

Data Driven Intelligence

Moving Forward

Public Sector Service Delivery Council
September 15, 2016
Victoria, British Columbia



British Columbia Centre for Data Innovation
Solving Real-World Problems with Public Sector Data

PURPOSE

Move forward the FPTM conversation beyond Open Data in order to:

- Advance service delivery and digital priorities by increasing FPTM capacity for data analytics.
- Make the linkages to the Clerks and Cabinet Secretaries, DMs' Table, and Joint Councils priorities.
- Understand how other jurisdictions are leveraging data to improve services.

CONTEXT

- In April 2016, the Clerks and Cabinet Secretaries asked the DMs' Table to look at ways to accelerate service delivery priorities with one of their priorities being Open Data.
- In May 2016, the DMs' Table asked us to reframe the Open Data priority under the umbrella of "Data Driven Intelligence", recognizing the need to explore other data sources and analytical tools to improve service delivery and demonstrate concrete results.
- In July 2016, the F-P/T Clerks and Cabinet Secretaries asked Innovation, Science and Economic Development Canada (ISED) to advance Big Data federally.

ADVANCEMENT OF THE PRIORITY

The Joint Councils have been supporting Open Data successfully. DMs, Clerks and Cabinet Secretaries have recognized that more needs to be done to find tangible and concrete ways of using data to anticipate service delivery needs.

- In 2012, the Joint Councils established an Open Data and Information Working Group. Governments across Canada have embarked on open data projects, including the creation of online data portals, and publication of datasets.
- In 2013, the DMs' Table adopted Open Data as a priority recognizing that more needs to be done to use the data available to drive service delivery improvements.
- In 2015, DMs began to explore Big Data as a potential priority to gain greater insights to improve service delivery design.
- In May 2016, the DMs' Table acknowledged the work on Open Data and requested that Big Data and Open Data be reframed under **Data Driven Intelligence**.

Jurisdictional Review

Approaches to Data Analytics in Government

Why Data? Why Now?



Economic Growth

Drives job creation in both new and traditional sectors, spurs economic growth and enables a start-up culture.



Advance Innovation

Access to government data spurs new research and in turn new companies, products and services.

Fosters an increased supply of talent, including software programming, analytics skills, and information management.



Improve Decisions

Able to view the citizen over their lifetime rather than through their single interactions with line ministries.

Provides new view into complex public policy challenges.
Improves strategic decision making by weighing a wide range of factors and predicting future outcomes.



Client-Centric Services

Increases personalization of services and enhances client relations based on data about the behaviours and tastes of very similar individuals.

WHAT IS STOPPING US?

X

Value recognition

Protection over use

X

X

Access requirements

Skill sets

X

X

Social license

Technology

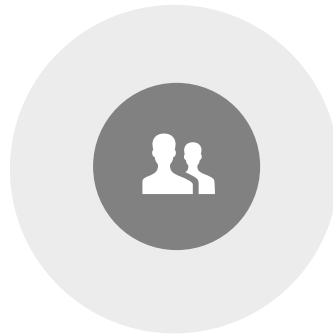
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BC's APPROACH



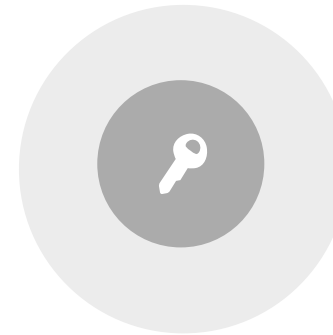
Governance

Deputy Project Board
External Advice from Senior Tech Leaders



Dedicated Team

Executive Leadership
Multi-disciplinary
Sequestered



Create Value by Doing

Catalyst Projects
Test New Technology
Replicate Successes

BC's CATALYST PROJECTS

1

Predicting People at Risk of Long-Term Unemployment – Identifying risk factors for long-term unemployment to allow for early interventions and improved outcomes

2

Who are Our Labour Market Program Clients and What Happens After They Use Our Programs – Linking of Education, Employment Assistance and income Tax Data

