Data Futures Partnership

Governance of Data Guidelines

For Aotearoa New Zealand

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Contents

Foreword

A message from the Data Futures Partnership.

The Data Futures Partnership was established as an independent Ministerial advisory group to facilitate high-trust and high-value data use in New Zealand by bringing together a cross-sector group to work together and provide a collective voice on data issues.

The Partnership was tasked with working towards two overarching goals — to create the right environment for trusted data use in New Zealand, and to increase the value being generated by New Zealand's data ecosystem.

As part of its work, the Partnership identified the need for work on establishing good governance practices to secure greater value from the data assets that organisations hold.

Over the past year we have worked with the chairs, boards and executive staff of over 60 organisations to develop the guidelines.

Workshops have been held with 40 organisations and have included central and local government, corporates, businesses and not for profits.

These Governance of Data Guidelines have been written for governors, including boards of trustees, directors, owners and partners. The guidelines outline the particular roles and responsibilities of governors towards data and help build understanding of the steps governors need to take in order to adopt good governance of data practices. They contain questions that governors can use to develop a data strategy that delivers on their organisation's purpose, and consistently with the organisation's values. They can also be used to help identify an organisation's strengths, weaknesses and maturity level regarding data.

The purpose of the guidelines is to support governors to develop a data strategy that balances the value and risk of an organisation's data. They set out a series of questions that governors can ask themselves about how their organisation can collect, manage and use data in a way that furthers the organisation's mission and purpose, and delivers on its values.

We have designed the guidelines in such a way that they can be used by governors of any organisation, whether they are at the beginning of a governance of data journey or further along the track, and whether the organisation is in the public, private or not-for-profit sector.

The starting point for each conversation is the organisation's purpose and values, and this will enable the guidelines to be contextualised for each organisation's particular circumstances.

The guidelines also include a glossary which explains key terms and concepts and outlining the main pieces of legislation and regulation that organisations should be complying with.

The guidelines include links to resources that provide more detailed information on a number of aspects covered by the guidelines. Additional resources and tools have been provided separately and these will be added to as more resources become available.

Thank you to all of those who have contributed to this work.

Dame Diane Robertson DNZM
John Whitehead CNZM, CSTJ

Governance of data guidelines

What is Governance

Governance means thinking about strategic issues, rather than the day-to-day operational running of the business.

Good governance helps a company:

- improve performance
- create a defined vision for the future
- take a big-picture view of the business, separate from the operations
- ensure there is accountability and oversight of operations
- manage risk
- find the right balance between making short-term gains and building long-term wealth.

(New Zealand Institute of Directors)

On behalf of an organisation, governors look at the big picture, continually assess the organisation's direction and performance against its mission and purpose, and steer it toward its goals. They put in place structures, formulate strategies, oversee operations and provide leadership by:

- setting strategy and structure
- adding value to the business
- managing risk and ensuring compliance
- accounting to stakeholders for the actions and activities of the organisation.

Why is governance of data important?

A key difference between data and many other resources is that the more it is used and reused, the more valuable it can become. As data has become ubiquitous and cheaper to store and analyse, the potential for organisations to extract value from their data has increased exponentially. When data is analysed well, it generates insights that can enable organisations to identify new ways to optimise value. Value can be obtained through:

- the creation of new revenue streams, for example through new value-added products or the creation and delivery of new services
- competitive advantages
- optimisation of assets
- new or improved sales channels.

Having good governance of data is essential for making this happen.

At the same time, the risks associated with the collection and use of data have grown. Data is in constant motion within and through organisations, in much more complex ways than in the past, and much of it is invisible. Large amounts of data can spill out and leak through organisational boundaries through simple carelessness or loose controls — or by deliberate malfeasance. As well as breaching privacy, this can result in loss of social licence for data use; damage trust in the organisation; and impact brand value.

Mostly, data governance capability has not kept pace with the speed of development in the data field, meaning that organisations are failing to maximise the value of their data, as well as being exposed to major reputational risks.

Governance of data versus Management of data

Governance of data is distinct from management of data. If the role of governors is to direct and lead by setting a data strategy, management's role is to decide how to deploy resources, including staff, to best achieve that strategy. Data management is best seen as a logistics exercise, where the end goal is to collect, organise, store and control data resources so that they are accessible, reliable and timely whenever users call on it.

Boards of Directors	**Leadership**	Set vison and values Approve strategy
	Direct	Make decisions to maximise business value and manage risk

Executive Managers	**Monitor**	Ensure performance and compliance against vision, purpose and values
	Plan **Build** **Run** **Monitor** **Report**	Deploy resources to ensure the organisation's activities are aligned with the direction set by the governors

The guidelines

These guidelines have been developed to provide governing bodies with a framework to develop a data strategy.

Each section provides a description, examples and questions for boards to consider when developing a course of action.

These guidelines are set out in three sections:

1. **Board leadership**
2. **Developing a data strategy**
    a. Purpose and values
    b. Data acquisition
    c. Data management
    d. Data use and analysis
    e. Data sharing
3. **Monitoring performance and compliance**

The following sections guide governors through how to approach each of these steps by identifying questions for discussion in order to determine what governance of data means for their organisation.

The guidelines have a glossary of key legislation and regulations and a glossary of technical terms.

1

Board leadership

Boards must provide leadership, because governance is about leadership. The New Zealand Institute of Directors has identified four pillars of governance best practice:

- Determining [and taking ownership of] the entity's purpose;
- Creating an effective governance culture;
- Holding management to account;
- Ensuring effective compliance.[1]

Culture

Culture is about making purpose and values live within an organisation.

Nowhere is governance leadership more important than in creating and maintaining a culture in an organisation that is conducive to driving value and performance. In turn, such a culture rests on trust and confidence: of owners, employees, suppliers, customers and the public. Misuse of data and failures in governance of data illustrate this dramatically: a fall from grace can be rapid, long lasting and extremely damaging to reputation. Boards must therefore develop and promote a data culture which demonstrates high levels of ethical standards, underpinned by the entity's values.

Skills and knowledge

Most boards include members who have financial, legal, and industry expertise. Boards also need members with data expertise to contribute to the governance of the data system.

Governors should have an understanding of the legislative and regulatory requirements as they affect the organisations and understand their personal liability.

All members should have a working knowledge of the technical terms used in the data conversations.

It is not always straightforward to address a gap in board skills and knowledge. However, there is more than one option for board upskilling:

- upskill existing members
- recruit members with expertise in data governance
- seek external advice and expertise.

1. www.iod.org.nz/FourPillars

Infrastructure

Organisations generally have robust infrastructure in place to optimise the value of their financial assets while mitigating financial risk. A similar infrastructure is needed to optimise the value of an organisation's data assets while mitigating data risks.

On this page are two examples: a finance infrastructure, and an organisational data infrastructure.

Resources

Designing and implementing governance of data requires organisational resources, including:

- time
- finance
- personnel.

For many organisations, this may decrease their current data management costs and for others, it can be viewed as an incremental investment.

