

The wider context:

- **Data-sharing and data-driven policy is on the national agenda.**
 - This work can **position your portfolio at the cutting edge of using data** to drive effective programs and policy.
- **Economic recovery is a core priority.**
 - This work will contribute to the body of evidence on the impacts of 2020 economic shocks.
 - **We will be building data assets and IT infrastructure to generate evidence on an ongoing basis on social harm, welfare dependence and disadvantage.**

Main objectives of the CDC data catalogue and data analytics (May 2021–June 2022):

- **Key questions:**
 - **What do we know about social harms in CDC regions?**
 - **When is CDC an effective and appropriate way to deliver welfare?**
- Generate evidence to contribute to the CDC future state
- Long-term objective: build data assets and capabilities to inform policy into the future

Proposed timeline for building the data catalogue and generating findings:

- **31 Dec. 2021:** preliminary findings (descriptive analysis)
- **31 Mar. 2022:** first phase of findings available
- **30 June 2022:** second phase of findings available

How we will reach these milestones:

- Access data assets to build the data library: Commonwealth, state/territory, and private data
 - Commenced negotiations to access data assets: this will be an ongoing project
 - New data assets added to data library as access secured
 - Data assets will be linked where possible and data regularly refreshed.
- Expand IT infrastructure and capabilities (including SAS)
- Data analytics:
 - Commencing analysis of linked welfare payment and CDC data (internal departmental analysis)
 - Option to commission comparative analysis of spending data, comparing CDC and other income support recipients (would be commissioned from AlphaBeta)
 - Multiple strands of analysis using linked state/territory and Commonwealth data assets (using consultant as recommended in MS21-000173)
- All analysis will be re-run at regular intervals, continuing to generate new findings.
- Findings and evidence:
 - Visualise findings: create digital dashboards by default
 - Share findings: demonstrate benefits to stakeholders
 - Evidence will inform CDC future state

Accessing state/territory and private data assets will be challenging:

- Dependent on negotiating access to data; need to manage governance, privacy and storage requirements
- **Our strategy:**
 - **Build a reputation for best-practice management and use of data**
 - **Demonstrate our capability: how we can use data to understand and target social harms**
 - **Leverage this to negotiate further data access**

Q: Why is the department recommending engaging a consultant?

A: We need to build a data library and data infrastructure. We aren't procuring a report or an evaluation; we are procuring services to build out capability to analyse data on CDC on an ongoing basis.

With a data library, IT infrastructure and analytics models, the department will be able to conduct analysis on a rolling basis. This means that we will be able to use the latest data to generate new evidence on social harms and the CDC as a way to deliver welfare payments, and we will be able to do so whenever it is needed.

Q: Why not just use AIHW data? Why not just commission AIHW to undertake analysis?

A: First, the AIHW data assets were not built to answer CDC policy questions — so they are unlikely to have the most directly relevant data. Second, commissioning analysis from AIHW would likely require more time to generate findings. Third, AIHW's services would also be one-off: we would receive a static report.

We recommend commissioning a consultant to build the department's capabilities to generate evidence of impact on an ongoing basis. Building our own data library will ensure that we have ongoing access to the data assets that are most relevant to CDC outcomes. Commissioning data analytics will allow us to re-run analysis as needed, rather than having a single report that cannot be updated.

Q: Why is new data infrastructure needed?

A: Data infrastructure is needed to support the data library and allow us to run analysis on a recurring basis.

Q: Does the department already have the data that will be used? If so, what are you doing with it now? If not, how long will it take to get access?

A: The department has some data assets, but we are aiming to build a much more comprehensive data library.

We have linked CDC data with welfare payment data and are commencing analysis; at the same time, we are concurrently pursuing additional data assets.

Based on current discussions, we anticipate that we will be able to access some data assets fairly quickly. Other negotiations will be more complex. Our strategy is to position the department as a best practice user of data and to demonstrate what we are able to do with shared data. Over time, we expect that this will allow us to secure agreement from a wider range of institutions.

Q: Why does it take time to get access to data assets?

A: There are legal and regulatory requirements governing access, storage, and use of data assets. These requirements vary depending on the nature of the data (such as whether it is personal or sensitive), and vary across jurisdictions. It isn't possible to circumvent these processes.

Q: What will you do if you can't get access to data assets?

A: There are a large number of data assets that we are seeking to negotiate access to: the 'snowflake' diagrams show the variety of institutions holding data that we may be able to use. We are currently discussing data access with a selection of these. If initial discussions are not successful, we will commence discussions with other institutions.

