

Knowledge Sector Initiative

WORKING PAPER 5

Lesson from the New Zealand Data Futures Forum:

How to Unlock the Value of Data-driven
Innovation and New 'Evidence' in
Policy-making

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Foreword

Kenneth Benoit and Kenneth Cukier during a public lecture at the London School of Economics in February 2015 mentioned that ‘the ubiquity of *big data* has the potential to transform the way we approach social science’.¹ The rise of big data is challenging the social scientific model and its ability to help us better understand society and in turn inform policies. Big data have therefore to be seen as a new form of evidence which is available to governments across the world to make better informed decisions for the design, implementation and evaluation of public policies.

While all countries, including Indonesia, develop systems and processes that allow knowledge and research evidence to inform policy making, the emergence of big data is challenging governments to identify and maximize the potential that data innovation has for public policy. This working paper focuses on that challenge and describes how a specific country, New Zealand, has responded to it.

The working paper is a follow up from the International Conference on Data Innovation for Policy Makers held in Bali in November 2014 and organized by Indonesia’s Ministry of National Development Planning (Bappenas) in collaboration with Pulse Lab Jakarta, the Knowledge Sector Initiative and the UNDP

Innovation Facility.

The idea for a working paper co-published by the Knowledge Sector Initiative and Pulse Lab Jakarta was inspired by the keynote speech given by Miriam Lips, Professor of Digital Government at Victoria University of Wellington and Member of the New Zealand Data Futures Forum, *Designing New Zealand’s Data Future - a partnership between political leaders, government, business and academia*. We followed up with Prof. Lips and asked her to write for us a more detailed account of the experiences with data innovation and policy changes that have taken place in New Zealand.

We wanted to have a more in depth look into the decisions and process undertaken by a national government (in this case New Zealand) to find ways to maximize the use of big data for informing public policy. In doing so, the New Zealand government has adopted an evidence-based approach by bringing together a panel of experts who worked over a period of six months to research the opportunities provided by data innovation, discuss sensitive issues related to protecting citizens’ right to privacy, and present policy options to the government.

The working paper describes an experience and the political economy of the process. It aims to provide food for thought, not specific and prescriptive lessons for Indonesia or indeed any other country.

The issue of how Indonesia can harness

¹ Kenneth Benoit and Kenneth Cukier: The Challenge of Big Data for the Social Sciences, 16 February 2015. Available at: <http://goo.gl/Rmi56P>

the abundance of its digital data for socio-economic development is just starting to emerge. There is no other city in the world that sends more tweets everyday than Jakarta. The analysis of tweets in Jakarta through Floodtags.com provides almost just-in-time information about floods and informs emergency interventions as well as the design of flood maps. In 2014, the number of mobile phone users in Indonesia was 180.1 million and it is expected to hit 200 million by 2018.² The number of Internet users in Indonesia has grown from 2 million in 2000, to 55 million in 2012 and is expected to reach 149 million by the end of 2015.³ Indonesia is the fourth largest market for Facebook with 43 million users.⁴ The Government of Indonesia programs such as *Kartu Indonesia Pintar* (Smart Indonesia Card) make use of data innovation to guarantee and ensure that all school-aged children from disadvantaged families receive financial assistance for education up to the completion of high school/

vocational school. In 2015 the program aims to reach 20.3 million issued individual cards.⁵

The working paper is intended to reach policy and political leaders, policy makers and civil servants in Indonesia and elsewhere who have the responsibility to develop, manage and expand systems within public institutions that make use of data innovation technology for public policy. The paper is also aimed at practitioners from civil society and private sector who are involved in the design and development of data innovation prototypes and pilots. It is also aimed at policy makers who are interested in reading about international experiences on the development of a legislative enabling environment to develop the use of big data and, at the same time, protect the right for privacy of citizens. Last but not least, the paper aims at contributing to the debate in Indonesia and as well as more internationally on big data and data innovation as a new source of evidence for public policy.

Jakarta, 30 October 2015

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2 <http://www.statista.com/statistics/274659/forecast-of-mobile-phone-users-in-indonesia/>

3 Redwing Asia, Indonesia's Dynamic Internet Market, Available at <http://redwing-asia.com/market-data/market-data-internet/>

4 The Jakarta Post, Indonesia Fourth Biggest Facebook Users in the World, 6 January 2010. Available at <http://goo.gl/7eYyNh>

5 Source: <http://www.tnp2k.go.id/id/program/program-membangun-keluarga-produktif/kartu-indonesia-pintar/>

Key messages:

- Strong and long-term political leadership was a critical success factor for data-driven innovation in New Zealand, including a national debate on data enabled by the New Zealand Data Futures Forum (NZDFF). Not only was it critically important to have a political leader with a clear vision of data-driven public sector reform and strong ambition to make this vision a reality, a key success factor was also that this political leader, as Deputy Prime Minister and Minister of Finance, was in a powerful position to mobilise resources.
- The NZDFF vision of stimulating a positive feedback loop in a trusted data-use ecosystem and the four guiding NZDFF principles of **value**, **inclusion**, **trust** and **control** not only have strong support across varying stakeholders in New Zealand, but also resonate with international thinking in this area: they have turned out to be an adequate 'test for success' for any country interested in data-driven innovation.
- Neither the Deputy Prime Minister nor the NZDFF operated in a vacuum when introducing ideas about data-driven innovation in New Zealand. Several data-driven innovation initiatives were already underway in New Zealand. These initiatives offered invaluable learning opportunities, support and reinforcement of the importance of the debate.
- Independence of the NZDFF, stakeholder group representation on the Forum (including indigenous people, consumer groups, NGOs) and diversity of expertise among Forum members are critically important for a successful nationwide debate on data.
- 'Learning by doing' in new data-driven environments has proven critical for the application of data-driven innovation in the wider social policy area. However, with the increased introduction and uptake of data science in government activities in New Zealand, we observe a structural disconnect between the policy 'stream' and the data scientists' 'stream' in these government agencies. Consequently, the traditional policy process in New Zealand government agencies has not changed much and resists the direct engagement of data scientists with senior ministers.

Table of Contents

Foreword	iii
Key Messages	v
Table of Contents.....	vi
Abbreviations and Acronyms.....	viii
Executive Summary.....	1
1 Introduction	3
2 The Context for Setting Up a Nationwide Debate on Data	4
2.1 Strong political leadership.....	4
2.1.1 New Zealand Open Government Information and Data Programme.....	5
2.1.2 A data-driven 'Social Investment Approach' to achieve better social outcomes	6
2.1.3 Analysis for outcomes.....	6
2.1.4 The Integrated Data Infrastructure initiative.....	7
2.2 The policy and legal landscape around data and evidence in New Zealand	8
2.3 Setting up the New Zealand Data Futures Forum	10
3 Process	12
3.1 Determining the scope of the debate	12
3.1.1 Purpose statement and approach.....	12
3.1.2 Mission statement.....	13
3.1.3 Agenda.....	14
3.1.4 Forum code.....	14
3.1.5 Success criteria.....	14
3.2 Forum meetings and engagement	15
3.2.1 Engagement with stakeholders.....	15

3.2.2	Communications and engagement plan	16
4	Outcomes.....	17
4.1	Three NZDFF Discussion Documents	17
4.1.1	First Discussion Document: New Zealand's Data Future	17
4.1.2	Second Discussion Document: Navigating the Data Future - Four Guiding Principles	19
4.1.3	Third Discussion Document: Harnessing the Economic and Social Power of Data	20
4.2	Feedback from stakeholders.....	23
4.3	New Zealand Government's response.....	25
4.3.1	The New Zealand General Election in September 2014.....	25
4.3.2	Ministers' response	26
4.4	Impact on policy-making	27
5	Key Lessons	29
5.1	Key lessons: what worked?	29
5.2	Key lessons: what could have been done better or differently?.....	31
5.3	Key lessons for policy-making	32
	References	33

Abbreviations and Acronyms

DIA	: Department of Internal Affairs
DPM	: Department of the Prime Minister
DPMC	: Department of the Prime Minister and Cabinet
GCIO	: Government Chief Information Officer
GCSB	: Government Communications Security Bureau
ICT	: Information and Communication Technology
IDI	: Integrated Data Infrastructure
LINZ	: Land Information New Zealand
MIT	: Massachusetts Institute of Technology
MSD	: Ministry of Social Development
NZDFF	: New Zealand Data Futures Forum
NZGOAL	: New Zealand Government Open Access and Licensing framework
SME	: Small and Medium-sized Enterprises
SSC	: State Services Commission
Statistics NZ	: Statistics New Zealand

Executive Summary

The New Zealand Data Futures Forum (NZDFF) was set up by the Ministers of Finance and Statistics to examine, report, and engage widely on how various stakeholders in New Zealand society, including Māori and people from other ethnic groups, could share more data in a safe and protected way to deliver better outcomes for New Zealanders. The NZDFF engaged with stakeholders around three staged Discussion Documents: a first document exploring the problem definition, a second document proposing a set of guiding principles and test for success for any country, and a third document presenting the NZDFF vision and specific recommendations to the New Zealand Government and New Zealanders.

The NZDFF vision of stimulating a positive feedback loop in a trusted data-use ecosystem (see Figure 2 p. 21) and the four guiding NZDFF principles of **value**, **inclusion**, **trust** and **control** not only have strong support across varying stakeholders in New Zealand, but also resonate strongly with international thinking in this area: they have turned out to be an adequate 'test for success' for any country interested in data-driven innovation. Although these guiding principles were used and thought of initially as an instrument by which the NZDFF could measure its own recommendations, they are in fact the main recommendation in providing guidance for any particular data-innovation project or work going forward.

This paper reflects on why New Zealand was able to have a nationwide debate on the opportunities and risks of data-driven innovation and new 'evidence' in policy-making for the country; how that debate was subsequently organised; what the outcomes of the debate were and the impact on policy-making; and some key lessons learned.

The key political driver was the New Zealand Deputy Prime Minister and Minister of Finance, the Hon. Bill English, who had a vision about how increased data-sharing and use could lead to better policy-making and achieve more effective public



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service provision across the New Zealand public sector. This vision initially led to three streams of data-driven innovation activities across the New Zealand State Sector, which had an impact on the work of the NZDFF: 1) the Open Government Information and Data Programme, 2) a data-driven 'Social Investment Approach' for 'smarter' policy-making and service provision in the wider social sector, and 3) the Analysis for Outcomes initiative. Another New Zealand Government initiative of relevance to the composition and work of the NZDFF was the Integrated Data Infrastructure (IDI) project led by Statistics New Zealand (Statistics NZ).

The independent nature of the Forum facilitated a wide-ranging, robust debate. Moreover, the fact that the debate was not 'owned' by one particular stakeholder and was at arms-length from political interference helped to have a more open and honest discussion with all stakeholders concerned. Diverse Forum membership also led to a wide range of perspectives and valuable

expertise sitting around the table, which were very useful in the design and development of both the NZDFF internal discussions and the NZDFF external engagement activities. The independent NZDFF Chair played a critical role in managing the interests of the various stakeholders around the NZDFF table. The key lessons here are that no particular stakeholder should be allowed to dominate the debate through Forum membership and the Secretariat needs to be housed in an institution that provides independent and objective support to the Chair and Forum members.

With the increasing introduction and uptake of data science in government activities in New Zealand, we observe a structural disconnect between the policy 'stream' and the data scientists' 'stream' in these government agencies. Consequently, the traditional policy process in government agencies has not changed much and resists the direct engagement of data scientists with senior ministers.