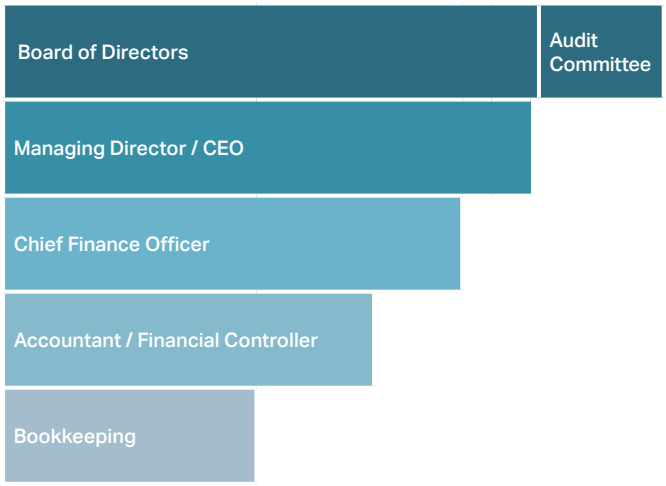
Strategy

A data strategy ensures that data resources are managed in the same way as other organisational assets. The strategy section in the guidelines will assist boards to develop a data strategy.

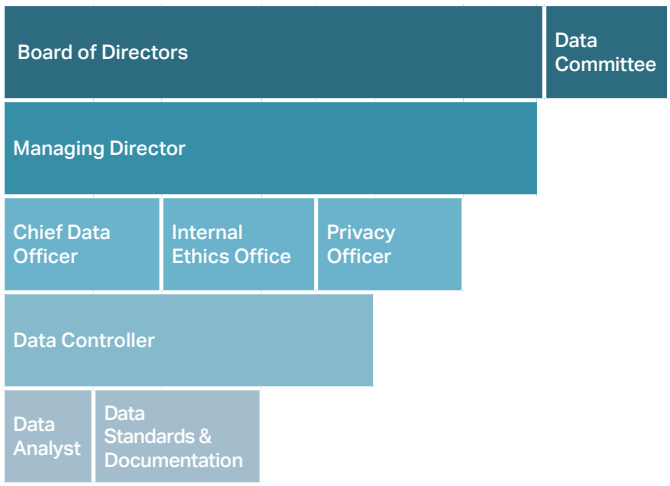
The following resources may also be helpful:

- 5 Essential Components of a Data Strategy (SAS)[2]
- Developing Your Data Strategy: A Practical Guide (SAS)[3]
- How To Create A Successful Data Strategy (MIT CISR Data Research Advisory Board)[4]

Example Finance Infrastructure



Example Data Infrastructure



2. https://www.sas.com/content/dam/SAS/en_us/doc/whitepaper1/5-essential-components-of-data-strategy-108109.pdf
3. https://support.sas.com/resources/papers/proceedings17/0830-2017.pdf
4. https://cisr.mit.edu/reports/create-a-data-strategy/intro.php

2

Developing a data strategy

The key feature of good governance of data is developing a data strategy aligned to the organisation's purpose and values.

A data strategy deliberately maximises the value and manages the risk inherent in an organisation's data. The strategy should articulate how data acquisition, management, use and analysis, and sharing relate to the organisation's vision, purpose and values, and given this, how data supports:

- setting strategy and structure
- adding value to the business
- managing risk and ensuring compliance
- accounting to stakeholders for the actions and activities of the organisation.

Governors have two primary responsibilities:

- organisational performance
- organisational compliance.

These responsibilities apply with respect to data in the same way that they apply to other assets such as finance. A data strategy is a mechanism through which governors discharge these responsibilities.

A data strategy can be developed using the same tools as other types of strategy.

Some examples of data strategies can be found at the Australian Our Community Group: https://www.ourcommunity.com.au/files/DamnGoodAdviceBoardMembers.pdf

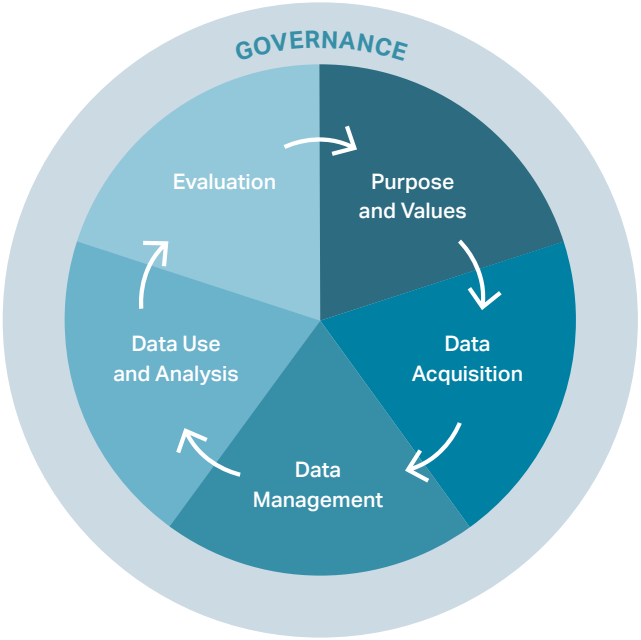
A data strategy needs to cover four broad areas — data acquisition, data management (including storage, maintenance, integration and disposal), data use and analysis, and data sharing. Each area needs to be considered in light of the organisation's purpose and values.

The following sections deal with each of these and pose questions that governors can use to assist in developing a strategy.

Each section provides a definition, an example and questions for boards. The questions cover creating value and managing risk, and discharging monitoring and compliance responsibilities.

In asking the questions, governors should consider which approach to data acquisition, management, use and analysis, and sharing would best support the organisation's purpose and values. This then guides the development of a strategy that is fit-for-purpose for the organisation's particular context.

The questions are not exhaustive, and governors may identify further considerations that are relevant to their organisation's data strategy.



2A

Purpose and values

The key feature of good governance of data is developing a data strategy aligned to the organisation's purpose and values.

In a sense, everything starts from here. Without a clearly defined purpose, an organisation will wander from one 'fashion of the moment' to another. Without a sense of direction, value creation becomes a random event.

There are many legitimate organisational purposes. For a casino it may simply be about creating monetary returns. For an ambulance service or an international relief organisation it may be about saving lives and protecting health. For a food bank it may be about ensuring adequate nutrition and relieving poverty among vulnerable groups.

Of equal importance are organisational values. Unless these are clearly defined, and modelled and enforced at the governance level, trust and confidence can rapidly be lost.

Values are likely to be specified in terms of ethical principles or behavioural expectations. Some are likely to be common across many organisations, for example honesty, integrity, respect for people, service to clients. Others may be more specific to a particular type or group of organisation, such as sharing, empathy and building social value.

Purpose and values define the territory which an organisation is willing to explore, and they help to define its vision — what it seeks to accomplish. They should govern all parts of an organisation, including its outputs, its use of finance, and the way it treats its employees. This is as true of its handling and use of data as of anything else.

Examples of organisations aligning with purpose

1. Wellcome Trust – www.wellcome.ac.uk

According to its website, Wellcome's purpose is improving health by helping great ideas thrive. It lists four ways in which it does this.

"Wellcome directly funds thousands of scientists and researchers around the world at every step of the way from discovery to impact. Our funding schemes offer grants across biomedical science, population health, medical innovation, humanities and social science, and public engagement.

We also identify areas in which Wellcome can lead significant change within five or ten years, aiming to transform the global response to some of today's biggest health challenges.

We work with policy makers to ensure that good research is well supported, and that health is improved by changes to policies and practices based on evidence.

