# ‘A Collective Approach’

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COLAB
RATA

# Who is RATA?

- CCO funded by 9 councils in the Waikato Region
- Regional Asset Technical Accord







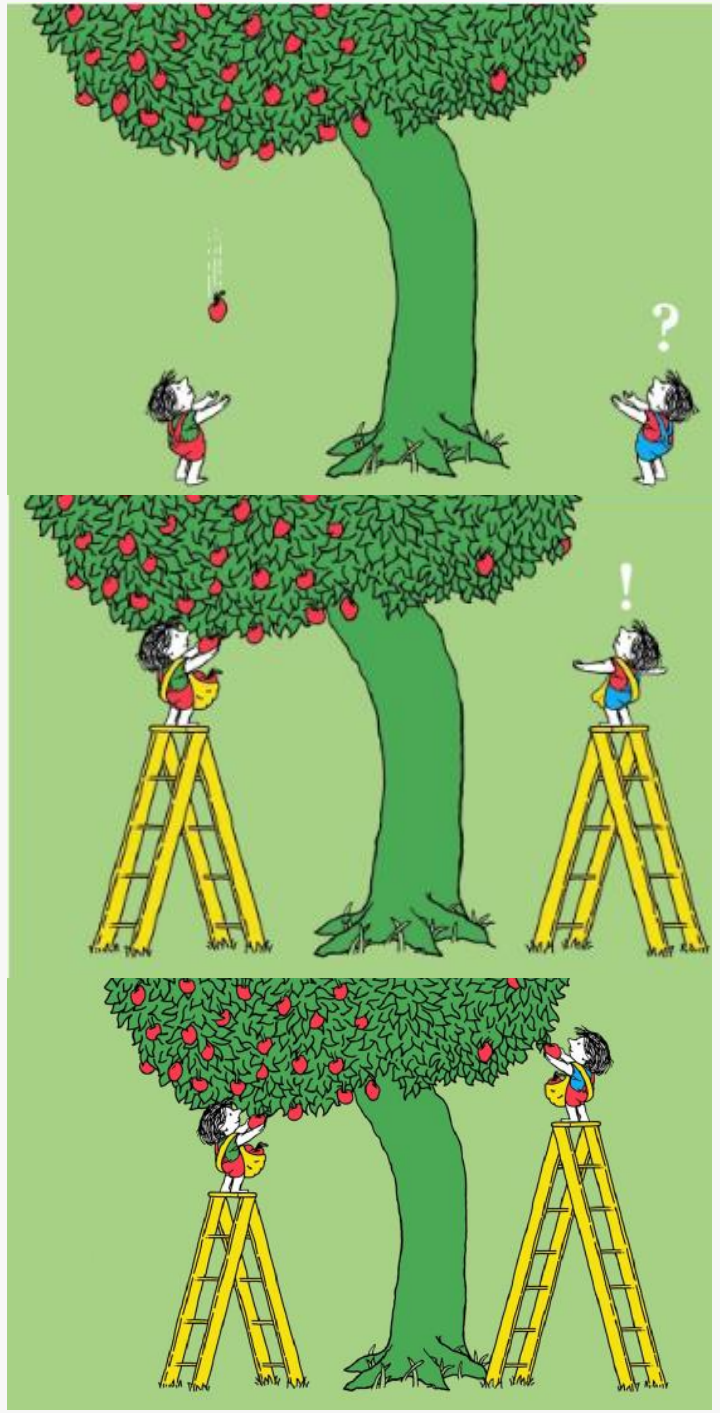



# Is it a level playing field?

**Inequality**

**Equality**

**Equity**



# Outcomes

- SWIG is a way to share with the industry and spread knowledge on good practice
- Raise the level and capability in the industry
- Prevent duplication of effort and therefore cost!
- Understand data, data requirements, analytics.

