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Emerging role of national statistical offices as offices for statistics and data
Session 2: Approaches to data system stewardship

Broadening our role as a national statistical office – New Zealand's journey so far

Note by Statistics New Zealand

Summary

This document discusses the journey of Statistics New Zealand (Stats NZ) so far, as a national statistical office broadening its role in New Zealand's data system. It aims to capture the drivers and environment that contributed to the need for and establishment of the Government Chief Data Steward as a new role for the Government Statistician and Chief Executive of Stats NZ. The paper also focusses on the wider work programme within Stats NZ to support our broader role.

It should be noted that there are other activities across Stats NZ contributing to data leadership which are not covered in the document. These initiatives are extensions of our statistical programme and initiatives to ensure that Stats NZ is an exemplar for other government agencies.

This document is presented to the 2019 Conference of European Statisticians seminar on "Emerging role of national statistical offices as offices for statistics and data", session 2 "Approaches to data system stewardship" for discussion.

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I. Early beginnings in the New Zealand data system

1. The idea of system thinking in relation to official statistics is not new, with national statistics systems a key part of the data system in most countries. In the case of New Zealand, the notion of a system of official statistics producers was part of our legislative framework since the Statistics Act was enacted in 1975.

2. However, it was not a strategic focus for the organisation to create a visible official statistics system until 2004 following a major government report. Known as the "Top Down Review", the report recommended several significant changes including:

- New governance through a ministerial advisory committee
- Identifying a set of key official statistics (Tier 1) and managing these as an enduring national resource
- A new website for official statistics dissemination
- Creating an official statistics research and data archive centre (OSRDAC)
- More focus on relationship management
- Work to support greater compliance with the Fundamental Principles of Official Statistics and statistical standards with official statistics system producers.

3. Ten years later after implementing many of the recommendations from the "Top Down Review", we reached another turning point in our journey. In 2014 the State Services Commission (which oversees the whole of the New Zealand public service) conducted one of its regular performance reviews of the organisation.

4. This review captured the significant change in our operating environment due to the rapid developments in technology and recognised the critical need for collective network leadership to unlock the value of New Zealand's strategic information assets. It noted the potential that Stats NZ could offer, alongside other agencies, given its existing role in leading the official statistics system and the emerging value of functional leadership as a mechanism for the public service to give effect to collective network leadership. Always start with sentence that lets reader know what this section covers.

II. Functional leadership creates a new opportunity for the data system

5. In 2014, functional leadership in the New Zealand public service was relatively new but seen as a key enabler for improving service delivery to New Zealanders. Procurement, Property and Information, Communication and Technology (ICT) were the first business functions to have leadership roles appointed.

6. In New Zealand, functional leadership roles are generally held by public sector Chief Executives and are appointed by the Head of the State Services Commission. The roles aim to improve the effectiveness and reduce the overall costs to government of common business functions. Chief Executives are expected to retain their departmental roles but take on additional functional leader responsibilities to achieve benefits for government overall.

7. Functional leadership is aimed at maximizing the benefits and reducing the overall costs to government of common business activities which may not be achieved by an agency by agency approach. That means finding ways to:

- Drive efficiencies (though economies of scale, leveraging buying power in whole-of-government contracts, setting common standards and approaches, and reducing duplication)
- Develop expertise and capability (centres of expertise, coordinated professional development, deploying capability to where and when it is most needed)

- Improve services and service delivery (through sharing and coordinating activities and facilities, joined up service delivery)

8. Since the 2014 performance review, Stats NZ has taken the opportunity to create an Integrated Data Infrastructure (IDI) alongside the existing Longitudinal Business Database. Through the development of the IDI, Stats NZ was able to unlock more value from the strategic data assets held by government and also demonstrated that it could support a functional leadership role and a centre of excellence[1]. Despite data and analytics being essential to the delivery of official statistics, it took considerable effort to reframe our expertise and to establish our credibility in this context. It is still challenged from time to time.

9. Over the same period, Stats NZ received additional investment to also expand the suite of official statistics adding regional estimates of gross domestic product and annual balance sheets. While this demonstrated our ability to continue to deliver high quality official statistics while adding new services and value, it has meant making several trade-offs and stretched our resources across statistical production more thinly.

10. In July 2017, the previous Government Chief Information Officer functional leadership role was superseded with the appointment of the Government Chief Digital Officer (GCDO) and the Government Chief Data Steward (GCDS) functional leadership roles. This recognised the need to manage the size of functional leadership roles alongside the growing value of and investment in both digital and data across government departments.

