

BUILDING
INNOVATION
PARTNERSHIP

Lifelines related projects in BIP

1.2 National Pipe Data Portal

- Development of asset data standards
- Coordination of the data standards across other utilities
- Development of the National Pipe Data Portal
- Creation of a National Digital Infrastructure Model (NDIM)

2.6 Location standards

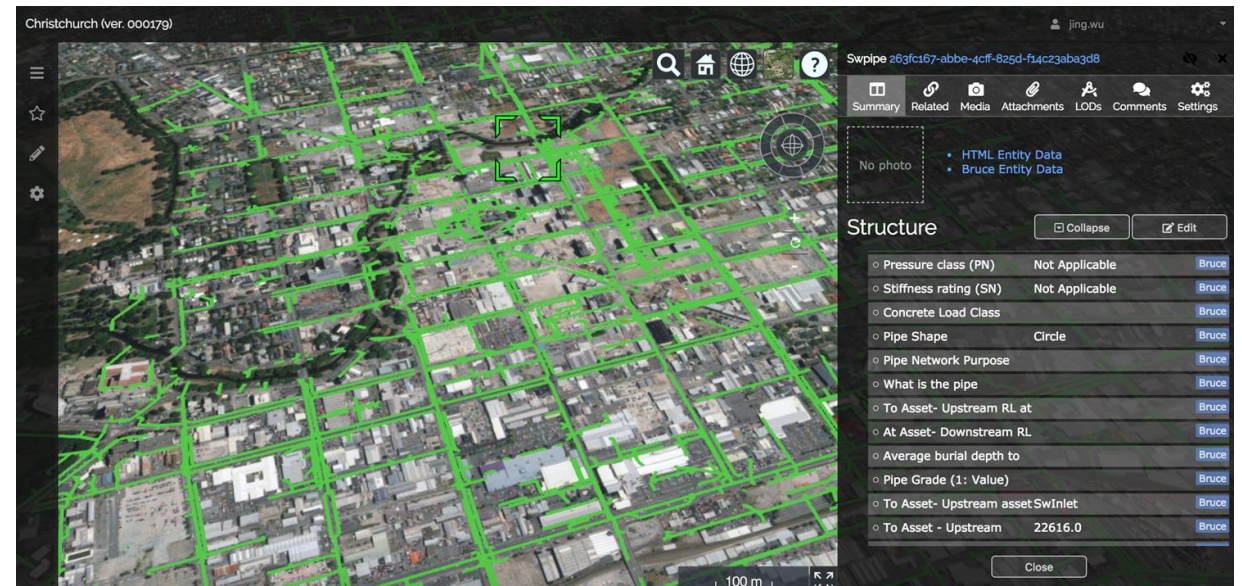
- Asset location standards (geospatial, linear referencing, geometric)
- Reviewing implications of Location Standards on other utilities