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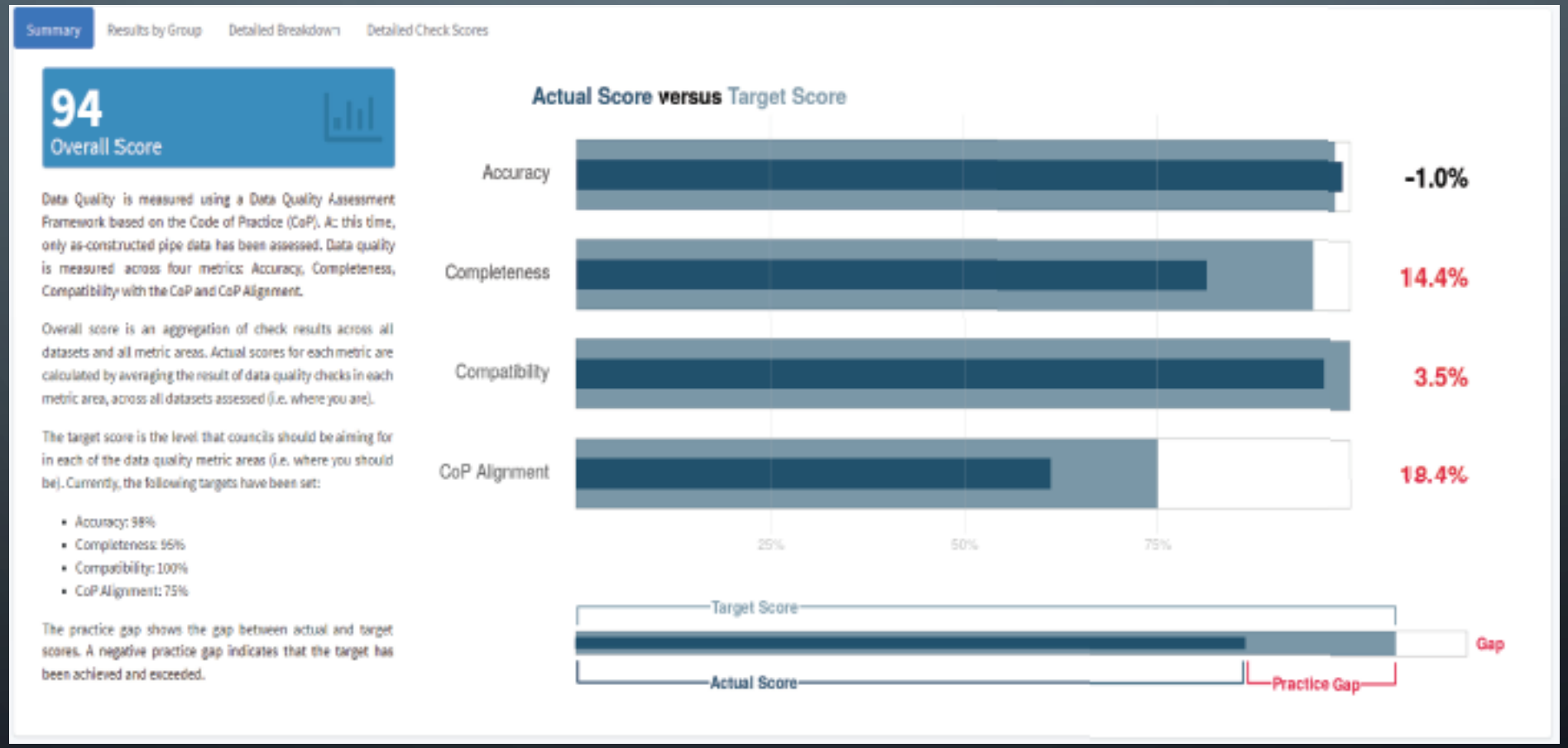
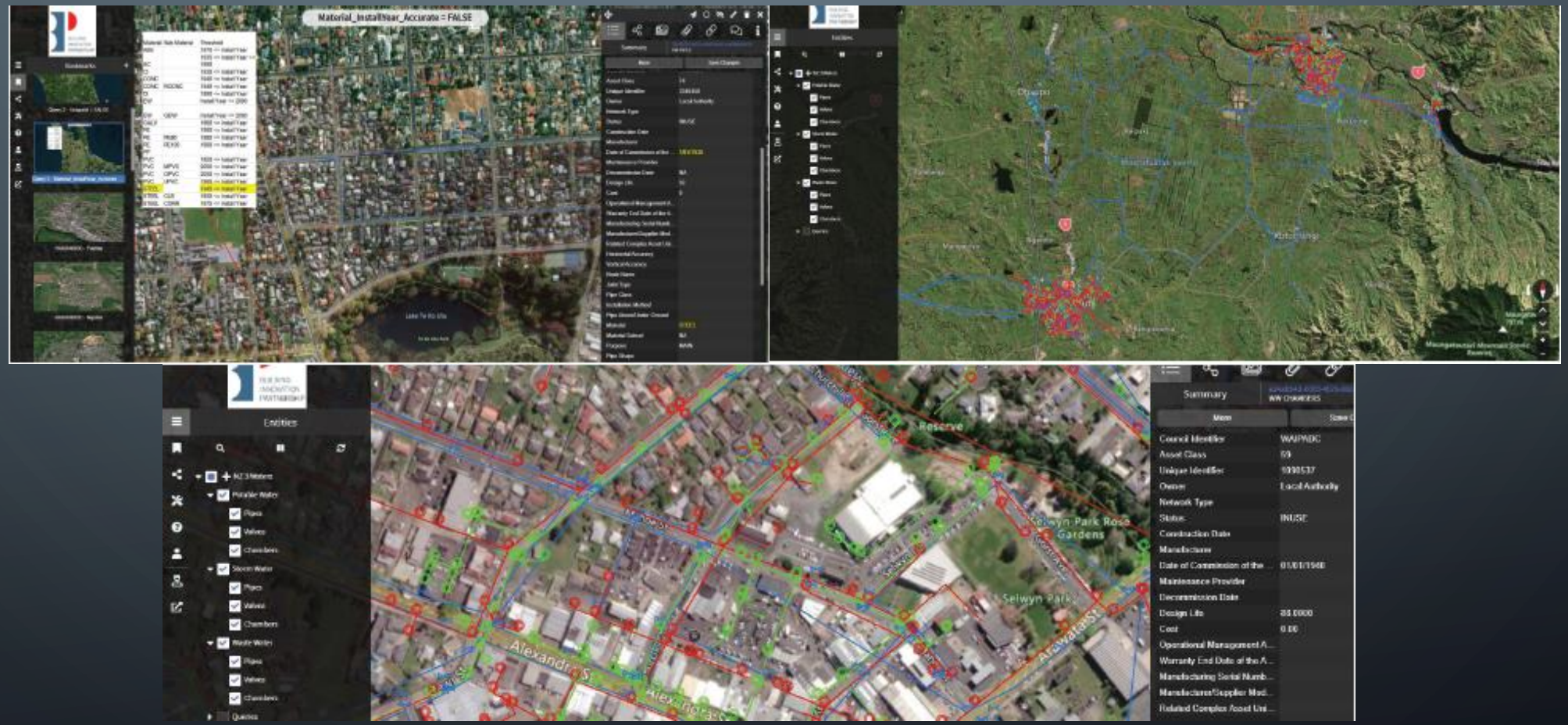
# SHARING GOOD PRACTICE

- Asset Data Quality Dashboard across the Waikato



# SHARING GOOD PRACTICE

- Pipe Data Portal – mapped pipe data for 37 NZ councils



# SHARING GOOD PRACTICE

- Standardised Asset Capitalisation process and forms
- Mapping of data flows to identify gaps and potential for automation/improvements
- Data Analytics – using data in a more powerful way

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# “Data collection and its evolution on the ground"

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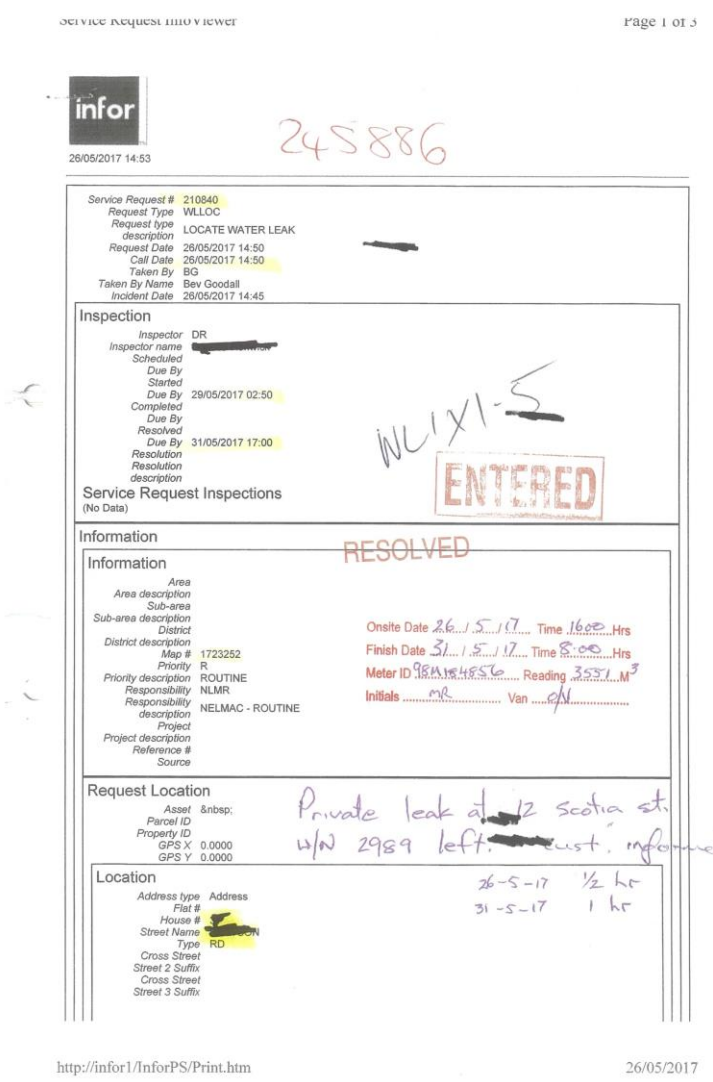
Andy Gaul, Nelmac

