



Building data capability

Over the last year, we've looked at how public organisations are using the data they hold to improve the services they provide to New Zealanders. This article focuses on what we've learned about organisations' capability and capacity to make the best use of the data they hold.

Data is the starting point for information. The good use and management of information is critical to the effective and efficient delivery of public services. The information held by public organisations informs decisions about service delivery, supports evidence-based policy development and decision-making, informs improvements to the business, and enables the measuring of performance and effectiveness.

What does “managing data well” look like?

In organisations mature in their use of data, data is managed as a “strategic asset.” Its value is recognised in the way that it is managed and governed (with care and attention), and the data enables continuous improvements to the way the organisation operates. Organisations that are mature in their management and use of data have fully integrated information governance into their business processes.

On the other hand, organisations at the basic level manage information in an ad hoc manner, or not at all. They often can do no more than look back and produce reports about what has happened.

There are different models used to describe how mature an organisation might be at managing its data. Once it is past the basic level of producing high-level historical reports, an organisation needs to mature into [data warehousing](#) before it can identify exactly what’s happening, move into [data mining](#) before it can look into why something is happening, and mature even further before it can use the data to predict and describe the best that could happen. We understand that one of the priorities for the Chief Data Steward is an updated data maturity model to guide agencies.

Not every public organisation needs to be mature in its use of data. In our view, the leaders of every public organisation ought to know how mature their organisation is in its management and use of data. They should also clearly understand whether that maturity level is, and will remain, appropriate for the organisation’s work.

Then there's the culture ...

As well as the functional aspects of managing data well, an organisation’s culture needs to be right before people can make the most of the data they hold.



Part of the culture of an organisation is its appetite for risk. It's important that the public has trust and confidence in the public sector. To manage public resources wisely and well, organisations need to be careful about managing in a structured way and avoiding unnecessary risks. That means having approved plans, established ways of working, and a clear business purpose for what the organisation does.

Innovating with data analysis can seem risky. People told us that the public sector does not have an environment where it is "safe to fail" when trying to innovate with data analysis:

Leaders do fear failure – and rightly so. However, if we really want to use data to improve the lives of New Zealanders we have to create an environment where it is "safe to learn". This means "it's safe/okay to try out new things"... Be bold and be brave.

Bringing data into an organisation that is still developing its data analysis capability can be disruptive. It can require changes to operating models, technology, and attitudes. For example, data analysts will want the freedom to explore what data sets can show or reveal, but other staff might want to see the business case for that experimenting or block it because the end use has not been agreed to.

Data experts are brought in to an organisation in order to disrupt the current ways of working; they are hired to question, to analyse anew, to show how and where improvements could be made. The culture of the organisation needs to be supportive of this uncomfortable disruption, because the disruption is exactly where the potential value lies.

People we interviewed told us that data experts often hail from overseas, so their working style and expectations about how things get done can sometimes differ from those of their colleagues.

People also told us that leaders of public organisations trying to do new things with sets of data need to be:

- strong supporters of using data to deliver better outcomes for New Zealanders;
- prepared to use data to make evidence-based decisions;
- prepared to allow their staff to work between functional teams internally and work with other public organisations;
- designing services that put New Zealanders at the centre of the design process;
- encouraging and empowering of innovation;
- accepting of the diversity in personalities and ways of working that data analysts can bring; and
- committed to starting small and getting the basics right.

The leadership team also needs to include someone who is an advocate or champion of mature data use.

The point about diversity was strongly made in interviews. Data specialists were described as creative non-linear thinkers who are trying to work in a structured linear world. The challenge, we were told, is having managers who can effectively manage these creative innovators without letting them feel "battered and bruised" by the organisation's operating environment. One interviewee said that data people will:

... often have a very different working style to the rest of the entity. Don't try to fit the square peg into the round hole.

When talking about the need for leaders who are open to new and innovative approaches, one interviewee said:

Typically, members of the executive make decisions based on their experience rather than on data analysis. Suddenly, because the data analysis is accurate, undisputable, and predictive, it can be a bit ground shaking. The best executives are the ones who aren't afraid to make changes based on the evidence.

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What are the challenges?

When we interviewed people, most told us that the biggest challenges were about capacity and capability. We had assumed that most of the entities we interviewed would have well-established teams using data to improve public services. However, some people interviewed said their entity was just starting to build their data analysis team. Others talked about having to figure matters out for themselves:

There is no clear path for how to manage data teams. It's like Star Trek – you are going where no one has gone before. At present there is not a standard set of best practices for managing big data teams and projects.

Building teams isn't easy. There are many different skillsets needed for mature data management. It's a tight labour market for data experts and the skills needed are in short supply.

People told us that this leads to public organisations trying to find staff or contractors who have all the necessary skills – including the ability to structure data sets; interrogate data; maintain data quality; analyse data competently; communicate clearly with colleagues, the public, and senior managers about the significance of what the data shows; and the vision to see how the knowledge gained from the data could be used to improve services.

That is a rare combination of skills and experience. People we interviewed kept referring to it as the search for a unicorn.

Responding to the challenges

During our interviews, we asked people what they were doing about the capability and capacity challenges they faced.

We found a variety of approaches to building capability. Many people interviewed were trying to start small, iterate, and increase the team size

and capability as they proved their value to the organisation. One interviewee said:

To be honest, I think this is the best way of introducing any new functional area, not to go large but actually test the water, show some value and then grow from there, while at the same time thinking strategically.

Other people we interviewed said they were always going to have small teams (fewer than five staff). To boost their capability they were also working in partnership with others, such as the New Zealand Police, the University of Waikato, and the Institute of Environmental Science and Research. Many of these were new partnership arrangements.

Only a couple of public organisations had large teams of people (more than 20) working on data initiatives to improve public services. All of these organisations had been through recent restructuring at the time of our interviews. The changes were designed to reposition teams so they could be more focused on using data for evidence-based decisions about service improvements.

A couple of people we interviewed said they would start building their team capabilities by hiring graduates and interns and training them.

People talked about trying to centralise their data analytics functions to get around the capability and capacity problems. For some, that meant putting the data experts in or alongside teams that were “closer to the action” of the organisation. Doing so made the data work more visible, gave the data experts easier access to complementary skills, and highlighted the work’s importance. For others, centralising meant co-operating with other public organisations to pool their scarce data expertise.

Several were looking to develop advanced data analytics platforms and new tools. Those with low levels of data maturity talked about a focus on data quality before looking to analytics.

Building capability in public organisations in terms of managing data privacy is also essential. This is a key focus for the Office of the Privacy Commissioner and the Government Chief Privacy Officer.

In our view, and acknowledging that others might see it differently, the functional leaders could usefully treat the capability and capacity challenges as their most urgent priority. Finding ways to make the most of scarce data expertise is essential to creating joined-up services that put New Zealanders at the heart of service design and delivery.

Even more importantly, we need public organisations to make the best use of the data they hold because doing so has the potential to help solve some of our most challenging and complex social issues.

Our third article covers the next level of challenge and opportunity – working collaboratively with other public organisations, including sharing data, to create and deliver those more useful joined-up services.

Questions arising from our work ...

If you're in charge of a public organisation, have you considered your workplace's data maturity? Is it appropriate for what you're trying to achieve?

Do you know what your organisation's culture is in terms of risk aversion and supporting innovation?

How could the functional leaders help with any data capability and capacity challenges you might have? And how could you help them?