DATA&ANALYTICS
In the Australian Public Sector

February, 2017

State of the Industry Snapshot

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KPMG PSN Data Analytics Roadshow 2016

In May and June 2016 KPMG, in association with the Public Sector Network (PSN), took the Public Sector Data & Analytics Roadshow to Melbourne, Adelaide, Canberra, Sydney, Perth and Brisbane.
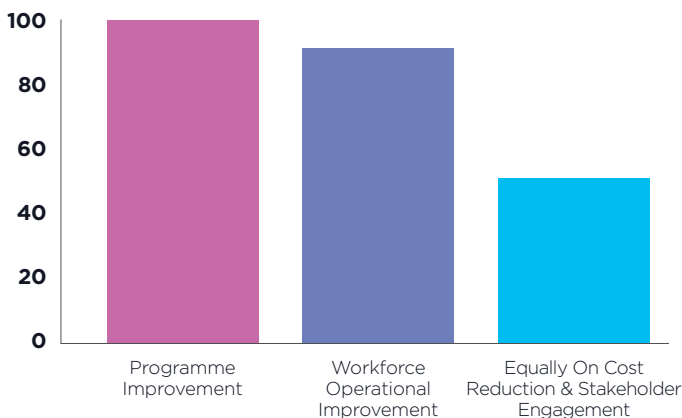
Over 400 leaders working in technology, data analysis, policy and programme development came together to discuss the issues, challenges and opportunities of building a robust and powerful data and analytics programme.

Over the events, we saw that participants were keenly aware of how data and analytics could help them respond more effectively to 'wicked problems' facing society such as homelessness, long-term unemployment, domestic violence, childhood obesity and environmental management. Richard Burnell, for example, Chief Information Officer with the Department of Fire and Emergency Services in Western Australia, described how advances with data are helping them map bushfire-prone areas and to identify areas of high risk.
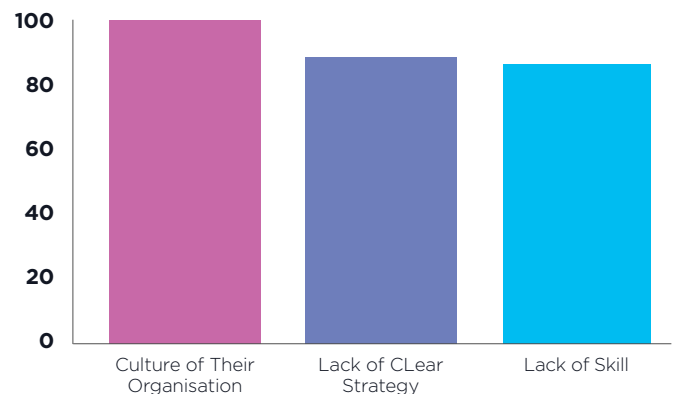
Discussion was wide-ranging and in depth. Enthusiasm about the opportunities and benefits was balanced with the need to build trust with citizens and end users of the analysis by protecting the privacy of citizens, securing data from abuse and engaging stakeholders better to show how data and analytics bring value. Sharing data and taking a whole-of-government approach to issues crossing agency and government boundaries was also keenly discussed.

During the roadshow we asked participants to complete a survey to gauge perceptions of the opportunities and challenges their organisation faced in becoming a more open government. Over 90 participants completed the survey and we thank them for their time.
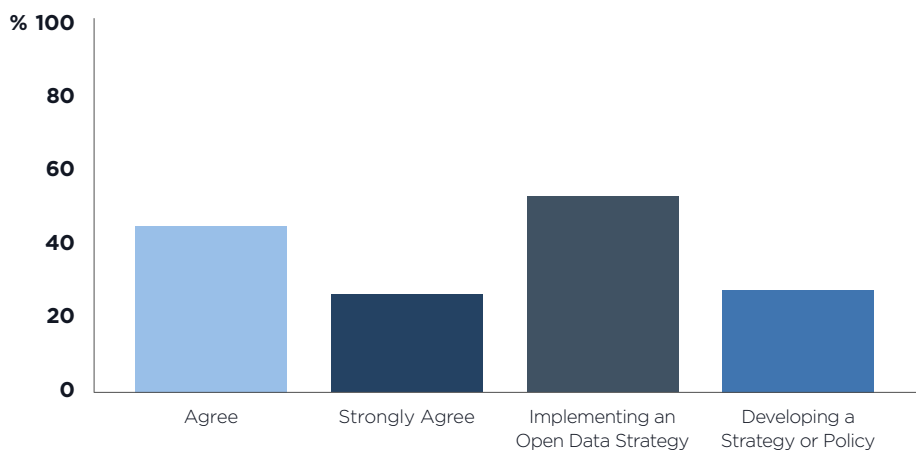
Opportunities with Data Analytics (%)

Challenges (%)

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Open Arms for Open Government

% 100

Chart categories: Agree, Strongly Agree, Implementing an Open Data Strategy, Developing a Strategy or Policy

'Open' is now the default setting for commonwealth policy with most states and territories also putting data, analytics and access at the centre of their ICT strategies.