Not so long ago…

- Service request was called in
- Was printed out and stamped
- Put into tray
- TL assigned jobs to Crew
- Crew went out and filled in paperwork on paper
- Data was put back into system, scanned and filed
- Paper documentation was stored



Service Request InfoViewer Page 1 of 3

infor

26/05/2017 14:53

245886

Service Request # 210840
Request Type WLLOC
Request type description LOCATE WATER LEAK
Request Date 26/05/2017 14:50
Call Date 26/05/2017 14:50
Taken By BG
Taken By Name Bev Goodall
Incident Date 26/05/2017 14:45

Inspection
Inspector DR
Inspector name [redacted]
Scheduled
Due By
Started
Due By 29/05/2017 02:50
Completed
Due By
Resolved
Due By 31/05/2017 17:00
Resolution
Resolution description

WL1X1-S

ENTERED

Service Request Inspections
(No Data)

Information

RESOLVED

Information
Area
Area description
Sub-area
Sub-area description
District
District description
Map # 1723252
Priority R
Priority description ROUTINE
Responsibility NLMR
Responsibility description NELMAC - ROUTINE
Project
Project description
Reference #
Source

Onsite Date 26/5/17 Time 1600 Hrs
Finish Date 31/5/17 Time 8:00 Hrs
Meter ID 98M164856 Reading 3551 M³
Initials MR Van [illegible]

Request Location
Asset  
Parcel ID
Property ID
GPS X 0.0000
GPS Y 0.0000

Private leak at [redacted] 12 Scotia st.
W/N 2989 left. [redacted] ust. informed

Location
Address type Address
Flat #
House # [redacted]
Street Name [redacted]
Type RD
Cross Street
Street 2 Suffix
Cross Street
Street 3 Suffix

26-5-17 ½ hr
31-5-17 1 hr

http://infor1/InforPS/Print.htm 26/05/2017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- Who enters data in the field – The evolution of field workers

**Relevant data collected in the field:**

**Work and H&S related:**

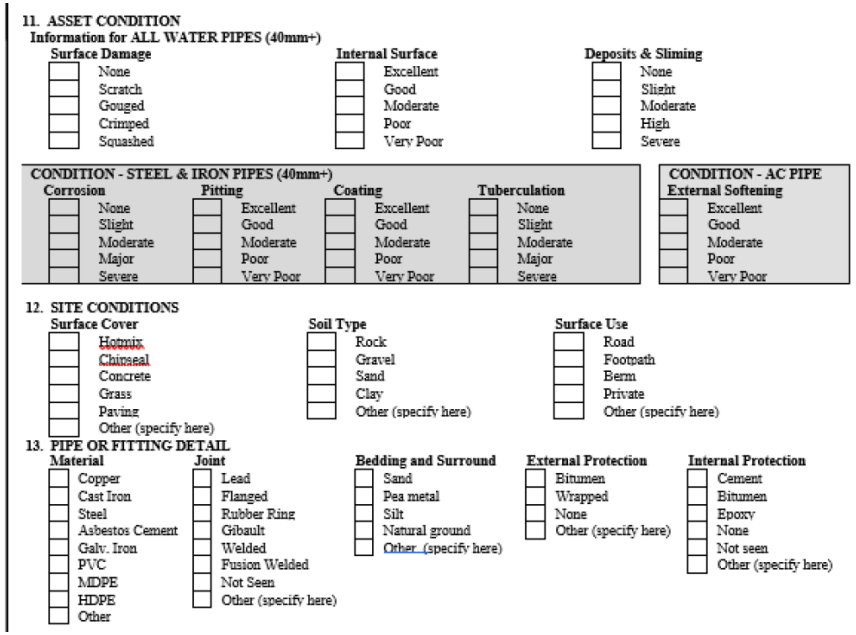
- Cable locates
- Traffic management
- AC removal procedures

**Data:**

- Arrival time
- Shut down times
- Water meter readings
- Flushing
- Details of the asset
- Failure type
- Asset condition
- Site condition
- Pipe details
- Site Diagram
- Pictures

**Business:**

- Stock
- Reinstatement needs
- Actual work been done



11. ASSET CONDITION
Information for ALL WATER PIPES (40mm+)

Surface Damage: None; Scratch; Gouged; Crimped; Squashed

Internal Surface: Excellent; Good; Moderate; Poor; Very Poor

Deposits & Sliming: None; Slight; Moderate; High; Severe

CONDITION - STEEL & IRON PIPES (40mm+)

Corrosion: None; Slight; Moderate; Major; Severe

Pitting: Excellent; Good; Moderate; Poor; Very Poor

Coating: Excellent; Good; Moderate; Poor; Very Poor

Tuberculation: None; Slight; Moderate; Major; Severe

CONDITION - AC PIPE

External Softening: Excellent; Good; Moderate; Poor; Very Poor

12. SITE CONDITIONS

Surface Cover: Hotmix; Chipseal; Concrete; Grass; Paving; Other (specify here)

Soil Type: Rock; Gravel; Sand; Clay; Other (specify here)

Surface Use: Road; Footpath; Berm; Private; Other (specify here)

13. PIPE OR FITTING DETAIL

Material: Copper; Cast Iron; Steel; Asbestos Cement; Galv. Iron; PVC; MDPE; HDPE; Other

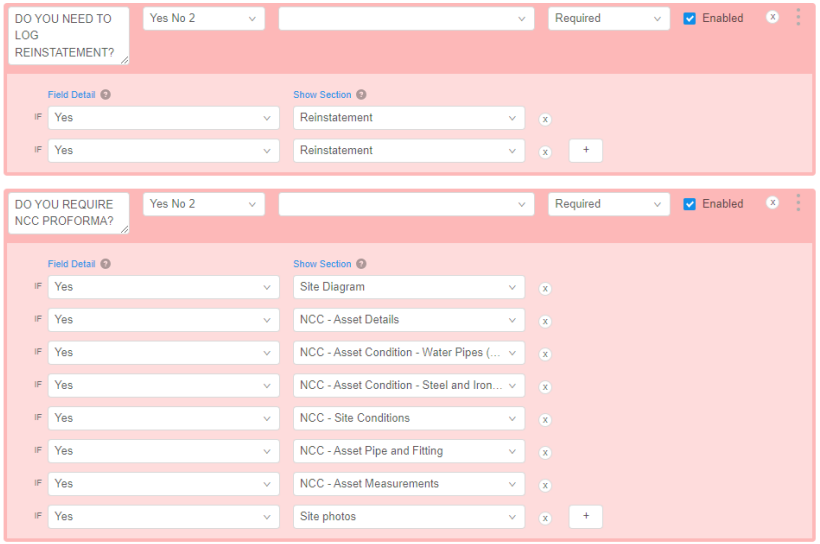
Joint: Lead; Flanged; Rubber Ring; Gibault; Welded; Fusion Welded; Not Seen; Other (specify here)

