2021 NZ Transport Data Hub Workshop

Timing	Programme
10am	**Nau mai haere mai** Welcome & why we are here today
10.10am	Transport Evidence Base Strategy (TEBS) – Ministry of Transport
10.30am	NZ's Tourism Data Domain Plan 2018 - MBIE
11am	**Korero Poto** Short Stories
12 noon	**Tina tina** Lunch
12.30pm	'Hot Topic' data problems/issues (break out session)
1.10pm	'Hot Topic' data problems/issues – report back
1.40pm	**Kaupae i muri** Next steps
1.55pm	**Kupu kati** Closing comments
2pm	**Katia** Close

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Opening Karakia

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Whakataka te hau ki te uru
Whakataka te hau ki te tonga
Kia mākinakina ki uta
Kia mātaratara ki tai

Cease oh winds of the west
and of the south
Let the bracing breezes flow,
over the land and the sea.

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E hī ake ana te atākura
He tio, he huka, he hauhū
Tīhei mauri ora

Let the red-tipped dawn come
with a sharpened edge, a touch of frost,
a promise of a glorious day

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Nau mai haere mai

Welcome & why we are here today

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Transport Evidence Base Strategy (TEBS): Connecting our evidence base with transport policy

Steve Riley, Acting Principal Adviser – Domain Strategy
New Zealand Ministry of Transport

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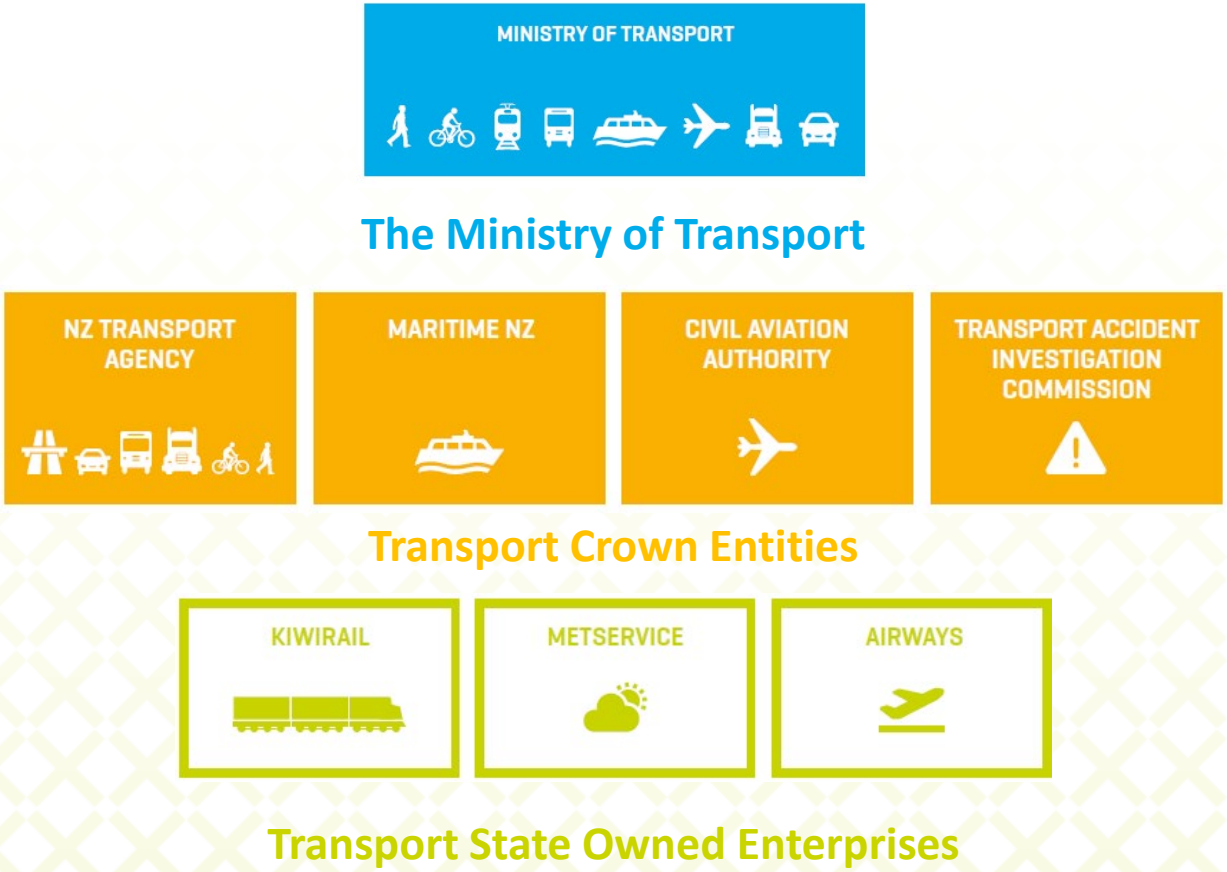
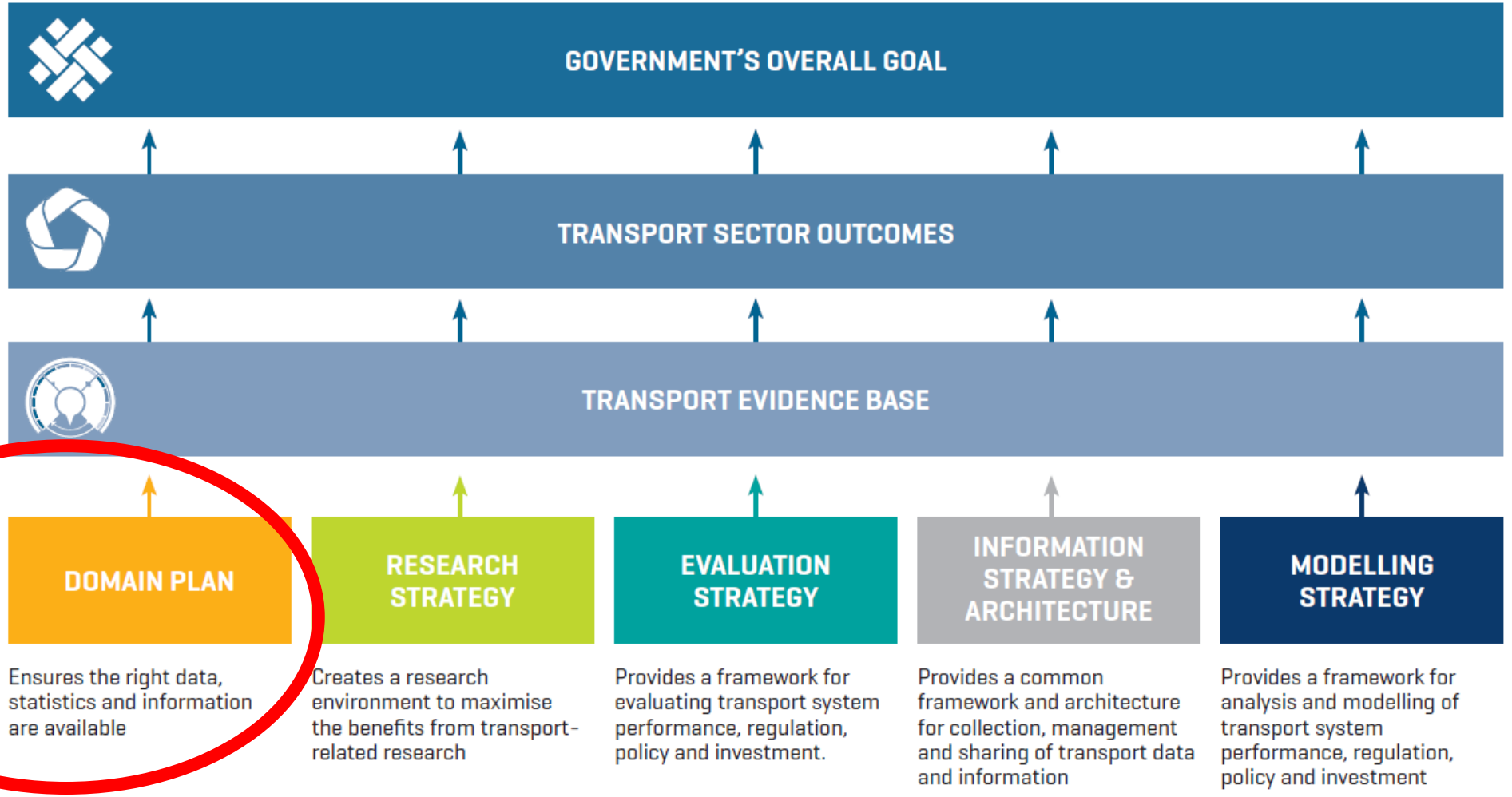
Who are we?


MINISTRY OF TRANSPORT
The Ministry of Transport
NZ TRANSPORT AGENCY
MARITIME NZ
CIVIL AVIATION AUTHORITY
TRANSPORT ACCIDENT INVESTIGATION COMMISSION
Transport Crown Entities
KIWIRAIL
METSERVICE
AIRWAYS
Transport State Owned Enterprises

The Transport Evidence Base Strategy

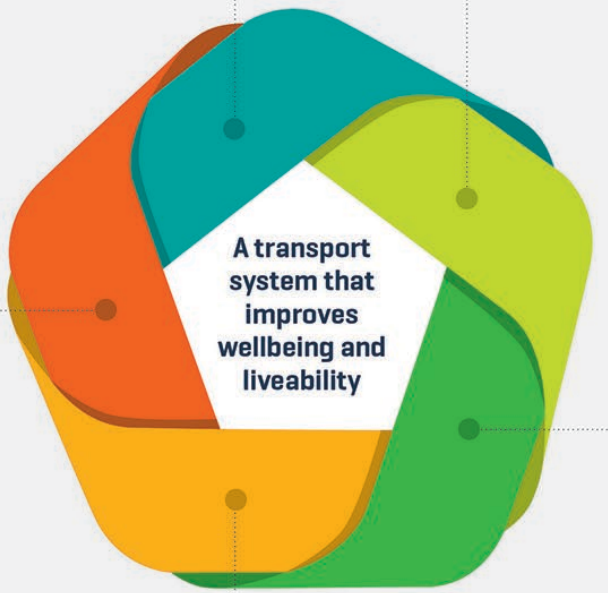


Transport Evidence Base Strategy

- TEBS ensures the transport sector has a:
- Shared understanding of:
  - the ‘enduring questions’ and future challenges
  - associated data and research gaps
  - agreed framework for prioritising and investing in knowledge gaps
- Framework for the recognition of Māori values
- Common approach for evaluation of transport policies, regulations, interventions and processes
- Set of actions required to support generation and use of the transport evidence base for decision making

https://www.transport.govt.nz/mot-resources/transport-evidence-base-strategy/

Transport Outcomes Framework



Inclusive access

Enabling all people to participate in society through access to social and economic opportunities, such as work, education, and healthcare.

Healthy and safe people

Protecting people from transport-related injuries and harmful pollution, and making active travel an attractive option.

Economic prosperity

Supporting economic activity via local, regional, and international connections, with efficient movements of people and products.

Environmental sustainability

Transitioning to net zero carbon emissions, and maintaining or improving biodiversity, water quality, and air quality.

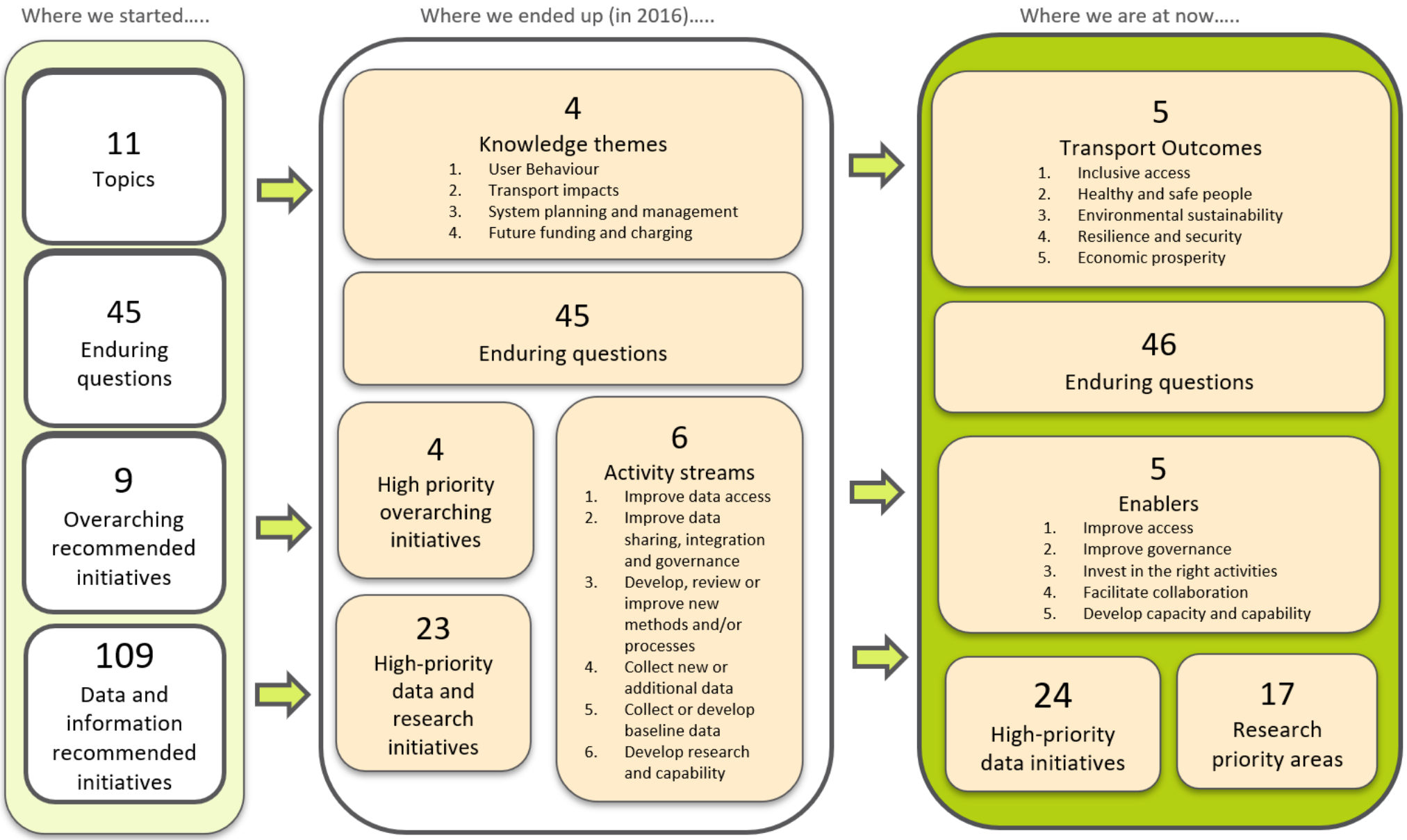
Resilience and security

Minimising and managing the risks from natural and human-made hazards, anticipating and adapting to emerging threats, and recovering effectively from disruptive events.