Introduction

1

In December 2013, the New Zealand Data Futures Forum (NZDFF) was set up by the Ministers of Finance and Statistics to examine, report and engage widely on how New Zealand could maximise the benefits of the data revolution while minimising the risks of potential harm, such as privacy breaches and unethical or misuse of data. More specifically, the NZDFF was tasked with exploring how various stakeholders in New Zealand society, particularly businesses, government, academia and members of the general public, including Māori¹ and people from other ethnic groups, could share more data in a safe and protected way to deliver better outcomes for New Zealanders. The NZDFF produced three discussion documents and engaged widely with various stakeholders in the debate. The third discussion document, including recommendations, was published in July 2014.

This paper reflects on why New Zealand was able to have a nationwide debate on the opportunities and risks of data-driven innovation for the country. It includes the wider application of new data-driven forms of ‘evidence’ in policy-making and public service provision; how that debate was subsequently



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organised; what the outcomes of the debate were and the impact on policy-making; and some key lessons learned. The context for this nationwide debate, the process and its outcomes contain many lessons for other countries considering a strategic approach towards the application of data-driven innovation in policy-making to deliver more effective outcomes.

¹ Māori are the indigenous people of New Zealand. Through the Treaty of Waitangi, New Zealand has important obligations towards Māori.

2

The Context for Setting Up a Nationwide Debate on Data



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Several main drivers, developments, initiatives and other contextual factors explain why the New Zealand Government decided to have a nationwide debate on data and set up the NZDFF. A critical driver for the creation of the NZDFF was strong political leadership and support for data innovation.

2.1 Strong political leadership

In December 2013, the NZDFF was created by the Ministers of Finance and Statistics to explore how various stakeholders in New Zealand society, including the private sector, central² and local government, NGOs, academia and people from different ethnic groups, such as Māori, could share more data in a safe and

² Central government in New Zealand is responsible for delivering the majority of public services and is commonly described as the New Zealand 'State Sector'; the term 'New Zealand Government' is used to refer to the 'Government of the day'.

protected way so that ‘smarter’ public policy and service outcomes could be achieved. The NZDFF was set up by a National Party-led Government which was in its second term in office at the time³. The key political driver was the Deputy Prime Minister and Minister of Finance, the Hon. Bill English, who envisaged increased sharing and use of data leading to better policy-making and more effective public service provision across the New Zealand public sector.

The minister’s focus on improving the performance of New Zealand’s State Sector through the use of shared data became stronger over time as a result of the global financial crisis and new budgetary pressures caused by the rebuild effort after the Christchurch earthquakes. These led to static government budgets and the need to improve State Sector performance in the context of very little extra discretionary spending.

Broadly speaking, this vision initially led to three streams of activity to drive public sector reform and improve performance across the New Zealand State Sector by the increased sharing and use of public sector data: 1) the Open Government Information and Data Programme, 2) a data-driven ‘Social Investment Approach’ for ‘smarter’ policy-making and service provision in the wider social sector, and 3) the Analysis for Outcomes initiative. Another initiative taken by the New Zealand Government and of relevance to the composition and work of the NZDFF was the Integrated Data Infrastructure (IDI) project led by Statistics New Zealand (Statistics NZ).

2.1.1 New Zealand Open Government Information and Data Programme

The New Zealand Open Government Information and Data Programme was initiated in 2008 and is still running. The programme aims to: 1) make non-personal government-held data more widely available

and discoverable, easily usable and compliant with open government data principles within the New Zealand legal context; and 2) facilitate government agencies’ release of non-personal government-held data that people, communities and businesses want to use and re-use. The programme is led by the Open Government Data Chief Executives Governance Group and the Open Government Data Steering Group⁴, with the Open Government Data Secretariat being based at Land Information New Zealand (LINZ). People can submit a request for currently unavailable high-value data they want to use through the Open Government Information and Data Programme’s website (www.data.govt.nz).

In 2010, the New Zealand Government released the New Zealand Government Open Access and Licensing framework (NZGOAL), which seeks to standardise the licensing of government copyright works for re-use. It uses Creative Commons New Zealand law licences and recommends the use of ‘no-known rights’ statements for non-copyright material. Subsequently, in 2011, the New Zealand Government signed the Declaration on Open and Transparent Government, which committed government agencies to actively release non-personal and unclassified data with high potential value for re-use. According to Minister English, an important objective of opening up and improving access to government-held data was to close the feedback loop with citizens so that they could ask better questions to policy- and decision-makers: *“Improving online access to government data has many potential benefits. These include creating business opportunities and new services, increasing government accountability and improving policy development by encouraging greater external analysis and community engagement. Allowing research communities to reuse existing data for new purposes will also increase the value gained from state-*

³ Led by Prime Minister John Key, the Fifth National Government of New Zealand took office on 19 November 2008.

⁴ Both groups involve representatives from New Zealand State Sector organisations.

funded research,” Mr English said (New Zealand Government Press Release, 2011).

In signing the Declaration, the New Zealand Government also updated its open government data principles to include:

- Government data should be released proactively in accessible formats and licensed for re-use unless there are good reasons not to;
- Information should be well managed, trusted and authoritative;
- Data should be free, or where fees are necessary, reasonably priced; and
- Personal and classified data or information will remain protected.

In 2014, holding the view that public sector data was (still) underutilised and needed to be more widely shared with other stakeholders, Minister English expressed having “*zero-tolerance*” for agencies not complying with the Declaration.

2.1.2 A data-driven ‘Social Investment Approach’ to achieve better social outcomes

Another important driver was the New Zealand Government’s commitment and learning around a new evidence-based way of investing in social policy-making and service provision using social sector data. Since 2006, the sharing, integration and use of social sector data had been championed within the Ministry of Social Development (MSD) as a way to enable better social policy and investment decision-making, greater accountability, increased efficiency and more effective outcomes in the social sector. This was picked up by the New Zealand Government, first as part of a programme of Welfare Reform in 2011, and then to more broadly drive a ‘Social Investment Approach’ to funding and accountability for better policy-making and more effective provision of social services.

Under the ‘Investing in Services for Outcomes’ work programme, MSD built a data integration and analytics capability to better

understand which social services have the most positive impact on the most vulnerable people over time. This improved evidence base is used to reshape service provision to particular customer groups, or shift funding in response to this greater understanding. With better prioritisation in service delivery and policy-making, and the capability to collect data and demonstrate results, MSD is able to present stronger evidence to support investment decisions across the State Sector around the (effective) delivery of social outcomes. This may also include investing in programmes delivered by other government agencies, where the evidence base shows that those programmes can best reach specific customer groups.

Both the Social Development Minister and the Minister of Finance understood the potential value of using integrated data to improve social outcomes for New Zealanders by obtaining a longitudinal view of customer interactions with services provided across the social sector.

The process of trying to drive data-sharing across the social sector, required for improved social investment, met with a lot of resistance. This was partly due to expressed concerns by government agencies about privacy risks, and partly to the disruption to existing power structures within government agencies across the social sector. Broadening the mandate of who could analyse servicing data to understand social investment performance turned out to be a threat to the status quo, as it provides ministers with a much clearer idea of where to invest to achieve better outcomes from an independent perspective, i.e. non-services or non-department aligned.

2.1.3 Analysis for outcomes

Building on this innovative investment approach in the social sector, the Minister of Finance identified the need for an improved system-wide data analytics insights function and a data-sharing solution across the State Sector for matching, anonymising

and accessing person-centred data. These initiatives would support the delivery of the New Zealand Government's Better Public Services Agenda, a programme which requires the State Sector to find new and better ways to improve outcomes for New Zealanders, and in particular for those customer groups that experience poorer outcomes. It was acknowledged that strategies to improve outcomes needed to be implemented in a tight fiscal environment and required a better prioritisation of government resources across the State Sector.

At the same time, news of this data-driven innovation development, of building an analytics team in the Treasury, led to requests from the research community, private sector social entrepreneurs, NGOs and philanthropists for greater access to government data to undertake research and provide or evaluate NGO social service offerings. In particular, a private sector hospital wanted to evaluate the opportunity to provide rehabilitation services and required health data to understand potential volume. Two of New Zealand's longitudinal social research initiatives wanted to be able to access government data for their research. A large philanthropic organisation requested access to government data to evaluate one of its social service offerings. At the time, none of these requests could be fulfilled, but this kind of feedback led to extra funding and an expectation that the IDI would be more widely and remotely available to non-government researchers and special interest groups. Significant extra funding for Statistics NZ enabled this to happen and there is now remote access to government-held data by approved researchers and other special interest groups.

In March 2013, under its Analysis for Outcomes initiative, the New Zealand Government agreed that delivery of the Better Public Services agenda would benefit from improved capability across government to share and use existing data sets. A cross-government data-sharing solution and data

analytics insights function would enable improved system-level analysis of the impact of government services and interventions from a person-centred perspective. This then led the New Zealand Government to decide to:

1. Establish an Analytics and Insights Function in the Treasury to provide system-level analytical and reporting capability; and
2. Expand the capacity of Statistics NZ's IDI to develop a cross-government data-sharing solution (see also section 2.1.4) and wider remote access for non-government researchers to the IDI. This solution would build on existing infrastructure, processes and capability, including existing privacy and security protocols.

2.1.4 The Integrated Data Infrastructure initiative

Another development that had an impact on the composition and work of the NZDFF was the IDI initiative led by Statistics NZ.

In 1997, the New Zealand Government decided that *"where datasets are integrated across agencies from information collected for unrelated purposes, Statistics New Zealand should be custodian of these datasets in order to ensure public confidence in the protection of individual records"* (Cabinet Minutes, 1997, CAB (97) M 31/4, in: Statistics New Zealand 2013, p.10). Since then, Statistics NZ has undertaken several projects that integrate datasets provided by different government agencies, including education data and employment outcome data supplied by the Ministry of Education, employer data and employee data supplied by Inland Revenue, and data on benefit dynamics supplied by the Ministry of Social Development.