Bedding and Surround: Sand; Pea metal; Silt; Natural ground; Other (specify here)

External Protection: Bitumen; Wrapped; None; Other (specify here)

Internal Protection: Cement; Bitumen; Epoxy; None; Not seen; Other (specify here)

Today a Workorder can have up to 180 input fields




**In field worker is the key part in this and needs context, training, time and assurance to complete is job.**

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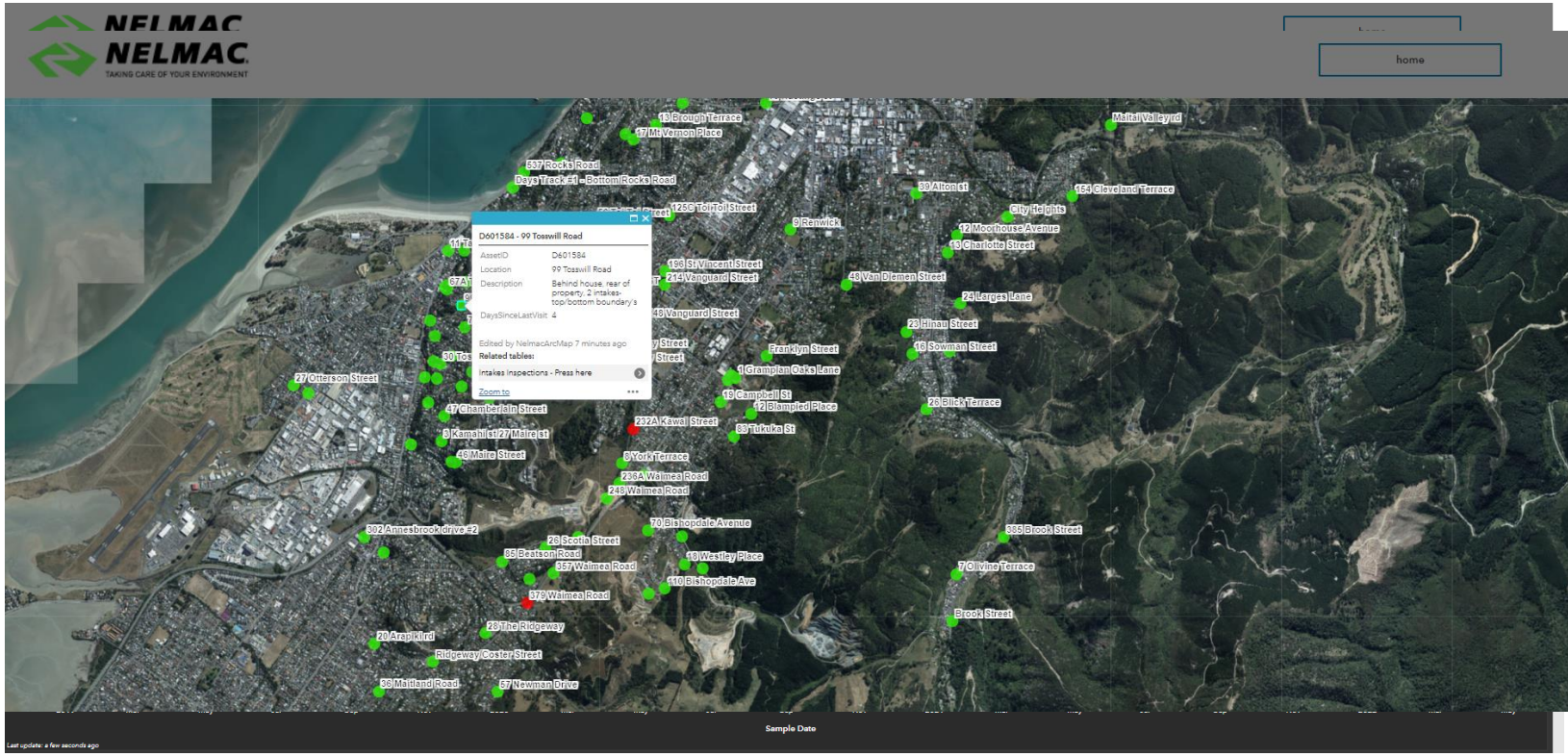
# What are we currently doing – Digital capture of data and data transfer

- Every worker has a tablet
- More and more data is captured digital
- Water quality is now live, digital and GIS based – working on Bacto testing
- A middleware software transforms data into an API, from there it goes to GIS or other asset management system
- Systems can be GIS based systems, data entry systems like vWorks, or directly InTouch data based for SCADA (PPM)




We want to achieve a perfect flow from field to council, to DIA, to Taumata Arowai to whoever wants and needs the data – additional work for future performance reviews should be minimal.

- Data capture must be accurate – needs checks and balances in place
- We only want to capture data someone needs and looks at
- All stakeholders must be satisfied.
- Needs to happen in collaboration with client