The key question is how to embed the data mindset, together with analytic functions and skills, throughout the organisation, so that policy development and programme design start with data questions. What data is required to deliver and improve services? Where will we get it from? How will it be collected and secured? How will it be shared with other agencies and for other purposes, both those that we can anticipate and those we can't? How can we communicate the value of this information to our citizens and stakeholders?

"Data is everywhere – so cast a wide net"
Ian Oppermann, Chief Executive Officer and Chief Data Scientist, NSW Data and Analytics Centre.

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Putting Data Analytics to Work in the Public Sector

Predicting bushfires

The long wet winter in Western Australia's South West this year has hampered the efforts of the Department of Fire and Emergency Services to manage prescribed burning, which means an increase in bushfire risk for the coming summer. Richard Burnell, Chief Information Officer with the department described how they are coordinating data to map fuel loads, wind directions, temperatures and other factors that increase bushfire risk. Other data about fire stations, hydrants and fire alarm monitoring are helping the department ensure it is alerted to fires and ready to respond.

Understanding what is going on in communities

Knowing the actual outcome of policy measures and government programmes has always been a challenge for government agencies. To get a richer account of settlement outcomes for migrants, the Australian Bureau of Statistics worked with the Australian Tax Office and the Department of Immigration and Border Protection to mine tax data and the settlements database. This nuanced information about where people are living, what jobs they are getting and how they are contributing to their communities helps government understand what policy measures and spending lead to effective outcomes for people.

Targeting maintenance

Using a monitoring system of 2400 sensors and machine-learning predictive analytics, Data 61 assesses the condition of the Sydney Harbour Bridge, every hour of every day. By continuously monitoring of the structural health of each of the 800 steel and concrete supports under the roadway, Roads and Maritime Services NSW is better informed about the current and likely future condition of the bridge and road. This means a more effective maintenance program with lower costs and fewer interruptions to traffic.

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Challenges - Culture, Strategy and Skills

The main challenges to better data analytics in the public sector are not technological but driven by cultural, strategic, policy and legislative 'barriers'.

100% of respondents citing the culture of their organisation as a barrier to achieving open government and 88% also identifying a lack of strategy and 87% a lack of skill as obstacles to change.

COMMON ISSUES INCLUDE:

*   Multiple, distributed data silos in various formats and various degrees of data quality

*   Lack of willingness among agency or department personnel to share data, some based on valid legal or policy reasons, some based on rigid historical management methods or other perceived objections to sharing data

*   Antiquated data management infrastructures

*   Lack of data governance organisation, processes, or tools and lack of sponsorship to implement data governance

*   Lack of understanding for the "art of the possible" in the use of advanced analytics and big data to drive valuable insights

*   Rapidly changing development and availability of big data and advanced analytics tools, both proprietary and open source

*   Changing priorities

Data sharing

Sharing data will be critical to achieving the promise of open government. This realisation has already prompted the governments of New South Wales, Victoria and Western Australia to adopt a whole-of-government model designed to centralise data and analytics standards, skills and technologies.

Just over 40% of respondents identified security and 40% privacy as serious obstacles to open data and better analytics.

David Watts, Information Commissioner, Victoria says, "We should begin with a duty to share and balance that with the duty to protect privacy. Culture is key here as with any major change of outlook or practice. Strong leadership is needed to balance those imperatives, sustain culture change and drive a strategy with data at the core."

"Privacy is an enabling right, because it requires you to think about how to use information. It requires you to think through what the linkages are, what you want to do with it, the technology and public policy outcomes." David Watts, Victoria Commissioner for Privacy and Data Protection

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Data at the Heart of Government

A lack of a single source of data was also cited by 63% of respondents as a serious obstacle. The Data Analytics Centre recently established by the Government of New South Wales was designed to overcome this barrier. To ensure the privacy, Dominello said the NSW Privacy Commissioner was integral to the centre's steering committee.

"The Data Analytics Centre has a legislative basis to get data from 160 agencies, and the 20 state-owned corporations, to the myriad of councils across NSW... so it is the first time we will have all the pieces of the jigsaw on the board so we can do some proper analysis". Victor Dominello, NSW Minister for Innovation and Better Regulation

"There is no chance in the world that we are going to dilute privacy issues with big data. If we share data within a secure, private and safe hub within Government, we will get better outcomes for the people of New South Wales," he said.

Skills

Government agencies will need to ensure they have the skills to manage, connect and govern the data they collect, store and share for their own and whole-of-government purposes.

Both Sanjay Mazumdar from the Data to Decisions CRC and Gemma Van Halderen from the Australian Bureau of Statistics emphasize that these are not technical skills but rather problem solving skills and a mix of "technical, mathematical, business and psychology".

