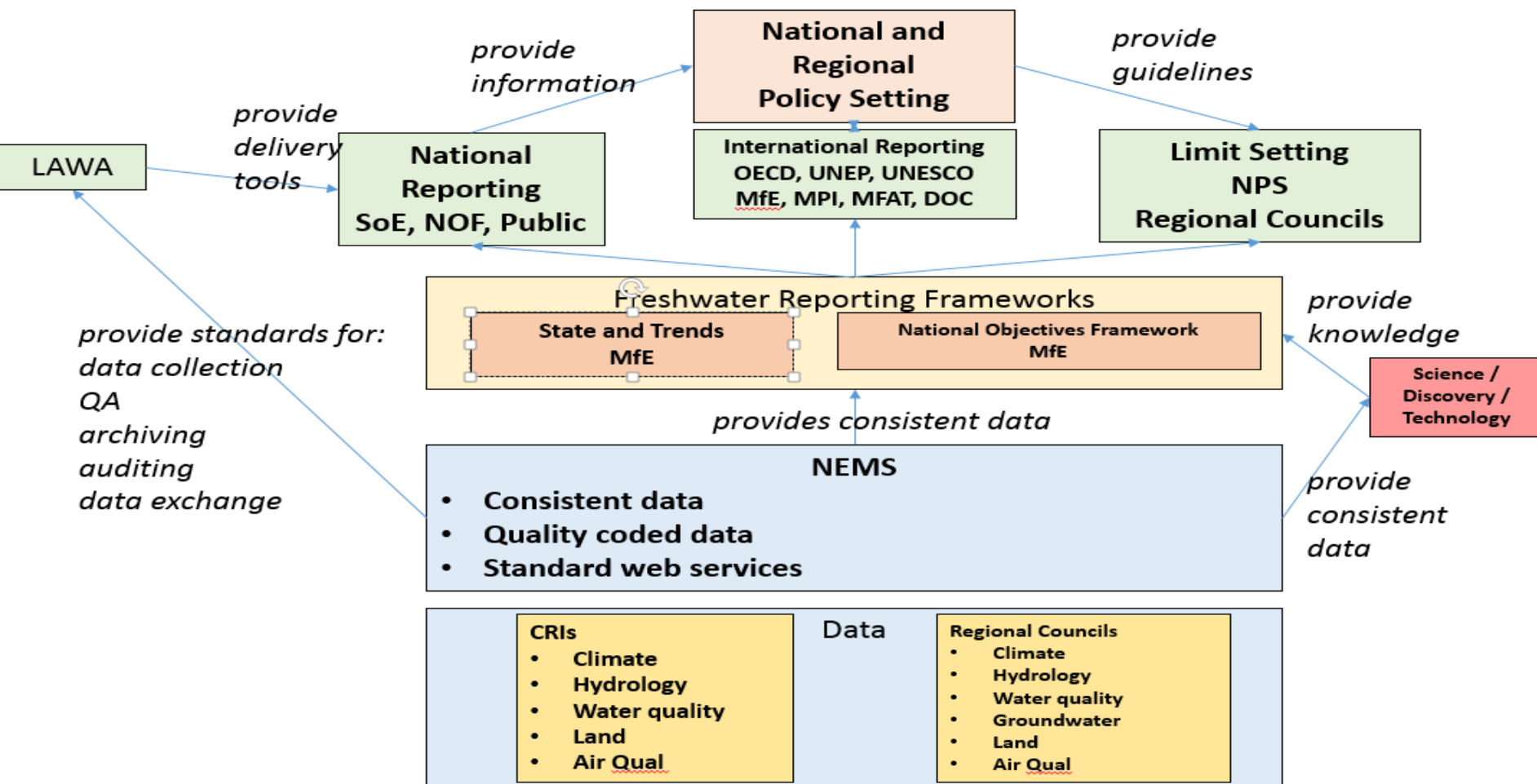


Freshwater legislation

CENTRAL GOVERNMENT



National Freshwater Monitoring and Reporting



NEMS Objective and Approach

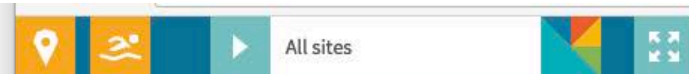
Objective:

To enable the nationally consistent collection, processing and archiving of defensible and accessible environmental data

Approach:

- Develop national standards for environmental monitoring.
- Develop national quality management procedures
- Develop national environmental monitoring training qualifications
- Create a central storage site for all national standards
- Develop robust national data exchange mechanisms





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LAWA connects you with New Zealand's environment through sharing scientific data

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Explore topics



Can I swim here?