- What do we want to be doing – Best systems for best outcome

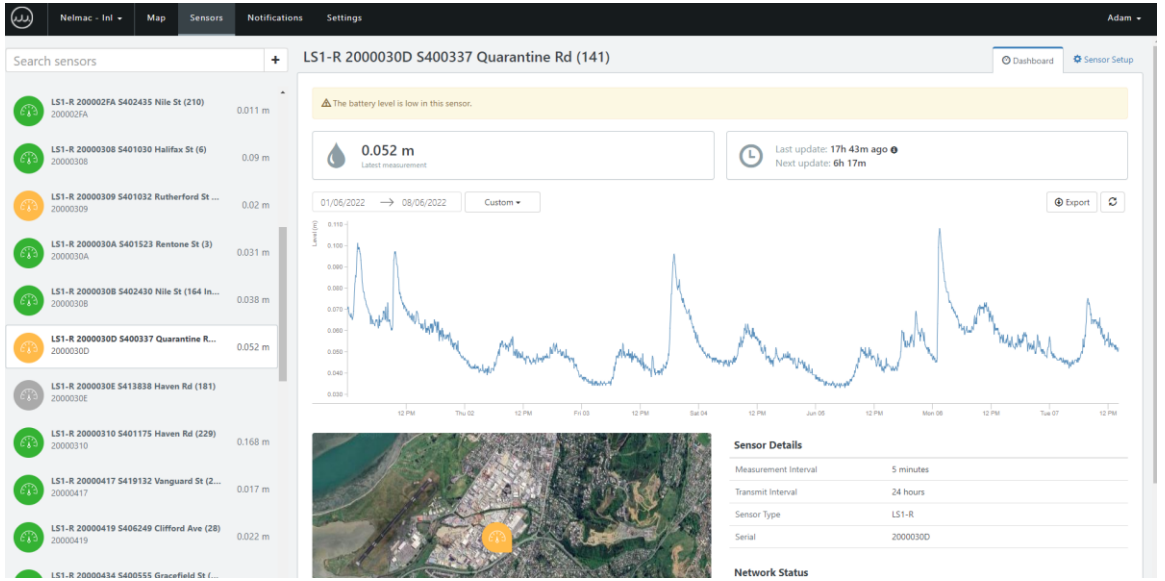
We are working towards a GIS based life system which tell us:

- Where people are and what they are doing.
- Interaction with accounting, claims and stock
- Gives me asset information in regards to my scheduled maintenance and information is linked with Council Asset management system (PS, PRV, NRV, Tank inspections, Cathodic protection, flushing, Valve locate and exercising valves, Stormwater intakes, Grid traps, Control gates, Sewer flushing,…)
- Water quality information is life and interlinked with labs
- Flow of information is seamless from contractor, to client to Taumata Arowai, to DIA, to…
- Someone looks at data analysis trends and discissions are made based on facts.
- Alerts are set to all items to filter relevant data from compliance/storage data.

As Long as we are producing API files we can do everything.

- What do we want to be doing – Improve our reactive service

- We use Smart meters and advanced leak detection systems to track down leaks/breaks early
- We have life data in the retic system of FAC, turbity and pH
- Any possible gaps in NRW are measured and accounted for
- Smart Manholes give relevant information and alarms (Prevent Wastewater overflows, Floods, or I&I issues) and help asset management.
- We have digital twins of all assets
- We monitor live environmental indictors
- Trade waste is standardized and automated (e.g. Acceptable solutions)
- Industry, Contractors and council are working close together on R&D solutions.
- …

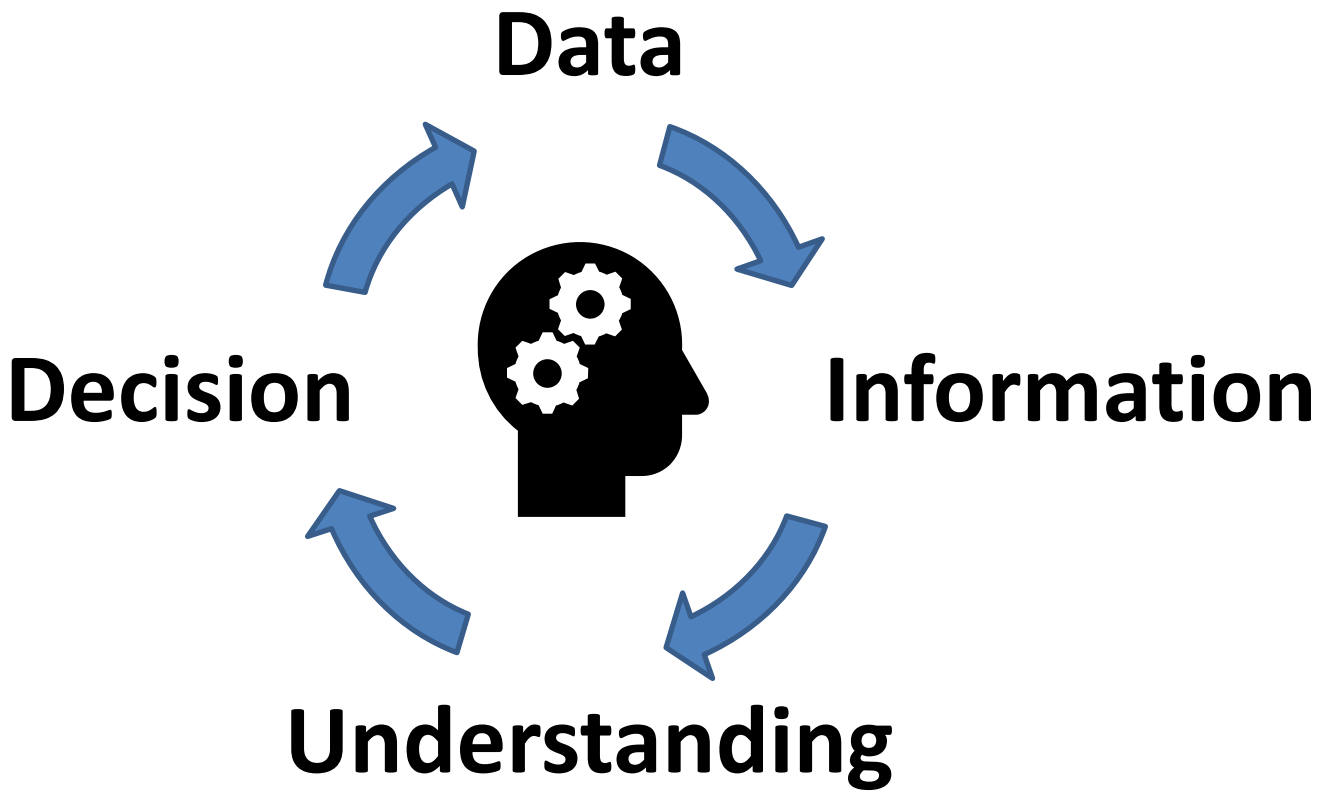


# Data Services in 3 Waters

Mark Homenuke, General Manager – Australia & New Zealand

8 June 2022

# Data Governance



# Role of a Data Service Provider

## Why?

- Data isn’t a native discipline in water
- IT departments can’t prioritise water
- Technology is now off-the-shelf

## What Are Data Services For?

- Provide modern technology platforms (i.e. cloud)
- Build bridges between ops, compliance, IT, and OT
- Independent data custodian
- Data-first perspective on 3 waters

# 3 Waters Data – History (10+ years ago)

| Historical Environment: | Outcomes: |
| --- | --- |
| • Data is secondary to operations<br>• Improving systems costs $$$ and time<br>• Change is hard | • Low level of situational awareness<br>• Data isn't valued<br>• Few opportunities for improvement |