In 2011, Statistics NZ started developing a prototype for the IDI initiative, which consolidated these various individual integrated datasets into a linked longitudinal dataset. This enabled research and statistical outputs on transitions and outcomes of people through the New Zealand secondary and

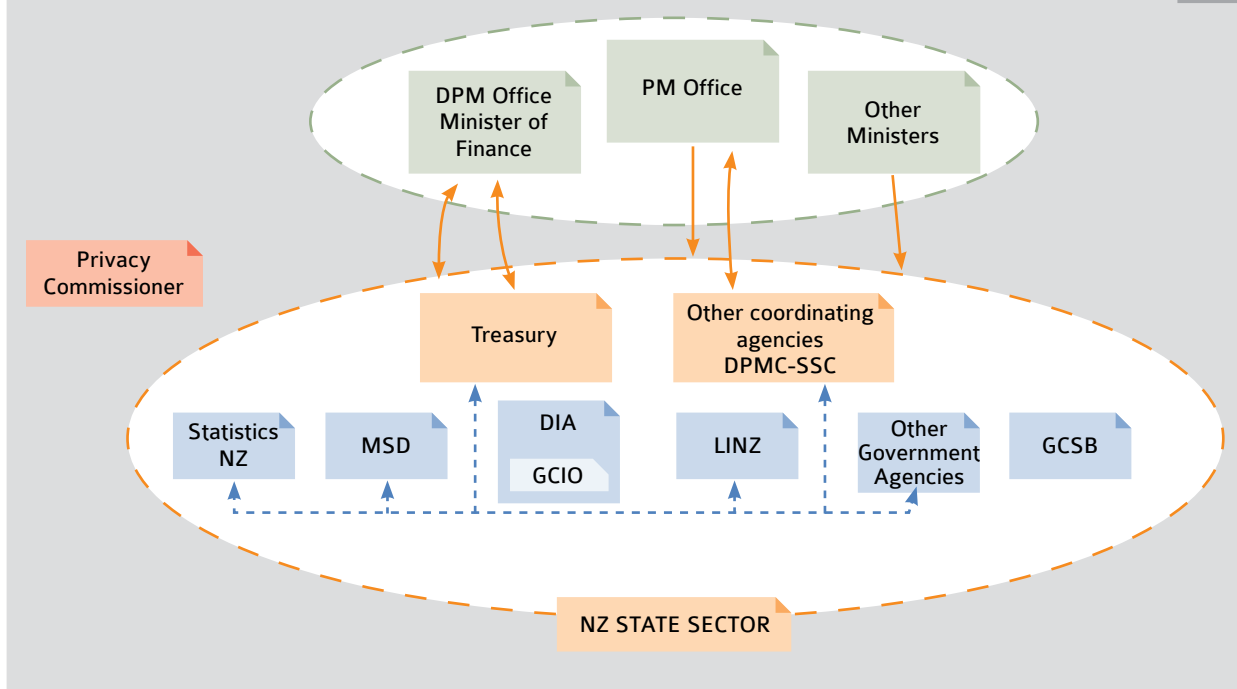
tertiary education systems, the New Zealand labour market and the New Zealand benefit system, and on movements in and out of New Zealand (Statistics New Zealand 2013, p.10).

Since then, the IDI has been expanded and, to date, includes economic, education, justice, health and safety, migration, tenancy,

2.2 The policy and legal landscape around data and evidence in New Zealand

In order to fully understand the context in which the NZDFF was set up and is operating, it is important to know that the policy and legal landscape around data and evidence in New

Figure 1 - Mind map of relevant actors



tax and business data. All data available in the IDI is anonymised, with all unique identifiers being encrypted. The IDI is available for use by researchers with approved research access, such as academics and researchers working in government agencies. It is used for public policy evaluation, research analysis and the production of statistical outputs.

One of the options the NZDFF was presented with at the start of its work was to further build upon this IDI initiative (New Zealand Government Media Release, 12 February 2014). To that end, the General Manager at Statistics NZ responsible for leading the expansion of the IDI was appointed as one of the eight NZDFF members.

Zealand is quite fragmented (see Figure 1).

As mentioned, the New Zealand Government includes a national statistical office, Statistics NZ, which administers the New Zealand Statistics Act (1975) and leads the New Zealand Government's Official Statistics System, including the New Zealand Census⁵ and the IDI. Dating from the pre-Internet era, the New Zealand Statistics Act was due for review in 2014. However, it was decided to postpone this review until after the implementation of the NZDFF

⁵ The last census in New Zealand was held in 2013. Due to the rising costs of running a traditional census, new technological opportunities and the increasing availability of alternative data sources, Statistics NZ, through its Census Transformation programme, is currently investigating different ways of running the census in the future.

recommendations⁶.

As discussed earlier, the New Zealand Government has set up an Analytics and Insights team in the Treasury, with the manager being appointed as one of the eight NZDFF members. LINZ is the government agency responsible for location information and the Secretariat of the New Zealand Open Government Information and Data Programme. Although open data was important to the work of the NZDFF, there was no LINZ representative appointed to the NZDFF.

In addition, the New Zealand State Sector also has a Government Chief Information Officer (GCIO) responsible for stewardship and management of all government-held information. The GCIO, who is also the Chief Executive of the Department of Internal Affairs (DIA), is the ICT Functional Leader for the New Zealand State Sector. As a result, one of the appointed NZDFF members was a representative from DIA.

Another relevant policy development was the 2009 appointment of the medical scientist Professor Sir Peter Gluckman as Chief Science Advisor in the Prime Minister's Office. In 2011, the Office of the Prime Minister's Science Advisory Committee released a discussion paper on how to better make use of evidence-based scientific knowledge and research in policy formation. However, this discussion paper only focused on traditional forms of science and their impact on policy-making, and did not take into account emerging innovative forms of data science. As an outcome of this discussion, departmental Chief Science Advisors have been appointed in several government agencies.

Besides these institutional arrangements around the use of data and evidence in the New Zealand State Sector, various other contextual factors are important in order to understand the thinking and impact of the NZDFF in New Zealand.

First, New Zealand has a strong tradition of transparency, which goes beyond the activities around the New Zealand Open Government

Information and Data Programme and sees the country rating consistently highly on international transparency rankings.

Another critical value to New Zealanders is privacy (see for instance Lips et al., 2015). The fact that this value is so strongly embraced by New Zealanders may be explained as a result of two different developments: 1) New Zealand is a relatively young country with many people being first- or second-generation immigrants. Also, with a land mass the size of the United Kingdom, New Zealand has only 4.5 million inhabitants and, with the exception of the three main urban centres and particularly the city of Auckland, has a low-density population. Consequently, compared to other countries, New Zealanders are more used to being on their own; and 2) New Zealand is a relatively safe and protected country surrounded only by sea. As there is hardly any threat of terrorism or warfare, New Zealand has not seen a development thus far where public safety values have been prioritised over privacy values – a trend which can be observed in many other democratic countries.

The above factors also help explain why there is a relatively high level of trust in the Government among the majority of New Zealanders, including in the protection and management of citizen identity information⁷ (Lips et al., 2014; Lips et al., 2010). New Zealanders strongly value fairness and expect their government to “*play privacy by the rules*” (Lips et al., 2010).

This is reflected in New Zealand's privacy legislation. The New Zealand Privacy Act is based on the OECD Privacy Principles and is the only privacy legislation in the Asia-Pacific region which has received ‘adequacy’ status acknowledgement by the European Union. The Privacy Act not only protects personal information but also enables personal information to be shared between organisations for the purpose of delivering

⁶ In particular, the NZDFF recommendation to review all information-related legislation.

⁷ Research points to the following exceptions among the New Zealand population: people highly dependent on social services, senior citizens, Māori, Pasifika and SME owners based on the South Island (Lips et al., 2010).

public services under so-called 'Approved Information Sharing Agreements (AISAs)' and with oversight of the New Zealand Privacy Commissioner.

2.3 Setting up the New Zealand Data Futures Forum

Minister English required a mechanism which would allow for robust public debate on the strong opportunity he saw for increased data-sharing and use to improve the effectiveness of government services and policy-making and create better outcomes for New Zealanders. At the same time, this would acknowledge the importance of protecting fundamental values like privacy, security and public trust.

The idea of an independent working group or 'Data Task Force' emerged out of the recognition of this opportunity and the experience that innovation can be enabled by bringing together non-government thought leaders and senior officials. An independent working group would also be well-positioned to manage the resistance met within the State Sector around the increased sharing and use of data in the social sector.

The National Government has regularly used independent working groups as a preferred mechanism to foster public debate, gauge opinion and explore public-good issues at arm's length from the State Sector and the day-to-day business of government. The work of these groups is public by nature, as ministers and the general public need confidence that the right issues are being worked through. This was done first with the Tax Working Group, followed by the Welfare Working Group and the New Zealand Productivity Commission. The mandate of these independent working groups has typically been wide ranging, with freedom to have robust and 'edgy' ideas that may challenge the Government or State Sector. The implicit objective of these groups is to push the conversation forward into spaces government or society may not be willing to go. Indeed, the Government itself has not always accepted the recommen-

dations of these working groups.

In December 2013, the Minister of Finance invited eight experts and officials from the public sector, private sector and academia, as well as an independent chair, to sit on a new working group with the placeholder title 'Data Task Force'. The mandate of the newly formed working group was to establish a broad and open conversation about New Zealand's data use, now and in the future.

The group would assist ministers, central and local government, businesses, NGOs, academia, Māori and all New Zealanders to understand the potential value of collaborating to share, link and use data held by the public and private sectors, and to identify the issues that would need to be solved to achieve this, while maintaining trust, privacy and security.

In its first discussion meeting, the group decided to name itself the 'New Zealand Data Futures Forum' (NZDFF), as a 'Forum' would better reflect the nature of the wide-ranging and open conversation it wanted to have with New Zealanders (see also section 3.1.3).

The NZDFF was officially 'launched' in February 2014 via a media release from the New Zealand Government:

The Government has set up a working group to advise ministers on how the collection, sharing and use of business and personal information will impact on public services in the coming years.

"The Government has put in a lot of effort over recent years to provide frameworks for the collection, storage and use of information," Finance Minister Bill English says.

In particular, we have worked hard to catch up with public expectations about security and privacy in the fast-moving electronic environment.

We have mostly done a good job of that. It's important that we keep thinking ahead to develop the technical and legal frameworks that will be needed for us to continue to meet public expectations as technology develops.

Thinking about those frameworks will be the role of the New Zealand Data Futures Forum.

The following individuals were appointed to

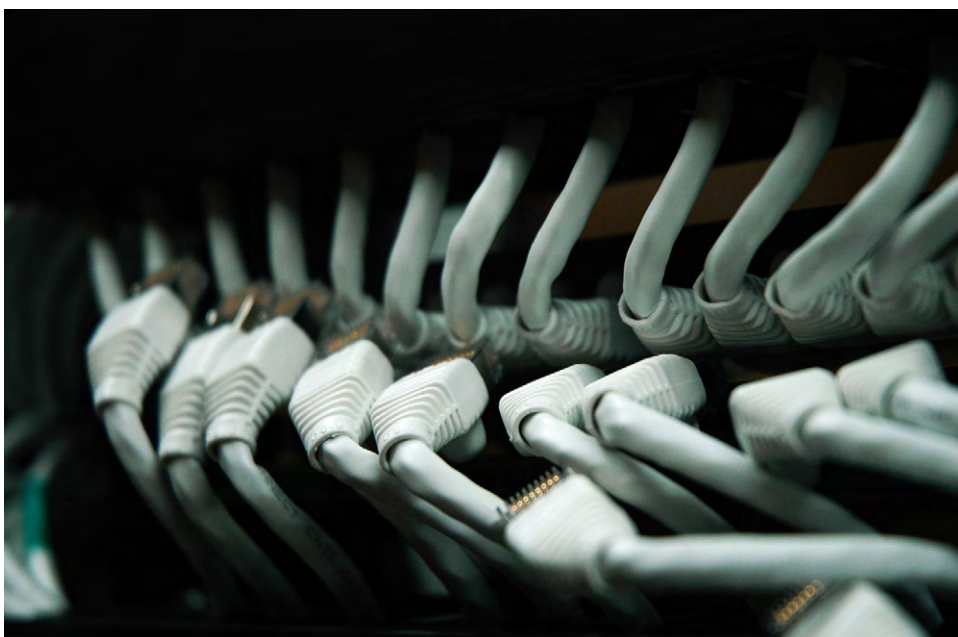
the NZDFF:

- John Whitehead, a former Secretary to the Treasury and a former Executive Director of the World Bank, was appointed as the independent Chair of the Data Task Force. John is widely respected in New Zealand and internationally and has a deep understanding of the processes and operations of government in New Zealand. Initially, John had limited knowledge of the subject area, however, he brought critical skills and qualities to the chairing role, including being a strong facilitator of an open and balanced discussion and effectively managing interests of the various stakeholders.
- Stephen England-Hall is the Chief Executive Officer of Loyalty New Zealand Limited. Loyalty NZ is the company behind the successful 'Fly Buys' loyalty programme in New Zealand, which has more than 2.4 million cardholders across 74 percent of New Zealand households, and LAB360, a data analytics and insights business.
- Joshua Feast is the Chief Executive Officer and co-founder of Cogito, a company based in Boston, Massachusetts, which delivers analytic software that senses unconscious cues in human interactions to infer mood and predict behaviour. One of Josh's collaborators in Boston is renowned data scientist Professor Alex 'Sandy' Pentland who is based at MIT. During the lifetime of the NZDFF, Josh engaged with the other Forum members predominantly via teleconferencing and email, and had two weeks of face-to-face meetings in New Zealand.
- Professor Miriam Lips is the Chair in e-Government and Programme Director of the Master of e-Government programme at the School of Government, Victoria University of Wellington. In the recent past, Miriam conducted several empirical research initiatives into (online) information-sharing and privacy in New

Zealand.