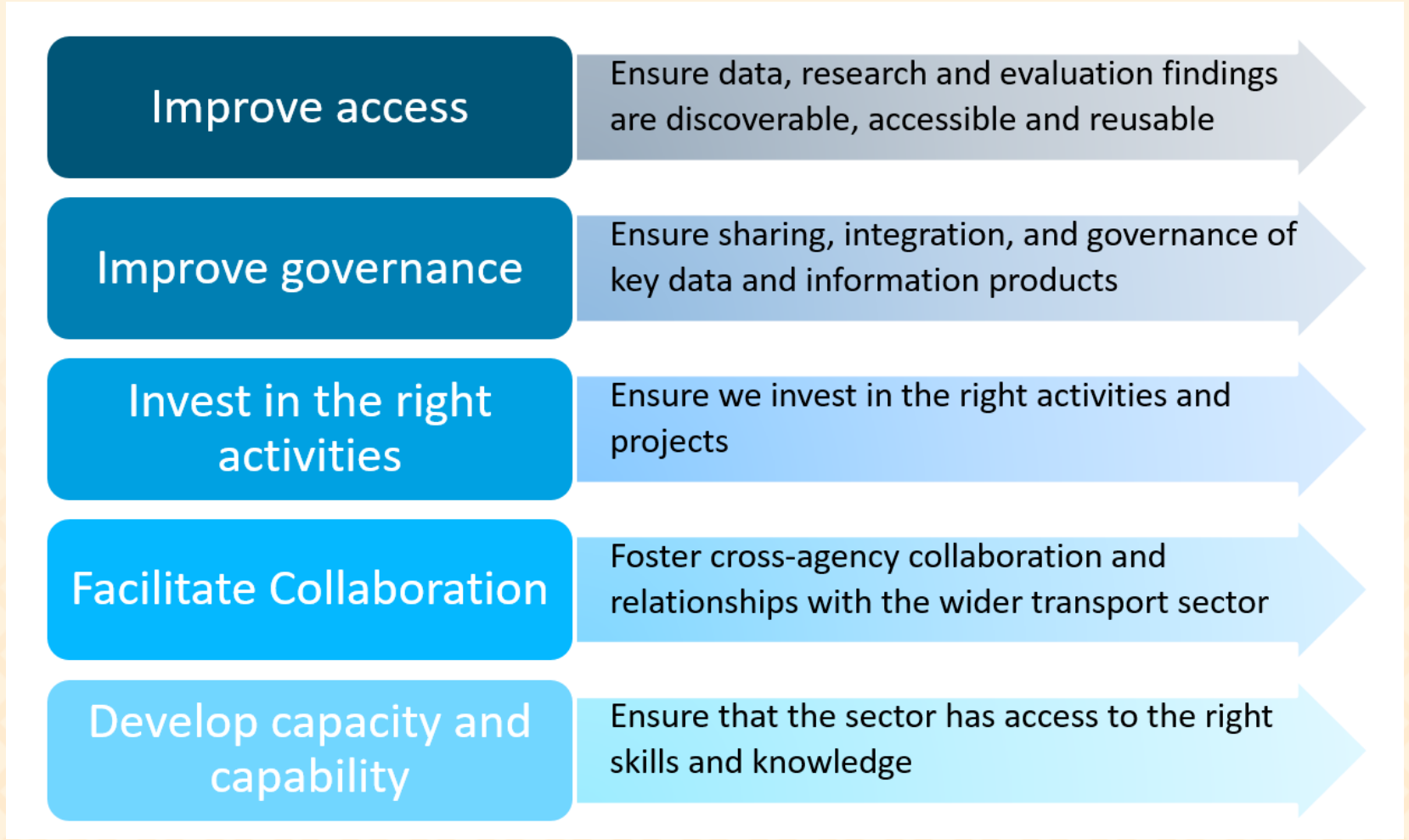
Transport Knowledge Hub

Community of interest to promote the sharing transport data, evidence, knowledge, research, information, capabilities, and ideas

https://www.transport.govt.nz/mot-resources/transport-knowledge-hub/


Where we started.....
11
Topics
45
Enduring questions
9
Overarching recommended initiatives
109
Data and information recommended initiatives
Where we ended up (in 2016).....
4
Knowledge themes
1. User Behaviour
2. Transport impacts
3. System planning and management
4. Future funding and charging
45
Enduring questions
4
High priority overarching initiatives
23
High-priority data and research initiatives
6
Activity streams
1. Improve data access
2. Improve data sharing, integration and governance
3. Develop, review or improve new methods and/or processes
4. Collect new or additional data
5. Collect or develop baseline data
6. Develop research and capability
Where we are at now.....
5
Transport Outcomes
1. Inclusive access
2. Healthy and safe people
3. Environmental sustainability
4. Resilience and security
5. Economic prosperity
46
Enduring questions
5
Enablers
1. Improve access
2. Improve governance
3. Invest in the right activities
4. Facilitate collaboration
5. Develop capacity and capability
24
High-priority data initiatives
17
Research priority areas

TEBS Enablers



‘Improving Access’

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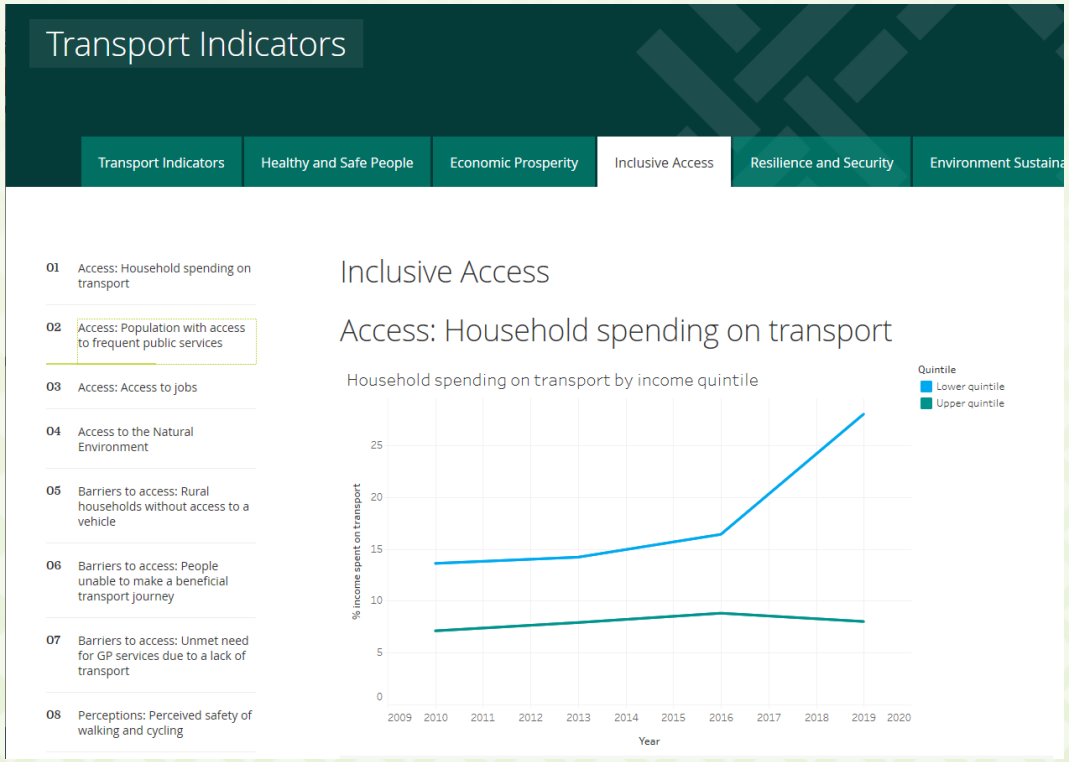
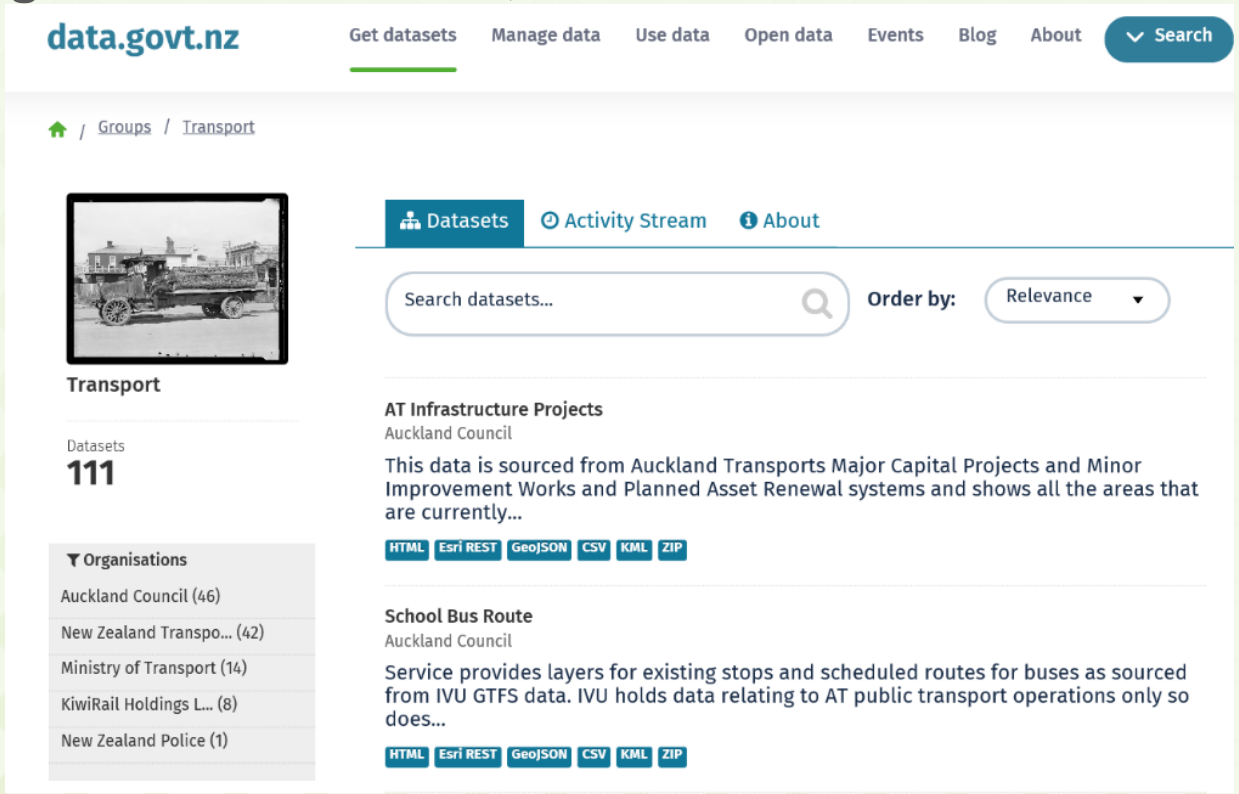
Data, research and evaluation findings are discoverable, accessible and reusable





https://www.transport.govt.nz/statistics-and-insights/transport-indicators/transport-indicators/

‘Improve Governance’

Transport Knowledge Hub

‘Invest in the Right Activities ’

Transport Knowledge Hub

‘Facilitate Collaboration’

Transport Knowledge Hub

‘Developing capacity and capability’

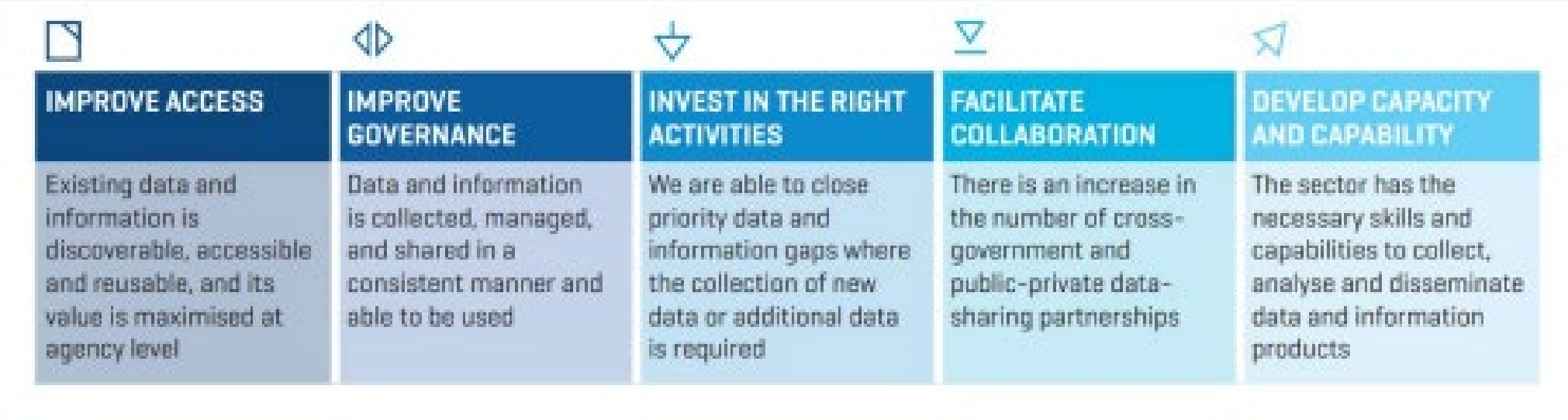
Ensure the sector has access to the right skills and knowledge

International Transport Forum
Global dialogue for better transport

Austroads

ATRF
AUSTRALASIAN TRANSPORT RESEARCH FORUM INCORPORATED

TEBS (Domain Plan)–Current State



IMPROVE ACCESS	IMPROVE GOVERNANCE	INVEST IN THE RIGHT ACTIVITIES	FACILITATE COLLABORATION	DEVELOP CAPACITY AND CAPABILITY
Existing data and information is discoverable, accessible and reusable, and its value is maximised at agency level	Data and information is collected, managed, and shared in a consistent manner and able to be used	We are able to close priority data and information gaps where the collection of new data or additional data is required	There is an increase in the number of cross-government and public-private data-sharing partnerships	The sector has the necessary skills and capabilities to collect, analyse and disseminate data and information products

TEBS (Domain Plan)–The Future

How often should we refresh our Domain Strategy?