And we engage the public so that people are more aware of science and health research, and feel able to make the most of it in their own lives".[5]

Wellcome's purpose and goals make clear the organisation is heavily reliant on and involved with the use of data. Through its activities data is collected, stored, organised, shared and analysed in ways that are clearly related to its purposes. For example, Wellcome deals with data specifically relevant to current major health challenges.

2. HealthOne – https://healthone.org.nz/

HealthOne was set up after the Christchurch earthquake. It aims to change patient journeys by providing quality information at the point of care to inform safe and effective care plans by healthcare providers.

5. https://wellcome.ac.uk/what-we-do

HealthOne's website lists some of the benefits of this as:

- *Better, safer care*
- *More complete health information is available to those who are providing your care (especially during an emergency)*
- *You and your healthcare provider are able to make more informed decisions about your care*
- *We are not relying on you to remember your medical history and the prescribed medicines you take*
- *We waste less of your time as you only need to provide information once, and because your test results are available we don't need to repeat tests.*[6]

Copyright HealthOne™ 2018

HealthOne's whole raison d'etre involves the use of data to provide useful information to specified individuals in particular situations. The data it collects are specifically aligned with its purpose of changing patient journeys by informing safe and effective care plans by healthcare providers.

3. Lower Hutt Foodbank – lowerhuttfoodbank.org.nz

Lower Hutt Foodbank was started in 1986 with the aim of better serving the less privileged members of the community.

The Foodbank *"provides emergency food parcels, free to families and individuals within the Hutt Community who are in true need.*

The Lower Hutt Community Foodbank works closely with other support organisations within the Hutt community to provide assistance to those in need beyond just a food parcel. A shortage of food within a household is generally a symptom of other problems which need to be dealt with".[7]

Lower Hutt Foodbank collects client data that enables it to determine the assistance each family requires, aligned with its purpose of relieving poverty and hardship in Lower Hutt.

How do these organisations align with values?

Each of these organisations have a value, either explicitly or implicitly, of sharing.

For example, Wellcome Trust has allied with the Open Data Initiative in the UK and Longitude 174 to make possible the sharing of data across a wide range of pharmaceutical industry companies, public health organisations and other bodies involved in anti-microbial resistance (AMR) initiatives to provide a *"more informative, coherent and openly accessible AMR data landscape".*[8]

Among the aims of this approach is reducing or removing the barriers to sharing data and information so as to encourage data re-use and common methodological and metadata standards. By enabling collaboration of this sort, advances in the fight against microbial resistance to drug treatments are being made.

In the case of HealthOne, if the value of sharing data had not been part of the essence of the proposal from the beginning, it is hard to see how the purpose of changing the patient journey/experience could have been advanced.

The Lower Hutt Foodbank embraces the value of sharing in the sense that they appeal to corporate and individual donors to donate food and other household items so that these can then in turn be shared with those in need.

In addition, Lower Hutt Foodbank seeks permission from its clients to share data with other key support agencies when this is deemed to be required and appropriate in order to meet clients' broader needs. Partners include health providers, budgeting services and counselling services. This helps them to further advance the aim of relieving poverty and hardship in Lower Hutt.

Questions

Questions governors may ask to determine whether their data strategy aligns to the organisation's purpose and values.

- What is the organisation's purpose? How can the way in which data is handled contribute to achieving this purpose?
- What are the organisation's values? Does the way in which data is handled align with and promote these?
- How are the organisation's purpose and values reflected in the data strategy?
- Does the organisation work with other organisations to share data for a common purpose?

6. https://healthone.org.nz/home/about-healthone
7. https://www.lowerhuttfoodbank.org.nz/what-we-do.html
8. https://wellcome.org/sites/default/files/antimicrobial-resistance-surveillance-sharing-industry-data.pdf

2B

Data acquisition

Data acquisition is the process of collecting information from inside or outside the organisation and using it for business value.

Collecting the right information is a vital component of any data strategy — with this in place, an organisation will have the relevant data to undertake the kind of analysis to generate the insights that will help drive better business decisions, improve processes and provide clients / customers with a better product or service.

A key part of being able to reuse data is capturing 'metadata' — data about the data that is collected, such as who collected it, for what purpose, when and how. Capturing metadata makes it easier for a wide range of people to be able to understand and use the data collected.

Data acquisition also carries risk. Governors need to be sure customers / clients have given informed consent to both the collection of their data, and its use (or reuse). There are many examples of how organisations have taken this for granted, to their detriment.

Failure to obtain informed consent

In January 2019, Google was fined €50m (NZ$85m) by the French data-privacy regulator, Commission Nationale de L'Information et des Libertés (CNIL), for failing to provide users with transparent and understandable information on its data use policies, and for failing to meet the standards for consent in the General Data Protection Regulation (GDPR).

The GDPR, which came into force in May 2018, and applies to any organisation that handles the personal data of anyone living in the European Union, requires that consent be freely given, specific, informed and unambiguous, and given by a statement or an affirmative action.

Questions

Questions governors may ask to determine the organisation's data acquisition approach.

Organisational value and risk

- What data does the organisation hold? Is there a data audit that reveals what data is held?
- What is the quality / completeness / timeliness of the data being collected? Does the quality of data change with time or by source? How is this managed?
- What is the rationale behind this data collection — what business value will this data deliver?
- Is the rationale behind the data collection clear to individuals whose data is being collected?
- What is in place to guide the ethics surrounding what data the organisation collects?
- What channels are being used to acquire data? (e.g. surveys, Client Management Systems (CMS), financial systems, employee-entered, websites and apps). Are these straightforward to operate, and do they capture data in a way that makes it easy to use?
- Is the organisation capturing metadata (i.e. data about the data it collects)?
- Can customers / clients opt out of sharing their data? Is it easy to find out how to do this?

Compliance

- Has the organisation identified the legislation and regulation relevant to its data acquisition? Does it comply with these?
- Does the organisation adhere to national or international standards for how data and metadata is collected?
- What are the approval processes for new data acquisition? Do these take into account the sensitivity of the data being proposed for acquisition?
- What assurance processes are in place to check the quality and completeness of the data being collected?
- What permissions / controls are sought from individuals whose data is being collected? Do these cover future as well as current uses of the data?

2C

Data management

Data management covers the way in which an organisation **stores, maintains, integrates and disposes** of the data it collects.

Most organisations have data stored in lots of different places — e.g. in financial systems, human resources systems, customer relationship management systems, and spreadsheets. These systems may be housed on a hard drive on a single machine, a USB chip, on the organisation's servers and / or outsourced to another organisation providing cloud services.

In order to be able to extract maximum value from data, it needs to be easily retrieved so that it can be used, reused and combined in ways that generate new insights.

Data also needs to be stored, safely and effectively protected, and backed up in the event of a server outage. There also needs to be a plan in place to manage the risk of a data breach, including disaster recovery, a business continuity plan, and a communications plan.

Governors should consider how often their organisation's data will need to be updated, and the process through which this will happen, including whether customers will have access to and editing rights over their own data.

It is also important to consider how an organisation will safely dispose of data, for example where permissions cover a time-limited period, or where a customer withdraws consent for their data to be held.

Responding to a cyber-attack

A.P. Moller — Maersk is an integrated transport and logistics company and is a global leader in container shipping and ports. The company employs roughly 76,000 people across operations in 130 countries.