- James Mansell was Director, Innovation and Strategy at MSD at the time, where he championed and provided thought leadership for the Social Investment Approach requiring the use of advanced analytics and data-sharing within government. This was first as a response to challenges faced by child protection, then as the basis for responding to welfare reform. In 2012-2013, James was seconded to the Treasury after championing the Analysis for Outcomes initiative, to evaluate and plan the establishment of the new Analytics and Insights team in the Treasury and wider access to the IDI.
- Paul O'Connor is Founder, Director and Head of Research and Development at Datamine. Datamine has developed and owns data analysis processes, programmes and products that help organisations solve problems and drive performance.
- John Roberts is Director, Relationship Management at DIA, where he helps government agencies work effectively with the GCIO. John is also a Member of the Open Government Information and Data Re-use Working Group.
- David Wales was Manager of the new Analytics and Insights team at the Treasury at the time. In the last few months of the NZDFF's existence, David left the Treasury and took up another position with the Ministry of Education.
- Evelyn Wareham is Manager, Integrated Data and Research at Statistics NZ, where she is responsible for leading the expansion of Statistics NZ's IDI.

Statistics NZ and the Treasury were the lead government agencies for the NZDFF, with Statistics NZ providing the Secretariat. The Secretariat involved two full-time equivalent staff for the duration of the Forum. This covered a project director, advisors, communications and administrative support.



The NZDFF was appointed for a period of approximately six months. It started its discussions in December 2013 and delivered its final Discussion Document with recommendations in July 2014. During this period, it engaged with a large variety of stakeholders. How did the NZDFF deliver on the agreed work?

3.1 Determining the scope of the debate

Several key decisions were made by the NZDFF at the very outset that provided a sound basis for the process. In its first discussion meetings, the Forum developed a charter to guide its work and present a vision, purpose, goals, approach and success criteria.

3.1.1 Purpose statement and approach

From the very start, NZDFF members agreed with the huge potential value for New Zealand as a result of increased data-sharing and use. According to the Forum, the sharing and use of various types of data would provide new innovative opportunities for better understanding of people, the environment, economies and societies, with the potential to use new data-enabled insights to support innovation, solve complex policy problems and create a wide range of benefits for individuals,

communities, iwi⁸, businesses, government and New Zealand as a whole. Potential benefits would include better social outcomes, economic prosperity, better evidence-based policy-making and individual decision-making, collaborative data-driven innovation and business opportunities.

However, it was also clear to the Forum that these benefits could only be achieved if the various stakeholder interests and needs were taken into account, including the protection of privacy and other democratic rights.

The aim for the NZDFF therefore was to come up with a solution where *“New Zealand businesses, government, researchers and the public collaborate to share, link and use data to promote public and private sector innovation, while protecting the rights of individuals”*.

How would New Zealand get to this solution? Through its first discussions, it became clear to the Forum that the desired eco-system for data use and innovation in New Zealand needed to meet the following design criteria:

- Collaboration
- Inclusion
- User-friendly
- Flexible
- Interoperable
- Transparent
- Protecting privacy
- Secure
- Trusted

3.1.2 Mission statement

The Forum members reviewed, and went back and confirmed with their political sponsor, the scope that they would take. This led to an ambitious vision for New Zealand, which is reflected in the Forum’s final mission statement. It was agreed at the outset that nothing was off the table, however, there was one caveat to this. At the time, New Zealand was having a public debate on surveillance by the New Zealand Government Communications Security Bureau (GCSB),

which was led by the New Zealand media. The Forum members themselves agreed that although it would mention this debate, including the risks attached, it did not want to devote much time in this space as it may derail the process of having a more principled and global response to the needs and risks of data-sharing and use.

A second feature of the scope was that the Forum would allow itself to be edgy and honest about both the benefits and risks of data-sharing. This was confirmed with the sponsor, and many of the people the Forum consulted all wished for a more robust conversation.

The more Forum members discussed the potential benefits and risks of the data revolution for New Zealand, compared to other countries, the more obvious it became that New Zealand had some characteristics which gave it a unique position.

New Zealand only has 4.5 million inhabitants. However, most New Zealanders have strong local and international networks, as many live or have family and friends overseas. It is a relatively young country, and many New Zealanders have demonstrated innovative and collaborative skills⁹ in creating livelihoods for themselves. New Zealanders like technology: 82 percent of the New Zealand population use the Internet on a daily basis and 96 percent use the Internet at least once per week (Lips et al., 2014).

These characteristics led the Forum to believe that New Zealand could aim high with its ambitions for navigating the data future, and even be a world leader in the collaborative use and sharing of data for better outcomes. This then became the NZDFF’s initial mission statement.

However, other strong characteristics of

9 This tradition of New Zealand ingenuity is often referred to as the ‘no.8 wire’ mentality of New Zealanders, a reference to a type of fencing wire commonly used for multiple and often innovative purposes in New Zealand farms, factories and homes (Te Ara Encyclopedia of New Zealand, <http://www.teara.govt.nz/en/inventions-patents-and-trademarks/page-1>).

8 Māori communities

New Zealand were brought up in the Forum's discussions, such as the previously mentioned high international ranking of the country on transparency and integrity, strong privacy values and the fact that New Zealanders have a relatively high trust in their laws, government and democratic institutions, including around sharing their personal information with the Government (see also section 2.2). The Forum started to see a unique international market position for New Zealand around data use, which was expressed by one of the Forum members as New Zealand becoming *"the Switzerland of data"*.

As a result of these discussions, the NZDFF decided to change its initial mission statement to the following final mission statement:

New Zealand is a world leader in the trusted use of shared data, to deliver a prosperous, inclusive society.

3.1.3 Agenda

In its first discussions, the group asked itself how open or closed it should be, both with respect to public consultation and its own thinking. It agreed that the main objective here was acting as a holding environment for those wishing to have a more considered debate about the issues facing New Zealand. For this reason the group called itself a 'Forum' rather than a 'working group' and agreed that open consultation should be a core part of the Forum's process.

The Forum wanted to establish a broad and open conversation about increased data-sharing and use in New Zealand, now and in the future. It wanted to work through the right questions in a way which would support innovation, create understanding about the opportunities and risks of data-driven innovation, facilitate active engagement with the various stakeholders involved, enable informed consent about the direction of travel proposed by the NZDFF and enhance trust in government and business.

As agreed with the NZDFF sponsor, the Minister of Finance, the Forum would produce

a series of working papers that would outline the relevant issues and engage widely around those working papers with identified key stakeholders and other interested parties. More specifically, the Forum decided to produce working papers which would cover the following:

- Articulate possible data futures, exploring opportunities, benefits, risks, challenges and limitations;
- Identify foundations for a trusted, transparent and protected environment where New Zealanders collaborate to use data to create economic and social value; and
- Develop principles to guide sharing, access and use of data by the public and private sectors and by individuals.

3.1.4 Forum code

The Forum members decided to use the following code of conduct for their activities:

- Consider the needs and interests of members of the general public, Māori, business, researchers and the Government, putting aside personal interests;
- Engage directly with and learn from diverse groups and external experts;
- Run the Forum in a way that is consistent with how we see the future;
- Provide free and frank advice, engaging openly with each other; and
- Privacy and trust are consistent considerations throughout discussions.

3.1.5 Success criteria

From the start, it was important for the group to know what success would look like. The Forum decided that the two main success criteria were:

1. A broad, open debate about data use is established; and
2. Business, government, communities, Māori and the public support the vision and the process that is required to get there.

3.2 Forum meetings and engagement

During the lifetime of the NZDFF, the Forum met every week for at least one hour and had several discussion meetings with its sponsors, the Ministers of Finance and Statistics. Minutes of all Forum meetings were taken by a member of the Secretariat. The Forum Chair met every week with the Secretariat.

3.2.1 Engagement with stakeholders

The Forum agreed that it was important for people to see the process of thinking through issues, rather than making decisions privately and announcing recommendations in a way that did not allow external observers to see the origin of the thought. So it openly shared its thinking as part of a three-stage journey:

- **The problem definition:** exposing to scrutiny and consultation the Forum's own view on the nature of the challenge facing New Zealand. This became a paper, *New Zealand's Data Future*¹⁰, wherein both the advantages and risks of data-driven innovation were outlined in a way that accurately reflected the wide range of both optimistic and pessimistic views.
- **The test of success:** the Forum committed to delivering a second discussion paper where it tried to answer the question, "What would success look like?" If New Zealand was to develop a good data-use ecosystem, what kind of principles could we use to test whether that ecosystem was satisfactory or not? This led to the paper, *Navigating our data future; four guiding principles*¹¹. The idea with this part of the process was to test the Forum's thinking with external stakeholders in regard to the question about what success might look like, without going into specific

recommendations at this point.

- **The Forum's vision and recommendations:** this part of the process was to consider the Forum's vision and recommendations to help New Zealand on its journey towards an effective data future. This became the final paper, *Harnessing the economic and social power of data*¹². If the Forum had understood the challenge correctly, and if the NZDFF's four guiding principles could be used as an appropriate test of success, then what specific recommendations should New Zealand be implementing in order to get there?

This three-stage process was useful as a logistical way for the team to work through the problem definition, outlining what success would look like, before considering specific recommendations to government and New Zealanders.

Because each paper was immediately publicly released on the Forum's website, along with follow-up consultation online with members of the general public and offline with representatives of the various stakeholders, it served the purpose of exposing the group's thinking to external tests as well as enabling observers and interested parties to follow the thinking towards the recommendations.

Needless to say, given the six-month timeframe, this was a very ambitious process for a group of volunteer part-timers spread across (and outside) the country, and supported by a small Secretariat.

The Secretariat played a key part in keeping the NZDFF debate open by organising public engagement activities around the publication of the Forum's Discussion Documents, such as breakfast meetings in each of the three major urban centres in New Zealand (Auckland, Wellington and Christchurch). Representatives of the various stakeholder groups, such as business, public sector, NGOs, academia, regulators, advisory bodies,

10 https://www.nzdatafutures.org.nz/sites/default/files/first-discussion-paper_0.pdf

11 https://www.nzdatafutures.org.nz/sites/default/files/NZDFF_Discussion%20document%202.pdf

12 https://www.nzdatafutures.org.nz/sites/default/files/NZDFF_harness-the-power.pdf

citizen and consumer groups, were invited to meet for a discussion and feedback around the NZDFF's thinking with the NZDFF Chair and members and, in the case of Auckland, also with the NZDFF sponsor, Minister English.