Have enduring questions changed significantly since 2016?

What governance is missing?

How can we better leverage other sectors data (e.g. Tourism, housing and urban development…..)?

TE MANATŪ WAKA
MINISTRY OF TRANSPORT

Kia Ora

Thank you

New Zealand's Tourism Data Domain Plan 2018

Michael Webster
Principal Analyst – Tourism Evidence and Insights
Ministry of Business, Innovation and Employment

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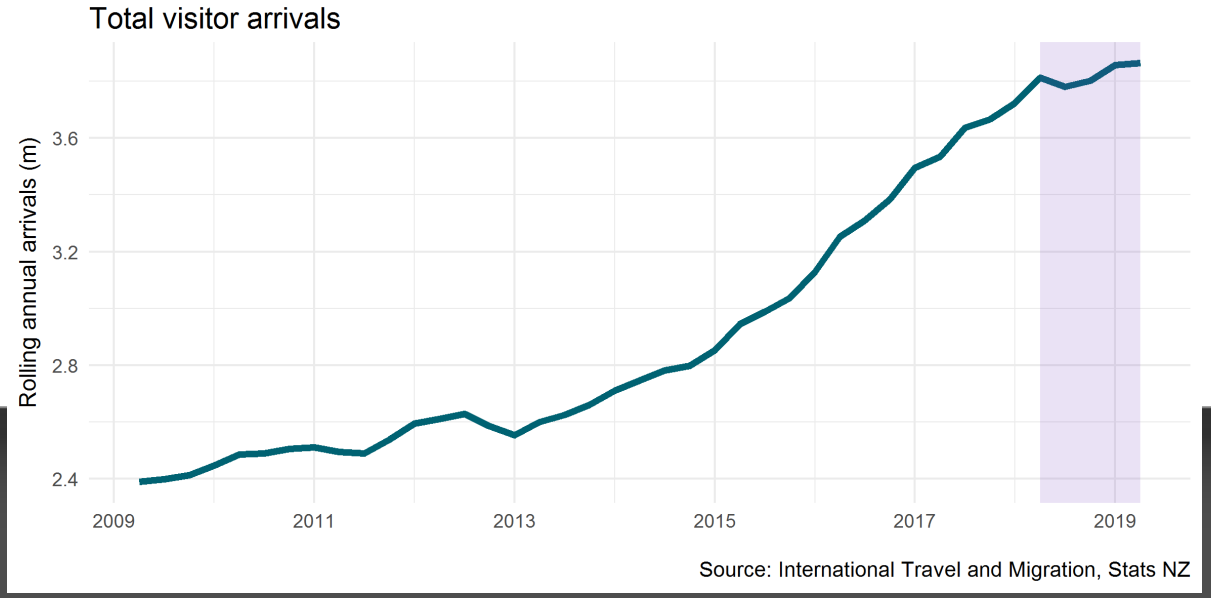
Outline

- Background of the Domain Plan
- Process
  - Governance
  - Stakeholders
  - Approach
- Results
  - Themes
  - Data gaps
  - Initiatives
- Progress to date
- Lessons learned
- Tourism Evidence and Insights Centre

Background of the Domain Plan

Context

- Between 2011 and 2016, visitor arrivals increased nearly 50%
  - Priorities for NZ tourism changed, away from just growth, towards sustainability and destination management
- Developments in data and technology:
  - Online search & social media
  - GPS location data & “big” administrative data
  - Peer-to-peer service operation
- Increased demand for Government to take the lead in providing data for strategic decision-making



Background of the domain plan

What is a tourism data domain plan?

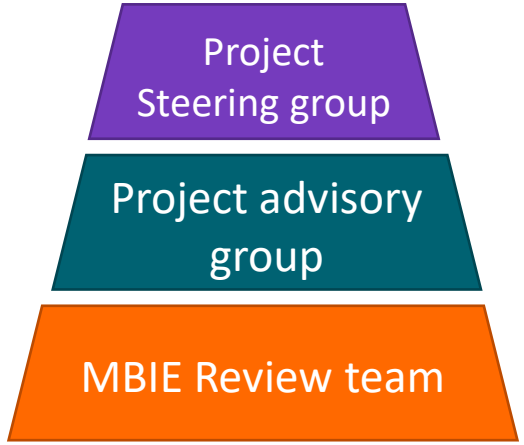
- A strategic review of the data needs of Government and the tourism industry
- Many competing interests look to Government for provision of tourism data. Having a strategic way of prioritizing work is important for:
  - **accountability**
  - **credibility**
  - **transparency**
- Overall, the plan sets out the Government tourism data priorities for the next 5 - 7years
- Government can’t do it all – opportunity for industry to fill in the gaps
- …though COVID-19 is likely to have changed priorities from the exercise in 2018.

2018 Domain Plan

- https://www.mbie.govt.nz/assets/157deaf9d8/tourism-data-domain-plan-2018.pdf

Domain plan process

Governance

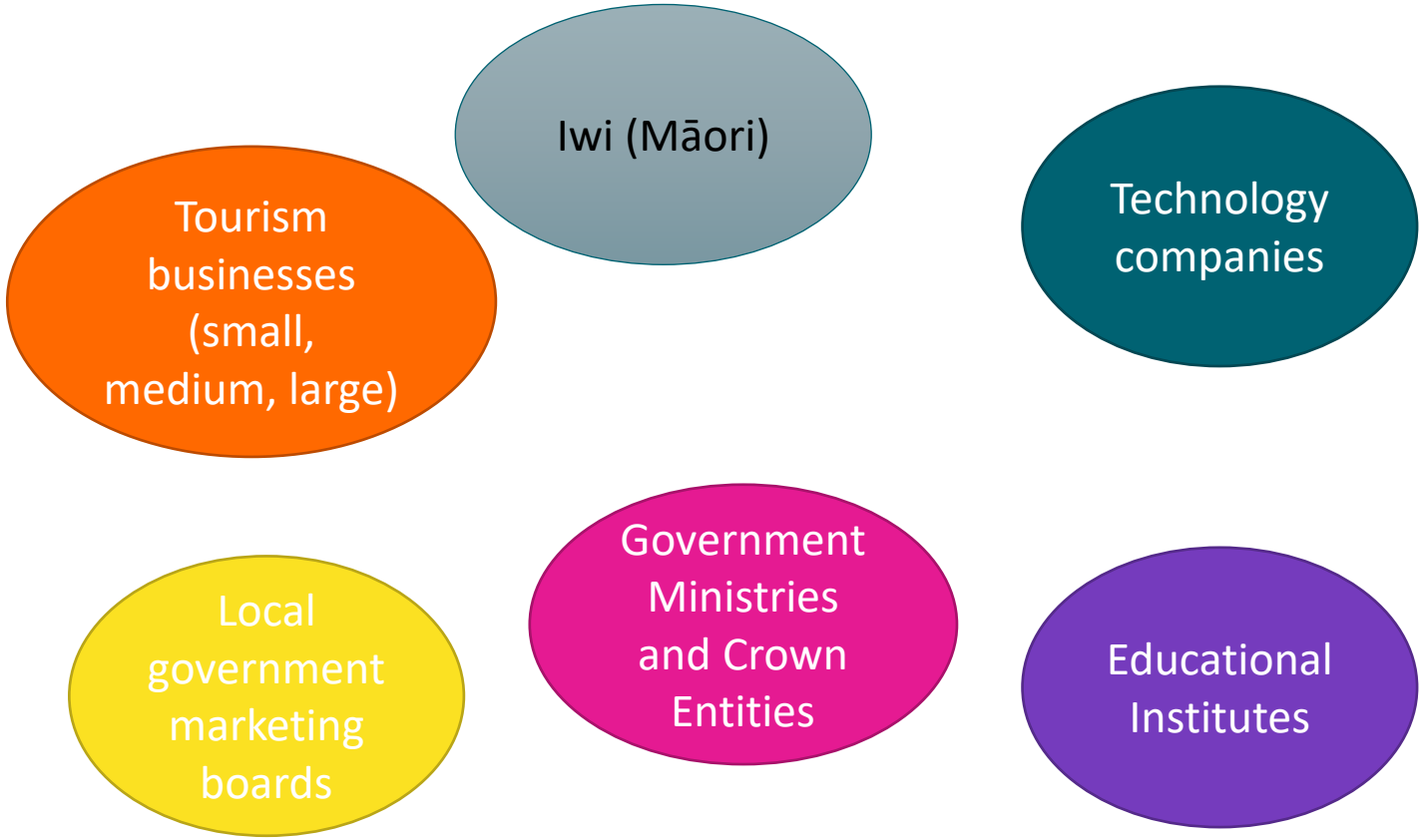


- **MBIE Review team**
  - Me! And a project manager
  - Purpose: to project manage process and write Domain Plan
- **Project Advisory Group**
  - Team of industry and government tourism data experts (13)
  - Purpose: To provide tourism data expertise, assist in prioritizing and scoring initiatives
- **Project Steering Group**
  - MBIE (policy and data divisions) and Stats NZ oversight, + industry advocate
  - Purpose: resourcing, strategic guidance, final signoff