Proof-of-Concept National Pipe Data Portal



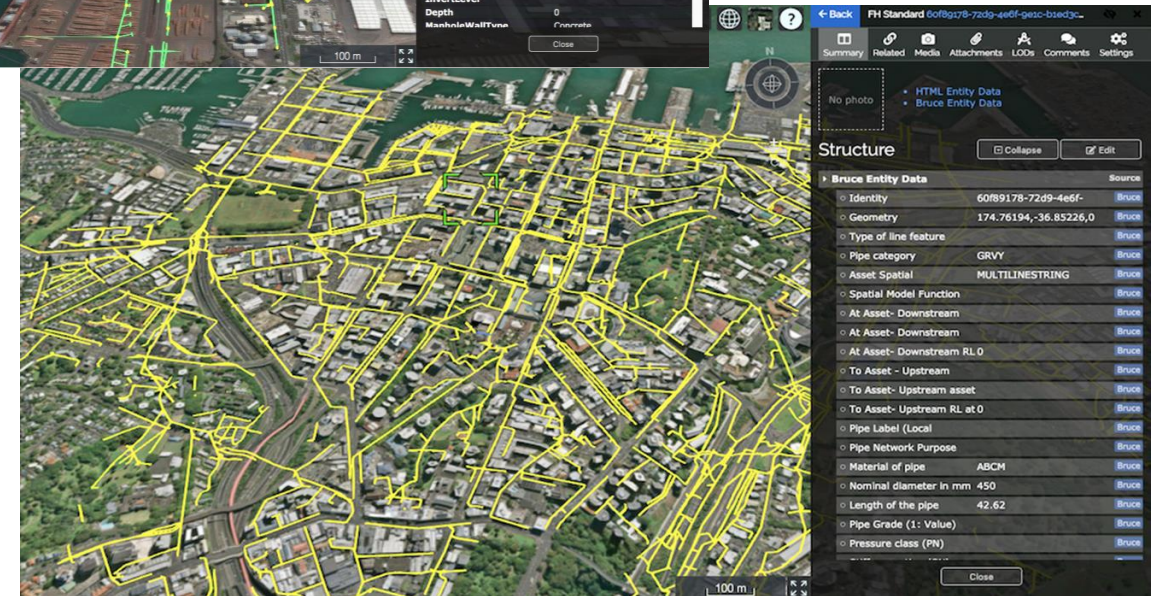
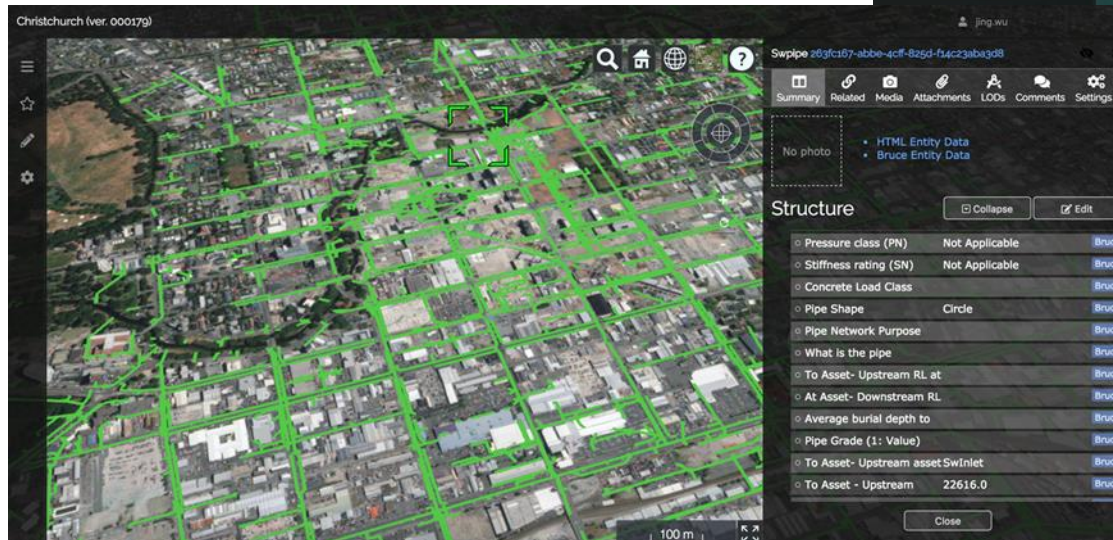
Aims:

- Map data to a single standard
- Federate data from disparate sources
- Visualize and analyse the data