Q: Will the department be able to commission analysis of spending data (both CDC spending data and external data assets such as the AlphaBeta spending data)?

A: The department has commenced scoping this, and anticipates that this will be possible. The timeframe will depend on the applicable data governance processes: we will provide an update on this by Wednesday.



Cashless Debit Card

Data Update

Objectives

Better use of data:

- Access administrative data, including data held by states and territories
- Expand capability to generate evidence on an ongoing basis

Generate evidence

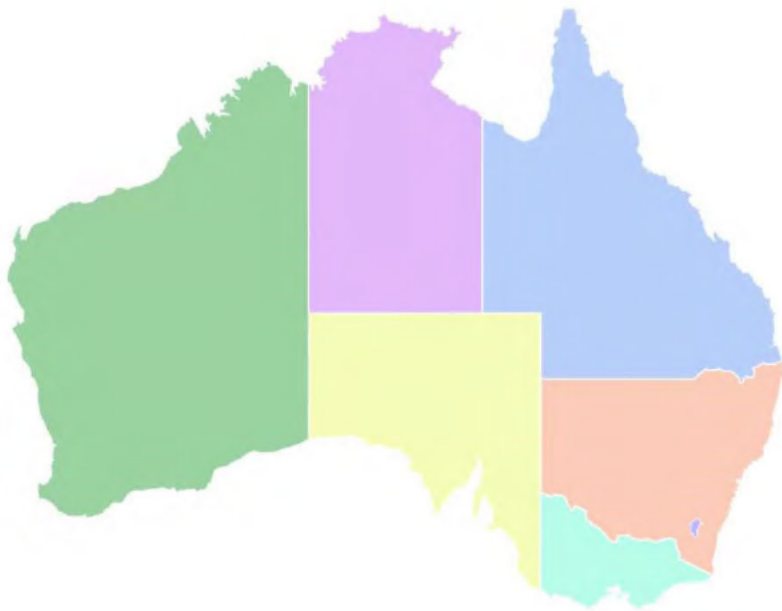
- Introduction of legislation anticipated in Spring 2022
- Future state of CDC

Proof of concept: use of integrated data to inform policy

Data acquisition

Strategy:

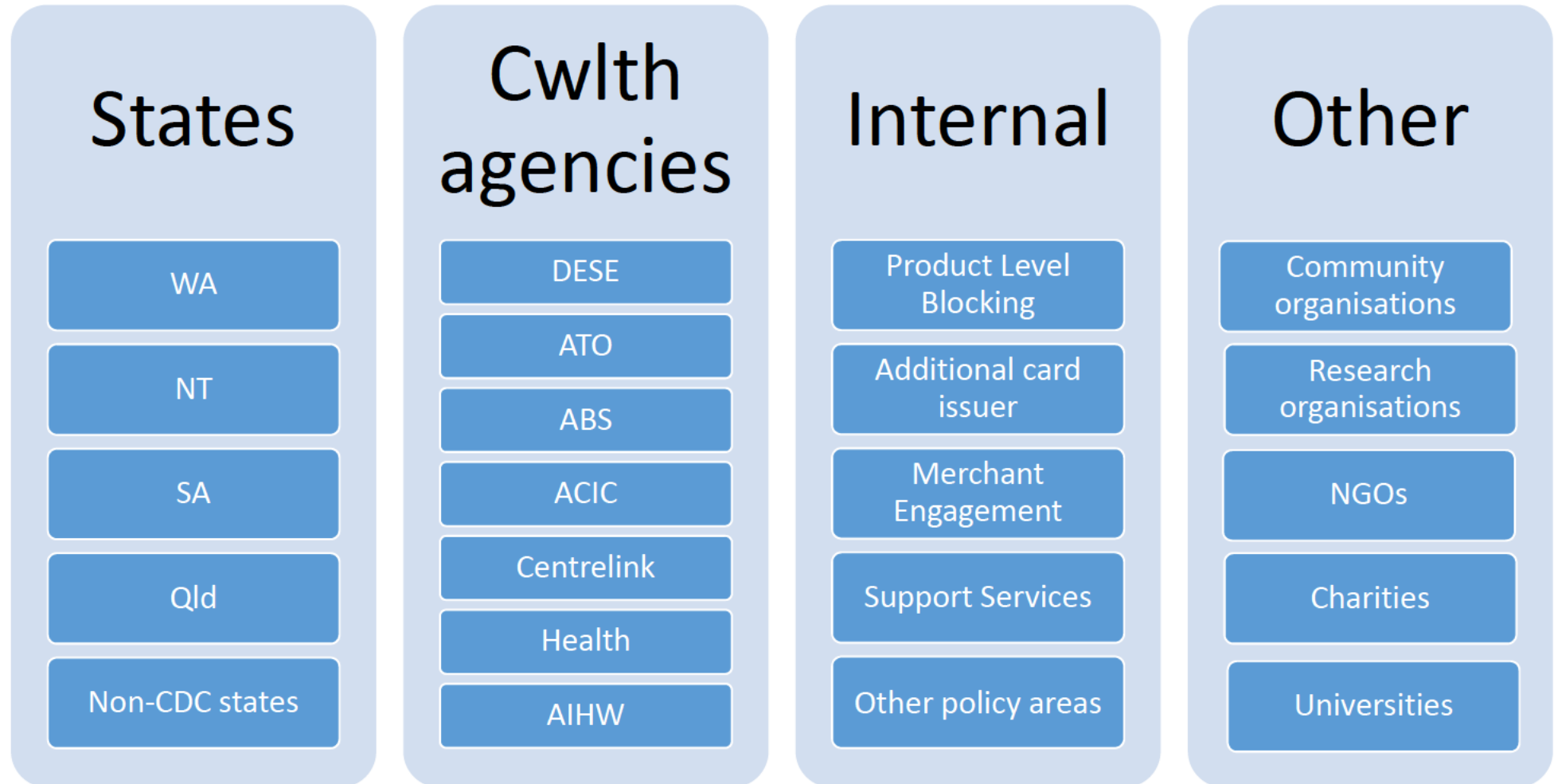
- Focus on data sharing for policy analysis: 'quick wins' that can be leveraged to negotiate further access
- Wide range of policy questions: social harms, community harms, unemployment and disadvantage, economic recovery
- Access to non government data through local community contacts