Domain plan process

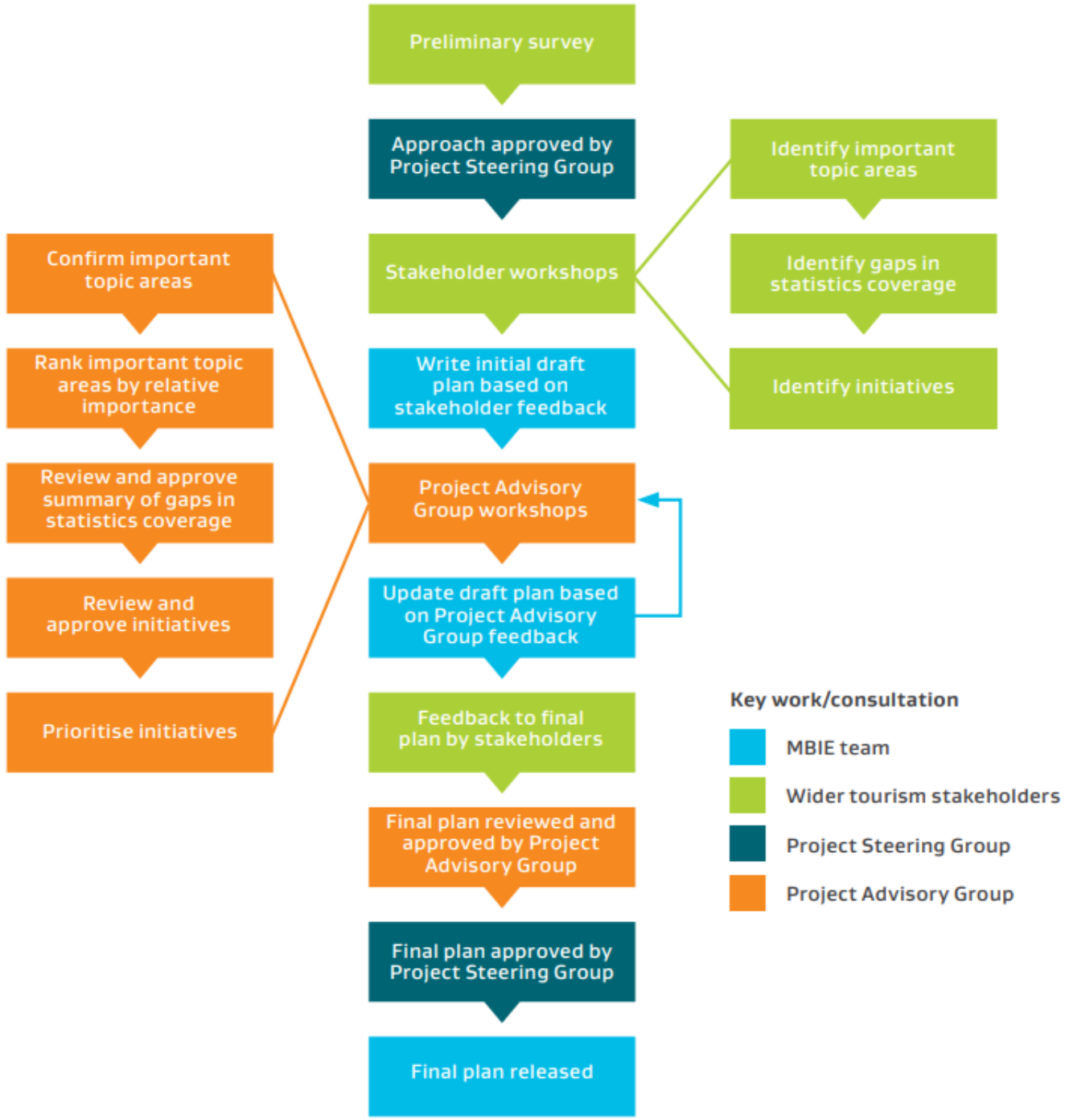
Stakeholders

- Target stakeholders for the plan



Domain plan process

Summary



Domain plan process

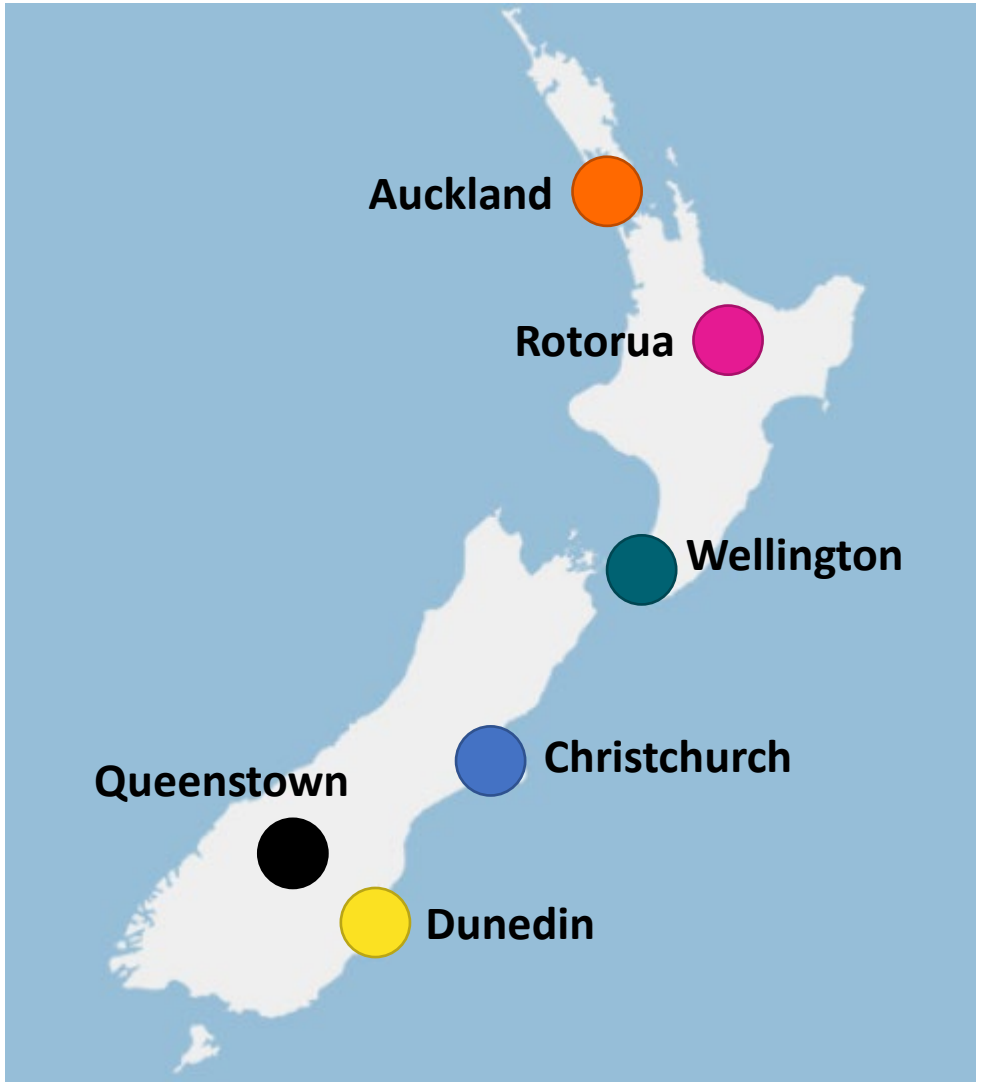
Initial Survey

- Sent out to all subscribers to tourism data
- Asking for priorities as well as specific key initiatives
- Aimed at:
  - getting an initial feel for popular opinion,
  - getting hold of hard-to-reach stakeholders
  - testing timings and locations for the future workshops
- ~200 responses

Domain plan process

Workshops

- 6 facilitated workshops around the country
- 1 additional data hui in Wellington to increase Māori participation
- Purpose of the workshops:
  - to receive feedback from stakeholders
  - for stakeholders to interact with each other as a group and receive feedback from their colleagues
  - to ideally reach common views on the domain plan steps, including identification and ranking of priorities.
- Stakeholders helped to:
  - Identify the important topic areas
  - Identify gaps in statistic coverage
  - Identify initiatives



Domain plan process

Project advisory group

- The initial draft of the plan was discussed and considered at workshops with the **Project Advisory Group**.
- This group was asked to:
  - Confirm important topic areas
  - Rank the important topic areas by order of importance
  - Review and approve the summary of gaps in statistics coverage
  - Review and approve initiatives

Domain plan process

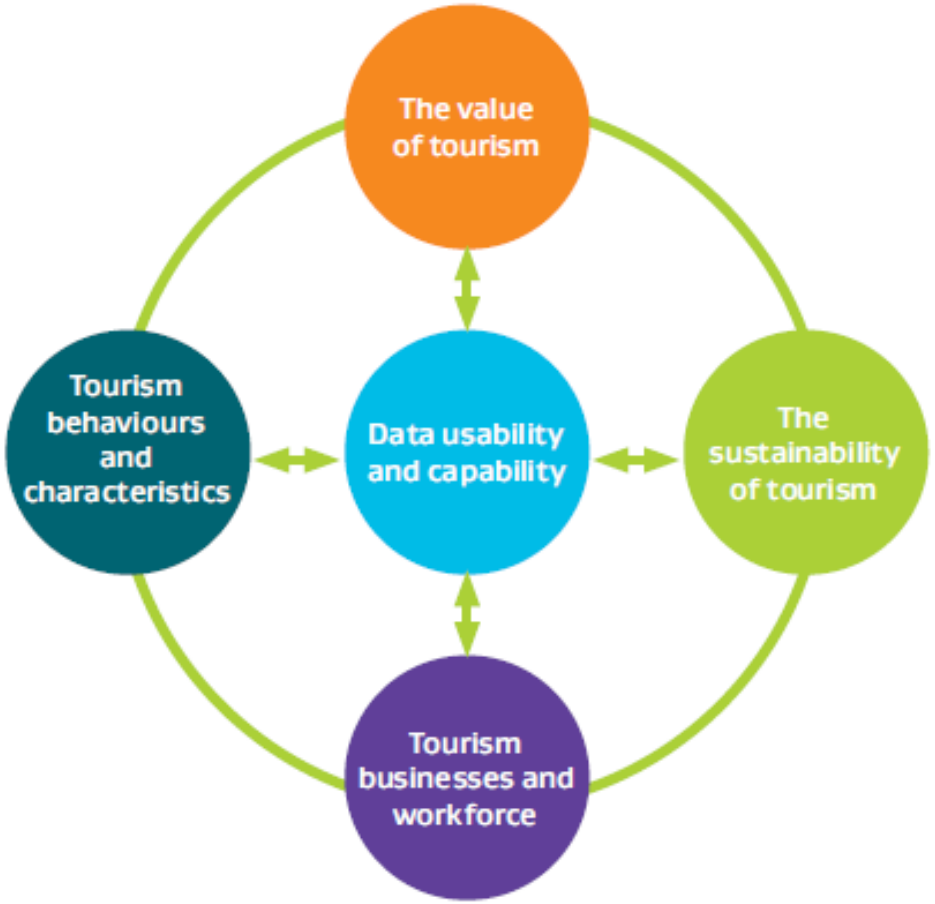
Completing the plan

- Signoff by project advisory group
- Draft plan distributed to all stakeholders for comment with minor changes made
- project steering group signoff of final draft
- Overall, around an 8 month process

- Following the launch of the plan, a draft implementation plan will be developed
  - key initiatives were identified for implementation
  - A deliberate decision to exclude implementation/budgets from the Plan

Results

- 5 perennial tourism data topics identified



Results

Data gaps identified

- Analysis was completed for the 5 perennial data topics in relation to existing data currently available, and what was missing and important, based on:
  - Paper study/expertise in MBIE review team
  - Discussions with project advisory group
  - Stakeholder workshops
  - Data from initial survey
- From these sources, potential initiatives to fill these data gaps were generated by the review team.
- These initiatives were then reviewed and scored by the project advisory group.

Results

Initiative scoring

Priority score = ∑ (topic value × degree of impact)

Topic value:

- The value of tourism = 10 points
- The sustainability of tourism = 8 points
- Tourism behaviours and characteristics = 7 points
- Data usability and capability = 7 points
- Tourism businesses and workforce = 6 points

Degree of impact:

- High = 5
- Medium = 3
- Low = 1

Results

Initiatives

Rank	Name
1	Produce sub-national Tourism Satellite Accounts
2	Develop sustainability dashboard
3	Produce future infrastructure-needs report
4	Investigate regional tourism volumes and flows
5	Develop visitor profile model
6	Commission tourism costs and benefits report
7	Update Māori component of the International Visitor Survey
8	Produce report on Māori business performance
9	Produce report on tourism business performance
10	Make data sources consistent with international best practice
11	Investigate improvements to Monthly Regional Tourism Estimates methodology
12	Develop case studies for communities affected by tourism
13	Develop regional tourism forecasts
14	Develop regional visitor satisfaction estimates
15	Improve the usability of tourism statistics

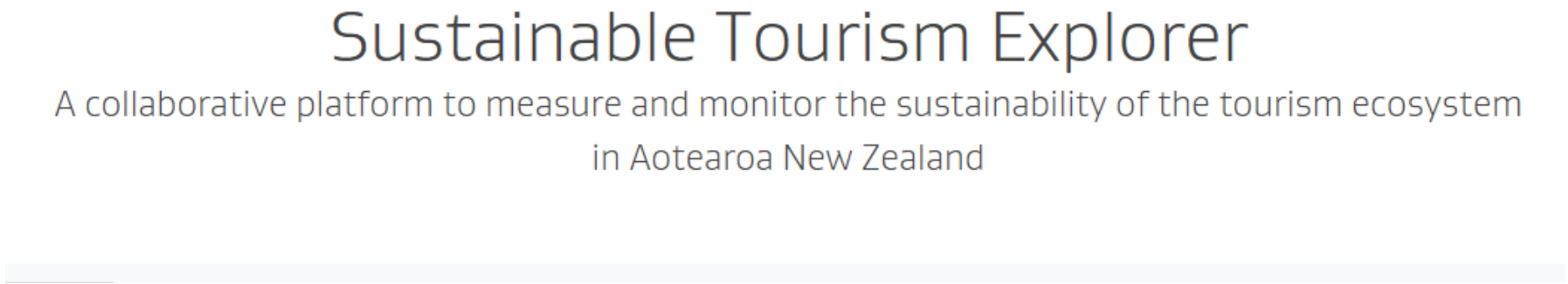
Implementation

Sustainable Tourism Dashboard (Tourism Evidence and Insights Centre)

- Sustainable Tourism Explorer incorporated into new Tourism Evidence and Insights Centre website, released mid-2021

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Department of Conservation
Te Papa Atawhai



Implementation

Tourism volumes and flows

- Completed scoping work with Data Venture for a product to estimate tourism regional volumes and spend
- If the project is confirmed, expected results: 2022.

Lessons learned

Process

- Process is simple and transparent, and is scalable
- Allows a broad range of engagement at different levels
- Encourages buy-in by allowing all interested parties multiple methods for participation
- Would recommend a workshop for each area of touristic interest

Lessons learned

Our expectations at the workshops

- We were expecting useful suggestions from stakeholder workshops on specific data gaps and potential initiatives
- Stakeholders were effective in articulating their information needs, but had less knowledge on what data was available or how it could be produced
- This led us to refocus the workshops towards more general data needs/ themes and relied on ourselves/the Project Advisory Group for more specific detail

Lessons learned

Further thoughts

- Participation of industry in Project Advisory Group/Steering group
  - Expectation management!
  - It helped to have other major stakeholders in the room to counter some of the more extreme views
  - Negotiating support from “problem” industry members probably added 2 months to the length of the process
- Māori participation
  - Hui idea developed relatively late in the process to counter poor Māori attendance
- Rapidly changing environment could leave the initiatives out of date

Lessons learned

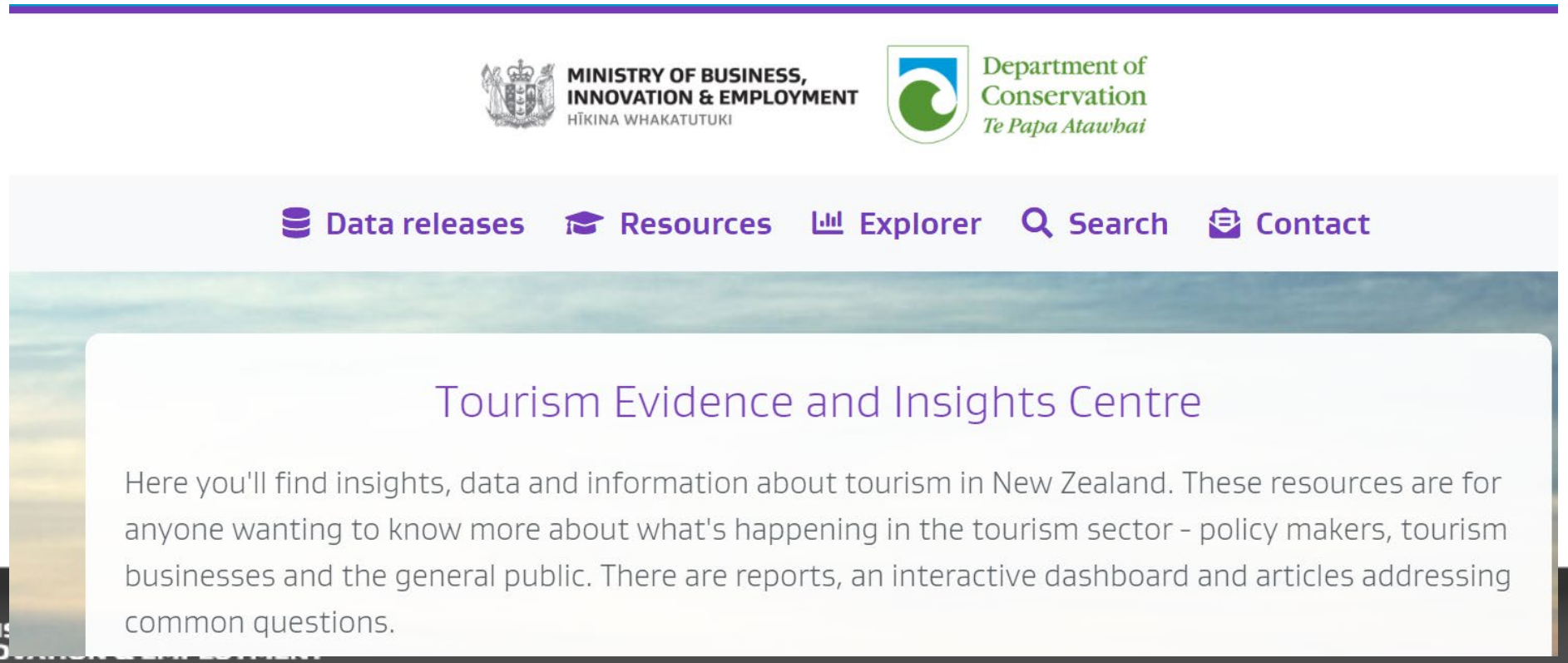
Capacity/resourcing

- Ideally, implementation of the initiatives should have been fully funded. However, current funding has been out of baseline.
- However, new Government tourism strategy prioritises data
  - https://www.mbie.govt.nz/immigration-and-tourism/tourism/new-zealand-aotearoa-government-tourism-strategy/
  - Resourcing now available through planned Co-Governance Group and (primarily) International Visitor Levy, around $8m NZD will be earmarked for data development.