On 27 June 2017, Maersk was hit by NotPetya malware as part of a global cyber-attack.

Maersk acted swiftly by implementing business continuity plans and shutting down a number of systems to help contain the issue, and established internal and external communications channels to manage the crisis.

As a result of the attack, Maersk had to reinstall 45,000 desktops, and 4,000 servers, at significant cost to the organisation. However, the swift response meant that Maersk was able to resume taking online bookings eight days after the attack, although some terminals had to be handled manually.

Managing the risk of privacy breach

In 2011 a significant data privacy breach at ACC saw the unauthorised disclosure of the confidential details of over 6,000 clients. An independent review found 'there needs to be clear recognition that reducing privacy breaches begins with addressing all aspects of information governance'.

The review made a number of recommendations to be implemented to avoid future privacy breaches.

These included:

- strengthening board governance of personal information management
- strengthening privacy leadership and strategy
- enhancing the privacy programme, including by investing in specialist privacy roles
- strengthening the organisational culture
- strengthening privacy accountability
- reviewing and updating business processes and systems.

Questions

Questions governors may ask when determining the organisation's data management approach.

Organisational value and risk

Storage

- How and where is data stored? If it is in the cloud, where is the server? New Zealand? Australia? Elsewhere? Does location matter?
- How are systems backed up?
- How is security managed? How safe is information from being lost, stolen or hacked? Are there different levels of security depending on the sensitivity of the information?
- Is anyone in the organisation running mission-critical services using a laptop or PC with one hard drive? What are the systems for keeping tabs on this?
- Is the data stored in a way that allows it to be lifted and shifted into a new system? At what cost?
- Can historical data be kept? How much is it going to cost to do this?

Maintenance

- How regularly does data need to be updated in order for it to be useful?
- Can customers themselves access information of relevance to them to help them or to keep information up-to-date?

Integration

- Is data well integrated with IT systems so that they can become smarter, or automated?

Disposal

- Are there processes in place for disposing of data in a safe and responsible way?
- Can clients request the disposal of their data, and what is the process for responding to a request?

Compliance

- Has the organisation identified the legislation and regulation relevant to its data management? Does it comply with these?
- Does the organisation adhere to national or international data standards for how data and metadata is stored?
- What are the implications of the location of the organisation's data storage server? For example, what legislative framework applies in the place where the data is stored?
- Should the organisation implement 'Privacy by Design' standards endorsed by the Privacy Commissioner?[9]
- Does the plan include communications, a disaster recovery and business continuity?

9. https://www.privacy.org.nz/assets/Uploads/Twoblacklabs-Info-Sheet-Privacy-by-Design-v1.pdf

2D

Data use and analysis

Data use and analysis covers the extraction, modelling and reuse of data in order to discover useful information, inform and draw conclusions and support decision-making. This is the key to gaining insight from an organisation's data to drive business value.

Before collecting and using data, governors need to ensure that an organisation has the necessary social licence to do so. Effective data use also requires an organisation to have people with the right analytical capability, systems and channels to ensure that insights are used by decision-makers.

When thinking about how to govern data use, governors need to consider how they can be assured about how the organisation's data is analysed and interpreted. Analysts who 'just do modelling' can put an organisation at risk unless there is good governance around data use and interpretation. An example of how risky this can be can be found at https://www.stuff.co.nz/national/health/70647353/

Social Licence

When people trust that their data will be used as they have agreed, and accept that enough value will be created, they are likely to be more comfortable with its use. This acceptance is referred to as 'social licence'. Following conversations with New Zealand people and communities, the Data Futures Partnership has developed a set of Social Licence Guidelines that organisations seeking to use personal data can use to improve levels of comfort in the use of data.

These Guidelines are organised around eight key questions that New Zealand people want answered about responsible data use. These questions relate particularly to expectations of transparency, accountability and control. The Guidelines, and further information about the importance of trust in data use, can be found at http://www.nzdatafutures.org.nz/

Questions

Questions governors may ask to determine the organisation's data use approach:

Organisational value and risk

Extraction

- Who has access to information in the organisation? Is it only the purview of the function where it is collected, or can other people use it to answer different questions? Under what conditions?
- Is information presented in a way that is easy to interpret, and where it is difficult to make mistakes when reading it?
- How many and what kinds of channels exist to get information out to where it is best used? What, if any, should be the constraints on this?

Modelling

- Does the organisation have the right kind of expertise to interpret and make valid inferences from its data?
- Are any algorithms used in the data analysis and are they robust?
- Do analysts understand the inherent biases in the way the organisation collects information and how this will impact their models?
- Who is supervising the analysts to ensure they stay on-mission?
- What are the current services and processes which have routine high-cost or high-risk decision-making that could be automated?
- What services and processes could become self-learning, so they are continually improving over time?

Reuse

- What use cases are there to reuse data collected in one place for a different purpose in another place?
- Is the strategic planning process identifying new and possibly high-value use cases for existing data within the organisation? How are strategic planning processes capturing clients' views about data reuse?

Compliance

- Has the organisation identified the legislation and regulation relevant to its data management? Does it comply with these?
- What ethical monitoring or controls are in place? Are they adequate?
- Does the organisation have the necessary social licence for data use and reuse?
- Does the organisation have the right permissions and consent for the reuse of data for a different purpose from the one for which it was collected?

2E

Data sharing

Data sharing involves the organisation that holds data making it available to other organisations.

Responsible data sharing between organisations can enable those organisations to better understand their clients, building a more comprehensive picture of their needs and leading to better service design. Organisations may also derive value from selling data.

Conversely, irresponsible data sharing may be detrimental to client trust and social licence. Irresponsible data sharing includes sharing that breaches privacy or consent, or sharing with organisations whose mission, purpose and values are not compatible with those of the organisation holding the data.

In order to be able to share data, organisations need to have consent frameworks in place that enable the data to be used in ways that may be different from those to which the user originally signed up.

Governors need to ensure that data sharing agreements with partner organisations include principles designed to maintain client trust, as well as setting out how the organisations will work together to audit data, resolve disputes and disperse cost and value.

Sharing data to improve outcomes

The example of the Lower Hutt Foodbank described on page 12 demonstrates how an organisation can share its data with other organisations working in related fields in order to improve outcomes for clients. In this case, the Lower Hutt Foodbank recognises that a shortage of food within a household is often a symptom of other problems that need to be addressed.

Clients are asked to sign a privacy waiver that allows the Lower Hutt Foodbank to share their details with other key support agencies where this is deemed necessary and appropriate. Partner organisations include those offering mental health support, budgeting advice and healthcare. In this way, the foodbank supports better outcomes for clients across a range of needs.

Questions

Questions governors may ask to determine the organisation's data sharing approach:

Organisational value and risk

- Is there an opportunity to partner across organisations for shared value?
- Are the mission, purpose and values of potential partner organisations compatible with those of the organisation holding the data?
- What will the data relationship with the partner organisation(s) be — e.g. auditing arrangements, managing privacy and consent, dispersing cost and value.
- Can data be shared in order to reduce the burden on customers / clients to share the same information with multiple organisations / agencies?
- Can the organisation broadcast some information for its own value and that of its customers?
- Can the organisation sell data for its own value and that of its customers?

Compliance

- Has the organisation identified the legislation and regulation relevant to its data sharing? Does it comply with these?
- Do the consent frameworks support data sharing for innovative use?
- What ethical or monitoring controls are in place? Are they adequate?
- Does the organisation have the necessary social licence to share data?