Negotiating data-sharing agreements and access

- WA - renewing agreement; meetings with several agencies
- NT - strong interest; developing a new agreement
- SA - discussions with Ceduna stakeholders; initial discussions with state agencies
- Qld - initial discussions
- DESE - discussing data related to Jobs Fund and job-readiness initiative

Potential data sources being scoped



Possible data sources - Commonwealth agencies

ABS

What information can we get?

Key statistical data by region

Employment, unemployment

Key stats and information about alcohol consumption and prevalence within Australia

Census data

Why do we want the data, what will it inform?

LGA data for a region to compare with state and national data

AIHW

What information can we get?

National and state child protection notifications, investigations and substantiations

Australia's health performance

Illicit use of drugs

Suicide and self-harm information

Why do we want the data, what will it inform?

Identify health trends

DESE

What information can we get?

Early childhood education by service type

School attendance

Higher education data

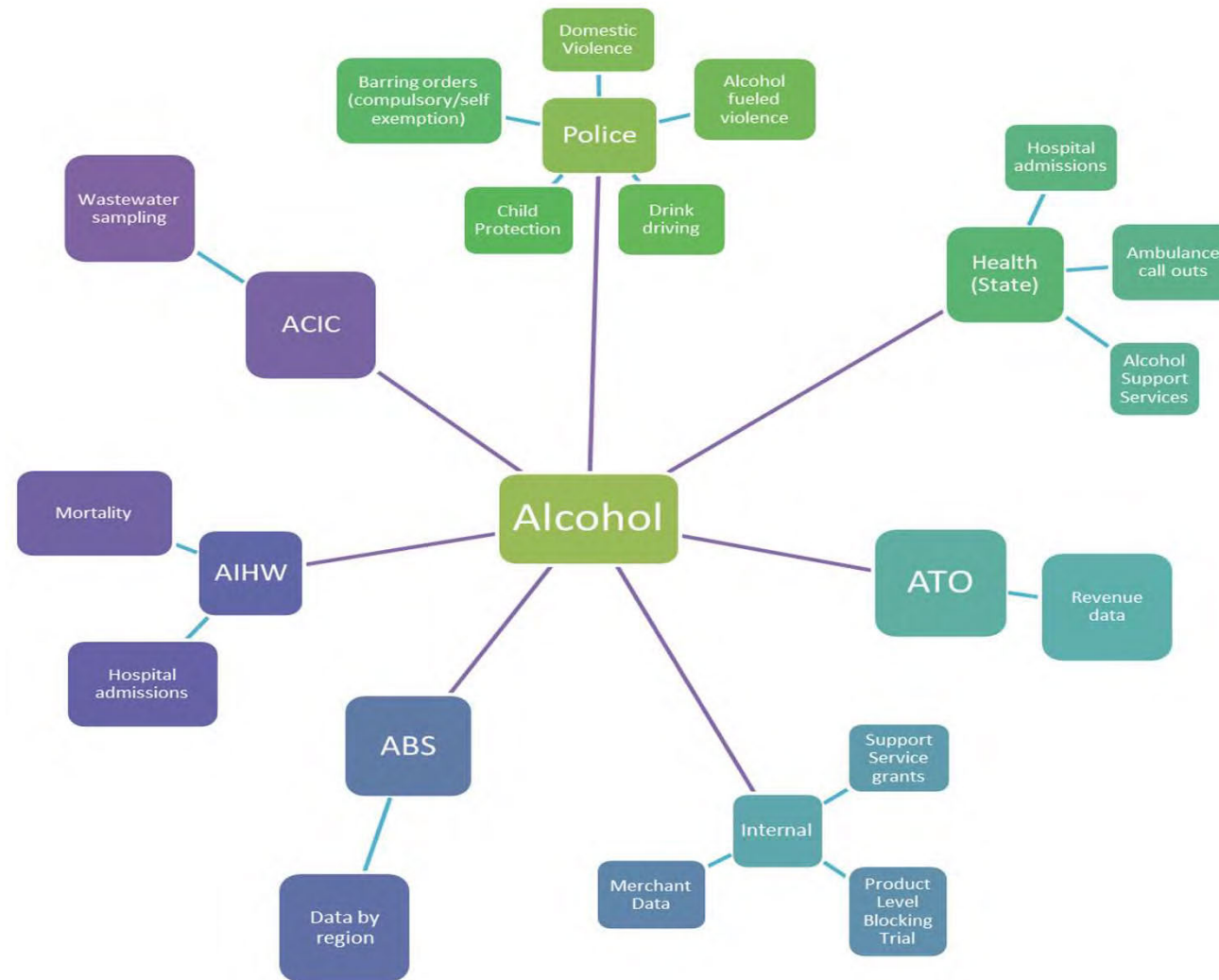
Job seeker compliance data

Community Development Program (CDP) data

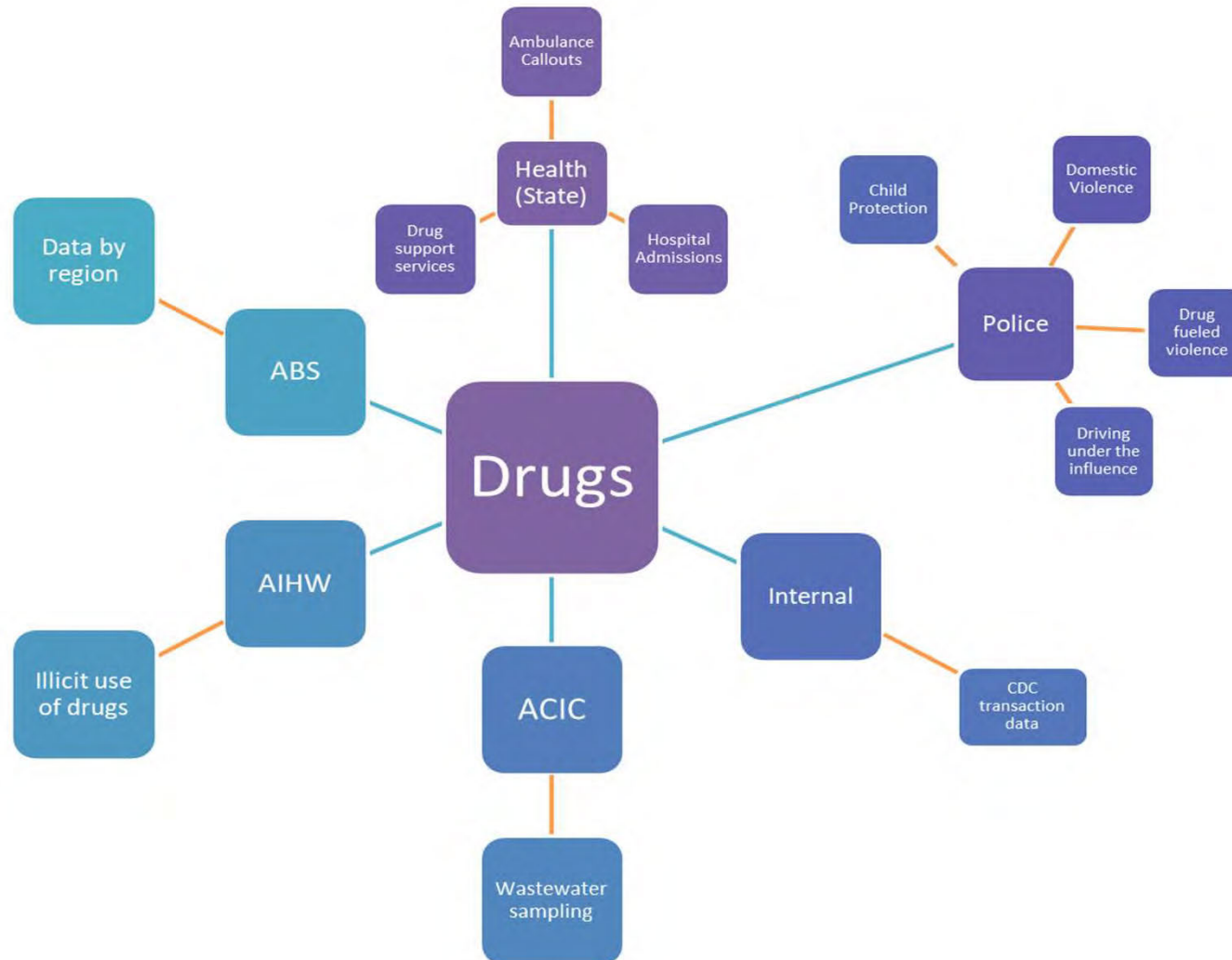
Why do we want the data, what will it inform?