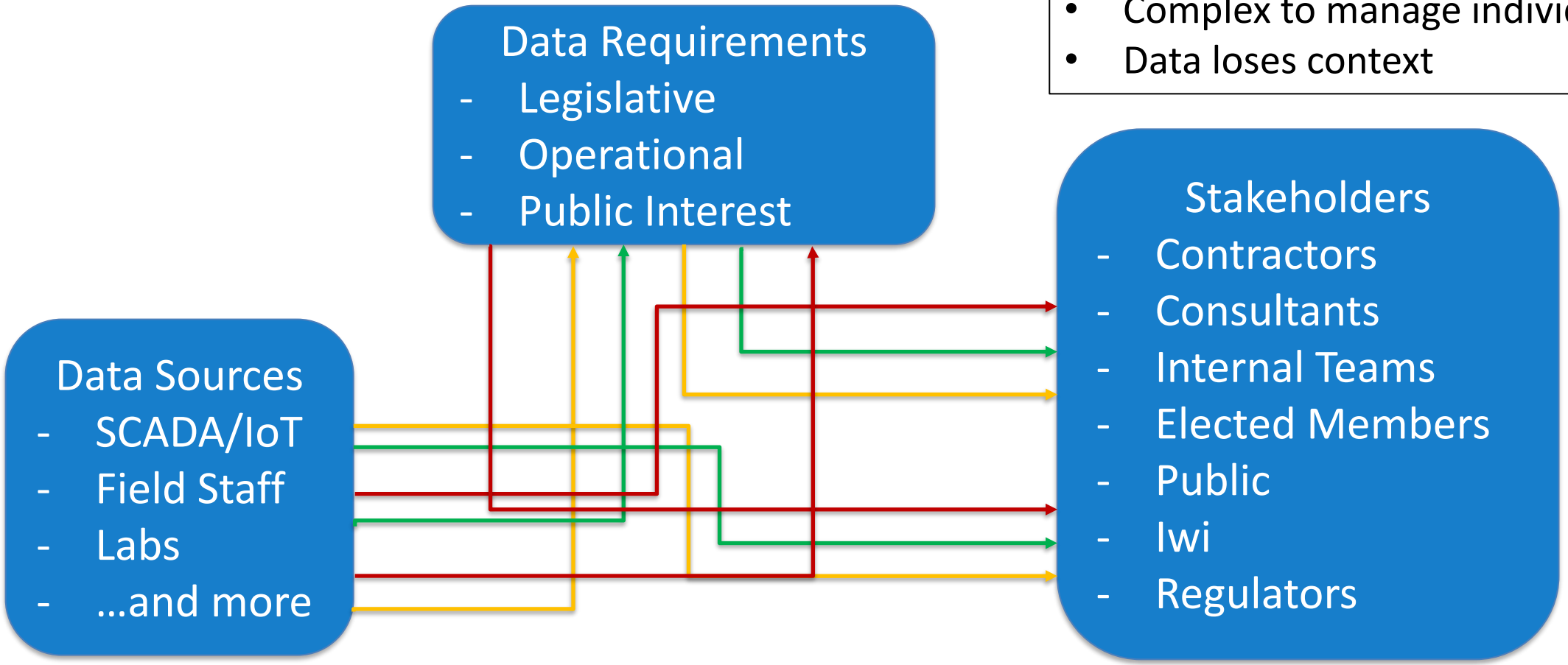
# 3 Waters Data - Now

- Current Environment
  - Technology is now ubiquitous (less $$$)
  - Labour market is tight (automation++)
  - Requirements for data/info increasing
- Result
  - 3 Waters Operations Are Increasingly Data-Driven!

# Data Connectivity (No Service)

**Problem: Data isn't linear!**

- Large number of data flows
- Human chains of communication
- Complex to manage individually
- Data loses context

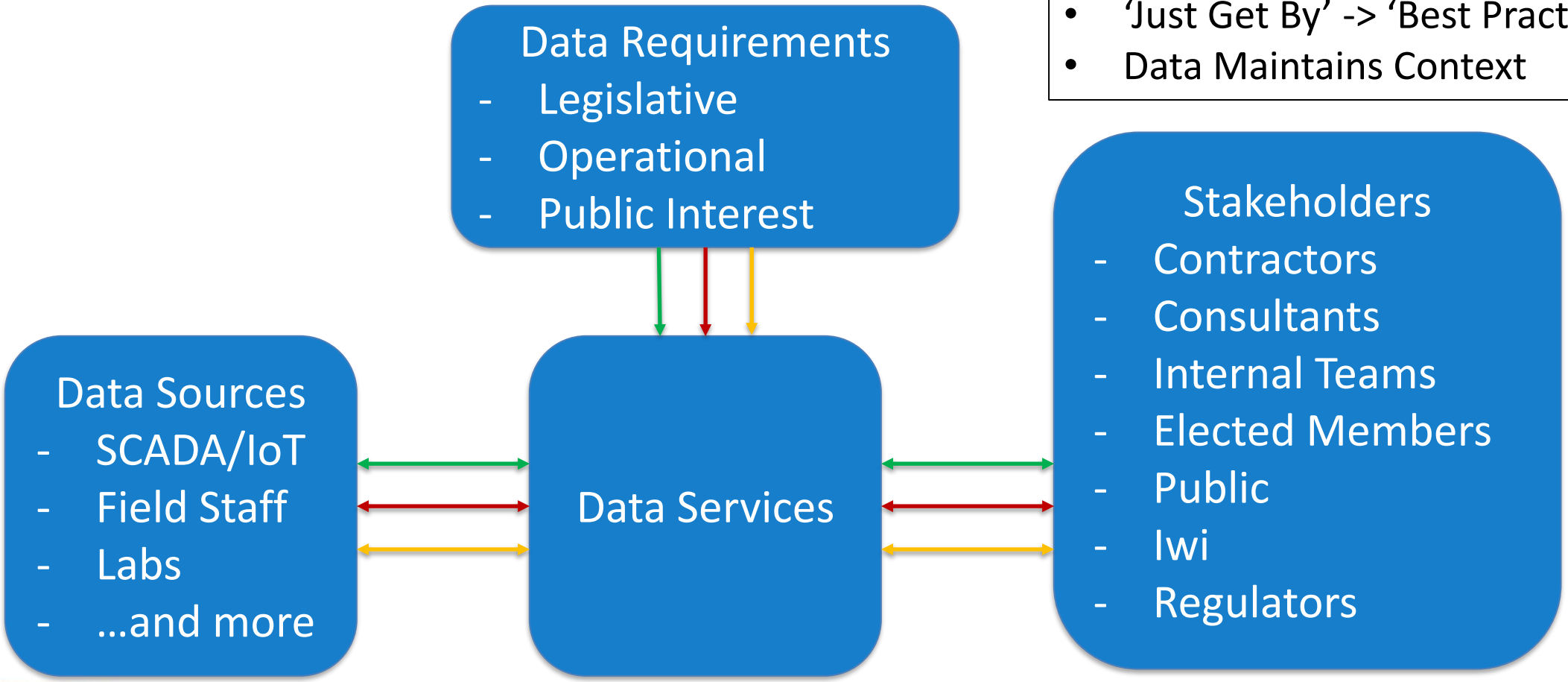



wateroutlook

# Data Connectivity (Data Service)

**Solution: Single Source of Truth**

- Greater Scalability
- Systematic Approach
- ‘Just Get By’ -> ‘Best Practice’
- Data Maintains Context




wateroutlook

# 3 Waters Data - Future

- 3 Waters Reform: requirements/stakeholders changing?
  - Water now front and centre of public discourse
  - New (and evolving) regulatory environment
  - New management structure: change in scale
- Challenges:
  - How can we achieve ‘Data Above Reproach’?
  - Upping our game: worldwide best practice in NZ
  - Where/how can the industry unlock value from data?