III. Strengthening data leadership in the New Zealand government data system

11. Since its establishment in 2017 through the role of the Government Chief Data Steward, we have worked in partnership with government agencies to:

- Set the strategic direction for government's management of data with the development of a Data Strategy and Roadmap focussed on unlocking the value of data for all New Zealanders
- Lead the state sector's response to new and emerging data issues, most recently by fast-tracking work to strengthen transparency of, and accountability for, government's use of algorithms
- Begin development of a Data Stewardship Framework (alongside several other agencies) enabling agencies to manage data as a strategic asset and benchmark their data maturity
- Lead the government's commitment accelerating the release of open data, including the adoption of the International Open Data Charter.

12. Further detail on the initiatives are included in annex 1, including our draft Data Stewardship Framework.

13. These initiatives aligned with the issues facing national statistics offices (NSOs) across the world, as many re-define their strategies to adapt to the digital era where data creation continues to increase at an exponential rate and people can obtain real-time information in many areas of their lives. There are expectations that national statistics offices look to:

- Improve time-frames for publishing official statistics and data – responding to demands from policy makers and citizens for statistics that are as close to real-time as possible, providing a much stronger platform to represent the pulse of society

[1]To date, our centre of excellence has been providing highly targeted support to agencies to lift best practice and capability as opposed to a focus on data and analytics research and innovation.

- Respond to expectations for granular data that is topic, location and community relevant and
- Address the need for trusted, high-quality data that can cut through an increasing supply of material that has the potential to be unreliable, contradictory, unethical and without context.

14. In September 2018, the government (through a cabinet mandate) agreed to empower the Government Chief Data Steward to:

- Set mandatory standards and guidelines for the collection, management and use of data by government agencies; and
- Direct agencies to adopt common data capabilities, such as data tools, linking infrastructure, or sharing platforms (subject to an opt-out process).

15. These new powers are intended to establish the foundations necessary for agencies to manage and share data so that it provides a useful base to inform decisions, within existing privacy and security settings.

16. The ability to set mandatory standards and ensure agencies adopt common capabilities will help to facilitate a government data system where:

- The public has confidence that government will carefully manage their data in ways that they are comfortable with, and which are ethical and transparent
- We can source new data (in an environment where access to data is considered one of the most fundamental obstacles to overcome)
- Data is managed to produce new and meaningful insights and evidence for policy (based on the policy problems we want to solve which cannot progress with current data sources and practices)
- New platforms are developed where data is shared, facilitating open research and boosting innovation, enabling better service provision, including the digital services alongside the government chief digital officer
- Data is made open by removing personally-identifiable information and after appropriate risk, privacy assessment and mitigation.

17. The proposed standard setting power is part of a wider work programme led by the Chief Data Steward in realising the desired future data system as standards alone will not achieve the desired shift in the way that data is managed. This wider work programme will also help deliver to New Zealand's commitment to the Open Data Charter, and accompanying Open Data Action Plan, through improved data management.

18. As Stats NZ continue to collaborate across government to embed the role of the Government Chief Data Steward, expectations are increasing in relation to our ability to work on long term solutions such as; improving the quality of administrative data, changing behaviour through influencing the government's spend on data, reducing duplication, ensuring investments will be focussed at achieving benefits across the system and lifting overall system capability - particularly in emerging areas such as data ethics and the need for reputable unbiased data to support the increasing use of algorithms and artificial intelligence.

19. The component parts of a successful data system align strongly with recent work carried out by the OECD which focusses on the future priorities of statistical offices.

IV. Better system data governance

20. Data governance at the system level to support the safe and effective use of government data is described as broadly sufficient, but sector and agency governance practice is mixed. While some sectors of the government have more established governance including well-established ethics committees e.g. health, others have no obvious place to test their ideas, policy and proposals.

21. This view of governance was highlighted as part our Algorithm Assessment which looked at the use of algorithms across government. One of the recommendations from the report was an advisory group which could provide advice on ethics and the innovative use of data and/or analytics by government agencies.

22. In March 2019, we announced that the Government Chief Data Steward is convening an Advisory Group on Trusted Data Use to help maximise the opportunities and benefits from new and emerging uses of data, while managing potential risk. It will enable agencies to test ideas, policy, and proposals related to new and emerging uses of data.