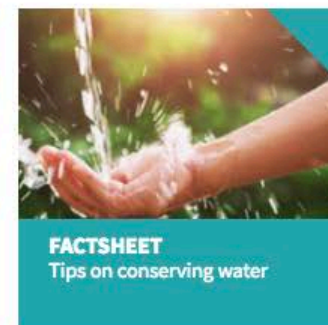


All Sites

- Scientific
- Recreational
- Scientific & Recreational
- Flow
- Bore
- Rainfall
- Rainfall & Flow
- Rainfall & Bore

mapbox

Leaflet | © Mapbox © OpenStreetMap [Improve this map](#)



Current Data Infrastructure

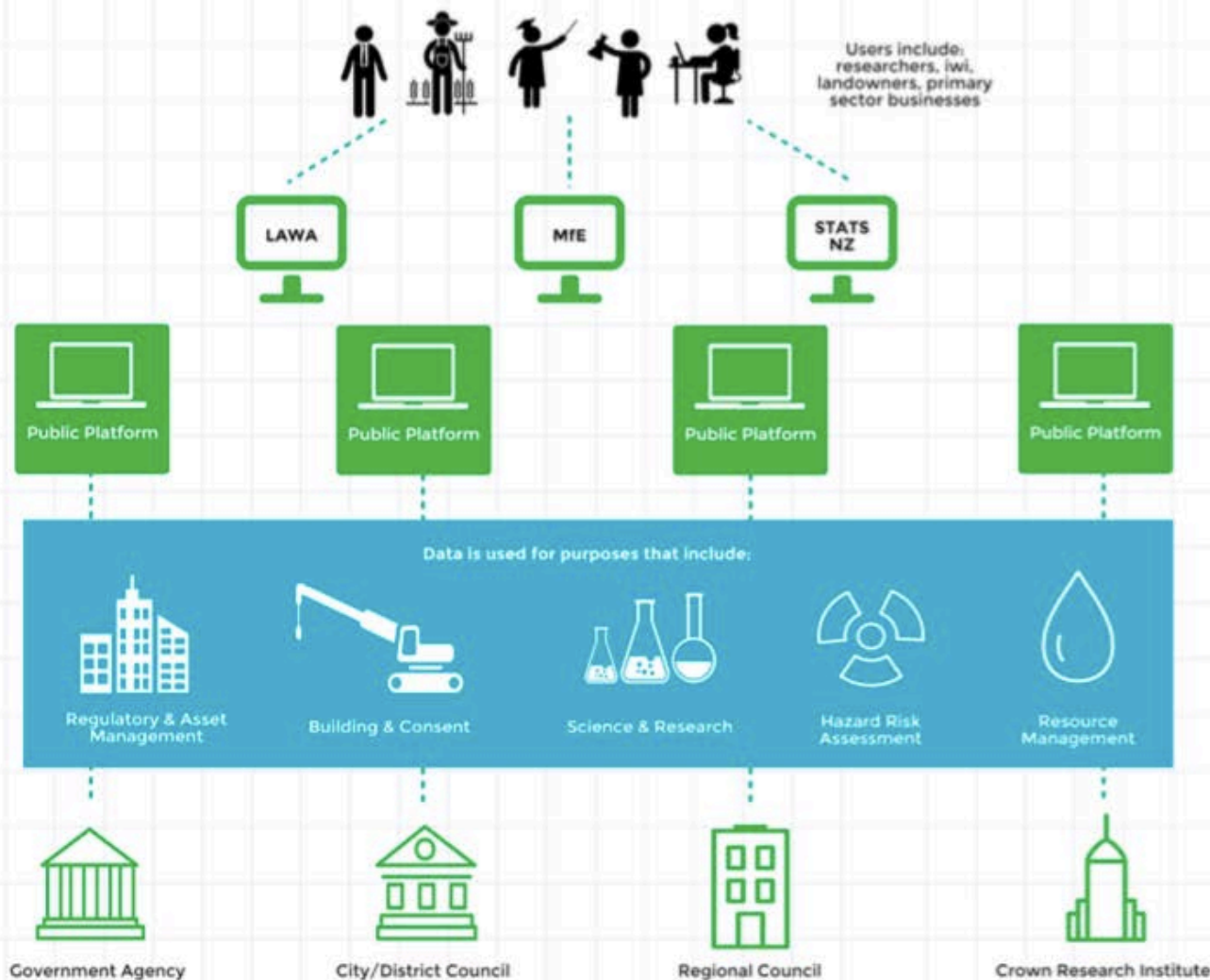
Secondary users & decision makers

National Data Publishers

Agency Data Publishers

Agency Data Users (primary decision makers)

Data Collectors & Providers



What is wrong?