Tourism Evidence and Insights Centre

Raphael Aggio, Senior Analyst, Tourism Evidence and Insights Team

- https://teic.mbie.govt.nz/



Interregional Movement Data – Marketview

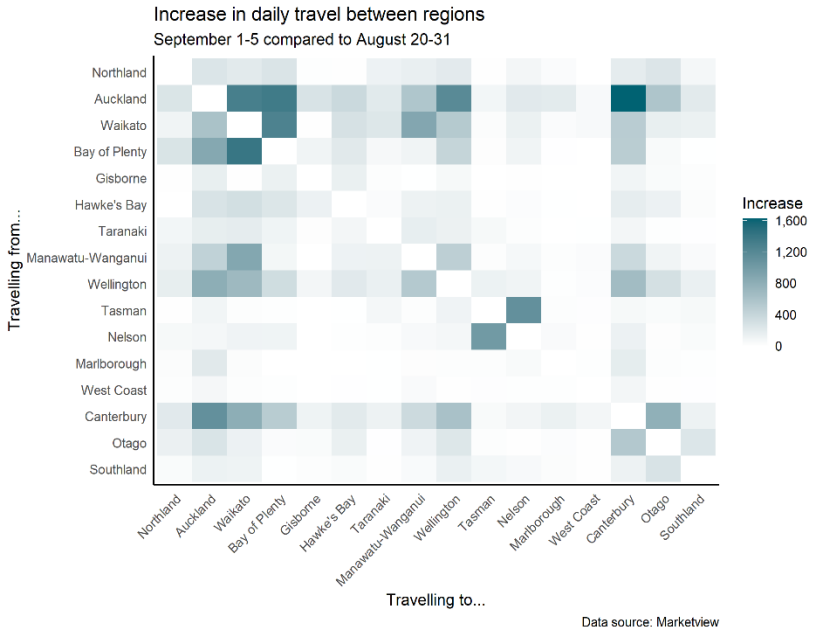
Luke Searle, Analyst, MBIE

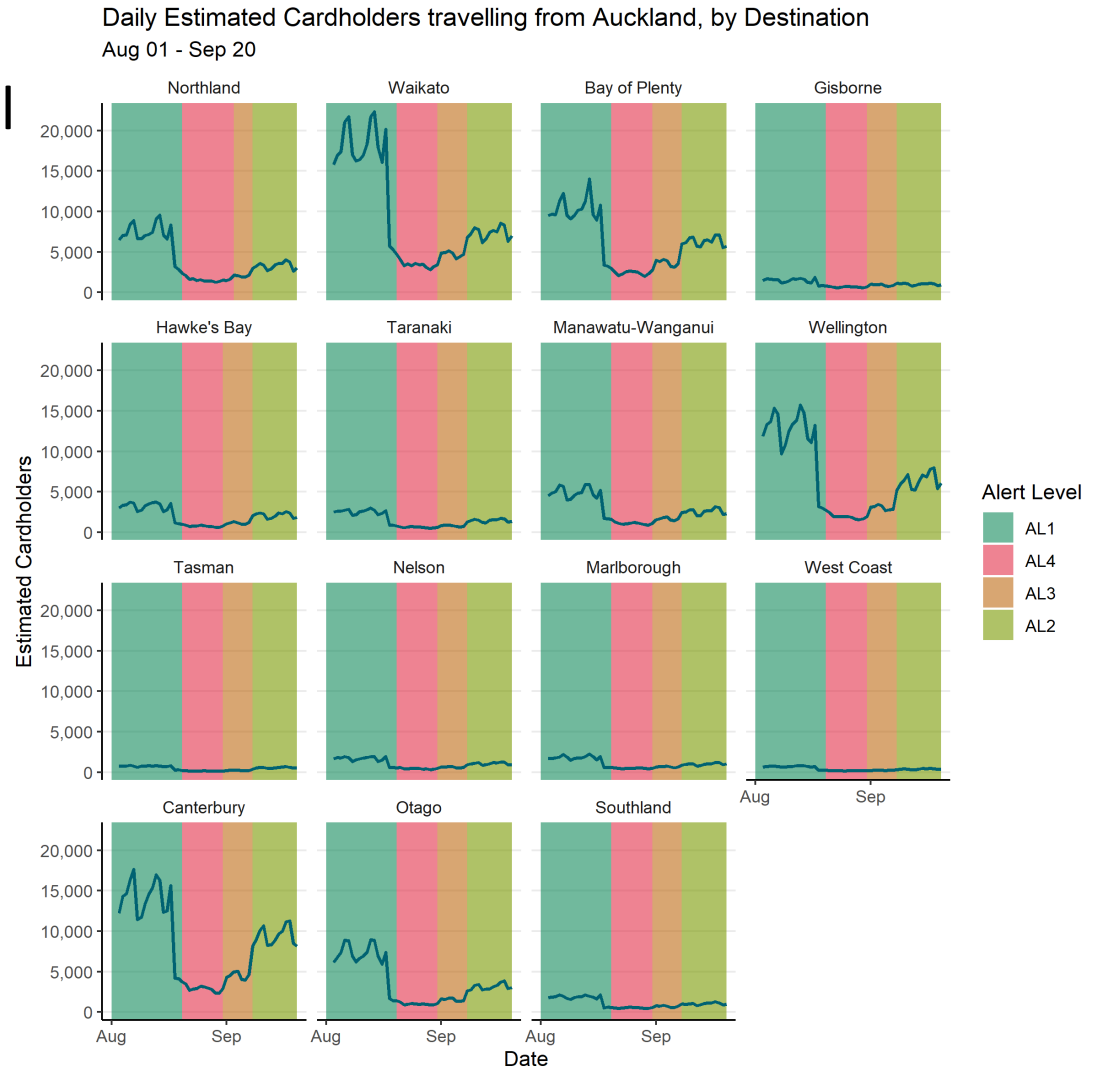
- Identifying electronic cards that make transactions in different regions
- Implies movement of the cardholder; can identify source and destination
- Imperfect. Individuals might carry multiple cards, or cross a regional boundary but not make a transaction at Paymark merchant (~70% coverage)

Interregional movements NZ: September 1-5

Interregional Movement Data - Marketview

- Used to estimate how travel between regions changed across lockdowns:





Questions?

Korero Poto
Short stories

Topic	Presenter
The third wave of open data – what next?	Aimee Whitcroft, Waka Kotahi NZTA
The application of integrated land use and economic models to the simulation of natural hazard events	Robert Cardwell, ME Research
Project Monty: MoT Simulation System	Jade MacKay, Ministry of Transport
Household Travel Survey	Jennifer McSaveney, Ministry of Transport
National Freight and Supply Chain Strategy: Data needs and gaps	Jacob Ennis, Ministry of Transport
Cost of transport to households and individuals	Kirill Kruger, Ministry of Transport
Transport initiatives at Hamilton City Council	John Kinghorn, Hamilton City Council

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The third wave of open data – what next?

aimee whitcroft, Open Data Lead, Waka Kotahi NZTA

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Data is growing faster than ever…

- **2010 – 2021: almost 5,000%[1] growth**
  - amount of data created, captured, copied and consumed.
- **2021 – 2030: ?**

[1] *https://www.forbes.com/sites/gilpress/2021/12/30/54-predictions-about-the-state-of-data-in-2021*

..as well as the importance of data access

"More data is available than ever before. Unlocking the value of data and information will enable improved outcomes for all New Zealanders. Data can be used to solve complex problems, generate innovative ideas, and unlock public and private value.

"Data can provide new insights to inform policy decisions and shape the design and delivery of government services. Access to government-held data and information will also enable others across society to generate fresh insights and creates new opportunities for research and innovation."

Transport Evidence Base Strategy[2], Ministry of Transport, 2019

[2] *https://www.transport.govt.nz/area-of-interest/strategy-and-direction/transport-evidence-base-strategy/*

Open data at Waka Kotahi

WAKA KOTAHI
NZ TRANSPORT AGENCY

Let’s talk about open data

- Open data is publicly available.
  - To anyone, anywhere, anytime.
- Open data is human-readable AND machine-readable.
  - PDFs and (some types of) images don’t count.
- Open data is primarily government open data[3].
- Open data protects privacy and security.

Open data is a great example of the network effect.

[3] *https://data.govt.nz/toolkit/open-data/*

Open data is important for Waka Kotahi…

- To help us meet our strategic objectives.
- To help build more innovative products and services.
- To help enable better data sharing and use within the organisation – opening data helps organisations use their own data by breaking down silos.
- To help us interact better with our customers and stakeholders, improving our user focus, collaboration efforts, reputation and social licence.

…and for our customers, stakeholders and all New Zealanders

- To help build a safer, more inclusive, more efficient land transport sector in New Zealand.
- To help build data capability and capacity throughout the land transport sector and related stakeholders.
- To help empower New Zealanders in their land transport uses, both as users and as organisations which provide products and services.
- To help improve land transport-related decision-making, in turn leading to improved funding, and more effective use of funding along with a wide range of fundable activities and initiatives.
- To help meet a number of the high-priority initiatives listed in the Transport Evidence Base Strategy.

Examples

- Choosing sites for petrol stations / EV charging points / ridesharing stations using traffic flows.
- Improved or new services designed to enable better use of our transport system, including:
  - rail
  - buses and ferries
  - micromobility.
- Improving planning and use of walking and cycling routes.

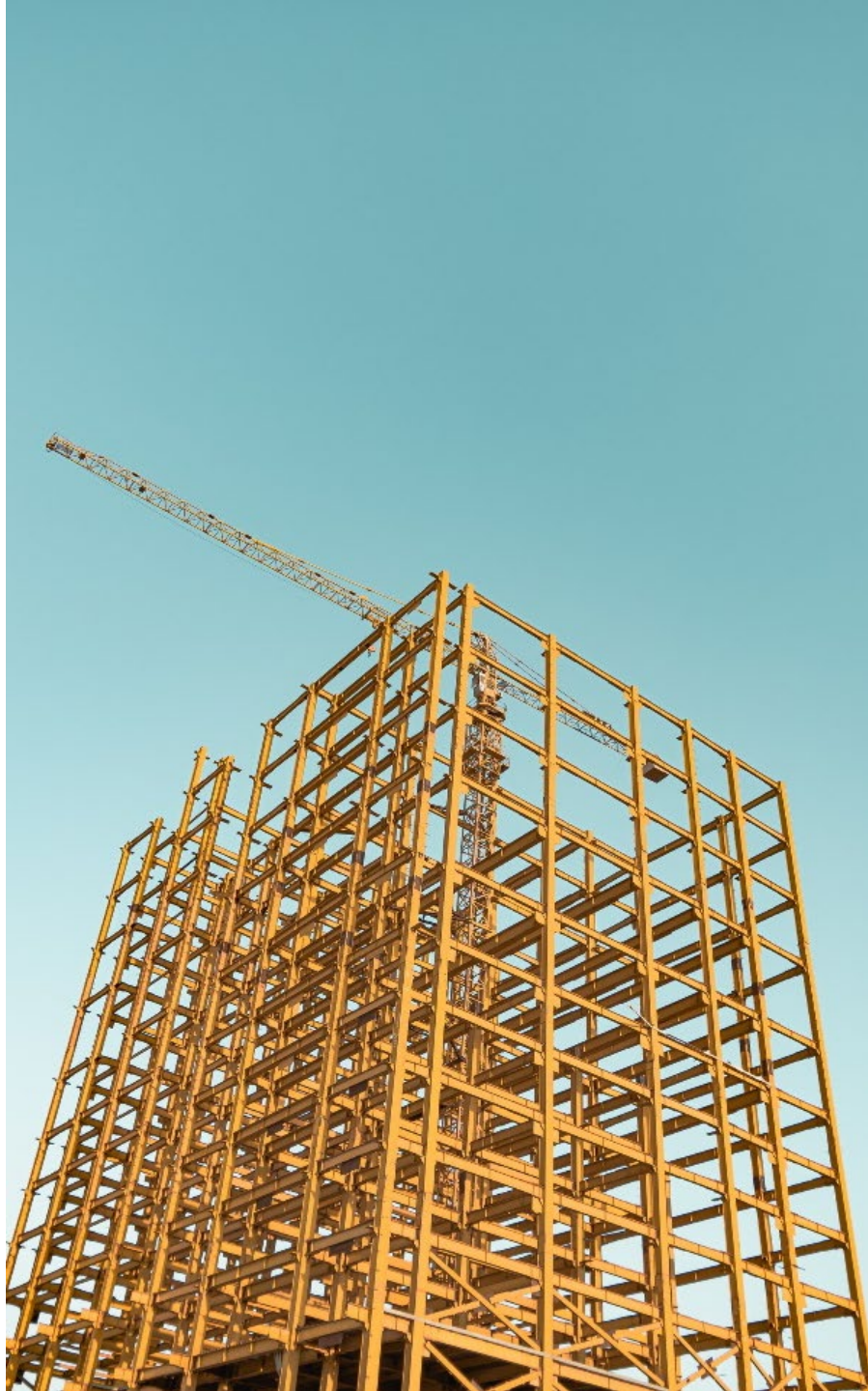
Collaboration: riding the third wave of open data