The Secretariat also organised bilateral meetings to get input and feedback from critical stakeholders, such as the Privacy Commissioner, Māori, private sector representatives, leaders of relevant government agencies like the GCIO and the Government Statistician, MPs representing different political parties, academia, the Chief Science Advisor, NGOs, local government and consumer groups. Usually, the NZDFF Chair and one of the NZDFF members went to these meetings and provided a short summary of the discussion and perspectives to the other Forum members.

A member of the Secretariat took minutes at each internal and external meeting, and at each public engagement activity.

3.2.2 Communications and engagement plan

The NZDFF recognised the importance of making its work concrete, particularly for a broad and diverse audience to gain a better understanding of the issues, and widely disseminating the Forum's thinking. A communications and engagement plan was developed at an early stage of the process and managed by the Secretariat.

Besides engagement around the three main deliverables of the Forum, i.e. the three

Discussion Documents, a critical element of this plan was the identification of key stakeholders who needed to be consulted, and the scheduling of meetings and events with stakeholder representatives. Another important element for the Forum was to support its ideas and thinking by presenting real-life data innovation case study examples from New Zealand and overseas. These case study examples were collected and developed by the Secretariat, and used in the Discussion Documents and on the Forum's website.

The Secretariat set up and maintained a dedicated, public NZDFF website where the three NZDFF Discussion Documents could be downloaded, and members of the public could provide input and feedback via an online public forum. Videos with NZDFF members explaining the work and ideas were created and uploaded for public viewing on the website. Input and feedback on the Forum's work was sought via the following online and offline channels:

- Conversations and meetings
- Polls on the NZDFF website
- Social media: Twitter and a LinkedIn group
- Events
- Emails and letters inviting feedback
- Email submissions
- Media releases

All input and feedback was summarised and analysed by members of the Secretariat and made available to the Forum members.

Outcomes

4



4.1 Three NZDFF Discussion Documents

Input for the three Discussion Documents was based on both the Forum's internal discussion meetings and its external engagements, expertise provided by NZDFF members and other relevant experts, and desk research by the Secretariat. The three documents were largely written by a few volunteer Forum members, with support of the Secretariat and with one NZDFF member taking the lead for each paper.

4.1.1 First Discussion Document: New Zealand's Data Future

This paper set out the opportunities and challenges for New Zealand on its journey towards the new data future. It described the nature of the change that was emerging, and that would require a response. It also described the value proposition of improved data-sharing and the possible risks

and misuse of data. These developments and issues were described and acknowledged and it was assumed that both sides of the value and risk equation were justified. No attempt was made at this point to form a view about whether either of these was correct or not. Real or imagined case examples were used to make the document accessible and easily understandable by lay people. Narrative methods were used to help ideas stay in the mind and to avoid jargon and an overly theoretical paper.

Benefits and opportunities: *The new data environment gives us a richer and deeper understanding of the world, generating a range of benefits and opportunities for New Zealand:*

- *Competitive advantage through innovation and a world-leading data environment*
- *Business opportunities through new markets and an expanded knowledge sector*
- *Better public services arising from data-driven efficiencies and better targeting*
- *Better places to live, work and play – smart cities and optimal use of natural resources*
- *Everyday life transformed through automation, personalised services and informed choices*
- *More open transparent government generating greater trust and empowered citizens.*

Challenges, tensions and risks: *this new environment exacerbates concerns about access to and control of data and the potential for competing interests and misuse. Risks of misuse include:*

- *Invasion of privacy through misuse or mishandling of sensitive personal details*
- *Invasive use where individuals are targeted; can be merely annoying or actually harmful*
- *Discrimination and exclusion from services based on correct or incorrect information*
- *Malicious use for criminal purposes,*

including identity theft and fraud

- *‘Big brother’, where the line between legitimate state power and individual liberty is crossed. (NZDFF 2014a, pp. 2-3)*

Setting up this tension as the core challenge that New Zealand had to face was then turned around and used to attempt to engage people in the apparent dilemma that both the NZDFF and New Zealanders faced. How do you find a way between these two ‘very real’ outcomes? This, in turn, was used to articulate the reason for having a Forum and to engage participation:

“New Zealanders have some difficult choices to make. The opportunities have the potential to bring huge benefit to New Zealand, yet the risks are very real. The NZ Data Futures Forum thinks the only realistic choice is to find a well-managed way through the middle – to try and maximise the benefits and minimise the harm so that we can adapt to the future in a safe and effective manner. That is why the Forum exists.

We want to know what you think:

- *What kinds of benefits and opportunities should we be aiming for?*
- *How can we make it easy to share and use data when it is required?*
- *What risks and challenges need to be managed?*
- *Are there privacy-friendly ways to access and use data?*
- *How can we protect the interests of New Zealand and New Zealanders?*
- *What will a sustainable and adaptive environment for data sharing and use look like?” (NZDFF 2014a, p.3)*

The effect of this paper was to lay down the challenge. Solving the apparent dilemma between value and risk ended up informing the principles that the NZDFF determined in its second Discussion Document.

4.1.2 Second Discussion Document: Navigating the Data Future - Four Guiding Principles

In its second paper, the NZDFF proposed four guiding principles to help New Zealand, or any other country for that matter, to navigate its data future (NZDFF 2014b). These four principles, **value**, **inclusion**, **trust** and **control**, were intended to guide solution development and ensure New Zealand would achieve the best possible outcomes in terms of harnessing the benefits of data use and sharing, while maintaining trust and protection. Acknowledging that the rapidly developing data environment is challenging current institutions, the NZDFF also expressed and explained the view that an alternative approach emphasising **data use**, rather than **data ownership**, would be better suited to dealing with these new innovative developments and meeting some of the challenges (NZDFF 2014b, p.8-11).

The NZDFF paper described the proposed guiding principles for safely managing and optimising the use of data, and how these principles could be achieved, as (NZDFF 2014b, p.4):

1. Value – New Zealand should use data to drive economic and social value and create a competitive advantage

To achieve this New Zealand should:

- *Encourage collaboration and sharing*
- *Support creativity and innovation*
- *Promote a data environment that, as far as possible, retains New Zealand control over the use and protection of New Zealand data*

2. Inclusion – All parts of New Zealand society should have the opportunity to benefit from data use

- *All New Zealanders, communities and businesses should be supported to adapt and thrive in the new data environment*

3. Trust – Data management should build trust and confidence in New Zealand institutions

- *Transparency and openness should form the foundations on which we build trust and enhance understanding about what data is held, and how data is managed and used*
- *Privacy and security are fundamental values that should be built into data frameworks and the full data life cycle*
- *Data collectors, custodians and users should be accountable for responsible stewardship and should exercise a duty of care*

4. Control – Individuals should have greater control over the use of their personal data

- *Individuals should be better able to determine the level of privacy they desire based on improved insight into how their personal data is processed and used*
- *Informed consent should be simple and easy to understand*
- *Individuals should have the right to be forgotten and the right to opt out*

The Forum emphasised that these principles are intended to work together in tension to support an environment where there is trusted data use, delivering prosperity and well-being. Together, they would provide a test for any approach towards data use or sharing: how well does any particular initiative meet these principles?

The NZDFF sought feedback from New Zealanders on the proposed principles and approaches New Zealand should take to support safe data use and sharing in future. This was done via the online public forum, through face-to-face meetings with stakeholder representatives and presentations at public seminars. The feedback received from varying stakeholders was very supportive, with the four guiding principles being perceived as robust and setting out the right pathway for navigating New Zealand's data future.

In general, there was a lot of excitement about the value-creation opportunities for New Zealand. Various stakeholders commented

that New Zealand should treat data as a strategic asset, which led the Forum to adjust its value principle accordingly. The protection of privacy offered by the principles was also strongly valued and acknowledged as a key feature of the New Zealand data-use ecosystem. However, there were questions around the feasibility of the Forum's proposal for New Zealand to retain control over the use and protection of New Zealand data, especially in light of multinationals operating in the emerging data environment and New Zealand data 'leaking' away to other jurisdictions. Instead, more could be done to promote New Zealand's unique data-use ecosystem to businesses and investors within the country and overseas.

Many New Zealanders expressed concerns about the rapidly changing data environment, fearing privacy breaches and discriminatory treatment based on targeted profiling; they therefore liked the NZDFF principle of having greater control over their personal data. People were concerned about what is being done with information about them, without their knowledge or consent, and how they can be sure that data quality is maintained and interpretations are correct.

The discussion around this second NZDFF Discussion Document happened at the time that the European Court of Justice had ruled that EU Citizens have a 'Right to be forgotten' on the Internet. At the time, people had questions on how this ruling could, and should, be practically implemented. This led the Forum to adjust its proposed right to be forgotten to enhanced rights to correction.

Many people agreed that there was a risk that not everyone would benefit from data use. This was of particular concern to Māori, who emphasised that benefits would not be achieved without trust. To achieve this, Māori would need to be involved in decision-making, and fundamental Māori values, such as Kaitiakitanga (guardianship) and Manaakitanga (mutual respect) would need to be respected. In general, access to data,

but also access to capability, were perceived by many as barriers to activity and benefit realisation.

These discussions led to a confirmation and strong endorsement of the four guiding principles, with the following adjustments of how they might be achieved:

Under value:

- *New Zealand should treat data as a strategic asset*
- *The unique New Zealand data-use ecosystem should be promoted in New Zealand and overseas*

Under control:

- *Individuals should have enhanced rights to correction and the right to opt out*