1. Inadequate Platforms

Some platforms do not:

- ✗ Allow data to be easily integrated from multiple sources



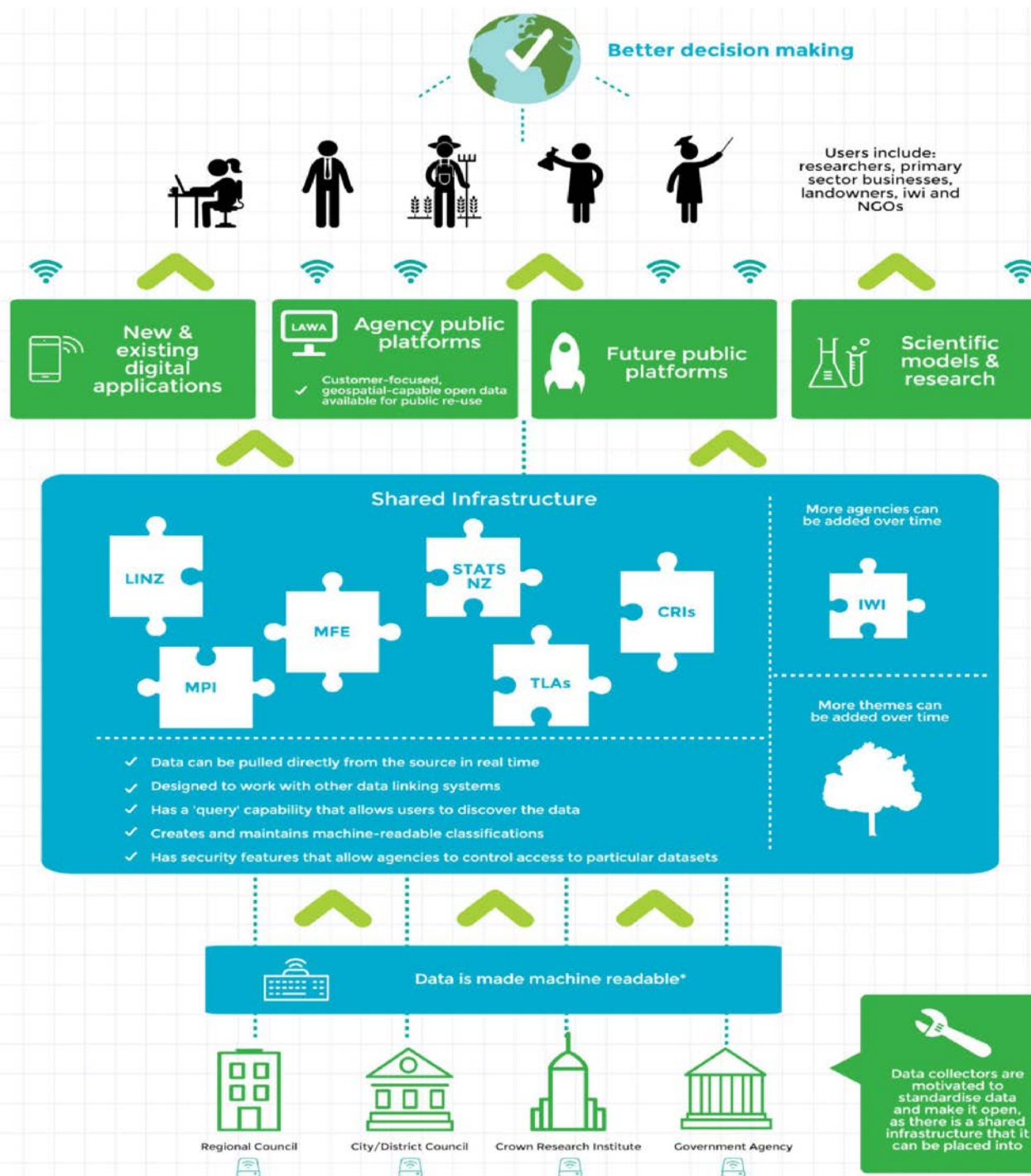
2. Data not readily useable

- ✗ Data is difficult to find
- ✗ Data is unavailable in real time
- ✗ Inconsistent data classification
- ✗ No common language used to describe data