WAKA KOTAHI
NZ TRANSPORT AGENCY

A transport sector-wide open data framework will be a key enabler…

How

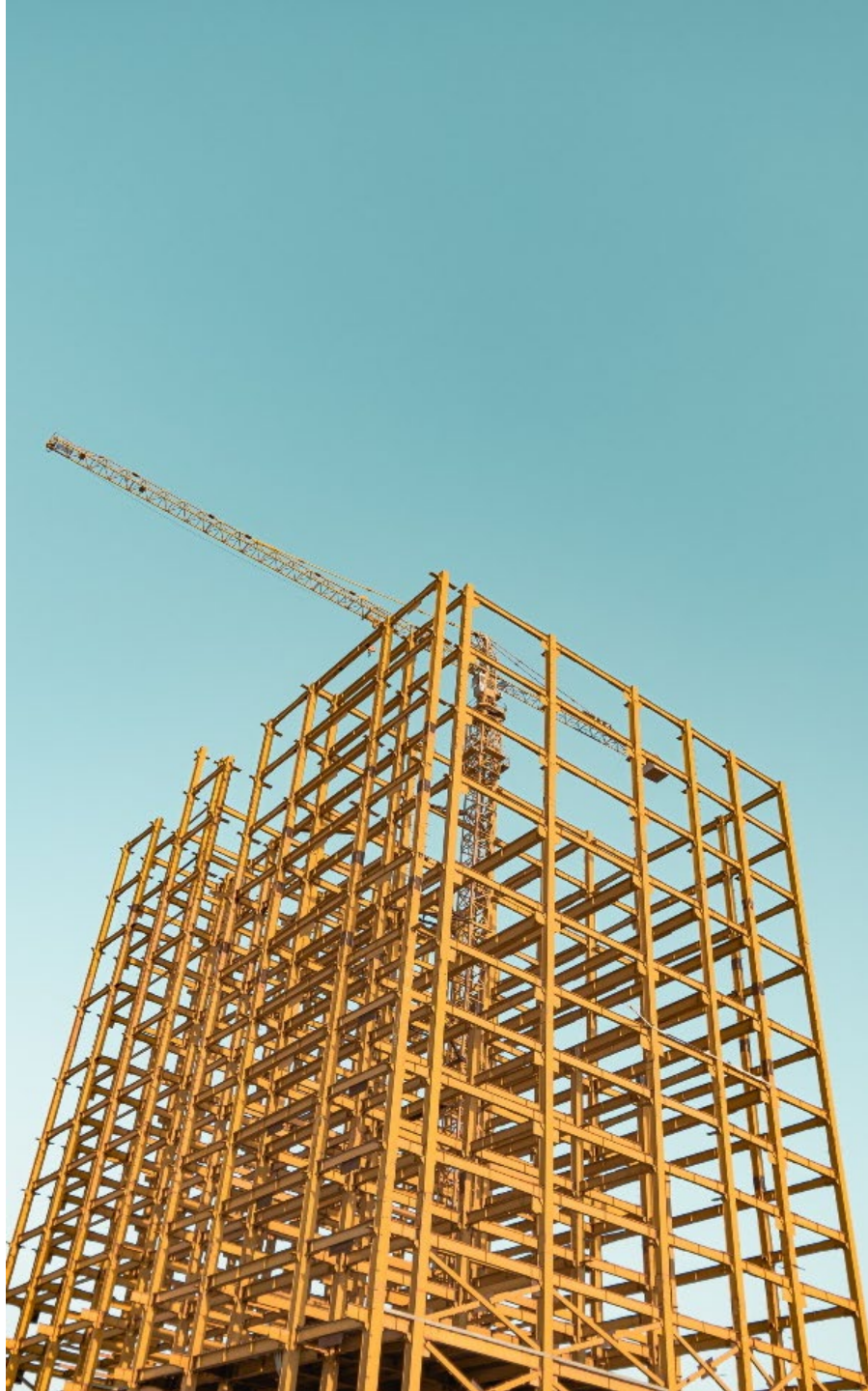
- Initial draft by transport sector open data working group.
- Released publicly for comment by anyone interested.
  - Co-designed with sector.
- Voluntary sign-up for any organisation (not just govt!).



A transport sector-wide open data framework will be a key enabler…

Why

- Align efforts.
- Prevent wheel reinvention.
- Enable prioritization.
- Help embed sound governance and risk-mitigation practices.
  - Within and between organisations and the wider transport community.
- Regularly revised and updated as a living document.



We're starting to ride the third wave of open data[4] [1/2]

First wave:

- pull-focused – OIAs etc.

Second wave:

- push-focused – open by default.

Accelerating the re-use of data for public interest purposes while ensuring data rights and community flourishing

Third wave[4]:

- collaborative (public, private and other sectors)
  - publish with purpose
- subnational scales
- prioritise data responsibility and data rights.

[4] *https://opendatapolicylab.org/third-wave-of-open-data/*

We’re starting to ride the third wave of open data [2/2]

Riding the third wave includes:

- fostering and distributing institutional data capacity
- articulating value and building an impact evidence base
- creating new data intermediaries
- establishing governance frameworks and seeking regulatory clarity
- creating the technical infrastructure for re-use
- fostering public data competence
- tracking, monitoring, and clarifying decision and data provenance
- creating and empowering (chief) data stewards.

In conclusion

Openness lets us work *together*…

- De-escalating scarcity as a source of power.
- Collaboration is *powerful.*
- Openness is intrinsically collaborative and drives progress.
- It's about what one *does*, not what one *has.*

- We generate huge value when we share, remix and build on information.
  - For example, civilisation.

…to build a kinder, stronger, more resilient Aotearoa, and a better world

- Open data can help build more open societies.
- More transparent. More free. More informed. More engaged. More *truly* powerful.
- A kinder, stronger, more resilient Aotearoa.
- A more effective NZ Inc.
- We can help build her and in doing so, we can help build a better world.

Thank you, and please stay in touch.

Questions?

aimee whitcroft

aimee.whitcroft@nzta.govt.nz

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WAKA KOTAHI
NZ TRANSPORT AGENCY

The application of integrated land use and economic models to the simulation of natural hazard events

Robert Cardwell

Market Economics Ltd

Transport Knowledge Hub

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Project Monty: MoT Simulation System

Jade Mackay, Ministry of Transport

What is Project Monty?

From various vantages

- A general purpose evidence based policy guidance oracle
- A simulated reality or ‘digital twin’
- A coherent collection of models for understanding New Zealanders’ transport behaviour and response to policy change
- An everything transport model framework for comprehensive intervention and counterfactual investigations

What is it to be used for?

General investigation of

- Interventions: impacts, and on whom, $\tau = E(Y_{X=1}) - E(Y_{X=0})$
- Counterfactuals: ditto, $\tau = E(Y_1|X = 0, Y_0 = 1) - E(Y_0|X = 0, Y_0 = 1)$

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For example

Congestion

- What will the impact on traffic flow along Wakefield Street be if a congestion charge is applied?
- Who will it impact? (region, income, gender, ethnicity, ...) *Equity*
- Mode shift? Will it have consequences on other modes such as cycling, walking, and PT? *Emissions & Climate change*
- Will it impact freight? *Supply chain*
- What if a congestion charge AND more/less frequent PT were to be applied?
- ...

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- ...

Train line between WGN and AKL

- How will it impact road use volumes?
- ...

...

How?

Core

- Agent Based Model (ABM): Simulates the interaction of automonus agents (a collection of plans)
  - + Individual value functions optmised (co-evolution) by modifying the agents' plans (trips)
  - + Equilibrium corresponds to the situation in which no uni-lateral change in behaviour can imp agent's situation
- Microscale and permits emergent behaviour

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- A representation of **Network** defined by (Road links, ferry routes, PT schedules, ...)

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- Link flow volumes and *user characteristics*
- Actual modeshare and *user characteristics*
- Actual trips and *user characteristics*

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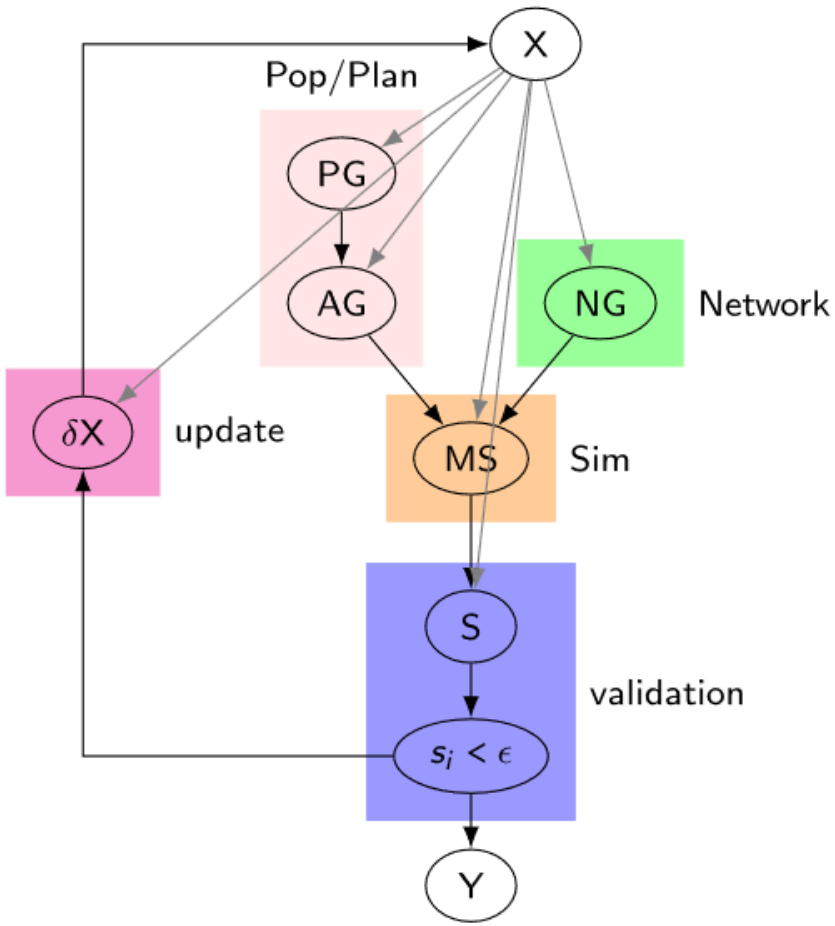
Connection of transport things with user characteristics is fundamental if we want to effect *people's* behaviour - Monty is a *social* model

How?



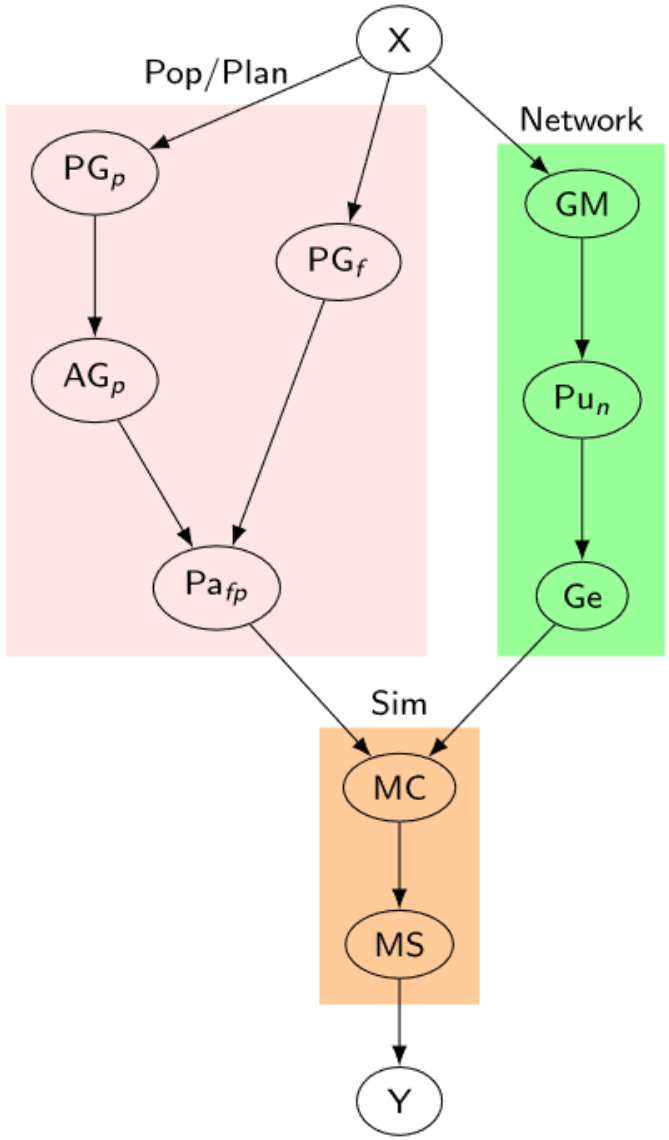
Subgraphs

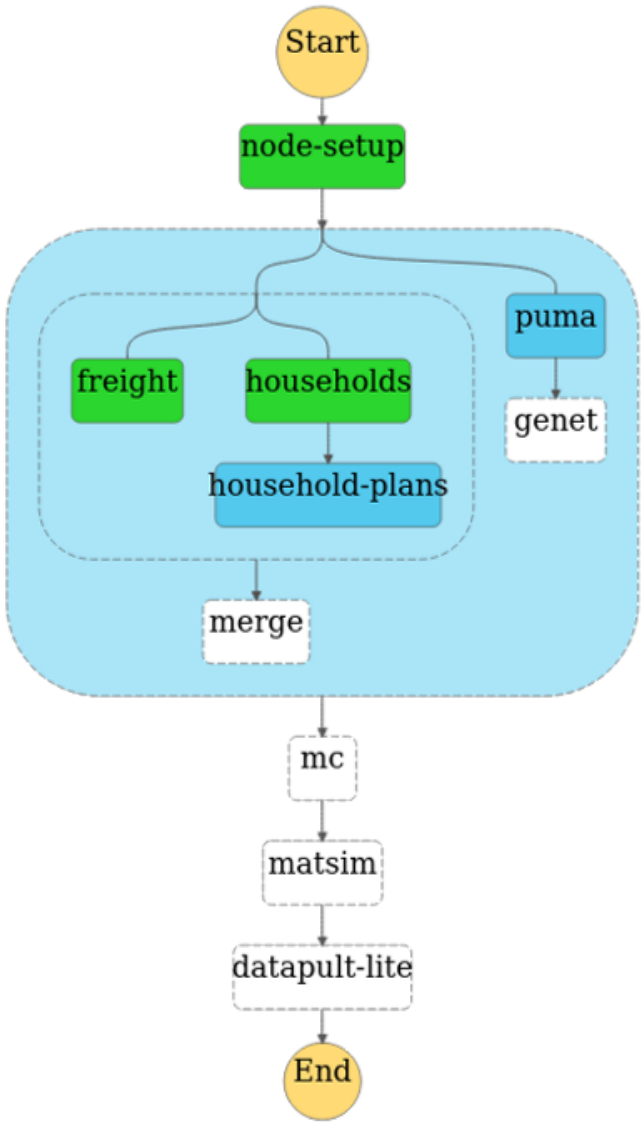
- PG/AG: Population & plan synthesis
- NG: Network generation
- MS: Core simulation
- S: Validation (& benchmark generation)
- δX: Update/Optimisation/Calibration/Sweep