3

Monitoring performance and compliance

Once a data strategy has been agreed, it is ongoing responsibility of governors to actively monitor the way in which the organisation's management and staff are carrying out the strategy and complying with legislation and regulatory requirements about data. Governors should also be continually assessing how well the data strategy is supporting the organisation to deliver on its objectives, building and maintaining the trust of customers/clients and upholding the organisation's values.

In order to do this effectively, it is necessary to consider:

- the data-related skills and knowledge that exists amongst the group of governors
- what organisational infrastructure is needed to support a data strategy (an example of which can be found on page 6)
- the processes that need to be put in place to monitor performance and compliance
- the information that will be needed in order to be able to assess performance and plan for the future.

Questions

Skills and knowledge

Questions governors may ask when considering the data skills and knowledge that are required at a governance level:

- What skills and expertise relating to data exist among the group of governors? Are there any gaps?
- Is external support needed to upskill board members and/or increase their knowledge?
- How do the governors stay current with developments in the data field? What legislation and regulations relating to data does the organisation need to comply with? Are these being adhered to? How can governors assure themselves of this?

Processes

Questions governors may ask to determine the data processes the organisation needs:

- What are the communication channels between management/staff and the governors about the data strategy?
- How frequently will governors review and refresh the data strategy?
- How will governors be able to refer back to previous decisions regarding the data strategy? (e.g. will there be a data use/strategy decision register)?
- How will governors hold different parts of the organisation to account for their part in the data system?
- How will governors account to customers/clients/stakeholders for the organisation's performance against the data strategy?
- How will the organisation be transparent with their customers, the market and the media?

Information needs

Questions governors may ask to determine the organisation's information needs with regard to data:

- What information is needed in order to understand performance against the data strategy? What needs to be monitored regularly? What can be seen less frequently?
- What information is needed to monitor compliance with legislation/regulation?
- What information is needed to ensure that the information is received in a standardised format?
- Who is responsible for providing the governors with the information they need?
- How can governors be assured of the quality of the data they are seeing?
- What information do the governors need to see to provide evidence of closer relationships and understanding of the roles between operations, IT and analytics teams?

Question summary

Purpose and values

Questions governors may ask to determine whether their data strategy aligns to the organisation's purpose and values.

- What is the organisation's purpose? How can the way in which data is handled contribute to achieving this purpose?
- What are the organisation's values? Does the way in which data is handled align with and promote these?
- How are the organisation's purpose and values reflected in the data strategy?

Data acquisition

Questions governors may ask to determine the organisation's data acquisition approach:

Organisational value and risk

- What data does the organisation hold? Is there a data audit that reveals what data is held?
- What is the quality / completeness / timeliness of the data being collected? Does the quality of data change with time or by source? How is this managed?
- What is the rationale behind this data collection — what business value will this data deliver?
- Is the rationale behind the data collection clear to individuals whose data is being collected?
- What is in place to guide the ethics surrounding what data the organisation collects?
- What channels are being used to acquire data? (e.g. surveys, CMS, financial systems, employee entered, websites and apps)
  Are these straightforward to operate, and do they capture data in a way that makes it easy to use?
- Is the organisation capturing metadata (i.e. data about the data it collects)?
- Can customers / clients opt out of sharing their data? Is it easy to find out how to do this?

Compliance

- Has the organisation identified the legislation and regulation relevant to its data acquisition? Does it comply with these?
- Does the organisation adhere to national or international data standards for how data and metadata is collected?
- What are the approval processes for new data acquisition? Do these take into account the sensitivity of the data being proposed for acquisition?
- What assurance processes are in place to check the quality and completeness of the data being collected?
- What permissions / controls are sought from individuals whose data is being collected? Do these permissions cover future as well as current uses of the data?

Data management

Questions governors may ask to determine the organisation's data management approach:

Organisational value and risk

Storage

- How and where is data stored? If it is in the cloud, where is the server? New Zealand? Australia? Elsewhere? Does location matter?
- How are systems backed up?
- How is security managed? How safe is information from being lost, stolen or hacked? Are there different levels of security depending on the sensitivity of the information?
- Is anyone in the organisation running mission critical services using a laptop or PC with one hard drive? What are the systems for keeping tabs on this?
- Is the data stored in a way that allows it to be lifted and shifted into a new system? At what cost?
- Can historical data be kept? How much is it going to cost to do this?

Maintenance

- How regularly does data need to be updated in order for it to be useful?
- Can customers themselves access information of relevance to them to help them or to keep information up-to-date?

Integration

- Is data well integrated with IT systems so that they can become smarter, or automated?

Disposal

- Are there processes in place for disposing of data in a safe and responsible way?
- Can clients request the disposal of their data, and what is the process for responding to a request?

Compliance

- Has the organisation identified the legislation and regulation relevant to its data management? Does it comply with these?
- Does the organisation adhere to national or international data standards for how data and metadata is stored?
- What are the implications of the location of the organisation's data storage server? For example, what legislative framework applies in the place where the data is stored?
- Should the organisation implement 'Privacy by Design' standards endorsed by the Privacy Commissioner?[10]
- IDoes the plan include communications, a disaster recovery and business continuity?

Data use and analysis

Questions governors may ask to determine the organisation's data use approach:

Organisational value and risk

Extraction

- Who has access to information in the organisation? Is it only the purview of the function where it is collected, or can other people use it to answer different questions? Under what conditions?
- Is information presented in a way that is easy to interpret, and where it is difficult to make mistakes when reading it?
- How many and what kinds of channels exist to get information out to where it is best used? What, if any, should be the constraints on this?

Modelling

- Does the organisation have the right kind of expertise to interpret and make valid inferences from its data?
- Are any algorithms used in the data analysis and are they robust?
- Do analysts understand the inherent biases in the way the organisation collects information and how this will impact their models?
- Who is supervising the analysts to ensure they stay on-mission?
- What are the current services and processes which have routine high-cost or high-risk decision-making that could be automated?
- What services and processes could become self-learning, so they are continually improving over time?

Reuse

- What use cases are there to reuse data collected in one place for a different purpose in another place?
- Is the strategic planning process identifying new and possibly high-value use cases for existing data within the organisation? How are strategic planning processes capturing clients' views about data reuse?

Compliance

- Has the organisation identified the legislation and regulation relevant to its data use? Does it comply with these?
- What ethical monitoring or controls are in place? Are they adequate?
- Does the organisation have the necessary social licence for data use and reuse?
- Does the organisation have the right permissions and consent for the reuse of data for a different purpose from the one for which it was collected?

Data sharing

Questions governors may ask to determine the organisation's data use approach:

Organisational value and risk

- Is there an opportunity to partner across organisations for shared value?
- Are the mission, purpose and values of potential partner organisations compatible with those of the organisation holding the data?
- What will the data relationship with the partner organisation(s) be — e.g. auditing arrangements, managing privacy and consent, dispersing cost and value.
- Can data be shared in order to reduce the burden on customers / clients to share the same information with multiple organisations / agencies?
- Can the organisation broadcast some information for its own value and that of its customers?
- Can the organisation sell data for its own value and that of its customers?