3. Inconsistent Collection

- ✗ Data is collected using different methods, standards and sensors
- ✗ Different models used for making decisions



PublishMyData

NEW ZEALAND
Environmental Integrated Data Infrastructure
Prod Of Concept Beta

Explore Tools Search Help

A resource in the dataset Horizons monitoring sites.

Hautapu at Alabasters

DATA API

URI

This is a linked data resource: it has a permanent unique uri at which both humans and machines can find it on the Internet, and which can be used as an identifier in queries on our [SPARQL endpoint](#)
<http://envdatapoc.co.nz/id/measurement-site/HRC-00003>

ALL METADATA

In Graph
<http://www.openlink.org/openlink-api/semantics/webgraph>

Catchment
<http://envdatapoc.co.nz/def/catchment> **Rangitikei**
<http://envdatapoc.co.nz/id/catchment/rangitikei>

Council Site ID
<http://envdatapoc.co.nz/def/council> Hautapu at Alabasters xsd:string

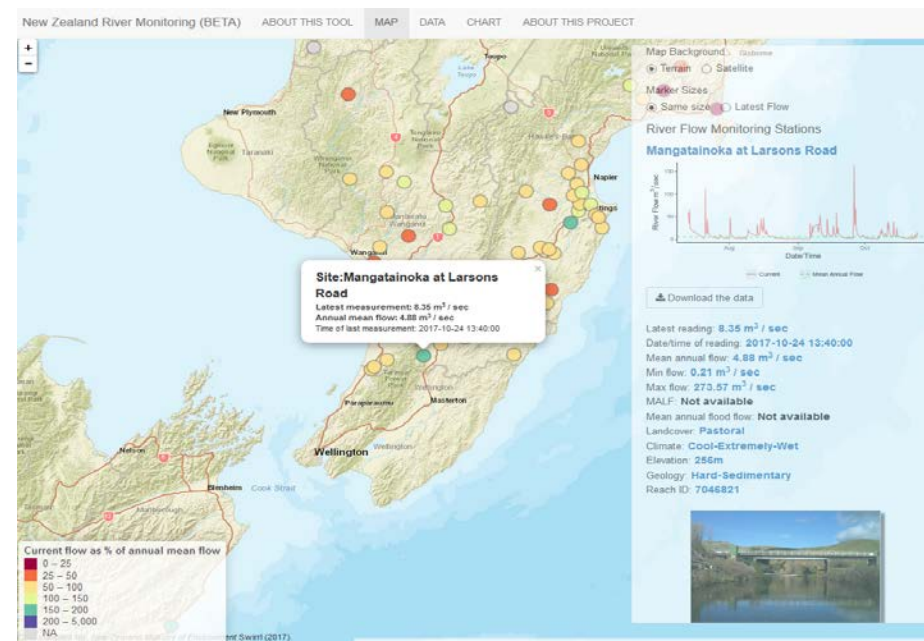
Elevation
<http://envdatapoc.co.nz/def/elevation> 445.0 xsd:double

HasGeometry
<http://envdatapoc.co.nz/id/measurement-site/HRC-00003/geometry>
<http://www.openlink.org/openlink-api/semantics/webgraph>

Image
<http://schema.org/image> [http://hilltopserver.horizons.govt.nz/images/sitephotos/hautapu at Alabasters.jpg](http://hilltopserver.horizons.govt.nz/images/sitephotos/hautapu%20at%20alabasters.jpg)
<http://www.w3.org/2008/11/rdflib-schema>

Label
<http://www.w3.org/2008/11/rdflib-schema> Hautapu at Alabasters xsd:string

Visualisation



<https://youtu.be/HcFsXMzdac>

<https://youtu.be/J34lkdHsHDc>

Linked Data Approach: Use the linked data approach to enhance existing database management systems for publishing linked open data.

Build and leverage communities: Assistance for implementing the linked data approach

Education: Build awareness of approach through publications, case studies, forums, and communities of practice.

Open Data: Publish data to comply with open data formats, licenses, discoverability and metadata best practices.