23. People are being sought with relevant expertise and who represent one or more of the following areas:

- Privacy and human rights law
- Ethics
- Innovative data use and data analytics
- Te Ao Māori (cultural perspective from our indigenous people)
- Technology
- Public policy and government interests in the use of data.

24. Members are expected to be appointed in May 2019, and the Advisory Group will help to fill a gap in data governance at the system level and start to reduce the degree of fragmentation. It is envisaged that Stats NZ will also be able to use the governance mechanisms to support the delivery of official statistics as long as it does not compromise the independence of the Government Statistician and the integrity of the official statistics system.

V. Governance for Digital and Data across the data system in New Zealand

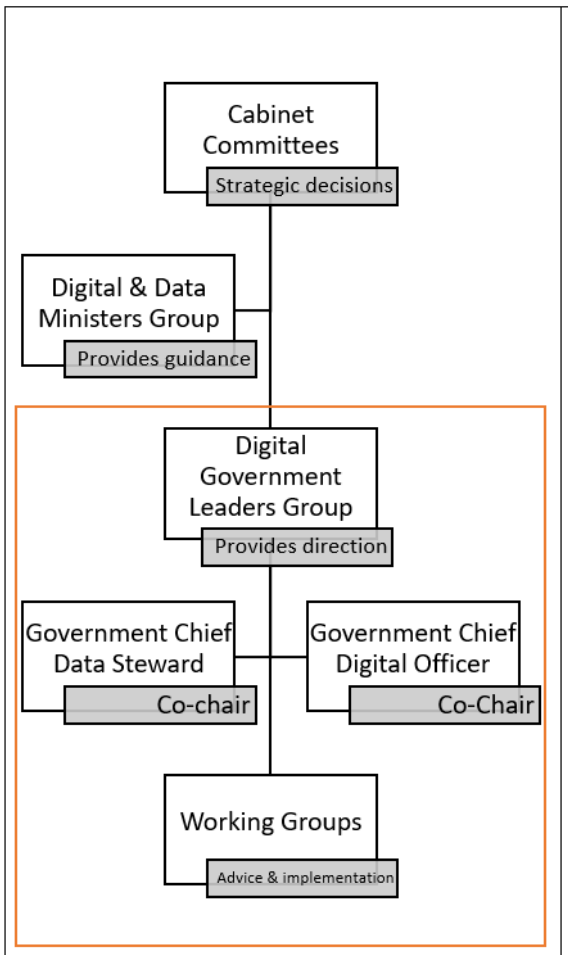
25. The current approach for Digital and Data governance more broadly, was introduced through the previous cross-functional leadership role of the Government Chief Information Officer.

26. The Digital Government Partnership was put in place and expected to collectively oversee the implementation of the now outdated Government ICT strategy. These arrangements are being reviewed and refreshed given the changes to cross-functional leadership roles and work on a new Digital Government Strategy. The Digital Government Strategy is being positioned as a meta strategy which means that the newly agreed New Zealand Data Strategy and Roadmap will underpin it along with other key government strategies and initiatives.

27. Figure 1 provides a high-level overview of the various governance bodies and their primary functions.

28. Stats NZ and the Government Chief Digital Office provide joint secretariat services for the Digital & Data Ministers group and the Digital Government Leaders Group.

Figure 1
A high-level overview of the governance arrangements for Digital and Data in New Zealand



VI. Shaping Stats NZ to support broader data system leadership

29. In 2016, we recognized that we needed to make changes, including reorganising ourselves to support our official statistics programme and integrated data services, and give effect to the new Government Chief Data Steward and lead agency for data and analytics role. A detailed description of the structure that was initially implemented is further outlined in annex 2.

30. The focus of the changes was to give effect to our broader role, by:

- Recognizing the development of new capabilities and
- Strengthening our existing capabilities to gain better synergies.

31. Effectively, we grouped ourselves around five main functions – data system leadership, insights and statistics, data and digital services, data ventures and organisational capability and services.

VII. Our key learnings so far

32. We have eight key learnings that we think are useful for other NSOs to consider as they chart their own data leadership journey.

A. Mandate

33. While a mandate is important, we found that it was important to make a start while working towards gaining it. We found that having examples and successes to point to helped demonstrate the benefits of such a role and provided good evidence to underpin the case for the mandate.

B. Co-design and collaboration with agencies

34. We took lessons from our previous efforts working across the official statistics system along with modern approaches to engagement and collective leadership into our work programme. We also learnt from the early approaches by the initial functional leaders for procurement, property and information, communication technology that too much emphasis on mandate tended to lead to compliance rather than sustained change.