4.1.3 Third Discussion Document:

Harnessing the Economic and Social Power of Data

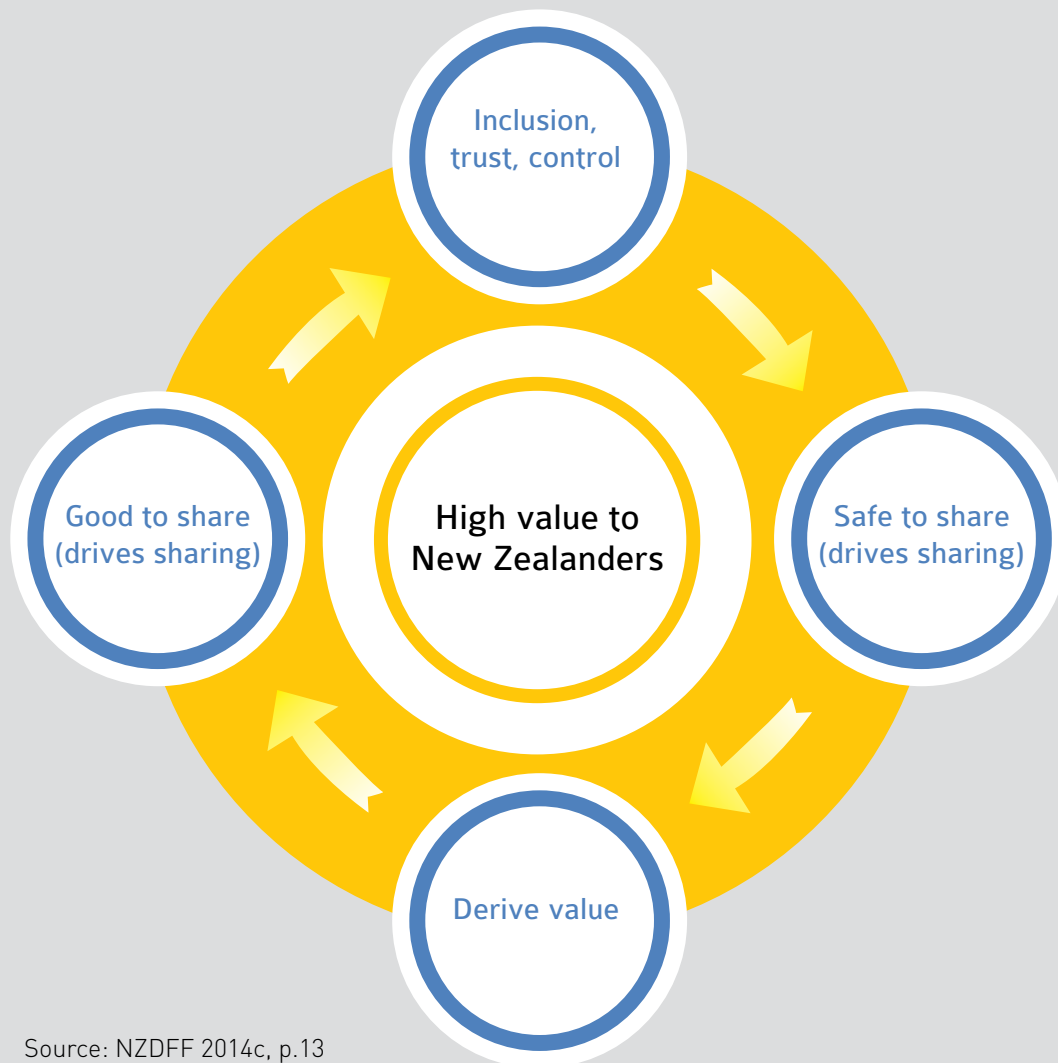
In its third and final Discussion Document, the NZDFF came to the conclusion that the best solution for any country in navigating the data revolution is to use data *at the same time* to derive economic, social and personal value, to make sure that all parts of society, not just business or government, have the opportunity to benefit from data use, to build trust and confidence in institutions through appropriate data use and management, and to meet individuals' privacy concerns by providing them with greater control over the use of personal data (NZDFF 2014c, p.12). In other words, if New Zealand could implement all four NZDFF guiding principles together, it could gain an international competitive advantage and realise the NZDFF vision of being a world leader in the trusted, inclusive and protected use of shared data to deliver a prosperous society.

According to the Forum, the four guiding principles work together and drive a positive feedback loop of which New Zealand is well placed to take advantage. Value is *increased* by trust, inclusion and control: if people trust how institutions manage and share data, see benefits for themselves derived from data-

sharing, and feel they have some control over how personal data is used, they are likely to support and actively contribute to collaborative data-sharing initiatives – the latent value of data is unlocked (NZDFF 2014c, p.13; see Figure 2).

only need to come from legislation but can also be facilitated by a clever positioning of organisations in the emerging data-use ecosystem. This can be illustrated by focusing on the strong privacy protection the Forum saw necessary in the data future, and

Figure 2 – A positive feedback loop in a trusted data-use ecosystem



The NZDFF saw strong protections as a *sine qua non* for more collaborative and more open forms of data-sharing, as high trust, enhanced individual control and high inclusion *together* will drive more value. This implies that clarity about the rules of the game for all stakeholders is critically important for achieving the NZDFF vision. However, in the Forum's view, strong protections not

considering four possible scenarios for the use of (personal) data, not just for particular data types (e.g. personal data, non-personal data, open data). A clever strategic positioning also requires organisations to understand how the four NZDFF principles apply to each of these scenarios, so that collaborative data-sharing and use can be further supported:

“One of the challenges we face is that not

all data use is done on the same basis or for the same purpose. Rather than thinking only in black and white terms about the sharing OR protection of various types of 'personal data', we should be thinking about the actual use of data and how it facilitates both data-sharing AND protection. This creates the opportunity to make a firm distinction between data use where an individual is directly targeted, and non-personal forms of data use. We also need to make a distinction among different purposes for data use: data can be used for the purpose of achieving a public good, or for the purpose of achieving a private good. These situations imply different decision-rights over data use from an individual's point of view. In the case of a public good, the decision-rights sometimes need to be with the government." (NZDFF 2014c, p.17-18)

The following four data-use scenarios can be distinguished (NZDFF 2014c, p.18-22; see also Figure 3):

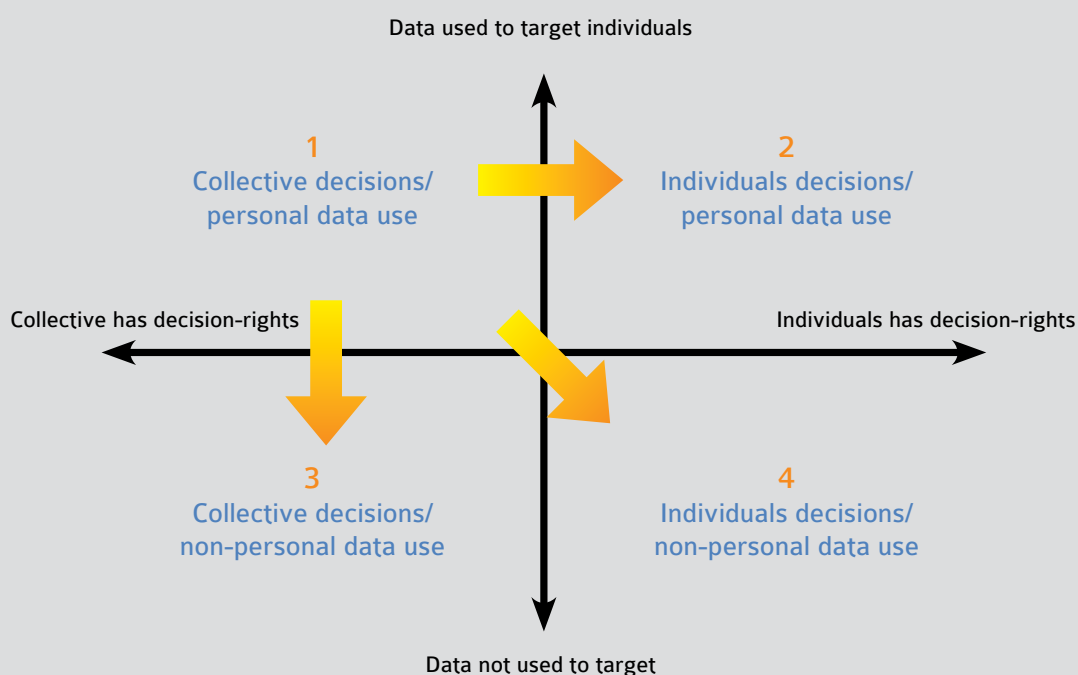
Scenario 1 - Collective decisions, personal data use: data is used for the purpose of

targeting specific individuals in order to achieve a public good (e.g. public safety protection, child abuse prevention). The purpose of the data being linked and analysed is to generate insights at the level of the identified individual.

Scenario 2 – Individual decisions, personal data use: individuals themselves share their personal data voluntarily to create value and achieve a particular private good, such as using personal sensing data to receive a health service, or a public good, such as donating personal data to help finding a cure against a particular disease.

Scenario 3 – Collective decisions, non-personal data use: data is used to generate broader insights of value to the wider community in order to achieve a public good without targeting any individuals. Personal data can be de-identified so that the actual use of the data happens in a non-personal and therefore more protected way. An example of this data-use scenario is Statistics NZ's IDI (see section 2.1.4).

Figure 3 – Minimising mandatory use of personal data



Source: NZDFF 2014c, p.23

Scenario 4 – Individual decisions, non-personal data use: this scenario involves a privacy-friendly way for an individual to share their personal data for deriving non-personal value, such as contributing to research where data is collected with the individual's consent.

Each of these four data-use scenarios has slightly different rules. The NZDFF wanted to see data use in accordance with the rules for a particular scenario people or organisations are following. In other words, an unexpected shift from one data-use scenario to another, without taking into account the decision-rights of those involved, should be considered as data misuse in the Forum's view.

The NZDFF also wanted to see organisations minimising the mandatory use of personal data to target individuals and, wherever possible, move either to an arrangement where individuals have more say over the use of personal data or to one where data is de-identified and used in a non-personal way: consequently, organisations were strongly encouraged to consider moving from Scenario 1 to one of the other three scenarios in order to better protect the privacy of individuals.

In this final discussion paper, the NZDFF set out an agenda with the potential to significantly advance New Zealand's ability to unlock the latent value of its strategic data

assets by incentivising a positive feedback loop. The Forum proposed action in the following three broad areas (NZDFF 2014c):

- 1. Get the rules of the game right:** a robust data-use ecosystem needs to be developed with agile responsive institutions and effective rules to support data use. The NZDFF recommended establishing an independent data council, undertaking a broad review of all information legislation in New Zealand and making some specific legislative amendments, such as protection against re-identification of anonymised data under the New Zealand privacy legislation.
- 2. Create value by doing:** the NZDFF recommended innovating and learning by doing, through collaborative catalyst projects that create value by tackling real problems through data-sharing and use (see Box 1 for an example).
- 3. Embed effective foundations to support value, inclusion, trust and control:** the NZDFF recommended a wide variety of approaches and initiatives to support each of the four guiding principles.

4.2 Feedback from stakeholders

From February until August 2014, NZDFF members met with a large number of stakeholder representatives who provided different perspectives on the issues raised

Box 1 – Catalyst project: getting government help to transient families

“We know that transience, or residential mobility, has a big impact on children's education achievements, as it results in children frequently changing schools. Understanding transience and finding ways to support transient families will help us to provide opportunities for children who otherwise might be left behind.

We want to look for solutions that are high value, i.e. improve outcomes for transient children and families, but to do this we need to support inclusion, trust and control. In particular, because part of the issue here is lack of trust, the solution has to involve an approach which builds trust – anything else would be ineffective. The approach we are proposing is intended to help overcome both the distrust many of these folks hold in government and government agencies such as Child, Youth and Family, and fears that information about them might be used by institutions such as credit agencies. This may

not be so much about formal data-sharing, but about creating an environment where people feel safe sharing information about themselves.

Greater individual control and higher trust can be maintained and perhaps increased by using trusted community groups and NGOs (like The Salvation Army or the Citizens Advice Bureau) as intermediaries or brokers to find and build responses to such families. If trusted brokers use their own contacts and data to find and engage with such families to encourage them to receive government entitlements, we are more likely to both find such families and engage constructively with them. It might also be possible for schools or government agencies to share data on transient families with the broker agencies. Families could then receive advice on what might be available, even perhaps get in-principle pre-approval before making the decision to reveal their location or other details to the government agency. They would, of course, retain the right to deal directly with government at any time.”

(NZDFF 2014c, p.35)

by the Forum. Members of the general public could also provide input and feedback via the online public forum on the NZDFF website, social media, email and via regular mail. The Forum’s aim was to spark informed debate and create a platform of shared understanding on issues around data use and innovation. Due to the short time-frame of the Forum, its engagement was not comprehensive but focussed on relevant and interested people. In particular, the Forum did not have as widespread engagement with the general public as it would have liked, including interactions with some specific groups of the New Zealand population, such as young people and immigrant communities.