IO

- $X \in \{data, configs\}$; input/artefacts
- Y output: esp. activities.xml

Manifested on AWS

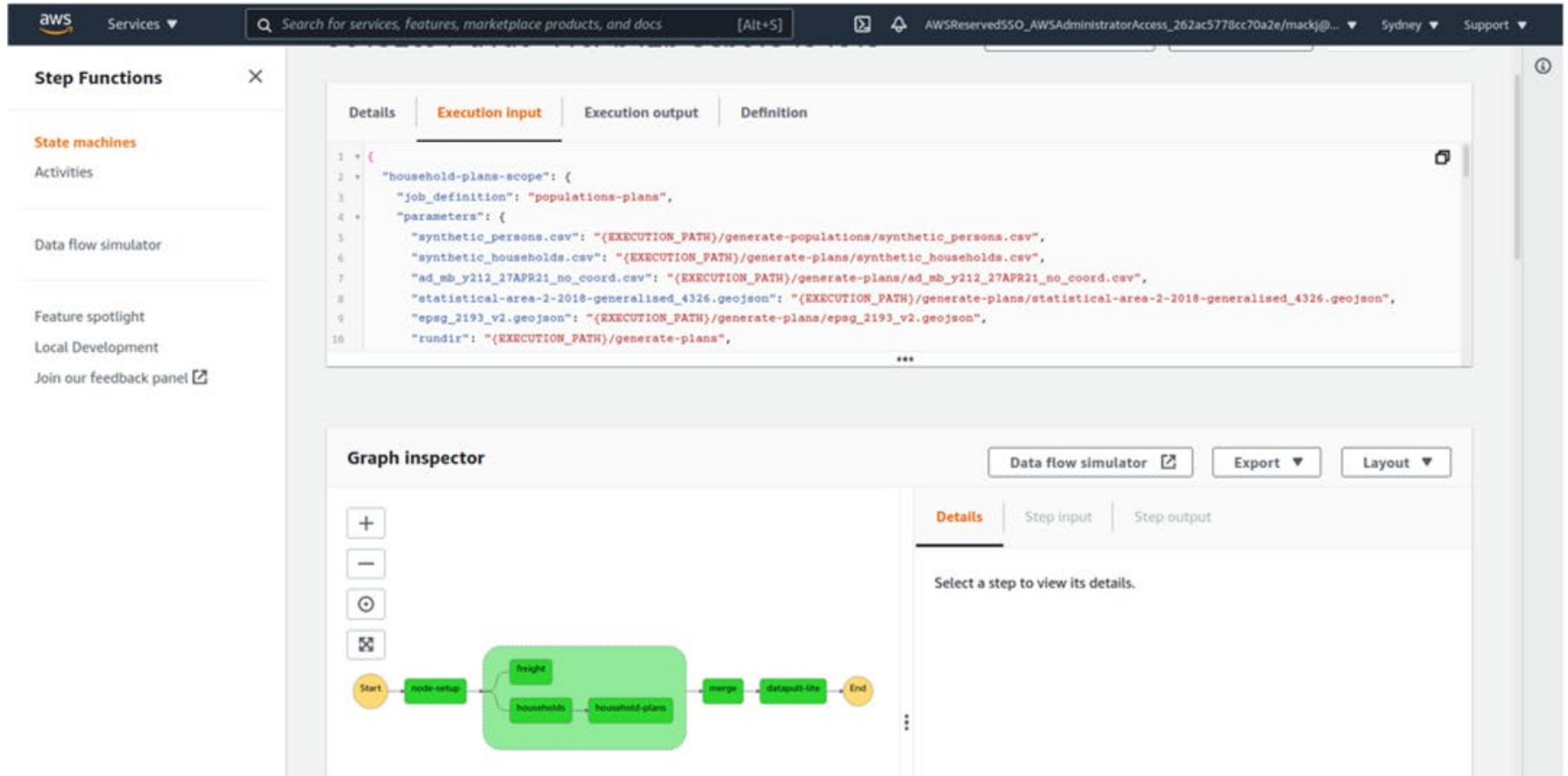




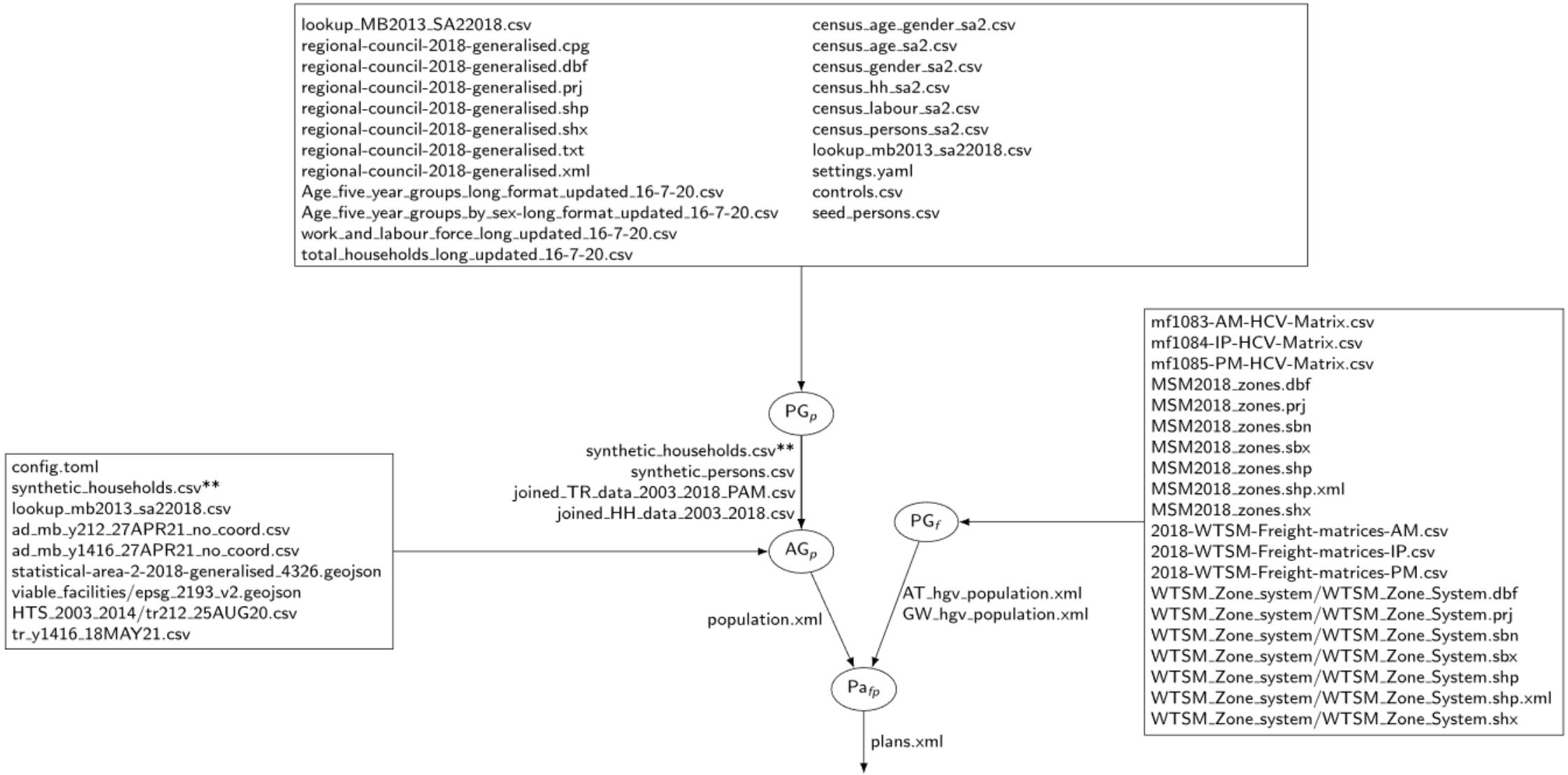
Product Delivery & Concept

Easily served to user through:

- AWS console
- Command line interace
- Simple custom web interface

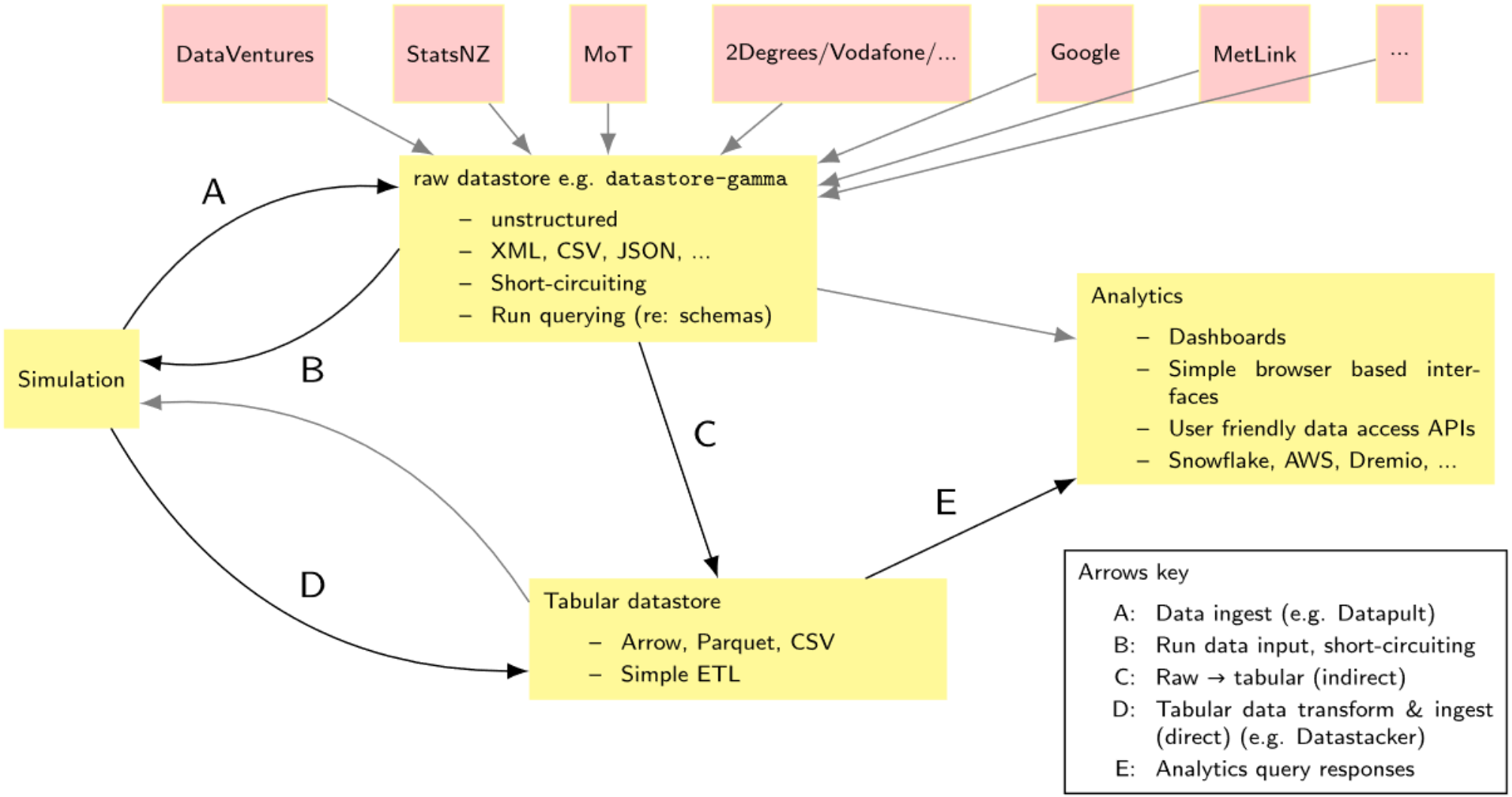


Data - Population Subgraph



Data & it's management will be a very big part of MoT's policy modelling stack

No longer limited by compute but by our ability to manage our input and output data



A Cleaner View: 3 Parts

The best model is that which best meets reality

$$M^* = \underset{M}{\operatorname{argmax}}\, S(M, D)$$

Where

- D stands for data
- M^* is the model (to which policy questions are given)
- S is a scoring function

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Because

- How can we be confident of a 50 years away scenario if we can't be confident of a scenario about yesterday?
- How can we be confident about yesterday's prediction without today's data? (many times)
- Further more, how can we train yesterday's model without the last five years of data?

Who? × What?

High resolution who:

$$(Age, Gender, Location, Ethnicity, Iwi, Income, Employment - status, Occupation, Family - status, ...)$$

High resolution what:

$$(Drive, Bus, Taxis/Ubers, Walk, Cycle, Time, Duration, Origin, Destination, Purpose, ...)$$

The trade-off

- The cost of concealing our behaviour from government is poorer models informing poorer decisions
- How much 'opportunity loss' should we trade against 'privacy loss'?