C. Opportunistic rather than carefully planned

35. It was important as noted in section A that getting started was important, and so we took a deliberate decision to be opportunistic. This meant that the order in which we have delivered initiatives to establish our data leadership has not been conventional nor carefully planned. For example, we started working on our approach to standards setting and putting the governance in place ahead of securing the mandate. The NZ Data Strategy and Roadmap was delivered ahead of the Data Stewardship Framework. If we had waited until we had secured a mandate, it would have delayed establishment by over a year.

D. Giving effect to the Government Chief Data Steward while preserving the independence of the Government Statistician

36. As we establish the Government Chief Data Steward role, we continue to juggle the different responsibilities and are careful to ensure that we do not compromise the independence of the Government Statistician. We have also had to consider the Fundamental Principles of Official Statistics and their application to our broader range of services as many other NSOs are also doing.

E. Growing capability and changing our culture

37. As part of establishing the Government Chief Data Steward (but not exclusively), we have had to add new and lift existing capabilities. Previously, we had a small policy function more narrowly focused on the official statistics system, which has had to grow to support data strategy and policy. Similarly, we have had to grow our standards setting capability and move from a technical focus to a customer and people-centric focus. Activities which operated more in the background are now being thrust more into the foreground, which has tested and is beginning to reshape our culture.

F. Role modelling

38. As we work more with agencies on issues such as data governance and information management, we recognize the importance of us role modelling good practice ourselves. This has proven to date to be an effective way to get more traction on some long-standing issues. Staff can contribute to data system leadership from where they are by simply modelling good behaviour and implementing good practice in their current roles and work programmes. It has also been important to the government agencies we support and collaborate with that we are also (where appropriate) subject to the same expectations.

G. Reprioritisation

39. Giving effect to this new role has not been without pain. In order to fund these new activities, we have had to reprioritize some existing activities on top of some new funding. This has meant we have been spread thinner in some parts of our official statistics programme, and it has deferred work including maintenance. However, we also know that because of our data leadership work, we have gained more funding for new statistical work that we may not have secured. In a way, it could be characterised as self-reinforcing if we are able to deliver consistently.

H. Data and analytics or statistics

40. One of our key challenges has been to reframe our statistics capability as data and analytics capability. Staff within Stats NZ at times have struggled to identify with data and analytics despite being necessary for the compilation and delivery of official statistics while government agencies struggled to identify statistics as being about data and analytics. This is despite analytics encompassing statistical techniques as part of most definitions. While this could be just semantics, there has been anecdotal evidence that we are not alone in this experience. It is important to think about the audience and the language to ensure that NSOs can be seen an option for a centre of excellence for data and analytics or as in other countries data science.

VIII. Conclusion

41. Our journey continues but we hope through this paper we have provided more insight into the drivers and environment which have brought about the Government Chief Data Steward role. We have also outlined our learnings to date and look forward to hearing from others about their experiences so that we can mine these for our future work.

Annex 1

List of key initiatives delivered through our broader role

A. The NZ Data Strategy and Roadmap

(Available from www.data.govt.nz)

1. The Data Strategy and Roadmap provides a shared direction and plan for New Zealand's data system (the people and organizations that collect and use data) and was commissioned by the Government Chief Data Steward. Initially the Roadmap examines the New Zealand Government's role in enabling a well-functioning data system. This will broaden over time to include non-government organizations (NGOs), local government, and the private sector.

2. As a living document, the Roadmap will lay a responsive and flexible foundation for organizations to work together and align their data initiatives, ultimately leading to more effective and efficient use of data, reducing costs and supporting innovation. It will be reviewed and updated regularly.

3. The Data Strategy and Roadmap's four focus areas – endorsed as priorities for the digital and data systems – are expected to help achieve a responsive, sustainable, and joined up data system:

- Investing in making the right data available at the right time
- Growing data capability and supporting good practice
- Building partnerships within and outside government
- Implementing open and transparent practices.