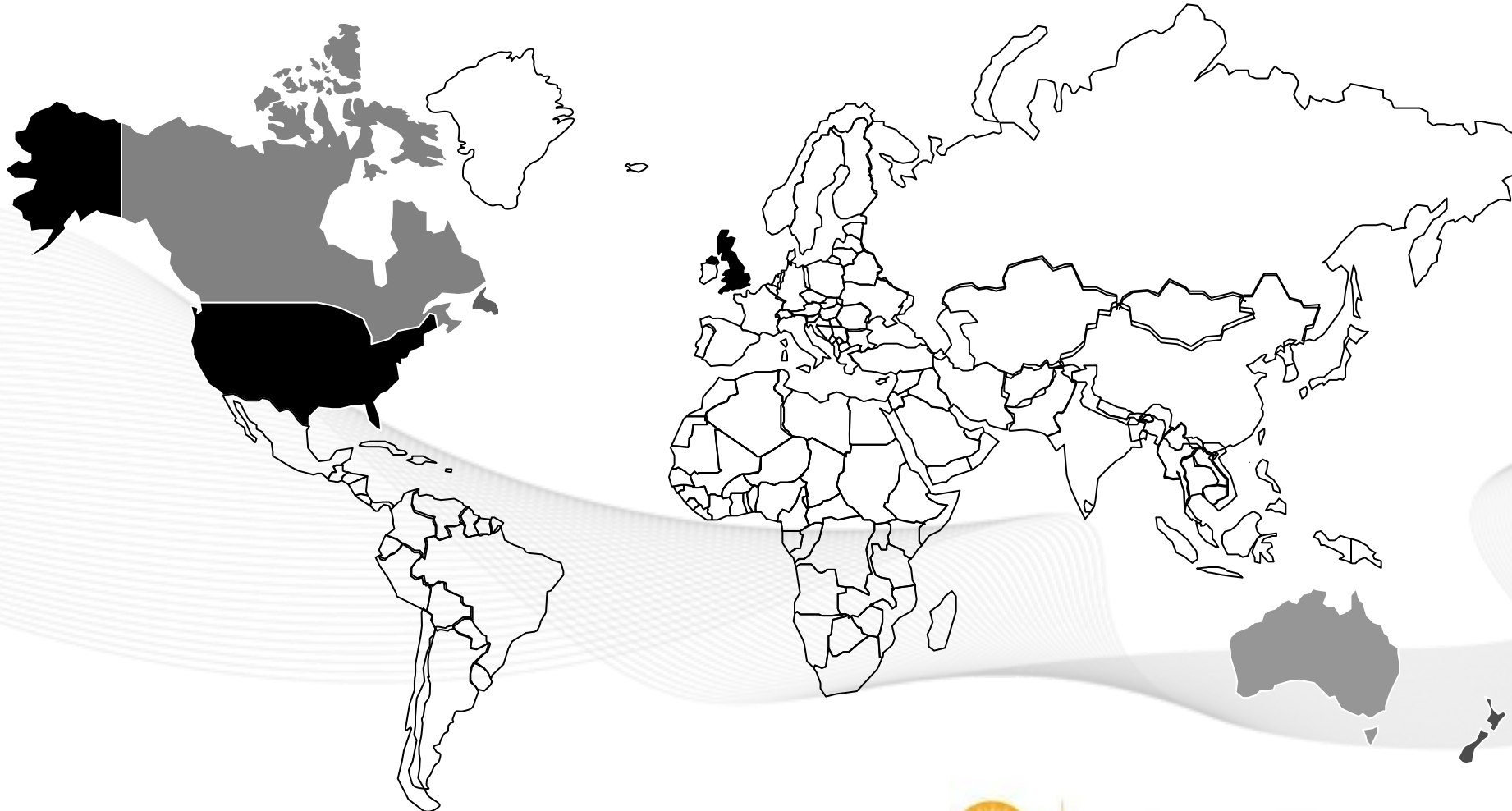
3

BC Housing and Housing Market Data – Identifying Factors Contributing to Housing Affordability Levels and the Impact of Public Policy on Those Factors

4

Provincial Clinical Diabetes Registry – Combining clinical and administrative data to transform services for adults with diabetes to improve care, health outcomes and lower costs