10. https://www.privacy.org.nz/assets/Uploads/Twoblacklabs-Info-Sheet-Privacy-by-Design-v1.pdf

Compliance

- Has the organisation identified the legislation and regulation relevant to its data sharing? Does it comply with these?
- Do the consent frameworks support data sharing for innovative use?
- What ethical or monitoring controls are in place? Are they adequate?
- Does the organisation have the necessary social licence to share data?

Monitoring performance and compliance

Skills and knowledge

Questions governors may ask to determine the organisation's data skills and knowledge:

- What skills and expertise relating to data exist amongst the group of governors? Are there any gaps?
- Is external support needed to upskill board members and / or increase their knowledge?
- How do the governors stay current with developments in the data field?
- What legislation and regulations relating to data does the organisation need to comply with? Are these being adhered to? How can governors assure themselves of this?

Processes

Questions governors may ask to determine the organisation's data processes:

- What are the communication channels between management / staff and the governors about the data strategy?
- How frequently will governors review performance against the data strategy?
- How frequently will the governors review and refresh the data strategy?
- How will governors be able to refer back to previous decisions regarding the data strategy? (e.g. will there be a data use / strategy decision register)?
- How will governors hold different parts of the organisation to account for their part in the data system?
- How will governors account to customers / clients / stakeholders for the organisation's performance against the data strategy?
- How will the organisation be transparent with their customers, the market and the media?

Information needs

Questions governors may ask to determine the organisation's data information needs:

- What information is needed in order to understand performance against the data strategy? What needs to be monitored regularly? What can be seen less frequently?
- What information is needed to monitor compliance with legislation / regulation?
- What templates are needed to ensure that the information is received in a standardised format?
- Who is responsible for providing the governors with the information they need?
- How can governors be assured of the quality of the data they are seeing?
- What information do the governors need to see to provide evidence of closer relationships and understanding of the roles between operations, IT and analytics teams?

Legislation and Industry Standards*

Industry Standards

Organisations may be required to comply with particular industry-specific data standards. These include:

- New Zealand Data and Information Management Principles, which apply to data and information held by government
- Health Information Standards, for the health sector
- The New Zealand Farm Data Code of Practice, for the farming industry
- NZ Asset Metadata standards, for potable, waste and storm water (3-waters) and building infrastructure across New Zealand.

ISO Standards

Quality management standards cover everything an organisation does to manage its processes and activities. Implementing a quality management standard offers benefits for companies across industries, regardless of their size. ISO international standards are the most widely used quality management standards around the world. ISO 8000 is the global standard for Data Quality and Enterprise Master Data. It describes the features and defines the requirements for standard exchange of Master Data among business partners.

Human Rights

New Zealand is committed to the Universal Declaration of Human Rights and has ratified the International Covenant on Civil and Political Rights (ICCPR), both of which contain a right to privacy. The New Zealand Human Rights Act 1993 sets out a complaints mechanism for people who believe they have been discriminated against. In the context of the collection of 'big data' and the application of algorithms to that data, an individual could complain to the Commission if they believe that they have been discriminated against.

Privacy Act 1993

The Privacy Act 1993 covers both the public and private sectors in New Zealand. It promotes and protects individual privacy and establishes principles in relation to:

- the collection, use and disclosure of information relating to individuals
- access by individuals to data held about them.

At the heart of the Privacy Act are 12 privacy principles covering:

- collection of personal information (principles 1– 4)
- storage and security of personal information (principle 5)
- requests for access to and correction of personal information (principles 6 & 7, plus parts 4 & 5 of the Act)
- accuracy of personal information (principle 8)
- retention of personal information (principle 9)
- use and disclosure of personal information (principles 10 & 11), and
- using unique identifiers (principle 12).

Public Records Act

The Public Records Act 2005 (PRA) establishes a regulatory framework for information and records management in the public sector. Section 3 of the PRA sets out the purpose and the relevant regulatory provisions from section 3 are included below.

b. to provide for the role of the Chief Archivist in developing and supporting government recordkeeping,

c. to enable the Government to be held accountable by,

   i. ensuring that full and accurate records of the affairs of central and local government are created and maintained,

   ii. to provide for the preservation of, and public access to, records of long-term value,

d. to enhance public confidence in the integrity of public records and local authority records,

e. to provide an appropriate framework within which public offices and local authorities create and maintain public records and local authority records, as the case may be.

European Union General Data Protection Regulation (GDPR)

Any New Zealand organisation that handles the personal data of anyone who lives in the European Union must comply with the GDPR. The two key principles of the GDPR are that organisations collecting personal data should:

- collect personal data with a clearly defined purpose, and only use it for the purpose for which it was collected
- only collect the information that they need.

The GDPR creates obligations for the organisations to which it applies, these are designed to protect individual rights (such as the right to access, the right to erasure and the right to correct and object) and manage risk (such as the requirement to appoint a Data Protection Officer).

Links to each act are on page 28-29

* This is not an exhaustive list of legislation and standards.

Glossary and key terms

Algorithms

are a set of mathematical instructions designed to perform a specific task. This can be a simple process, such as multiplying two numbers, or a complex operation, such as playing a compressed video file. Search engines use proprietary algorithms to display the most relevant results from their search index for specific queries.

Artificial intelligence (AI)

is the simulation of human intelligence processes by machines, especially computers. These processes may include learning, speech recognition and reasoning. 'Machine learning' and 'deep learning' are subsets of artificial intelligence that use particular techniques to enable machines to perform tasks.

Bitcoins

is a cryptocurrency, a form of electronic cash. It is a decentralised digital currency without a central bank or single administrator that can be sent from user to user on the peer-to-peer bitcoin network without the need for intermediaries.

Blockchain

is designed to be resistant to modification of the data. It is an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way. For use as a distributed ledger, a blockchain is typically managed by a peer-to-peer network collectively adhering to a protocol for inter-node communication and validating new blocks. Once recorded, the data in any given block cannot be altered retroactively without alteration of all subsequent blocks, which requires consensus of the network majority.

Closed data

is data that can only be accessed by its subject, owner or holder.

A closed loop learning system

is a system that links analytics to front-line decision making, creating feedback loops that can track the impact and outcome of decisions to support ongoing improvements.

The cloud

is a means of storing and accessing computer, IT, and software applications through a network connection, rather than through a computer's hard drive.

Club goods

are goods that are not used up or devalued by one or more person's use, up until the point where continued use causes the use of the goods to become congested. They are, however, excludable, which means that people can be denied access to them or use of them.

Confidentialised data

is data from which identifying information is removed, and statistical techniques such as combining two or more groups (aggregation) or changing the number of respondents in a group (e.g rounding or suppressing small numbers) are applied, to protect individual identities.

Cyber security

is the protection of computers, networks, programmes and data from unauthorised access.

Data

are facts or statistics that have not yet been processed or dealt with. Data can be in the form of numbers, words, sounds or images.

Data acquisition

is the gathering of source data.

Data analysis

is a process of inspecting, cleansing, transforming, and modelling data with the goal of discovering useful information, informing conclusions, and supporting decision-making.

A data asset

is any entity that is comprised of data. For example, a database is a data asset that is comprised of data records. A data asset may be a system or application output file, database, document, or web page. A data asset also includes a service that may be provided to access data from an application, such as a service that returns individual records from a database.

Data disposal

is the process of destroying data so that is completely unreadable and cannot be accessed or used for unauthorised purposes.