Thank you!

Household Travel Survey

Jennifer McSaveney, Ministry of Transport

Transport Knowledge Hub
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New Zealand Household Travel Survey

30+ years

Primary source of information of how, when, where and why we travel

… enduring questions for transport

2 day travel diary

Continuous survey

Face to face recruitment and interview

Option of GPS unit

Transport Outcomes Framework

Inclusive access

Healthy and safe people

Environmental sustainability

National Freight and Supply Chain Strategy:

Data needs and gaps

Jacob Ennis, Ministry of Transport

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National Freight and Supply Chain Strategy

By 2035, 20% more freight will be moved than today, but the system will have to produce 25% fewer emissions

- **The strategy will identify priorities for change over the next 15-30 years**
- **Focus on:**
  - Decarbonisation - net zero by 2050
  - Resilience – Prepare for climate change, shifting geopolitics, and other potential disruptions
  - Productivity and innovation – continue to meet demand and consumer expectations, while achieving the above
  - Wellbeing – the expectation that freight investments and infrastructure will provide broader benefits to people, communities and the country.

Strategy Evidence Base

If we want to understand the supply chain as a 'system'…

… and we want to design strategic government interventions…

… then we need significant support from data, research, and monitoring functions.

"In most countries the amount of freight data available is insufficient to support evidence-based decision-making across the full spectrum of freight / logistics issues." – McKinnon 2015

Potential Data Gaps

Performance

Is the freight system performing as expected?

Where might intervention be required?

Future Trends

How does the system need to change?

How do we get to our preferred future state?

Vulnerabilities

How can we be more resilient to disruption?

How will this impact infrastructure & land use?

TE MANATŪ WAKA
MINISTRY OF TRANSPORT

Kia ora

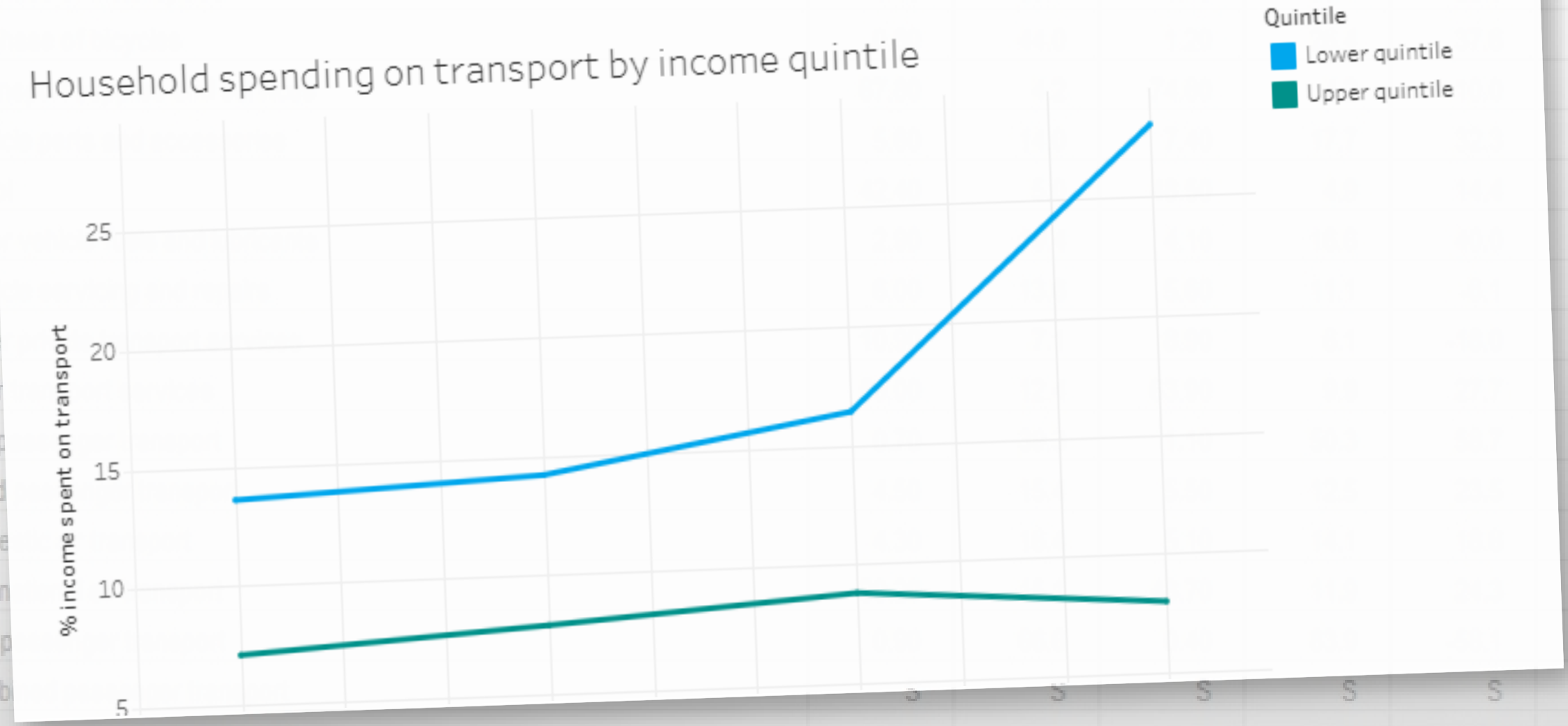
www.transport.govt.nz/supplychain

Cost of transport to households and individuals

Kirill Kruger, Ministry of Transport

Transport Knowledge Hub
DATA

Access: Household spending on transport



Transport initiatives at Hamilton City Council

John Kinghorn, Hamilton City Council

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IMPROVE ACCESS

IMPROVE GOVERNANCE

INVEST IN THE RIGHT ACTIVITIES

FACILITATE COLLABORATION

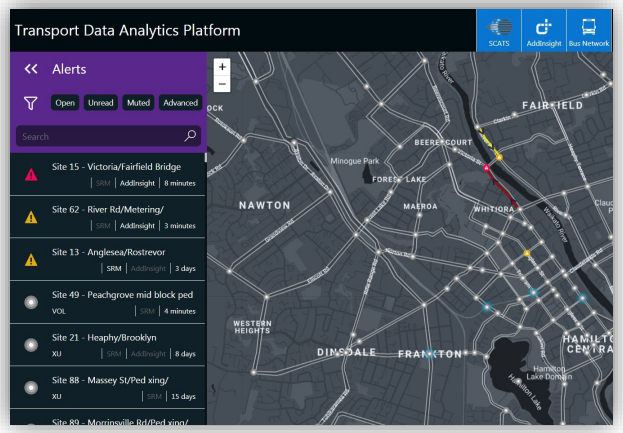
DEVELOP CAPACITY AND CAPABILITY

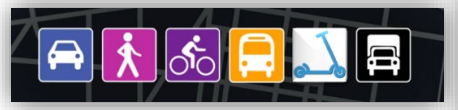
HCC Transport Data Outcomes:

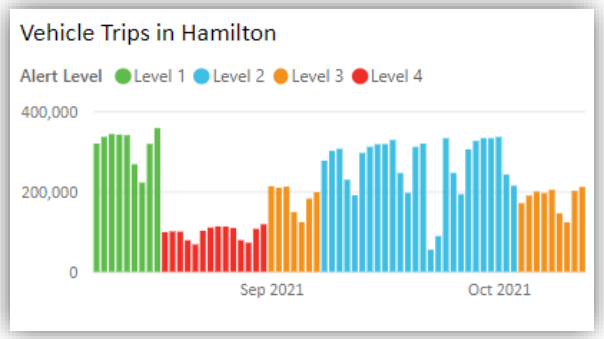
1) **Strategic decision making**
2) Enhance **operations**
3) **Better inform** customers

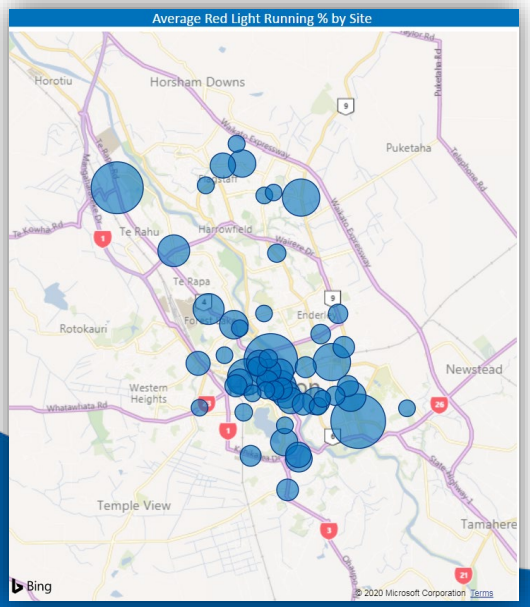
Key Initiatives:

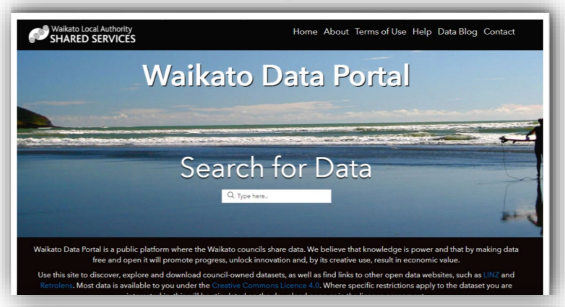
- Real-time operations
- Understand how people move around the city, and mode share
- Local collab for pathway counters
- Identify safety priority sites
- Use data to plan projects & manage events
- Make data open and accessible







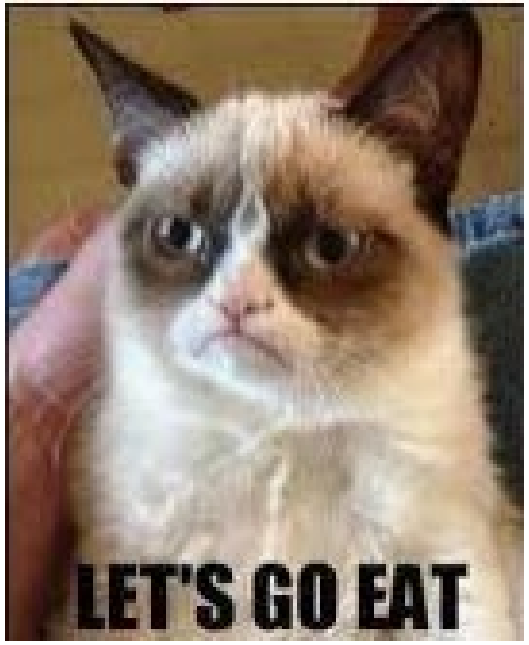




Hamilton City Council
Te kaunihera o Kirikiriroa

Tino tino

Lunch



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'Hot Topic' data problems/issues

(break out session)

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'Hot Topic' data problems/issues
(break out session)
Report back

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Kaupae i muri

Next steps

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Closing Karakia

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Unuhia, unuhia
Unuia ki te uru tapu nui
Kia wātea, kia māmā te kākau
Te tinana, te wairua i te ara takata

Draw on, draw on,

Draw on the supreme sacredness

To clear, to free the heart, the body and the spirit of mankind

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Koia rā e Rongo, whakairi ake ki runga
Kia tutura whakamaua kia tina!
Tina! Hui e! Tāiki e!

Rongo, suspended high above us (i.e. in ‘heaven’)

Draw together! Affirm!

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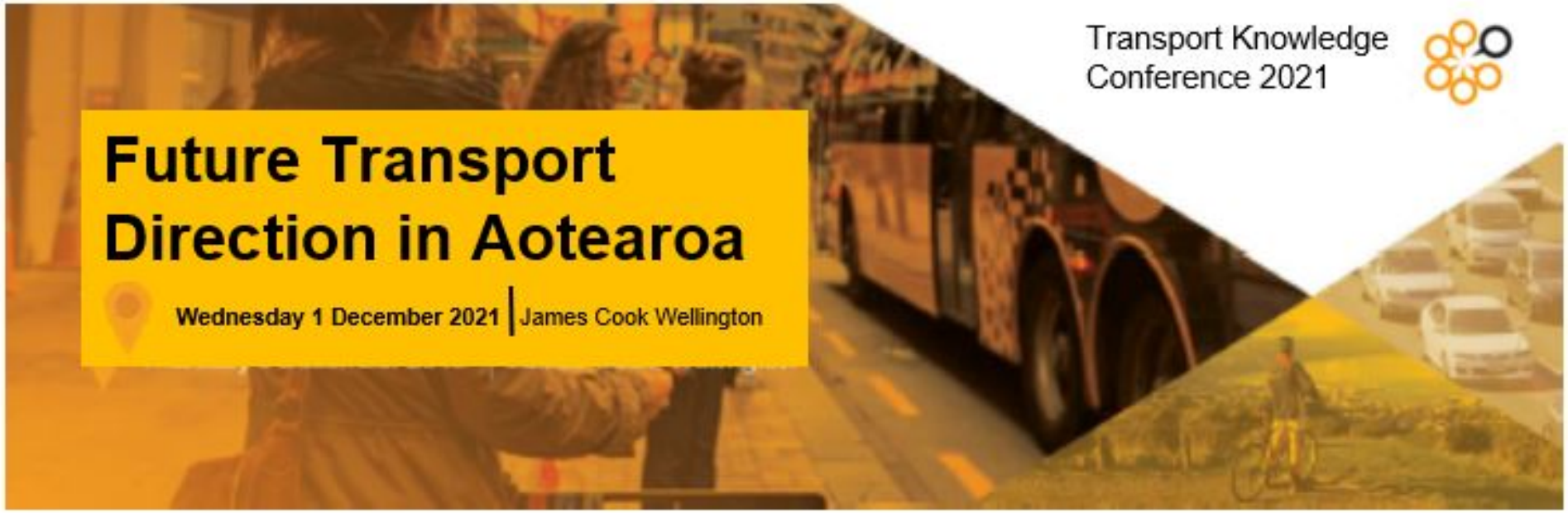
Kupu kati
Closing comments



Register now!

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