Data quality framework: Adopt and adapt existing data quality frameworks for published data to ensure information exists and is reliable.

Metadata processes: Implement more robust metadata frameworks and processes for data publishers, so that metadata is descriptive, has open formats, harvesting capability, has common terms compliant to standards and best practices.

Standardise vocabularies: Build, publish and maintain vocabularies where communities agree to common terms applicable across domains.

Operationalise OGC/ISO Standards: Integrate standards into data management processes.

Discoverability and provenance

National registries: A single coordinating agency that governs national registries for authoritative common terms, datasets, vocabularies/ontologies and Uniform Resource Identifiers (URIs).

National URI design guidelines: A national approach as guidance to assist agencies mint URIs that are consistent for all web resources and designed for longevity.

National Persistent Identifier (PID) service: To implement logic or business rules to recognized URI patterns of incoming requests to perform specific actions for data retrieval.

Social Contracts: as stated by [W3C's Best Practices for Publishing Linked Data](#), publishers are entering into a [social contract](#) with users of data, publishers must acknowledge responsibility in maintaining the data once published. Publishers need to adopt best practices as guidance for data publishers around social contracts for the responsibilities in maintaining data once it has been published.

Enduring issues

- With the right people, timing and support we can achieve the (seemingly) impossible
- Hosting, funding and capability to support shared infrastructure
- Capacity and capability
- It's can be difficult to take time away from the day to day to improve systems
- We have great ideas, implementation is key
- Expectations are high

Emerging issues

- Need to integrate ethics into data processes
- Even more focus on transparency and trust
- Need to integrate and make sense of data within, between and beyond environmental domains into economic, social and cultural values
- Need sense-making and analysis methods that keep pace with changes
- **With the right people, timing and support we can achieve the (seemingly) impossible**

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E-IDI project page

<http://www.mfe.govt.nz/more/data/mfe-data-service/e-idi-%E2%80%93-real-time-environmental-data-one-spot>