Visualization of Federated Data

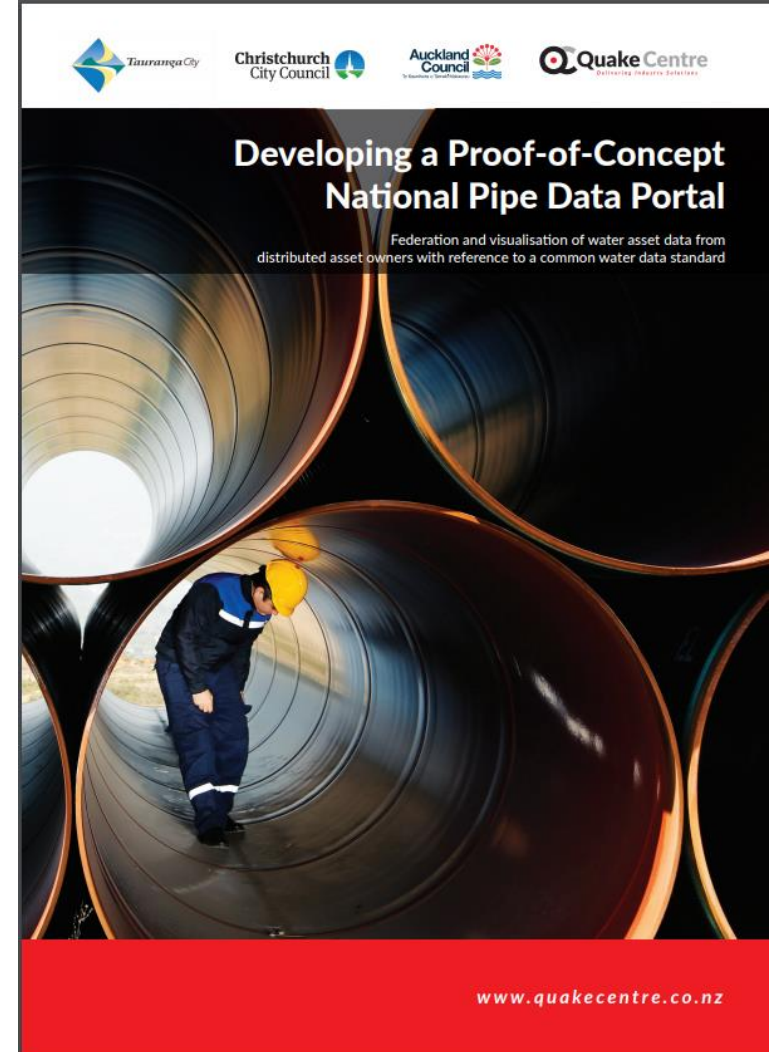
- Single view visualization
- Global summary data
- Detailed and complex analysis
- Data bench-marking



Key lessons

- Technology is available and fit-for-purpose
- Open data standards are essential
- The foundational ‘data commons’ is missing
- The infrastructure sector is looking for central leadership

<https://bipnz.org.nz/>



NDIM

NATIONAL DIGITAL
INFRASTRUCTURE
MODEL

*New Zealand's
Digital Twin*



WHY DO WE NEED THE NDIM

A digital twin of New Zealand will help government and industry make *better decisions* about the future of our national infrastructure networks.

It will assist our infrastructure providers to coordinate and *improve productivity* and *manage risk*.



Inform investment strategies for new and existing infrastructure.



Measure and compare infrastructure performance.



Assess risks associated with infrastructure deterioration and failure.



Assess vulnerability to hazards and improve resilience.



Inform land-use planning.



Benchmark performance of infrastructure providers.



Predict the effects of climate change and urban development.