Informs school attendance and job market participation

Possible data sources: agencies and types of data



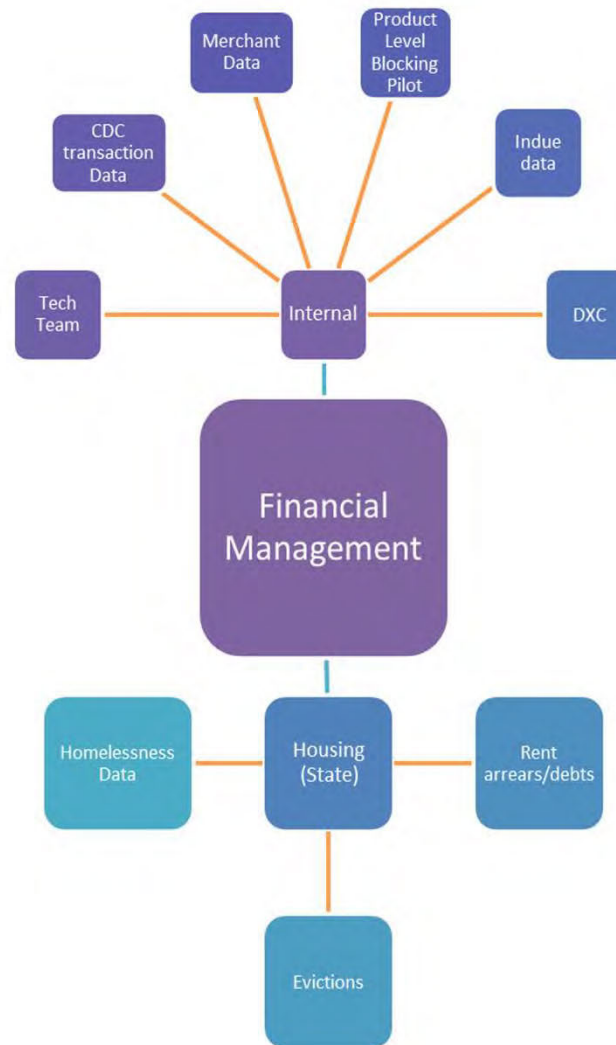
Possible data sources: agencies and types of data