Data-driven

means determined by, or dependent on, the collection and analysis of data.

Data hygiene

is the process of detecting and correcting or removing data errors.

Data and information security

is the planning, development and execution of security policies and procedures to provide proper authentication, authorisation, access and auditing of data and information assets.

Data integration

is the process of joining up different pieces of information to create new knowledge. For example, a tech company could integrate my medical record with a heart monitor in my watch and with my banking data to predict a stroke.

A data lake

is a system or repository of data stored in its natural format. It is often the first repository for data when it is collected by an organisation, and usually holds data in an unstructured way, with no hierarchy or organisation amongst the pieces of data. This contrasts with a data warehouse, which stores data in an organised manner according to a pre-determined structure.

Data maintenance

is the set of tasks performed to improve a database. This may include correcting and updating data.

Data mining

is a process used to extract usable data from a larger set of any raw data.

Data modelling

is a representation, using diagrams, text and symbols, of the way in which data flows through the architecture of a database or software application, to show how data is connected, stored, accessed and processed.

A data protocol

is a set of rules that governs the communications between computers on a network.

Data provenance

refers to the records of the inputs, entities, systems, and processes that influence data of interest, providing a historical record of the data and its origins.

Data quality

refers to the condition of data and its fitness to serve its purpose in a given context. The quality of data is determined by factors such as accuracy, completeness, reliability, relevance and how up to date it is.

Data reuse

(including data re-purposing) is using data to do something other than the purpose for which it was originally collected. This raises questions about the permissions under which the data was first collected.

Data sharing

involves the holder of data making the data available to other organisations or individuals.

Data standards

are the rules by which data is described and recorded. Standards make it easier to create, share, and integrate data by establishing a clear understanding of how data is represented. Data standards lower the cost and risk of misinterpreting data and increase the ability to use it for multiple purposes.

Data storage

is a way of keeping digital data in memory storage for use by a computer.

A data warehouse

is repository that stores data in an organised manner according to a predetermined structure.

De-identified data

is data from which all personally-identifiable data has been removed to protect individual identities.

GDPR

the General Data Protection Regulation 2016/679 – is a regulation in EU law on data protection and privacy for all individuals within the European Union and the European Economic Area. It also addresses the export of personal data outside the EU and EEA areas, making it relevant in New Zealand.

Governance

refers to the oversight of an organisation – how it is run, directed and controlled. Governance is the responsibility of governors, who can include boards of directors, trustees, owners and partners.

The Government Chief Data Steward (GCDS)

is responsible for overseeing the development of policy, infrastructure, strategy, and planning, to develop capability and the use of data across government.

Hacking

is the gaining of unauthorised access to data in a system or computer.

Hardware

refers to the physical parts of a computer and related devices. Internal hardware devices include motherboards, hard-drives and RAM. External hardware devices include monitors, keyboards, mice, printers and scanners.

Insight systems

are the systems that provide the channel through which data collection and analysis informs decision-making.

ISO Standards

is the International Organisation for Standardisation that develops and publishes international standards. ISO 8000 is the global standard for data quality.

Machine learning

is a subset of artificial intelligence (AI) that uses statistical techniques to enable machines to learn and improve from experience without being explicitly programmed.

Master data

represents the business objects that contain the most valuable, agreed upon information shared across an organisation. It can cover relatively static reference data, transactional, unstructured, analytical, hierarchical and metadata.

Meta-data

is a set of data that describes and gives information about other data. Metadata enables data to be better interpreted, supports business continuity, and allows data to be reused or shared.

Open data

is data that can be used, reused and freely distributed by anyone.

Orphan Databases

are storage places used by individuals to store data. Often only the individuals who use them know they exist, and they are not backed up.

Personal data

is any information relating to a person who can be identified, either directly or indirectly. It may include name, contact details, location details and IP addresses.

Platform business

is a business model that creates value by facilitating exchanges between two or more interdependent groups, usually consumers and producers. In order to make these exchanges happen, platforms harness and create large, scalable networks of users and resources that can be accessed on demand.

Pseudonymous data

is personal information for which one or more identifying fields within a data record is replaced by an artificial identifier, or pseudonym, making it impossible to identify the individual whose data is being held without the use of additional information.

Self-learning system

is an adaptive system that uses algorithms to support a learning process based on trial and error.

Simulation modelling

is the process of creating and analysing a digital prototype of a physical model to predict its performance in the real world. Simulation modeling is used to help designers and engineers understand whether, under what conditions, and in which ways a part could fail and what loads it can withstand.

Social licence

refers to people's trust that their data will be used as they have agreed, and their acceptance that this creates sufficient value to justify the use.

Software

are the programmes and other operating information used by a computer.

Strategy

is the course of action, set of decisions or plan that defines how an organisation will achieve its vision and purpose in a way that is consistent with its values.

Use case

is a specific situation in which a product or service could potentially be used.

Data maturity assessment tool*

This tool describes the five stages of data maturity and outlines indicators that governors can expect to see at the different stages in relation to data acquisition, data management and data use and analysis. There are five stages of increasing data maturity — fragmented, basics, insights-led, information-driven and partner-ready.

Fragmented stage

Description

Organisations at the fragmented stage pay little attention to whether and how their data use aligns with their purpose and values. They only use data for the primary purpose for which it was collected, and view it in a disconnected way, with no consideration of a data system as a whole, or the value that data could generate. Silos develop, and gatekeepers may jealously guard their data domains. With nobody thinking beyond or between the silos, opportunities and value from making data connections are lost.

Governors of organisations at this stage of maturity focus on overcoming resistance to change, building the investment case for insights, and the need to develop procedures, practices, cultural norms and compliance for a data system.

Indicators

Data acquisition	• Acquires data in a fragmented way for one-off purposes • Does not have an overview of the data it holds
Data management	• Does not know where data is stored • Does not collect metadata • Cannot join data collected independently
Data use and analysis	• Uses data in a fragmented way • Provides one-off pieces of insight of value to specific parts of the organisation • Insight from data is not systematically part of the way the organisation makes decisions

Basics stage

Description

Once an organisation is ready to move on from the fragmented stage, it can think about getting the basics right. These organisations are beginning to think about aligning their data use with their purpose and values and moving from domain-specific data use to using data more widely across the organisation. They have general organisational capability and good processes around data acquisition and management. There may be a centralised analytics team who generate compelling, high-value insights.

Governors of organisations at this stage of maturity need to focus on building good practice, maintaining the impetus for change and demonstrating the value of investment in insights.

Indicators

Data acquisition	• Acquires data through standardised processes
Data management	• Manages data through standardised processes • Can reuse data • Knows where different datasets are stored • Metadata standards are in place • Has processes in place for updating and disposing of data
Data use and analysis	• Uses data-generated insight through standardised processes • A centralised analytics team is asking and answering questions relevant to the organisation's mission • Knows the questions the organisation needs to ask, and can answer, using the data it collects and manages

Insights-led stage

Description

At the insights-led stage, an organisation is beginning to think strategically about how data can further the organisation's purpose, strengthen its values and be used to drive business value. High-quality data analysis generates insights which underpin decision-making.

Governors of organisations at this stage of maturity focus on the need to build processes, technology and capability to integrate data insights into organisational processes, and the ongoing need to be able to demonstrate the value of investment in insights.