In general, the feedback from varying stakeholders on all three discussion papers was very positive and supportive. Several stakeholders, including the New Zealand Privacy Commissioner publicly commended the results of the Forum. The following key themes regularly featured in the Forum’s engagement activities:

- Privacy and the need to retain control over their personal information turned out to be of critical importance to people to maintain trust in the data-use ecosystem, with a number of them suggesting that the four guiding principles should be in the reverse order to reflect this

importance of privacy “*as control leads to trust leads to inclusion leads to value*”.

Overall, there was a clear sense that people were trying to control their privacy but felt that they were not succeeding. People were interested in having more discussion on sanctions and controls to address data misuse or more detail on data anonymisation options. Of particular concern was the lack of transparency about personal data held by international companies or sold to third parties, and the impact on the individual rights of New Zealanders. Although individual privacy values are of lesser importance to Māori compared to community-based control over their information, Māori had heightened concerns over the government having their information due to negative past experience. Several people also pointed at the need to strike a balance between individual rights to privacy and the ‘public good’ benefits from data-sharing, such as in areas of preventative education and health care. Māori emphasised the need to ensure that data-sharing would work for them on their own terms rather than be used in a discriminatory manner.

- Another recurring theme in the feedback was on potential data inequalities and

the risk that particular groups in New Zealand society would be excluded from any benefits of data use due to differing levels of capability. Inclusiveness, in particular ensuring that people across New Zealand society have the right skills and knowledge to be involved and benefit from data use, was seen as critically important. Trust was perceived as an important foundation for inclusion, with many commenting that trust has already been lost by those at the margins and that this would need to be rebuilt if this part of society was to benefit. There was a strongly perceived need for more education on rights and responsibilities and continued public engagement to ensure that all New Zealanders have the opportunity to benefit from data.

- Many people were excited about the value proposition of increased data-sharing and use for New Zealand as a country, and people's personal lives: people felt there was strong potential to create a competitive advantage for New Zealand in the data space. People particularly saw the value of improving government services and the wellbeing of citizens, especially through open data initiatives. The Forum was impressed by the many data innovation initiatives already underway, many of them 'under the radar'. It concluded that New Zealand should build on these initiatives and focus on fostering innovation and removing barriers where possible.
- Private sector representatives, in particular, strongly expressed views that innovation and benefits from data use were being hindered by current government procurement practices and data availability.
- Another key theme in the feedback was the perceived challenge of managing the use of New Zealand's data assets to ensure continued value and control. Particular concerns were raised around

retaining data quality and accuracy, and how to assist with appropriate interpretation of data and data governance. Both data and metadata standards were seen as important to ensure value and aid correct interpretation. Effective sanctions on any misuse of data were considered vital.

- Private sector and government representatives expressed concerns about whether New Zealand had enough people with the right skills to enable value to be obtained from data-sharing. However, others felt that skills were available, and that the real need was to encourage demand for data projects and connect available skills with opportunities.

4.3 New Zealand Government's response

4.3.1 The New Zealand General Election in September 2014

As arranged with the political sponsor, the NZDFF needed to have its final report and recommendations published by July 2014 at the latest, so that the national debate about data would be in time to inform, but not in any way interfere with, the preparations of the New Zealand General Election which was scheduled for September 2014.

On 28 July 2014, the NZDFF delivered its third and final report to the Government, which led to the following first response:

"The Data Futures Forum has delivered a range of thought-provoking recommendations on the use of data in New Zealand," Finance Minister Bill English and Statistics Minister Nicky Wagner said.

"It shows New Zealand has the opportunity to be a world leader in the sharing of data held by government, with high ethical and privacy standards," Mr English said.

"We are already seeing the benefits that more intelligent use of data can deliver – for example the actuarial valuation of the welfare system is supporting early interventions that avoid bigger costs later."

Statistics Minister Nicky Wagner said the NZDFF had come up with a number of interesting ideas. *“With the opportunity around the greater use of data goes responsibility. We’re aware of the genuine concerns about the way data is shared and managed. This report has made concrete recommendations that will be of interest to New Zealanders and I encourage them to read it.”*

“We thank the Forum members, under the leadership of John Whitehead, for their efforts. The Government will fully consider the report before responding.” (New Zealand Government Press Release)

Consequently, the outcome of the General Election needed to be known before finding out the official response from the New Zealand Government to the NZDFF’s work and recommendations.

In the meantime, the public service started to prepare the Government response – work which was led by Statistics NZ. In the first instance, Statistics NZ attempted to take control over the conversation and excluded the interests of the service delivery agencies, private sector and academia when coming up with draft recommendations to government about what to do. One possible explanation included the perceived threats of a digital ‘tsunami’ for a national statistical office and the possible opportunities for continuity and relevance offered by the work of the NZDFF. However, this turned out to be an acknowledged mistake, as the Government was not happy with the results, which had lost the edginess and practical feel of the NZDFF recommendations.

On 21 September 2014, the National Party had a convincing election victory, providing the Key Government with a strong mandate for a third term in office. Minister English came back again as the Deputy Prime Minister and Minister of Finance, with the ambition to leave his legacy in the data space during this term.

4.3.2 Ministers’ response

On 27 February 2015, the New Zealand Government finally delivered its full

response and accepted all of the NZDFF recommendations: *“The Government is backing the recommendations of the NZ Data Futures Forum to make better use of public data and uphold privacy standards,”* Finance Minister Bill English and Statistics Minister Craig Foss said. The Government directed officials to report back later in 2015 on progressing data catalyst projects and the Government’s Open Data initiative. New Zealand was recently ranked fourth-equal in open data by the Open Data Barometer Global Report.

“Delivering better public services for New Zealanders means making better use of the information we have and lifting accountability to the public through transparency,” Mr English said.

These initiatives sat alongside a range of measures taken by the New Zealand Government to improve data use, including Statistics NZ’s IDI, MSD’s Social Investment Approach, and a new open-data based pilot project between LINZ and Wiki NZ to promote data visualisation and increase transparency. The New Zealand Government also established the Social Sector Board to accelerate integration of social sector data, including setting common standards.

“More data use highlights the need for that data to be used responsibly,” Mr Foss said.

The Government has signed-up to the Forum’s four recommended data use principles of value, inclusion, trust and control.

Giving individuals greater control over the use of their data, and building confidence in our institutions to protect sensitive information is an essential part of making better use of information. (New Zealand Government Press Release, 27 February 2015).

In response to the NZDFF’s recommendations and in order to embed an enabling data-use environment based on the four NZDFF principles, the ministers proposed the following priority actions to support data-driven value:

- Champion and enable catalyst projects which use data to innovate, solve real

world problems and build strategic data assets for New Zealand;

- Develop a business case for an independent Data Council to promote a high-value, trusted data-use environment based on the four principles;
- Review information management policy and legislative settings across government to ensure New Zealand has an enabling framework for data sharing and use; and
- Continue to support the release and re-use of open data by government and encourage those outside government to open up their data by expanding the existing Open Government Data programme.

4.4 Impact on policy-making

After the election, the re-elected Deputy Prime Minister and Minister of Finance tried to capitalise quickly on the broad and strong support for the NZDFF work among various stakeholders. To make further progress with his data-driven public sector reform ideas, Minister English had to deal with the critical issue of resistance within the State Sector around the increased sharing and use of data.

Two initiatives were taken to manage this issue. One was the creation of the so-called Data Alliance, an independent group of expert data scientists from the public sector, private sector and academia, led by James Mansell. The alliance was given direct access to ministers to inform and advise them about the value proposition of the increased use of shared data in accordance with the NZDFF principles. This created a situation where policy advisors felt their traditional advice relationship to the minister was threatened by new and different 'evidence' provided by data scientists.

Another initiative was aimed at making further progress with public sector reform in the wider social sector through a new long-term strategy for Social Service Investment (New Zealand Government Press Release,

4 June 2015). In order to do so, the New Zealand Government established the Social Sector Board, i.e. the chief executives of the main government departments responsible for social services, to accelerate integration of social sector data, including through setting common standards.

Other stakeholders, such as Sensing City project manager Roger Dennis started to apply the NZDFF work, especially the four guiding principles, to their activities. Further strong support for the NZDFF work recently came from the New Zealand Productivity Commission. In a draft report on 'More effective social services'¹³, which was partly based on a commissioned report 'Handing back the Social Commons' written by James Mansell (Mansell, 2015a), the New Zealand Productivity Commission came to the following conclusions (NZ Productivity Commission 2015, p.15-16):

"The current evidence-base for system-wide learning is weak and needs to be strengthened. In practice, conventional evaluation of many social services is absent, of poor quality or not given enough weight in subsequent decision making. Effort should focus on making available timely, shared evidence on what is working, for whom and through which service providers... new approaches are needed alongside that enable cost-effective monitoring and evaluation in real time across the system, using a wider range of information than is typically used in evaluations."

"In an era of ICT and 'big data', exciting opportunities exist to use data and data analytics to create a learning system that increases the effectiveness of social services. A client-centred data infrastructure and analytics could support a range of decentralised service models and provide better information to support decisions made by both commissioning organisations and the users and providers of social services."

13 <http://www.productivity.govt.nz/sites/default/files/social-services-draft-report.pdf>

“The Government, and social services providers and users, should use the NZDFF recommendations to underpin their efforts to explore innovative approaches to social problems.”

Subsequently, a further report was commissioned by the New Zealand Treasury. ‘The Blueprint for Adaptive Social Investment’ (Mansell, 2015b) outlines a new operating model for expanding the safe use of operational shared data via a sector-owned

data commons that adheres to the NZDFF principles to more broadly apply coordinated, accountable and data-informed investment to improve social outcomes. If accepted, the recommendations in this paper and the NZ Productivity Commission’s report will embed the NZDFF principles of value, inclusion, trust and control into the heart of how government and New Zealanders manage their social sector data.

Key Lessons

5



Many lessons can be derived from the New Zealand experience of having a nationwide debate on data-driven innovation and the creation, work and impact of the NZDFF. The following key lessons about what worked, what could have been done better or differently, and some specific lessons for policy-making are provided for those who are considering taking a strategic approach towards the application of data-driven innovation in policy-making to achieve better outcomes.

5.1 Key lessons: what worked?

The following key aspects worked particularly well in the case of the NZDFF:

- Strong, long-term political leadership turned out to be a critical success factor. Not only was it critically important to have a political leader with a clear vision of data-driven public sector reform and a strong ambition to make this vision a reality, a key success factor was also that this political leader, as Deputy Prime

Minister and Minister of Finance, was in a powerful position to mobilise resources. Another related success factor was that this political leader had three terms in office and was able to make progress with the implementation of his vision, and learn and adapt over a substantial period of time. An election change after two terms in office likely would have changed the public sector reform agenda in New Zealand.