Webinar: Perspectives on Data: A Water Break to the Regulator

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# A Water Data Ecosystem Framework

TAUMATA AROWAI

Michael Howden | Data + Insights Manager

# How might we…



Develop a shared understanding

Automate reporting

Go beyond compliance

Lift sector performance

## Register of Supplies

*Ongoing*

Currently 1968 registered supplies

83% Population served by council supplies

71% Supplies serve <500 People

Verification ongoing

~75,000 Unregistered (have till Nov 2024)

## Notifications

*From 15 Nov 2021*

~890 notifications from ~230 supplies about risks to drinking water safety or outages.

~70-160 Boil Water Notices

Including from ~240 Notifications from unregistered supplies

## Drinking Water Regulation Report

*July 2022*

Re-analysing Ministry of Health data + ~280 Notifications from 2021

Will include source water risk management, water services capability, our performance, and the effectiveness of the Water Services Act

## Drinking Water Network Environmental Reporting

*FY22/23 (Reporting in July - Sept 2023)*

Developed with input from Water NZ NPR and sector consultation

Only local authority and government network operators

Wastewater and stormwater measures to come later

## Monitoring Reporting

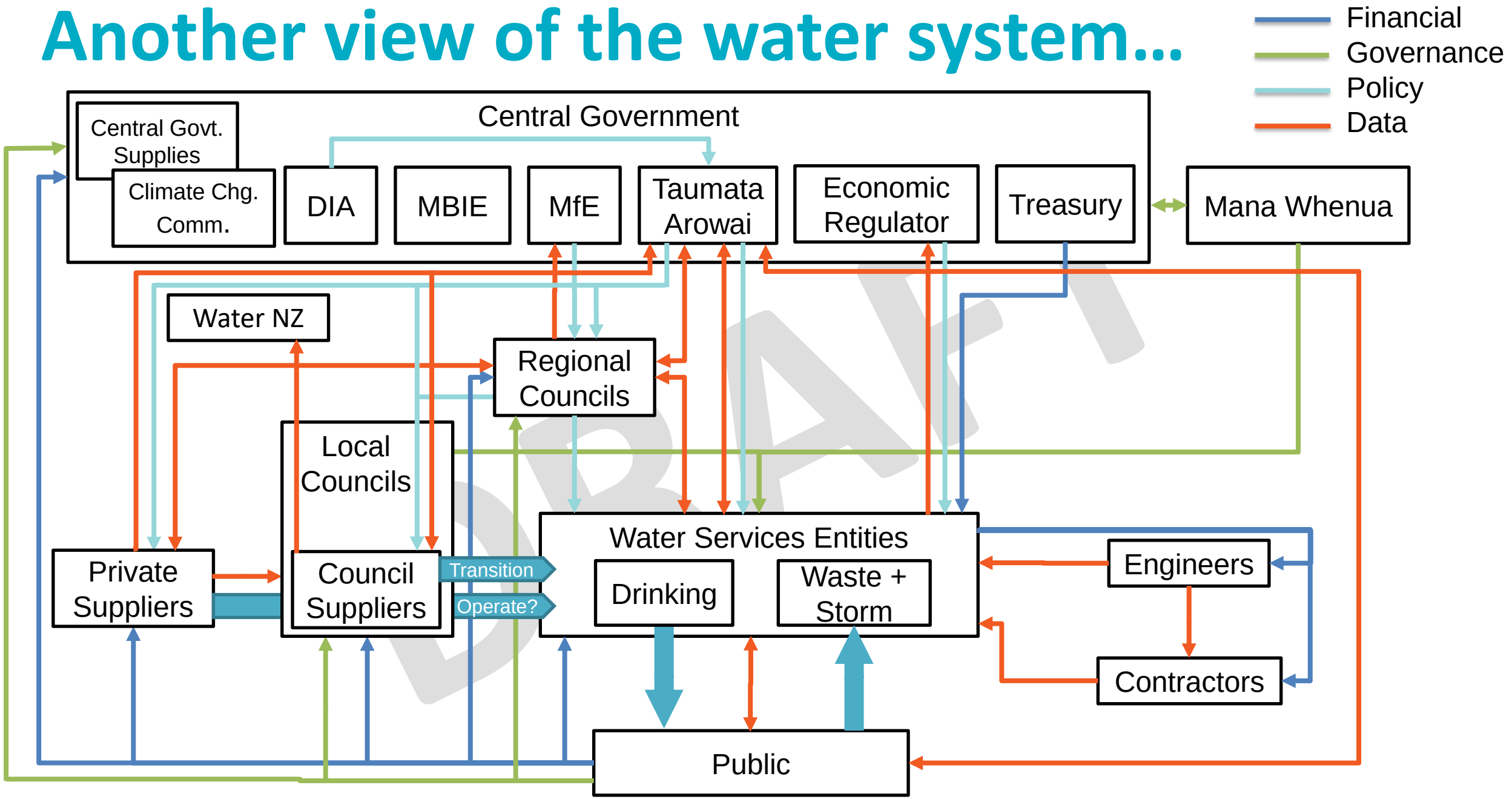
*Later in 2022*

To support the Drinking Water Quality Assurance Rules

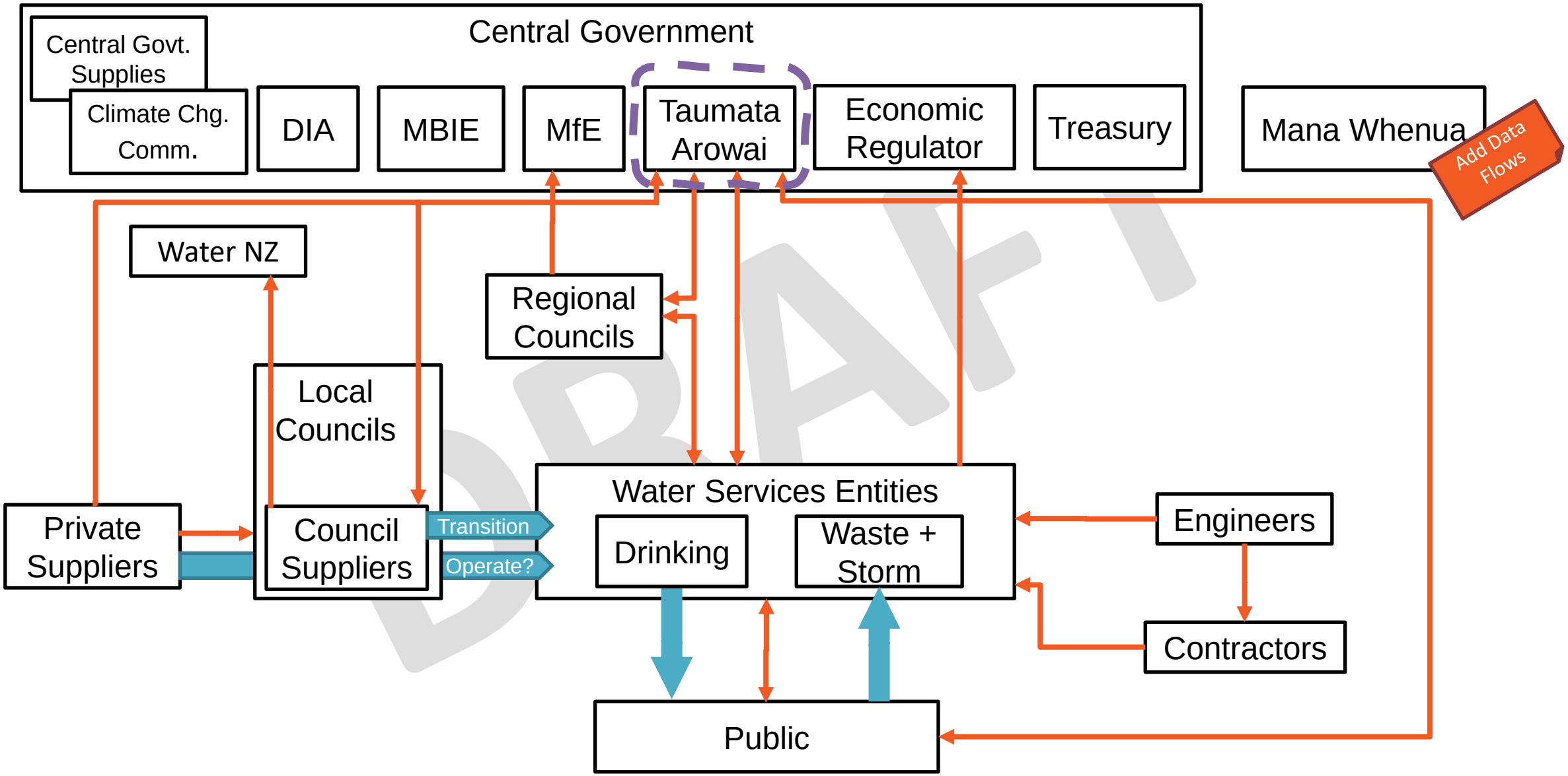
Test sample results + continuous monitoring

Investigating automated data reporting via APIs

# Another view of the water system…



# Water Data Ecosystem




TA2021

**Trying to build the plane while flying it…**

**While trying to build a bridge…**

**to another plane…**


*Courtesy San Diego Air & Space Museum Archives*

# Taumata Arowai data obligations

| | Who | What | Why | How |
|---|---|---|---|---|
| To | Public | Public register of drinking water supplies | WSA s55(4) | Link (TBC) |
| | Public | Annual drinking water regulation report | WSA s137 | Link |
| | Public | Annual reporting on networks' environmental performance (some aspects not yet in force) | WSA s147 | Link (TBC) |
| | Regional Councils + Territorial Authorities | Drinking Water Abstraction Points | WSA s45(1) | Link |
| | Regional Councils | Source Water Quality | WSA s44(3) | Link (TBC |
| | Drinking Water Suppliers | Risks & Hazards | WSA s45(4) | Link (TBC) |