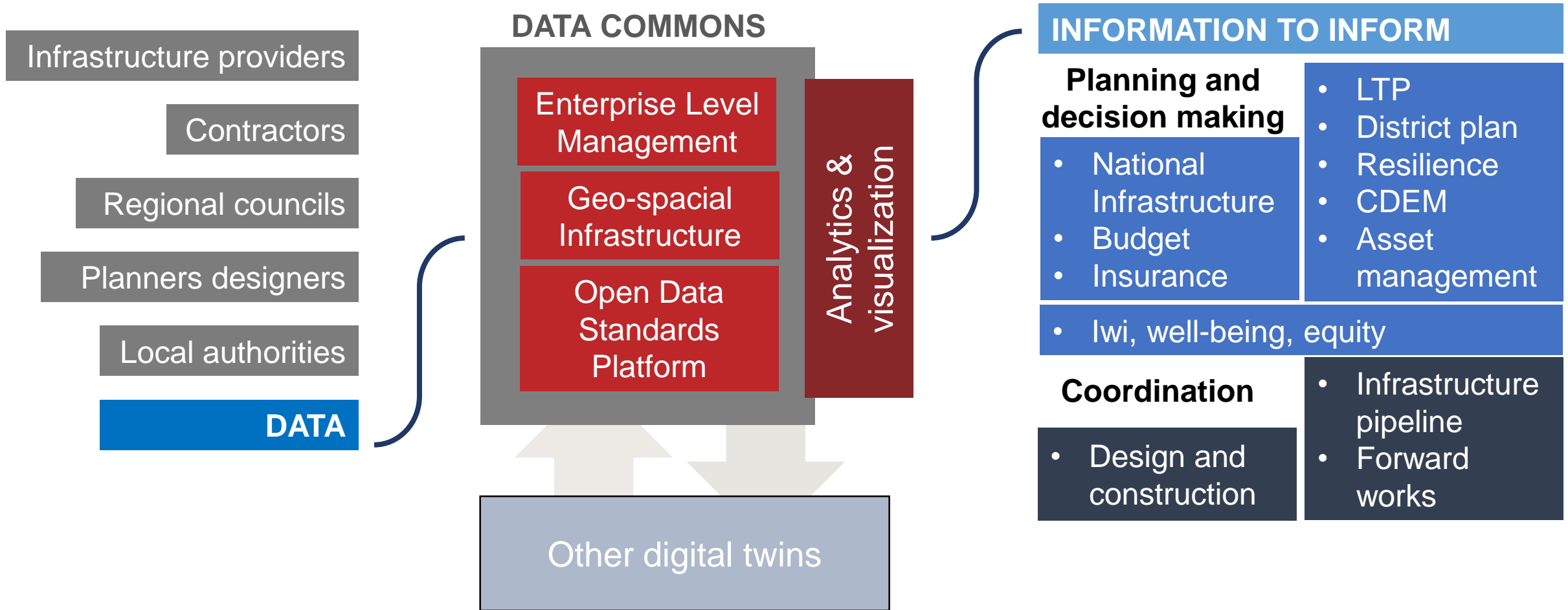
Aid the transition to a low-carbon economy.



Provide a single point of truth for emergency management.

WHAT IS THE NDIM

National Digital Infrastructure Model



CAPTURING BENEFITS OF DATA

Information for planning, decision-making and coordination

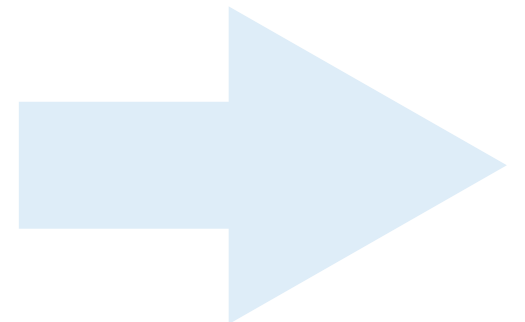
CURRENT STATE

- Weak evidence-base
- Siloed
- Uncoordinated
- Inefficient

FUTURE STATE

- Evidence-based
- Single source of truth
- Integrated
- High productivity
- Local decisions informed by national priorities

CRITICAL SUCCESS FACTORS



CRITICAL SUCCESS FACTORS



Data commons

Platform for support and development

Government and industry leadership

Some Other Quake Centre Outputs or Work in Progress

- Spatial Correlations of Underground Pipeline Damage in Christchurch
- Guideline for Assessing Technical Resilience of Three Waters Networks – Simplified Assessment Method
- A Risk Based Framework for Earthquake Ground Motion Hazard Estimation, New Zealand
- Invasive Seismic Testing – a summary of methods and good practice
- Rock Fall Risk Mitigation: Capturing experience from the Kaikoura and Canterbury earthquakes