JURISDICTIONS REVIEWED



NEW ZEALAND – KEY FINDINGS

Centralized in
Government



Centralized in Statistics NZ

Integrated Data Infrastructure

Ministries collect data and share

IDI links, de-identifies and makes
available the data

Government-
Sponsored
External Entity

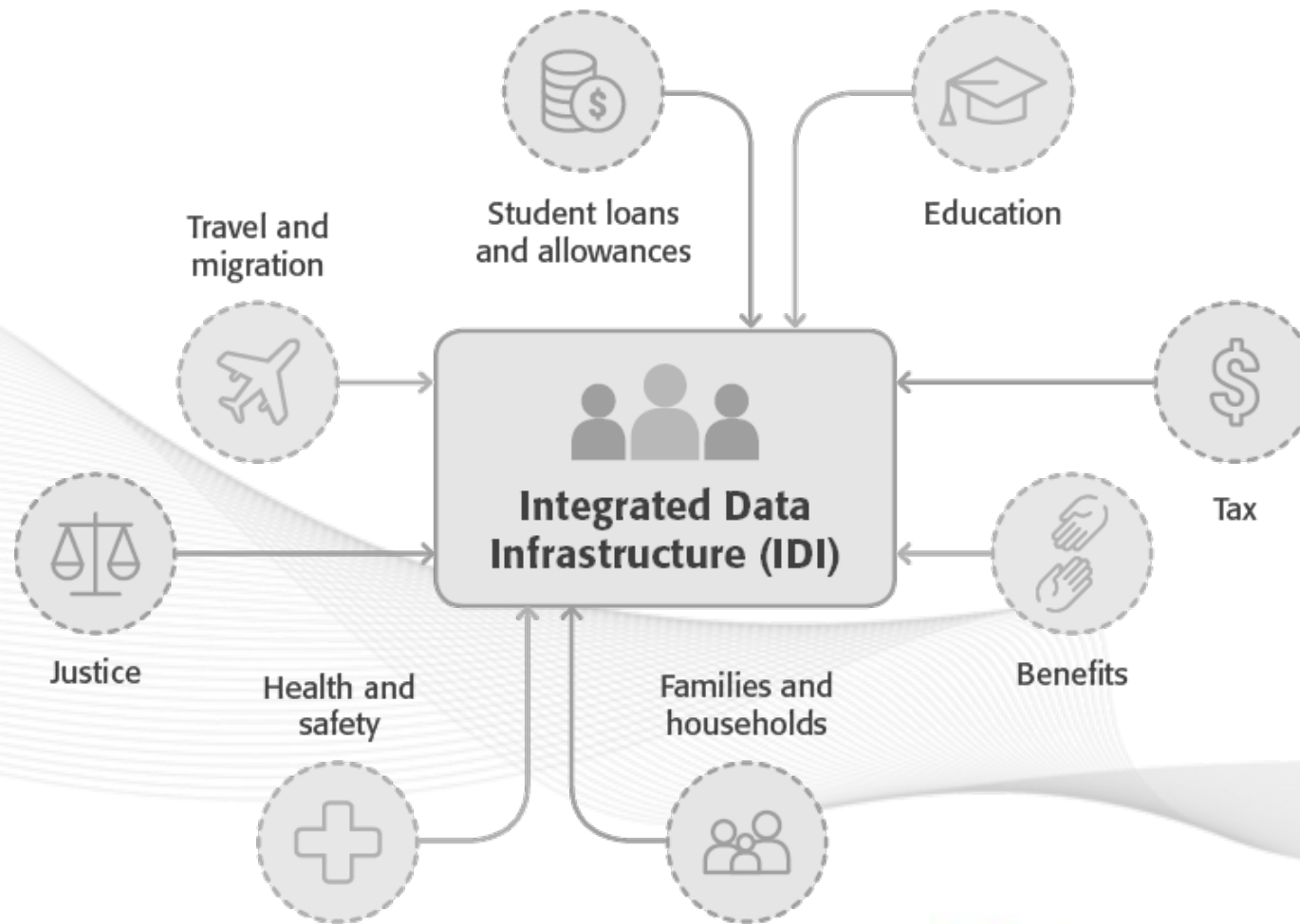


Data Futures Partnership

Mandated to build social license
and encourage data use

Encouraging private sector to use
their own data

NEW ZEALAND – INTEGRATED DATA INFRASTRUCTURE



NEW ZEALAND – LEARNINGS

1

Centralizing data enables use

- Empowering an existing trusted authority such as a statistics agency to link data from across the public sector and to approve access to this data accelerates access and encourages use

2

Internal government collaboration is expected and necessary

- The public expects that agencies are already sharing data; with strong champions and effective socialization, controls and trust, data stewards will collaborate to improve access to data

3

Invest in engagement, not just infrastructure

- Empowerment of the independent, cross-sector Data Futures Partnership appears to be effective in maintaining public trust and gaining social license for data integration

AUSTRALIA – KEY FINDINGS

State Initiatives: New South Wales



Central Entity Supported by Legislation

Data Analytics Centre enabled
by Data Sharing Bill that directs
agencies to provide data