* The Data Maturity Assessment Tool is adapted from original material by James Mansell.

Indicators

Data acquisition	• Considers what data the organisation needs to acquire to drive value and understand return on investment
Data management	• Considers how to organise data to drive value • Makes data as accessible as possible
Data use and analysis	• Considers how the data the organisation uses can best drive value • Turns insights into action to realise value • Uses high-end analytics teams for mission-critical questions

Information-driven stage
Description

Information-driven businesses integrate and manage data to become customer-centric, using insights generated from advanced analysis to continuously improve outcomes for clients / customers. They also use data insights to scrutinise their business model and to underpin innovation.

Governors of information-driven organisations focus on how to integrate insights with front line practice, gaining customer trust and consent, integrate data acquisition and use with the organisation's IT system and create customer-centred teams.

Indicators

Data acquisition	• Considers what data is required across organisations to grow the market • Considers what data is required to generate insights to improve offerings for clients
Data management	• Considers how data can be managed across the system for the best results for clients / customers
Data use and analysis	• Considers how data can be interpreted across the system for best results for clients / customers

Partner-ready stage
Description

If an organisation's data use is wholly driven by a deep understanding of how data can further its purpose and values, and if the organisation can truly drive its decisions through data and organise its systems so that it can learn quickly what works and what doesn't, it can begin to think about who it can partner with to expand the market.

Unlike many other types of assets, which can only be used once, and then are gone (such as money), data can be reused multiple times, for different purposes. As data cannot be used up, sharing with diverse interests has the potential to increase its value, rather than reducing it. By partnering with other organisations, an organisation can provide a better, more high trust service to its customers.

Governors of partner-ready organisations focus on negotiating partnering agreements, including data-sharing principles that maintain customer trust, dispute resolution, and holding close to the organisation's mission.

Indicators

Data acquisition	• Safely shares data with organisations in the same or related markets to improve offerings for clients
Data management	• Shares data in a safe way with organisations in the same market so to improve offerings for clients
Data use and analysis	• Works with organisations in the same market in a safe way to generate insights to improve the offering for clients

Existing frameworks and useful links

The links included here contain further information, primarily from Aotearoa New Zealand that may be be useful, depending on the nature of your organisation's work. In each case, the references include guidance and advice on how to think about, and adopt, relevant practices that relate to the respectful use of people's information.

Data Guidelines and Policies

Trustworthy AI in Aotearoa
https://data.govt.nz/assets/data-ethics/algorithm/Trustworthy-AI-in-Aotearoa-March-2020.pdf

Data Protection and Use Policy
https://dpup.swa.govt.nz

Data strategy and roadmap for New Zealand
https://www.data.govt.nz/about/data-strategy-and-roadmap-setting-the-direction-for-new-zealands-data/data-strategy-and-roadmap/

Guidance on sharing information across the child welfare and protection sector
https://www.orangatamariki.govt.nz/assets/Uploads/Working-with-children/Information-sharing/Information-sharing-Guidance-OT-Act-1989.pdf

Privacy, Human Rights & Ethics Framework (PHRaE)
https://www.msd.govt.nz/documents/about-msd-and-our-work/work-programmes/initiatives/phrae/phrae-on-a-page.pdf

Algorithm Charter for Aotearoa New Zealand
https://data.govt.nz/use-data/data-ethics/government-algorithm-transparency-and-accountability/algorithm-charter/

Ngā Tikanga Paihere
https://data.govt.nz/use-data/data-ethics/nga-tikanga-paihere/

Principles for the safe and effective use of data and analytics
https://privacy.org.nz/assets/Uploads/Principles-for-the-safe-and-effective-use-of-data-and-analytics-guidance3.pdf

Data information from Government and other relevant agencies

StatsNZ
https://www.stats.govt.nz/about-us/data-leadership/

ACC
https://www.acc.co.nz/privacy/privacy-notice-your-personal-and-health-information/?smooth-scroll=content-after-navs

Department of Internal Affairs
https://www.dia.govt.nz/Legal-Privacy-Index

Ministry of Justice
https://www.justice.govt.nz/justice-sector-policy/key-initiatives/privacy/

Office of the Privacy Commissioner
https://privacy.org.nz/privacy-for-agencies/your-obligations

Ministry of Social Development
https://www.msd.govt.nz/about-msd-and-our-work/work-programmes/initiatives/phrae/index.html

Te Mana Raraunga Principles of Māori Data Sovereignty
https://www.temanararaunga.maori.nz/

Work and Income
https://workandincome.govt.nz/about-work-and-income/privacy-notice/

Social Wellbeing Agency
https://dpup.swa.govt.nz/about/references-and-useful-links/

New Zealand Government
Open Government Partnership Action Plan 2018-2020.
https://ogp.org.nz/assets/Publications/OGP-National-Action-Plan-2018-2020.pdf

Privacy Maturity Assessment Framework
https://www.digital.govt.nz/standards-and-guidance/privacy-security-and-risk/privacy/core-expectations-and-self-assessments/privacy-maturity-assessment-framework-pmaf/

Acts and Legislation

European Union General Data Protection Regulation (GDPR)
https://ec.europa.eu/info/law/law-topic/data-protection/data-protection-eu_en

Human Rights
http://www.legislation.govt.nz/act/public/1993/0082/latest/DLM304212.html

New Zealand Bill of Rights
http://www.legislation.govt.nz/act/public/1990/0109/latest/DLM224792.html

Official Information
http://www.legislation.govt.nz/act/public/1982/0156/latest/DLM64785.html

Privacy Act 1993
http://www.legislation.govt.nz/act/public/2020/0031/latest/LMS23223.html

Public Records Act
http://www.legislation.govt.nz/act/public/2005/0040/latest/DLM345529.html

Community Engagement

Policy Methods Toolbox: Community Engagement
https://dpmc.govt.nz/our-programmes/policy-project/policy-methods-toolbox/community-engagement

Industry Standards

New Zealand Data and Information Management Principles
https://www.data.govt.nz/manage-data/policies/new-zealand-data-and-information-management-principles/

Health Information Standards
https://www.health.govt.nz/our-work/digital-health/digital-health-sector-architecture-standards-and-governance/health-information-standards-0

The New Zealand Farm Data Code of Practice
https://www.farmdatacode.org.nz/

NZ Asset Metadata standards
https://www.linz.govt.nz/regulatory/regulatory-search?dt=103

Board leadership and strategy

The Four Pillars of Governance
https://www.iod.org.nz/resources-and-insights/4-pillars-landing-page/#

5 Essential Components of a Data Strategy (SAS)
https://www.sas.com/content/dam/SAS/en_us/doc/whitepaper1/5-essential-components-of-data-strategy-108109.pdf

Developing Your Data Strategy: A Practical Guide (SAS)
https://support.sas.com/resources/papers/proceedings17/0830-2017.pdf

How To Create A Successful Data Strategy (MIT CISR Data Research Advisory Board)
https://cisr.mit.edu/reports/create-a-data-strategy/intro.php

Developing a Data Strategy: Australian Our Community Group
https://www.ourcommunity.com.au/financial/financial_article.jsp?articleId=6048

Privacy by Design Standards

Privacy by Design by Two Black Labs
https://www.privacy.org.nz/assets/Uploads/Twoblacklabs-Info-Sheet-Privacy-by-Design-v1.pdf