- Besides strong leadership from the top, it was also critically important that both the Deputy Prime Minister and the NZDFF did not operate in a vacuum or start from scratch with introducing ideas about (increasing) data-driven innovation in New Zealand. Quite a few data-driven innovation initiatives were already underway in New Zealand, such as the Open Government Information and Data Programme, MSD's Social Investment Approach and many data innovation initiatives in the private sector, local government, non-government sector and academia, which offered invaluable learning opportunities, support and reinforcement of the importance of the debate. A unique data-driven innovation and learning opportunity had also emerged with the rebuild of the City of Christchurch after two major earthquakes in 2010 and 2011. This led to the Sensing City project and the building-in of sensors into different parts of the new city infrastructure.
- Independence of the NZDFF and diversity of expertise among the Forum members were two other critical success factors. Similar to the experience with other independent working groups in New Zealand, the independent nature of the group facilitated a wide-ranging, robust debate with the opportunity to be 'edgy' if desirable, and therefore not risk averse. Moreover, the fact that the debate was independent and not 'owned' by one

particular stakeholder and at arms-length from political interference helped to have a more open and honest discussion with all stakeholders concerned about the various opportunities and risks of data-driven innovation for New Zealand and New Zealanders. Diverse membership of the group also led to a wide range of perspectives and valuable expertise sitting around the table, which were very useful in the design and development of both the NZDFF internal discussion and discussion papers, and the NZDFF external engagement activities.

- The independent Chair of the NZDFF played a critical role in managing the interests of the various stakeholders around the NZDFF table. Having a chair person who was an effective facilitator, independent of any interest in data and with a deep understanding of the way the public sector works, yet not being part of it, was a real asset to the work of the Forum. By not having a large amount of subject expertise in this area, this person could take the role of a 'naive enquirer' to keep the Forum members grounded in the need to communicate with non-expert stakeholders, including members of the general public.
- The NZDFF vision and principles not only have strong support across varying stakeholders in New Zealand, but also resonate with international thinking in this area (e.g. academic communities, UN Global Pulse). Moreover, arriving at four principles with which to guide New Zealand's or any country's data future, capturing both the value side and the risk side of the equation, has provided a useful platform upon which to carry forward all future conversations. We believe that the four guiding NZDFF principles, rather than the final recommendations, are the crux of what the NZDFF provided. They are a useful heuristic that interested parties can keep coming back to when

considering specific recommendations. Although these were used and thought of initially as an instrument by which we could measure our own recommendations, they are in fact the main recommendation in providing guidance for any particular future data-innovation project or work.

- The three-stage process was effective in taking people on the journey and useful for the Forum itself to work through the problem definition, the definition of guiding principles or test for success, and specific recommendations to the New Zealand Government and New Zealanders.
- Education of varying stakeholders around the challenges and opportunities of the data revolution, in particular senior government leaders, policy advisors and members of the general public, turned out to be critical. Working with real case examples from New Zealand and overseas was very effective in communicating the NZDFF thinking to different stakeholders and bringing people on to the same page.

5.2 Key lessons: what could have been done better or differently?

- The NZDFF process was effective in engaging interest across New Zealand. However, although there was engagement with a large variety of stakeholder representatives across the public sector, private sector, NGO sector and academia, most of the conversations were held with interested institutional or special interest groups. The general public never really engaged deeply. This was caused partly by the tight timeframes of the NZDFF and the political sponsor's desire to keep the NZDFF debate independent and separate from the preparations for the general election. Consequently, one of the NZDFF recommendations is the need for a broader public engagement process. The minimal reaction may also

have been in part due to the process being open and balanced, and directly representing both sides of the debate. This successfully brought people to a middle ground where a more constructive dialogue could take place – thus taking the focus away from more fringe positions that would have likely received media attention.

- Acknowledging the importance of the NZDFF principle that every New Zealander should benefit from the (increasing) application of data-driven innovation in New Zealand – a principle which resonated strongly with the various stakeholders, it would have been useful to have more citizen, NGO, consumer and indigenous (Māori) representation on the Forum itself. Attempts were made to rectify this during the NZDFF process by providing a robust and open engagement process with representatives and/or interest groups in these areas. While this was to some extent successful, it would have been better to have champions for these groups inside the Forum, both for the work itself and follow-up championing of the messages.
- A source of tension for the Forum, while well managed by the independent NZDFF Chair, was having one of the Forum members and the NZDFF Secretariat based at a government agency with a specific interest in maintaining a (monopoly) position in the new data future. At the same time, one of the other government agencies with a specific interest in the NZDFF work (LINZ, through its responsibility for the Open Government Information and Data Programme) did not have representation on the Forum. This created a situation where there was more attention on the NZDFF documents for government initiatives in general, and more specifically for initiatives led by Statistics NZ; consequently, less attention was paid to open data and/

or non-personal data initiatives, as well as to non-government initiatives in the NZDFF work. The key lessons are that no particular stakeholder should be allowed to dominate the debate through Forum membership and the Secretariat needs to be housed in an institution that provides independent and objective support to the Chair and Forum members.

5.3 Key lessons for policy-making

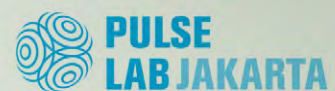
- The NZDFF work, process and impact thus far has exposed the critical importance of (data) capability building among policy-makers in New Zealand. At the moment, data available for the policy process and achieving better outcomes is still underutilised, with policy advisors using traditional forms of research 'evidence', if any. The latter process is further incentivised by the recent appointment of departmental Chief Science Advisors in New Zealand government agencies who are promoting the uptake of traditional science in the policy process.
- There is a particular need in New Zealand government agencies to upskill policy advisors so that barriers to the use of data in the policy process are removed.
- With the increasing introduction and uptake of data science in government activities in New Zealand, we observe a structural disconnect between the policy 'stream' and the data scientists' 'stream' in these government agencies. Consequently, the traditional policy process in New Zealand government agencies has not changed much and so far resists the direct engagement of data scientists with senior ministers. We believe that new innovative and more integrated models of policy-making need to be introduced and systematically applied across government in order to take advantage of the opportunities for better and more effective policy-making offered by the data revolution.
- Safe policy innovation pilots with trusted, collaborative governance models are critical for success.
- There is a wider public debate to be had about the fundamental change implications of increasing data use and the application of data science in policy-making, service provision and investment decision-making in government.
- 'Learning by doing' ('Praxis') in new data-driven environments, such as in the case of MSD's Social Investment Approach, has proven to be critical for the application of data-driven innovation in the wider social policy area.

References

- Gluckman, P., 2011, *Towards better use of evidence in policy formation: a discussion paper*, Office of the Prime Minister's Science Advisory Committee, Wellington (<http://www.pmcsa.org.nz/wp-content/uploads/Towards-better-use-of-evidence-in-policy-formation.pdf>)
- Lips, A.M.B., Eppel, E. A., Cunningham, A. & Hopkins-Burns, V., 2010, *Public Attitudes to the Sharing of Personal Information in the Course of Online Public Service Provision*, Final Research Report, August 2010, Victoria University of Wellington, Wellington (http://e-government.vuw.ac.nz/summary_IRD.aspx)
- Lips, A.M.B., Eppel, E. A., Barlow, L., Löfgren, B., Löfgren, K. & Sim, D., 2015, *Kiwis Managing their Online Identity Information. Second and Final Research Report – Interview Findings, Focus Group Findings and Project Recommendations*, Commissioned by the Department of Internal Affairs, February 2015, Victoria University of Wellington, Wellington (<http://www.victoria.ac.nz/sog/researchcentres/egovt/research-projects#koi>)
- Lips, A.M.B., Eppel, E. A., Sim, D., Barlow, L. and Lofgren, K., 2014, *Kiwis Managing their Online Identity Information, Interim Report – Survey Findings*, Victoria University of Wellington, Wellington (http://www.victoria.ac.nz/sog/researchcentres/egovt/research-projects/research-2011/KOI_Interim_Report_19March2014v2.pdf)
- Mansell, J., 2015a, *Handing back the social commons. A report to the New Zealand Productivity Commission* (<http://www.productivity.govt.nz/sites/default/files/social-services-draft-james-mansell.pdf>)
- Mansell, J., 2015b, *The Blueprint for Adaptive Social Investment; the safe and effective use of data science to improve accountability, innovation and social sector outcomes*, New Zealand Treasury, Wellington.
- New Zealand Data Futures Forum, 2014a, *New Zealand's Data Future* (<https://www.nzdatafutures.org.nz/discussion-documents>)
- New Zealand Data Futures Forum, 2014b, *Navigating the Data Future: Four Guiding Principles* (<https://www.nzdatafutures.org.nz/discussion-documents>)
- New Zealand Data Futures Forum, 2014c, *Harnessing the economic and social power of data* (<https://www.nzdatafutures.org.nz/discussion-documents>)
- New Zealand Government, 2011, *Declaration on Open and Transparent Government* (<https://www.ict.govt.nz/guidance-and-resources/open-government/declaration-open-and-transparent-government/>)
- New Zealand Government, 2013, *Government ICT Strategy and Action Plan to 2017*, Department of Internal Affairs, Wellington.
- New Zealand Government, Office of Minister for Social Development, *Strategy to improve*

- results in social services*, Press Release, 4 June 2015 (<http://www.beehive.govt.nz/release/strategy-improve-results-social-services>)
- New Zealand Government, Offices of Ministers of Finance and Internal Affairs, *Open data will benefit public, economy*, Press Release, 15 August 2011 (<http://www.beehive.govt.nz/release/open-data-will-benefit-public-economy>)
- New Zealand Government, Offices of Ministers of Finance and Statistics, *Government considers data use of the future*, Press Release, 12 February 2014 (<http://www.beehive.govt.nz/release/government-considers-data-use-future>)
- New Zealand Government, Offices of Ministers of Finance and Statistics, *Data Futures Forum delivers final report*, Press Release, 28 July 2014 (<http://www.beehive.govt.nz/release/data-futures-forum-delivers-final-report>)
- New Zealand Government, Offices of Ministers of Finance and Statistics, *Government backs Data Forum's recommendations*, Press Release, 27 February 2015 (<http://www.beehive.govt.nz/release/govt-backs-data-forum%E2%80%99s-recommendations>)
- New Zealand Government, Offices of Ministers of Finance and Statistics, 2015, *Government response to the recommendations of the New Zealand Data Futures Forum*, Cabinet Paper, (http://www.stats.govt.nz/about_us/what-we-do/our-publications/cabinet-papers/data-futures-forum-cabinet-paper.aspx)
- NZDFF Website (<https://www.nzdatafutures.org.nz/>)
- Statistics New Zealand, 2013, *Introduction to the Integrated Data Infrastructure 2013* (http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/integrated-data-infrastructure/introduction-idi-2013.aspx)
- Treasury, The, 2013, *Cabinet paper on Analysis for Outcomes – better use of data to improve outcomes*, Cabinet Committee on State Sector Reform and Expenditure Control (<http://www.ssc.govt.nz/sites/all/files/bps-analysis-for-outcomes-cabpaper.pdf>)

Pulse Lab Jakarta (PLJ) is a partnership between the United Nations and the Government of Indonesia, through the Ministry of National Development Planning. As part of UN Global Pulse, an innovation initiative of the UN Secretary-General, a network of “Pulse Labs” in New York, Uganda and Indonesia brings together public sector and UN organizations, and partners from academia and the business community to test, refine and scale methods for using new sources of digital data. Pulse Lab Jakarta is exploring how big data and real-time analytics technologies can be leveraged to support global development and humanitarian efforts.



The Knowledge Sector Initiative (KSI) is a joint program between the governments of Indonesia and Australia that seeks to improve the lives of the Indonesian people through better quality public policies that make better use of research, analysis and evidence. KSI is a consortium led by RTI International in partnership with Australian National University (ANU), Nossal Institute for Global Health, and Overseas Development Institute (ODI).



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