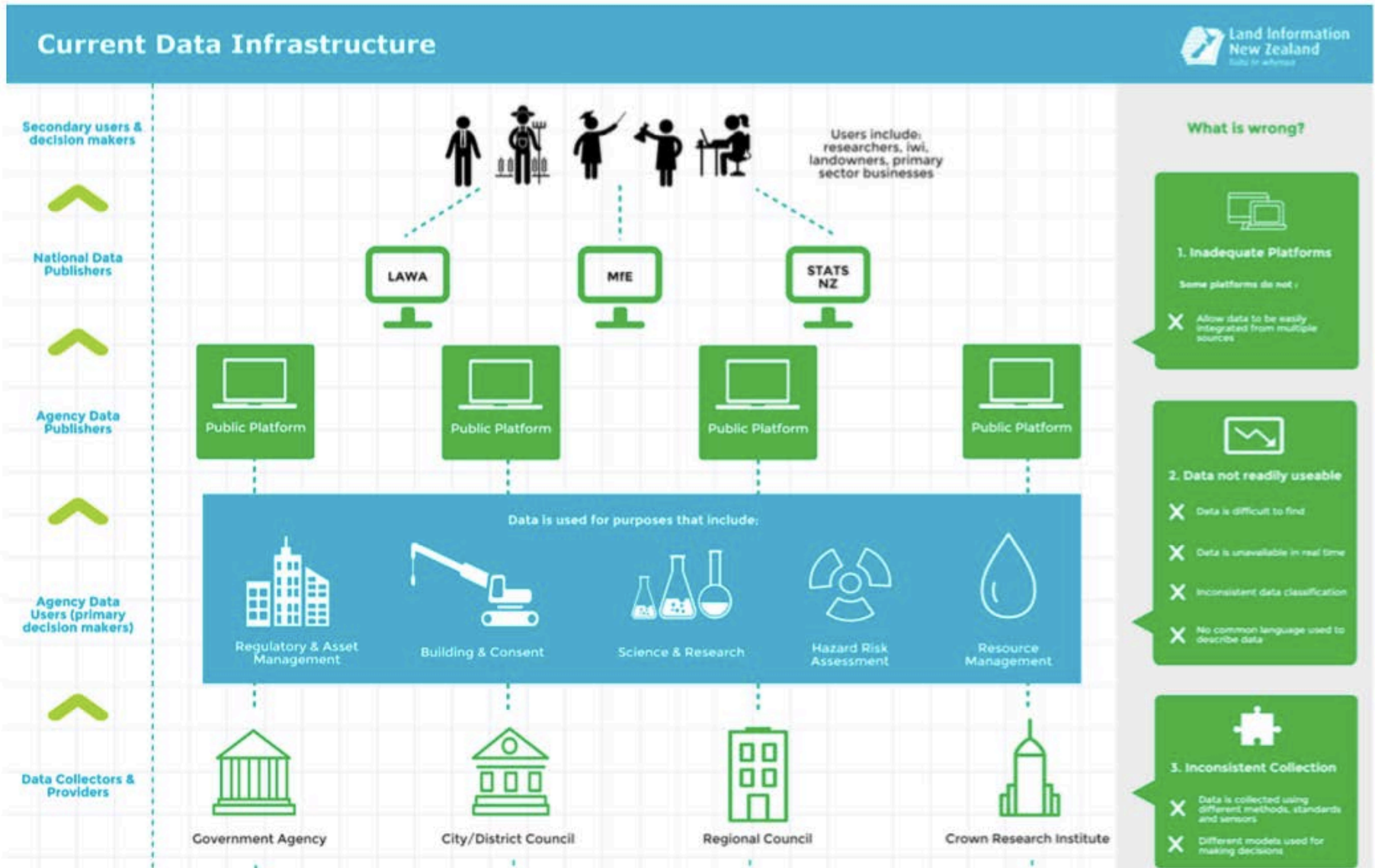
Alison Stringer

alison.stringer@statsnz.govt.nz

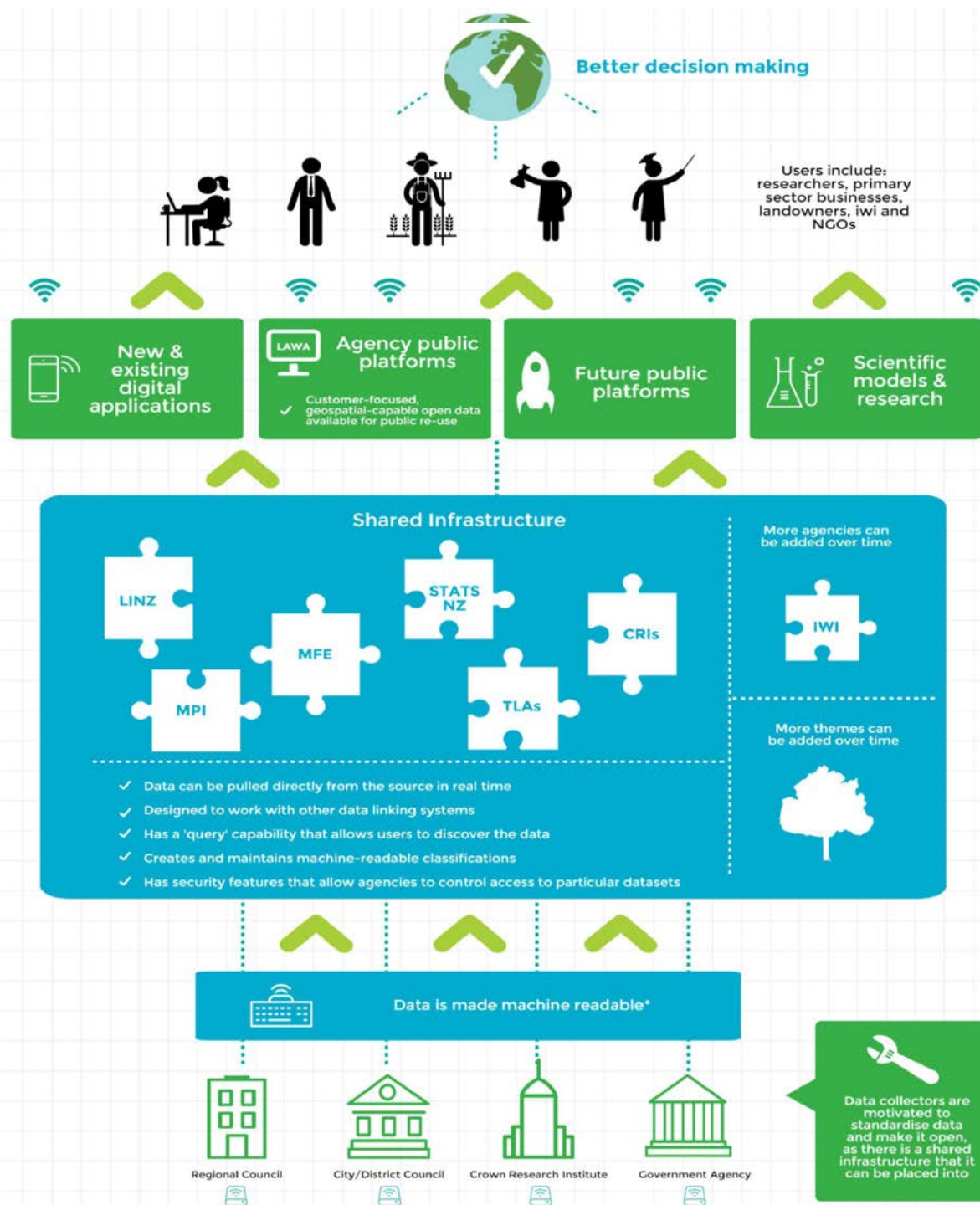
E-IDI project page

<http://www.mfe.govt.nz/more/data/mfe-data-service/e-idi-%E2%80%93-real-time-environmental-data-one-spot>