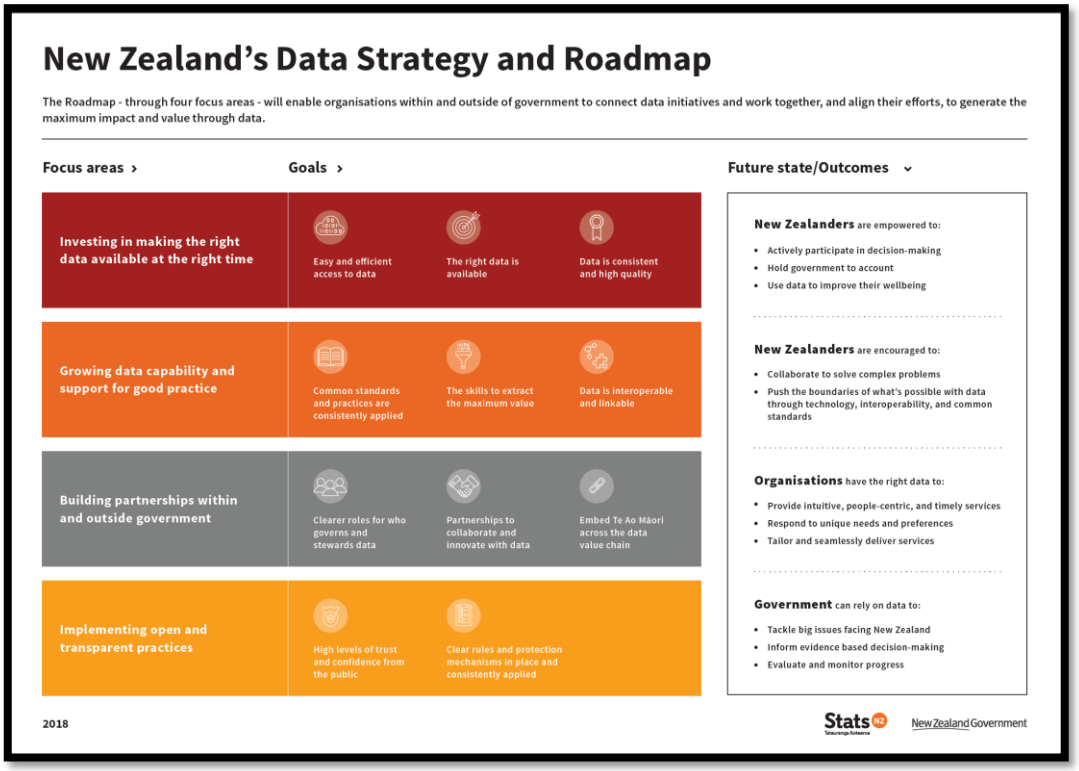
4. Ongoing and planned data initiatives are being mapped to establish practical ways the Roadmap can help create value for New Zealand.

5. Activity over the next 3-5 years will focus on key areas for improving the collection, management and use of data. Data initiatives from across government will be identified to understand what's being worked on to:

- establish a shared direction
- align goals and efforts
- identify future investment opportunities and areas for collaboration.

6. A diagram below provides an overview of the Roadmap, including the focus areas (see below), goals, and how the future state/outcomes will affect New Zealanders, organizations and government.

Diagram 1
New Zealand's Data Strategy and Roadmap



B. The Data Stewardship Framework and toolkit

(Available from www.data.govt.nz)

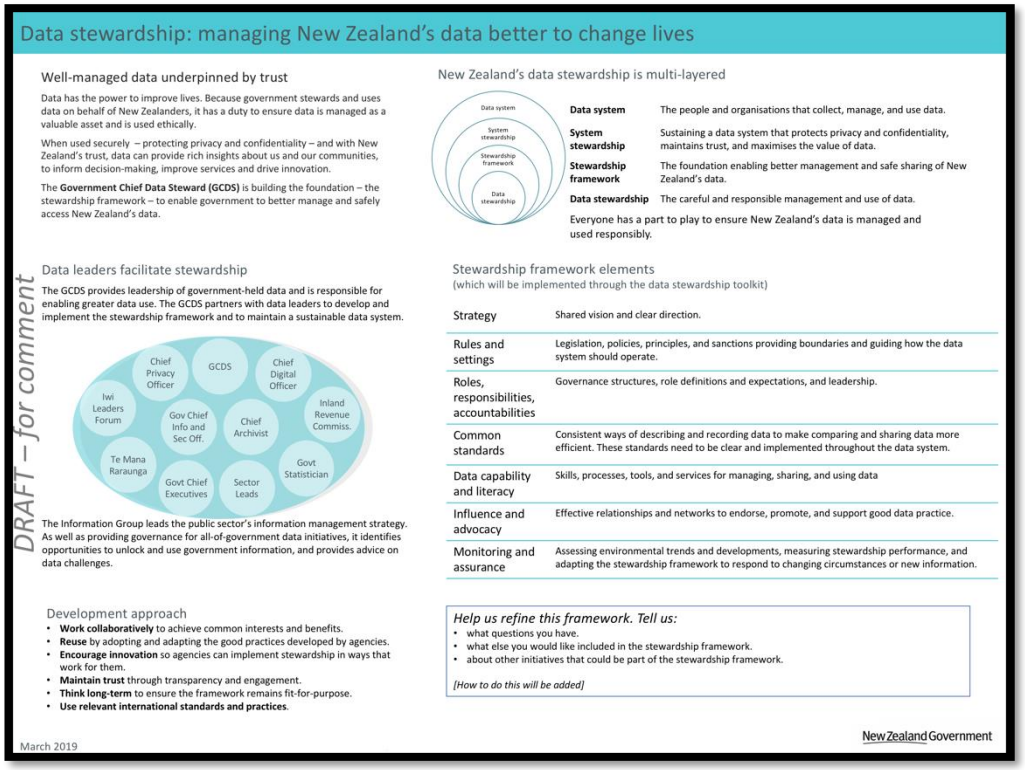
7. Stats NZ have drafted a Data Stewardship framework to summarize data leadership and stewardship within government. The aim is to provide a common language to describe how the complex pieces of data stewardship fit together. The framework will be implemented through the draft stewardship toolkit which will draw on different activities that are ongoing throughout the New Zealand data system.