"Having the technical skills is one thing, but having the business skills to identify the business problems and the questions that need to be solved is another." Sanjay Mazumdar, CEO, Data to Decisions CRC

The pipeline of skills is still developing and we are facing a skills gap.

GOVERNMENT AGENCIES CAN CLOSE THIS GAP BY:
- Partnering with universities,
- Training staff,
- Sharing skills with other agencies,
- Hiring from the private sector and;
- Working with third party specialists.

"We're seeing without a doubt a talent shortage. One of the things we'll be doing to help address this is working with the Federal Government where we'll be rotating and embedding teams to accelerate that learning curve." Adrian Turner, CEO, Data61

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KPMG Perspective

The public sector is starting on its journey with some agencies making good progress at creating value from their data and insights.

If we look at organisations across all sectors, non-government included, we see that those that value their data and analytics capabilities are leading their fields. These organisations are breaking down the internal silos and bringing their data, people and technologies together. They are experimenting, innovating and failing fast. They are prioritising their efforts to make the most of their resources. Most importantly that are acting on their analysis of data and improving outcomes for their stakeholders.

Culture emerged in the survey results as the number one challenge. This must change if governments are to deal effectively with complex problems both new and those we have been dealing with for generations.

In short, data must be seen as an asset to be used intelligently for public benefit. Not doing so would be to miss one of the best opportunities governments now have to improve their services and demonstrate their value to citizens.

We believe that most organisations have not yet tapped the potential of data and analytics to transform the way they provide services and engage stakeholders. In our opinion, leaders need more than a data and analytics plan. They need an execution strategy to follow through on their vision and reap the greatest benefits.

8 Key Take-aways

1. **ADDRESS THE ISSUES YOU ARE FACING**
   Most clients we work with do not ask for a D&A solution, they ask for a solution to a specific business problem. Understanding your biggest issue will direct you to where you can best focus your D&A capabilities

2. **UNDERSTANDING THAT THE INSIGHTS DO NOT COME FROM DATA ALONE**
   They come from analysing the data and working across silos to map back to the issues and challenges the business is addressing. D&A is a team game.

3. **GO BEYOND POINT SOLUTIONS**
   Transcend individually projects towards an overarching enterprise-wide data driven culture that underpins investment decisions.

4. **DEFINE WHAT VALUE YOU ARE LOOKING FOR**
   What is it you want to achieve? Is it reduced cost? Better management of risk? Improved customer experience? The reality is that 'value' differs depending on the issues you are dealing with and its relative importance to the business.

5. **FOCUS ON CUSTOMERS**
   Ask yourself how to use new forms of data and algorithms to automate decision making in order to bring greater customer service and expand your capacity to transact profitably with customers.

6. **ASK THE RIGHT QUESTIONS**
   Don't do D&A just for the sake of doing it. Prioritise your insights and understand their potential value in terms of not only the 'size of the prize', but also in terms of speed and complexity.

7. **MEASURE YOUR SUCCESS**
   Use your successes and evidence of the value created to fund more projects and share your expertise and knowledge across the organisation.

8. **ENGAGE EARLY WITH STAKEHOLDERS**
   Articulate the value of D&A to the business and to investors who increasingly see D&A as a transformative strategy, not simply as a way to bring greater insights to your existing business problems.

7 Themes for More Effective Government Data Sharing

1. Foster a collaborative, problem-solving culture for data sharing, focused on delivering human and economic value.

2. Assemble an empowered information governance team with a strong, accountable leader.

3. Establish trust and a common language for sharing via common data standards and data sharing agreements.

4. Be positive on data sharing, by pushing hard for creative solutions that engage citizens and offer real benefits. And accept that some sharing initiatives won't succeed.

5. Make your system transparent and 'citizen friendly.' Prepare to be positively surprised by what you hear.

6. Invest in benefits realization, to measure economic and more qualitative outcomes. This creates the foundation for sustained conversations with your residents and employees about sharing.

7. Embrace the concept of 'data federation' to preserve data sovereignty and encourage sharing within agencies.

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About PSN

PSN is a research company that represents public sector professionals across Australia and New Zealand and develops roundtables, seminars, and conferences to suit current areas of interest.

Our growing online community spans across Federal, State, and local government departments, healthcare, and education, allowing members to share information, access the latest in government news and innovation, and engage with other like-minded individuals on a secure and closed-door network.

You can sign up and gain access to exclusive content and opportunities here: **www.publicsectornetwork.com.au**

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Further Reading

Trust and data analytics in the public sector
– Interview with Hon. Victor Dominello, NSW Minister for Innovation and Better Regulation

Public sector data analytics – challenges and opportunities
– Interview with Adrian Turner, CEO, Data61

Building trust in Data Analytics

Using predictive analytics in the service of vulnerable citizens