Possible data sources: agencies and types of data

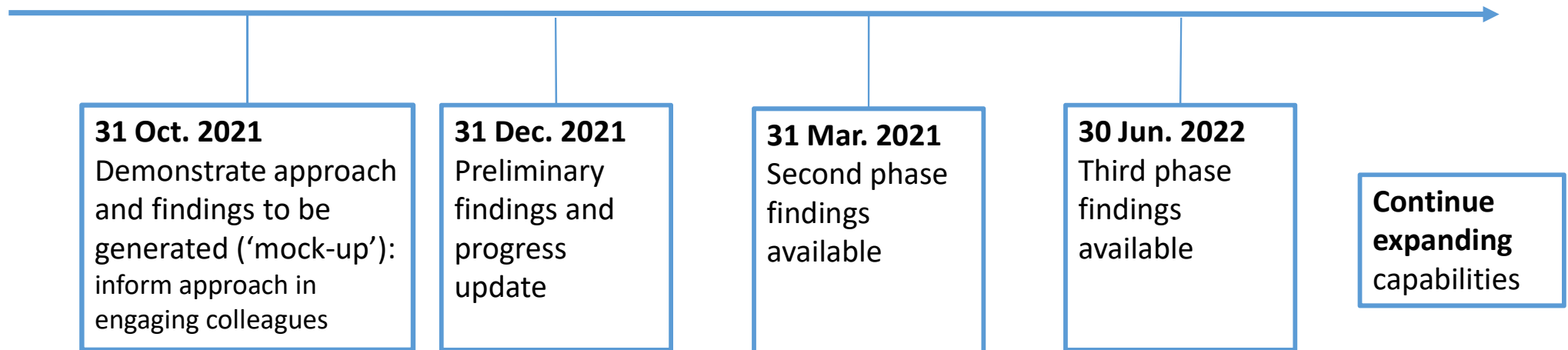


Possible data sources: agencies and types of data



Implementation

- **Data infrastructure:** to hold data assets that can be used to create baselines and build an evidence base
- **Data acquisition:** data-sharing agreements with states and territories; accessing data held by other Commonwealth agencies
- **Analytics:** data catalogue which will serve as an inventory, to house all CDC data assets



Data infrastructure

The Cashless Welfare Engagement and Support Services Branch is developing a data asset to enhance its data analytic capabilities.

- The department has secured a team of technical specialists from Deloitte to support the project work and design infrastructure holdings for the Cashless Debit Card and Income Management programs and build a baseline data asset.
 - Four members of the specialist team have commenced with the department just over five weeks ago.
 - The specialists are deep into the discovery phase of the project. The next phase includes building and delivering.
 - All phases are currently on track

Main objectives of the CDC data catalogue and data analytics (May 2021–June 2022):

- Key questions:
 - What do we know about social harms in CDC regions?
 - When is CDC an effective and appropriate way to deliver welfare?
- Generate evidence to contribute to the CDC future state
 - Noting legislation sunsets in Dec. 2022
- Long-term objective: build data assets and capabilities to inform policy into the future
- Proof of concept: use of integrated data to inform policy

Proposed timeline for building the data catalogue and generating findings:

- 31 Oct. 2021: demonstrate approaches and types of findings to be generated (previously referred to mock-up) and provide some early data to help inform policy direction and engagement with Cabinet colleagues
- Dec 2021: preliminary findings and update
- 31 Mar. 2022: second phase of findings available
- 30 June 2022: third phase of findings available
- These are ambitious timelines: the scope of the work is considerable.
 - The work is heavily dependent on data integration capability and capacity.
 - The department is carefully managing this project and will alert the office if there are risks to delivery.

How we will reach these milestones:

- Access data assets to build the data library: Commonwealth, state/territory, and data held by private organisations (NGOs, research orgs etc.)
 - Commenced negotiations to access data assets: this will be an ongoing project
 - New data assets added to data library as access secured with an initial pilot with one to two states (WA/NT)
 - Data assets will be linked where possible and data regularly refreshed.
- Expand data infrastructure and capabilities
- Data analytics:
 - Commencing analysis of linked welfare payment and CDC data (internal departmental analysis)
 - Multiple strands of analysis using linked state/territory and Commonwealth data assets (using consultant as recommended in MS21-000173)
- All analysis will be re-run at regular intervals, continuing to generate new findings.
- Findings and evidence:
 - Visualise findings: create digital dashboards by default
 - Share findings: demonstrate benefits to stakeholders
 - Evidence will inform CDC future state

Accessing state/territory and private data assets — managing risks to delivery:

- Dependent on negotiating access to data; need to manage governance, privacy and storage requirements
- Our strategy:
 - Build a reputation for best-practice management and use of data
 - Demonstrate our capability: how we can use data to understand and target social harms
 - Leverage this to negotiate further data access

Data linkage, privacy and security:

- All integration of state/territory data will comply with all relevant regulations and legislation.
- Data will be de-identified and assigned unique match key. This will ensure any privacy or confidentiality concerns are managed.
- Data will be handled and stored in secure IT environments with access controls managed by the relevant data custodians.

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Questions and answers**Q: Why was new data infrastructure needed?**

A: Data infrastructure is needed to support the data library and allow us to run analysis on a recurring basis.

Q: Why did the department engage a technical specialists?