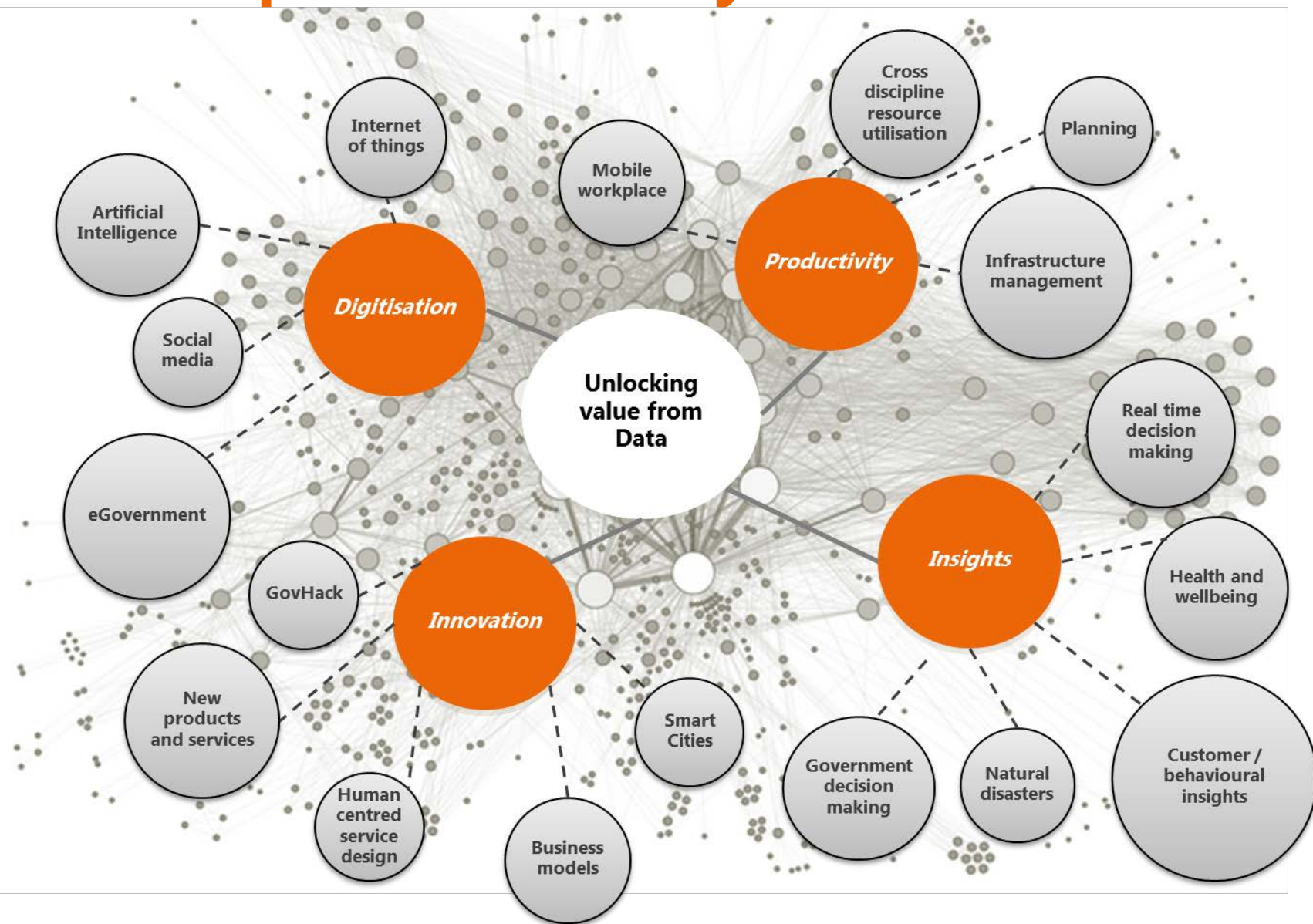
Current State



Future State



Why do we need a Strategy and Roadmap for the data system?



Government priorities – Measures of Progress

Government intends to develop a measurement framework for New Zealand:

- **A set of measures to enable an enduring picture of how New Zealand performs across economic, environmental and social dimensions**
- **Current and future governments could use these to focus effort and hold themselves to account**

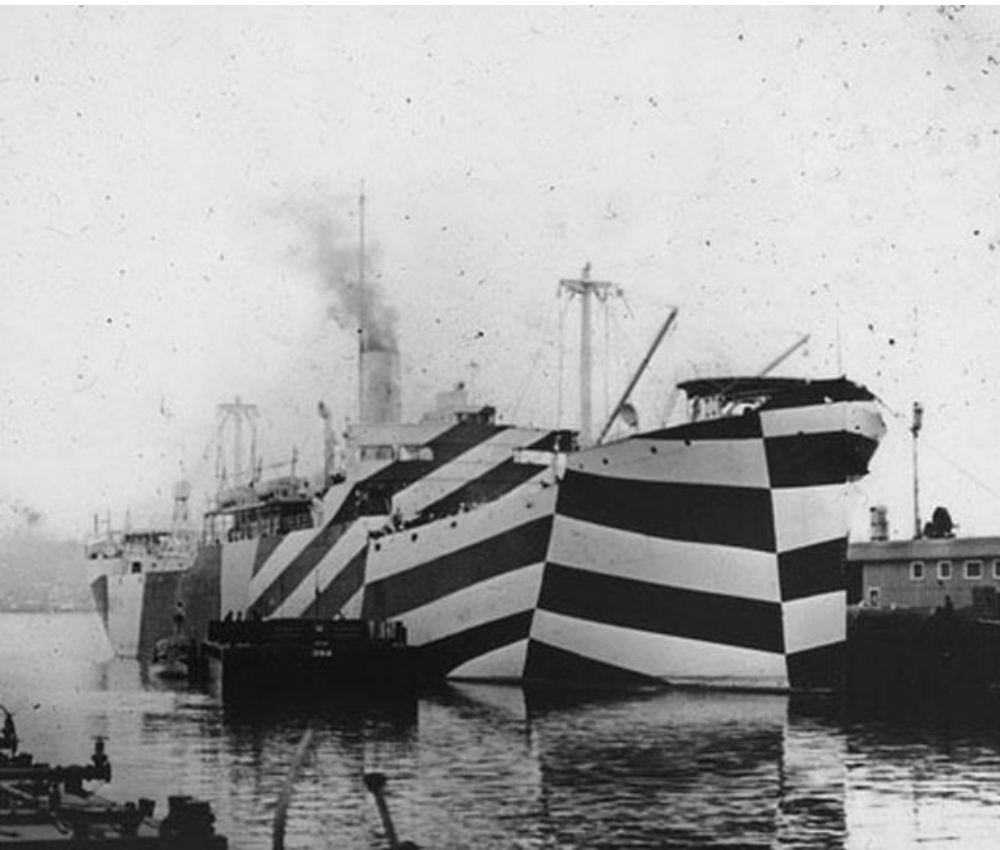
Government priorities – Freshwater

**“More action to improve water quality, more quickly”
is the high level message from the new Government**

**The core areas that the Government has indicated it
wishes to focus on are:**

- **Sediment**
- **Wetlands and estuaries**
- **Reducing the impacts of land use on water**
- **Allocating nutrient loads by catchment**
- **Safeguarding our indigenous biodiversity**
- **Stronger compliance, monitoring and enforcement**
- **Introducing a royalty on exports of bottled**

Strategy – take care of the long game



Leadership