National Initiatives

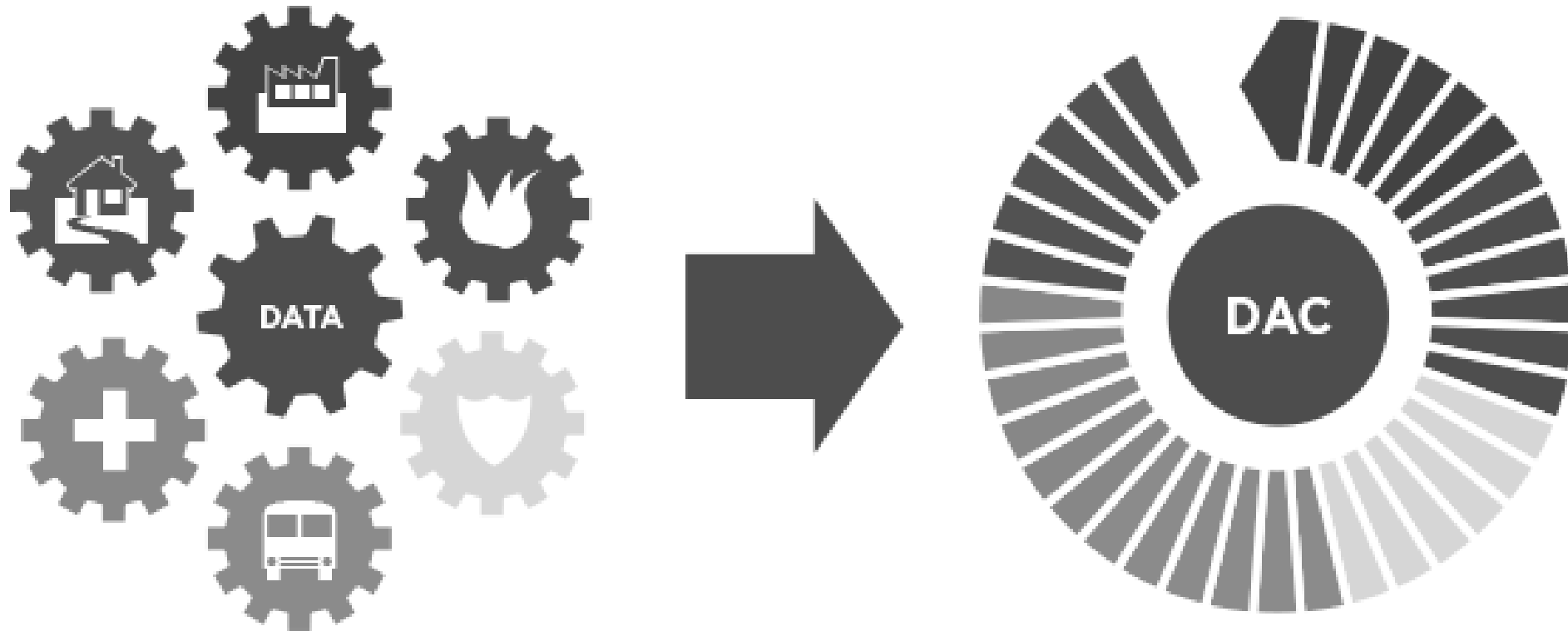


Project-Based Approach with Strategic Guidance

Data Analytics Centre of Excellence
supporting collaboration and capacity-
building

Australian Public Service
Better Practice Guide for Big Data also
supporting capacity-building

AUSTRALIA – NEW SOUTH WALES DATA ANALYTICS CENTRE



AUSTRALIA – LEARNINGS

1

Legislation can create clearer pathways

- New act removed barriers to data collection, sharing and use, including effective privacy management – creates the authority to share data

2

Define what is personal information

- Regulation is often unclear on whether anonymized information is considered personal information; Australia's regulation allows for repurposing of de-identified information

3

Provide central support for data management and analytics capacity-building

- In this fast-moving field, a central group responsible for guidance and sharing of best practices, including developing common data and metadata standards, is key

UNITED STATES – KEY FINDINGS

Open Data Approach



Leader in Open Data

Open data a requirement under President Obama

Next-stage open data initiatives
– user-focused, less technocratic

National Approach



Federated Approach

Departments responsible for implementing White House direction

Departments heavily integrated with their stakeholders, not other depts

Strong push for big data adoption

UNITED STATES – AFFORDABLE HOUSING FINDER



UNITED STATES – LEARNINGS

1

User experience critical to realizing success with Open Data

- Data crunching services to help citizens make sense of the open data; Opportunity Project provides more accessible open data for companies looking to create economic opportunity

2

‘Data’ needs leadership at the highest level

- White House’s Chief Data Scientist sets policies related to data, builds private sector partnerships and heads recruitment of top data scientists

3

Tackle the challenges of ‘the next big thing’ today

- Setting policies now related to big data, internet of things, artificial intelligence to establish ethical guidelines for government

UNITED KINGDOM – KEY FINDINGS

Current Ramp-up on Data



Renewed Data Agenda

Public inventory of high value data prioritized in consult with an external open data user group