A: We needed to build a data library and data infrastructure. We weren't procuring a report or an evaluation; we are procured services to build our capability to analyse data on CDC on an ongoing basis.

With a data library, IT infrastructure and analytics models, the department will be able to conduct analysis on a rolling basis. This means that we will be able to use the latest data to generate new evidence on social harms and the CDC as a way to deliver welfare payments, and we will be able to do so whenever it is needed.

Q: What steps are being taken to access administrative data?

A: We are focussed on improving the use of quantitative administrative data, with priority given to data held by states and territories.

Given the legislation sunset, we are focussed on ensuring that evidence to be available for stakeholder engagement prior to the introduction of legislation next year.

We imagine that you may also want data to inform decisions about the future state of the CDC – for instance if you wish to consider refining policy settings such as targeting.

Q: Does the department already have the data that will be used? If so, what are you doing with it now? If not, how long will it take to get access?

A: The department has some data assets, but we are aiming to build a much more comprehensive data library. We have linked CDC data with welfare payment data and are commencing analysis; at the same time, we are concurrently pursuing additional data assets.

Q: Why does it take time to get access to data assets?

A: There are legal and regulatory requirements governing access, storage, and use of data assets. These requirements vary depending on the nature of the data (such as whether it is personal or sensitive), and vary across jurisdictions. It isn't possible to circumvent these processes.

Q: What will you do if you can't get access to data assets?

A: There are a large number of data assets that we are seeking to negotiate access to: the 'snowflake' diagrams show the variety of institutions holding data that we may be able to use. We are currently discussing data access with a selection of these. If initial discussions are not successful, we will commence discussions with other institutions.

Q: Is it possible to leverage new processes linked to the Intergovernmental Agreement of data sharing and the national data priority areas?

A: It's correct to say that data-sharing related to the Intergovernmental Agreement is a priority for states and territories, along with the Data and Digital Ministers' Meeting.

The national data priority areas, however, are major policy priorities with multiple projects to be pursued under each. The CDC work is currently more focussed. We recommend that you engage with your Ministerial colleagues outside the Intergovernmental Agreement processes.

These processes linked to the Intergovernmental Agreement also have a high profile, and fewer opportunities to understand and manage stakeholder concerns. The department is being strategic in engaging with stakeholders in CDC regions in order to ensure that we can demonstrate that we are following best practice in how we use data and address any concerns from CDC participants.

Q: Why not just use AIHW data? Why not just commission AIHW to undertake analysis?

A: First, the AIHW data assets were not built to answer CDC policy questions — so they are unlikely to have the most directly relevant data. Second, commissioning analysis from AIHW would likely require more time to generate findings. Third, AIHW's services would also be one-off: we would receive a static report.

We have commissioned a technical specialist to build the department's capabilities to generate evidence of impact on an ongoing basis. Building our own data library will ensure that we have ongoing access to the data assets that are most relevant to CDC outcomes. Commissioning data analytics will allow us to re-run analysis as needed, rather than having a single report that cannot be updated.



Cashless Debit Card Data Analytics
Capability Uplift Plan
Department of Social Services
Cashless Welfare Engagement and Support Services

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1. Purpose

In support of The Department of Social Services (the Department) continued investment in Cashless Welfare, Deloitte has created a Data Asset (the Asset) for the Cashless Welfare Engagement and Support Services (CWESS) Branch. The Asset has provided the branch the ability to access and curate historical data related to the Cashless Debit Card (CDC) Program.

To ensure continued use and value derived from this project, Deloitte has developed the following capability uplift plan to ensure the Department has the capability to analyse and derive insights into the CDC Program. Analysis of the Asset and state or federal government data sources, especially integrated, requires a level of knowledge and skill to avoid misrepresentations and misinterpretations of data.

2. Learning Objectives & Requirements

2.1 Required Knowledge

To derive insights and an understanding of how the CDC is impacting relevant communities, analysts within the CWESS branch must have an understanding of the data, analytics tools and systems available within the Department. Analyst must have a technical understanding of the Assets software packages (SAS) and programming languages (SQL), as well as a foundational knowledge of data analytics techniques.

2.1.1 SAS Required Knowledge

SAS is the core software package utilised within the Data Asset. It gives analysts the ability to curate, develop and analyse data sets available to the branch to derive insights into the impact of policy in Australian communities. Additionally, the tools available within SAS Enterprise Guide (EG) gives the branch the ability to visualise curated data to identify immediate trends and additional avenues of analysis.