8. We plan to engage the wider data community and public in the coming months which will culminate in the first version of the Data Stewardship Framework. Below, a timeline is included with more information.

Timeline for consultation:

- February 2019: Engage key government stakeholders
- March – April 2019: Engage wider data community and public
- End of April: we will summarize feedback and seek IG's advice on what should be incorporated into our first version of the framework
- May 2019: Publish first version of Data Stewardship Framework.

Diagram 2
Data stewardship: managing New Zealand's data better to change lives



C. Principles for the safe and effective use of data and analytics

(Available from www.stats.govt.nz/about-us/data-leadership/)

9. We partnered with New Zealand's Privacy Commissioner to create a set of principles to guide government agencies (and others) for the safe and effective use of data and analytics. This initiative was well-received and was a pre-cursor to further work we

did assessing the use of algorithms by government agencies.

D. Algorithm assessment

(Available from www.data.govt.nz)

10. A cross-government review of how government uses algorithms to improve the lives of New Zealanders was undertaken in 2018. The review aimed to ensure New Zealanders are informed and have confidence in how the government uses algorithms.

11. Led by the Government Chief Data Steward and Government Chief Digital Officer, the review initially focused on operational algorithms that result in, or inform, decisions that directly impact people or groups.

12. Algorithms are the automatic decision-making processes used by computer programmes to identify patterns in data. They have an essential role in supporting the services government provides, and help deliver new, innovative, and well-targeted policies for New Zealanders.

13. Fourteen government agencies self-assessed the algorithms they use to deliver their functions, focusing on areas most directly impacting decisions related to people. The report summarizes these self-assessments. Our analysis was underpinned by the Principles for Safe and Effective use of Data and Analytics.

14. The two key findings were:

- Humans, rather than computers, review and decide on almost all significant decisions made by government agencies.
- There are opportunities for increased collaboration and sharing of good practice across government.

15. The key recommendations from the review were:

- Published information should explain how algorithms inform decisions affecting people.
- The government commitment to Treaty-based partnership should include embedding a te ao Māori perspective into the development and use of algorithms.
- A group of independent experts could be established to advise and guide agencies.

Annex 2

Stats NZ's structure to support broader data system leadership

1. The following structure was put in place at Stats NZ to better support our broader role in the New Zealand data system. The organization consists of five groups:

A. Data system leadership

2. Helps New Zealand get value from data – leads the government data system, supports data users, and manages our partnerships.

B. Insights and statistics

3. Collects and analyses data to provide information about the economy, people, and environment. This includes running the census.

C. Data services

4. Ensures customers can access and use our data through research databases, our website, and other channels. Provides the digital services and platforms needed to collect and produce data.

D. Organization capability and services

5. Helps the organization position itself through strategic and business planning, and communications. Provides organizational services such as human resources and finance.

E. Data ventures

6. This group is entrepreneurial and experimental. It tests Stats NZ ideas and services and takes them to the world.

7. It is important to note that temporary changes to the groups are currently in place to better support delivery of the 2018 Census. We continue to look at how we organise ourselves to better deliver outcomes for New Zealand.