Legislation to provide authority to share data b/w governments

Data Science Ethical Framework

National Approach



Partnership-oriented Model

Private sector and academia used for knowledge, funding and social license

4 centres for data access, all at universities

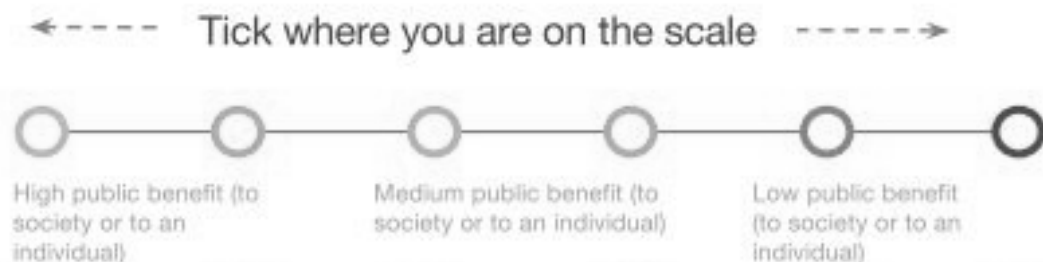
Private sector access of anonymized health data permitted, though still controversial

UNITED KINGDOM – DATA SCIENCE ETHICAL FRAMEWORK

Quick checklist

1. Start with clear user need and public benefit

A. How does the department and public benefit?



2. Use data and tools which have the minimum intrusion necessary

B. How intrusive and identifiable is the data you are working with?



C. If identifying individuals, how widely are you searching personal data?



3. Create robust data science models

D. What is the quality of the data?



E. How automated are the decisions?



UNITED KINGDOM – LEARNINGS

1

Support increased data sharing with legislative authority

- Recently introduced *Digital Economy Bill* provides powers for public authorities to share data; law will facilitate data analytics by removing uncertainty around the authority to share data

2

Leadership needs to come from the highest levels

- Data leadership comes directly from the Cabinet Office, with policy-specific consultation (e.g. fraud prevention, social services) and public service direction (data science ethical framework)

3

Have a plan for social license

- Engagement and communication with the public must be well managed and highlight the significant benefits to be realized from increased sharing and linking of government data

KEY FINDINGS

1

All jurisdictions active in this area; NZ only one that is far ahead

- Most comparison jurisdictions are ahead of B.C./Canada in terms of linking data for government decision-making in discreet areas (primarily education/workforce)
- However, only New Zealand is already supporting ongoing systematic government and private sector access to and use of whole of government data

2

Those that engaged the public early are further ahead with implementation

- The need to engage the public on the value of data linking and build informed trust should not be underestimated

3

Leadership at the highest level, backed up with legislation, is the common key to success

- Responsibilities related to public data are generally dispersed across ministries; lack of corporate-wide policy questions and absence of entity-wide approaches (e.g. tech, talent)

KEY QUESTIONS

1

The UK introduced legislation to support data sharing between the national and local governments – how can data be shared more between governments in Canada?

2

Leading jurisdictions are broadening the open data user community by adding value through service – how can services be used to drive further innovation in Canada?

3

Privacy culture impacts significantly how initiatives are rolled out – how do we begin to have a conversation with Canadians on privacy and data?

4

Data provides insight to sticky, persistent policy and service issues that span multiple governments and agencies – how do we prioritize data driven intelligence work?

5

How do we effectively connect Open Data, Big Data, and service delivery to advance the Joint Councils call to action for “best in class digital government for Canadians”?

NEXT STEPS

1

Along with the province of British Columbia and ISED, create a DDI Task Team of PSSDC members to frame DDI in collaboration with the Joint Councils Open Data and Information Working Group to:

- better understand where there are opportunities to use data analytics in the area of service delivery e.g. client feedback, administrative data, open data, and non-government data.
- find ways to leverage common tools, talent and procurement vehicles etc. in order to foster an increased supply of talent
- seek direction on advancing DDI at the December 2016 F-P/T DMs' Table teleconference.

2

Update DMs on jurisdictions' collaboration to advance DDI – December 2016

3

Present proposed DDI Framework to PSSDC/Joint Councils – February 2017

4

Present DDI Framework at next F-P/T DMs' Table In-person meeting – May 2017

APPENDIX – NZ CASE STUDY

Challenge

High-risk youth populations with disproportionate lifetime dependence on social benefits

Approach Taken

Link multiple data sets – family services, income assistance, education and housing data to:

1. **Predict** the probability of this population going on to an adult benefit; and,
2. **Target services** to reduce their long-term benefit dependency

Results

- Employment among this population rose 9.3 per cent
- Total benefit payments savings of \$1B over four years