| From | Drinking Water Suppliers | Supply Registration | WSA s54(2) + (3) | Link (TBC) |
| | Drinking Water Suppliers | Notifications of Non-compliance / Unsafe water | WSA s21(2)(b) + s22(2)(b) | Link (TBC) |
| | Laboratories | Notifications of Non-compliance | WSA ss73(2) + 75(1)(g) | Link (TBC) |
| | Drinking Water Suppliers | Monitoring Reporting | WSA s37 + 44(3) + DWQAR | Link 1,2,3 |
| | Drinking Water Suppliers | Consumer Complaints Process (not yet in force) | WSA s38(1)(c) | Link (TBC) |
| | Regional Councils + Territorial Authorities | Drinking Water Abstraction Points | WSA s45(2) | Link |
| | Regional Councils | Source Water Quality + Quantity | WSA s46 | Link (TBC) |
| | Drinking / Waste / Storm Water Network Operators | Network Environmental Performance Measures | WSA s146(2) | Link (TBC) |

# Monitoring Reporting

## Sample Monitoring Reporting

**From:** Drinking Water Suppliers

**To:** Taumata Arowai

**When:** 1/3/6/12 Monthly

**How:** RESTful API JSON/XML (URL TBC)

**Contact:** Michael Howden
michael.howden@taumataarowai.govt.nz

| Field | Type | Description |
|---|---|---|
| Reporting Period Start | Date | E.g. 1 December 2022 |
| Reporting Period End | Date | E.g. 31 December 2022 |
| Supply Component Code | Text | The Hinekōrako code of the Supply Component (Source, Plant, Zone) doing the monitoring |
| Parameter | List (See Appendix A) | |
| Number of Samples | Number | Number of samples collected |
| Sampling Period | Day/Week/Month | |
| # Non-Compliant Compliance Periods | Number | Number of periods which did not comply with the DWQAR for this parameter. |
| Notes | Text | Optional field to enter further details |
| ***For every sample*** | | |
| Sample Date + Time | Date Time | |
| Sample Value | Number | |
| Sample Value Prefix | List: “”, “<”, “>” | For E. Coli measures |
| Complies | Boolean | |
| Lab Sample ID | Text | ID assigned from IANZ Certified Lab |
| Notes | Text | What was the reason(s) for noncompliance? What remedial actions have been taken? |

# How to get involved



- **2022 Q3:** We will seek feedback on Monitoring Reporting data guidelines which support the Drinking Water Quality Assurance Rules.
- **2022 Q3:** Workshops to develop the Water Data Ecosystem Framework
- Please share your feedback/ideas/suggestions!
- How might this align with your current initiatives?

# Pātai | Questions?