To utilise this capability available, analysts must have an understanding of the following SAS functions and code:

- | | | |
|---------------|---------------|-----------------|
| • Data [step] | • FIRST; LAST | • PROC DATASETS |
| • PROC SORT | • PROC SQL | • FROMAT |
| • IF; THEN | • %LET | • PROC REPORT |
| • RETAIN | • %SETDATE | |

Analyst should also be familiar with the following SAS EG summary and visualisation options available to them. Additionally, users must also become adept at modifying their own programs to change additional parameters and visual features such as colours.

- | | |
|-----------------------|------------------|
| • SUMMMARY STATISTICS | • LINE PLOT |
| • SUMMARY TABLES | • SCATTER PLOT |
| • BAR CHART | • BAR-LINE CHART |

<i>Skill/ Knowledge</i>	<i>Capability</i>	<i>Observation</i>	<i>Next Steps</i>
<i>SAS and SQL</i>	Novice to Beginner	<ul style="list-style-type: none"> Analysts are learning to create tables and joins between multiple data sets Limited confidence in skill and require one-on-one tutelage to complete tasks Analysts export data to Microsoft Excel before running calculations which can be completed in SAS Some analysts are adept at using the query builder, however, there is a reliance on the use of it for the Asset Some analysts are beginning to write programs without the help of Query Builder Some analysts can create visuals within SAS and tailor to user preference Some analysts can identify and expose abnormalities within the data 	<ul style="list-style-type: none"> Team members to complete SAS programming essentials and SAS macro essentials to have foundational knowledge of how to run basic codes in SAS Team members to undertake the Oracle basic SQL course to understand the core fundamentals of the language Team to then test knowledge in creating, curating and running calculations for basic analysis
<i>Comprehension of Asset and Underlying Data</i>	Novice	<ul style="list-style-type: none"> Analysts have a lack of understanding of the INDUE datasets and how banking data is provided Over-reliance on the DACP1168 report instead of the Asset Analysts are unfamiliar with differences between historical and snapshot data There is a lack of understanding of Services Australia payments, benefits and how the data are stored within the Asset Lack of understanding of nuanced logic for eligibility, declared areas and CDC status Lack of awareness about benefit determination (hierarchy) and history of benefit payment changes Lack of awareness about historical policy changes within Services Australia 	<ul style="list-style-type: none"> Analysts to work with the data structuring team to gain a better understanding of the asset and structures Analysts should work with the policy team to gain a greater understanding of the program, policy changes and benefit types Analysts to work with the Deloitte team aid in curating data for analysis Team to attend uplift workshops to build on core skills developed from mandatory trainings and analysis conducted for the March report

3. Training Plan

3.1 Approach

To uplift the capability of the Data Analytics team to meet the knowledge requirements ensuring continual development of data and insights a two phased approach is required:

- Deloitte will conduct a variety of training sessions and
- Analysts enrol in vendor lead training opportunities identified below.

The Deloitte sessions will be focused on developing the core skills listed in section 2 of analysts within the Data Analytics team. Training will be delivered by Deloitte through practical workshops, mentoring and working collaboratively with the Data Analytics team to produce insights. A full schedule and topics covered in these workshops can be found in section 3.3. To reinforce concepts delivered within the workshops and tailor training to individual analysts, Deloitte SME's will also conduct reviews to provide feedback and help further develop skills.

3.2 Mandatory Training

In addition to the training delivered by Deloitte, the following training courses are recommended for all analysts within the Data Analytics team to develop a core knowledge of SAS and SQL. Knowledge taught from these online courses will be assumed knowledge for the practical workshops.

3.2.1 SAS Mandatory Training

Core training in the SAS software package is available to all analysts through the SAS website. The courses recommended below will give analysts a foundational understand of the software, how to navigate within datasets and an understanding of core functionality.

Course	Description
<i>SAS Programming 1: Essentials</i>	This course teaches users to write SAS programs to access, explore, prepare and analyse data.
<i>SAS Programming 2: Data Manipulation Techniques</i>	This course teaches users data manipulation techniques using the SAS DATA step and procedures to access, transform and summarise data.
<i>SAS Programming 3: Advanced Techniques</i>	This course builds on SAS programming 2 to teach further advanced functions in using SAS DATA step and procedures.
<i>SAS Macro Language 1: Essentials</i>	This course focuses on using the SAS macro facility to design, write, and debug macro programs, with an emphasis on understanding how programs that contain macro code are processed.
<i>SAS Macro Language 2: Advanced Techniques</i>	This course covers macro quoting functions, macro storage, and macro techniques for advanced data access, table lookup operations, advanced parameter validation, and macro windows.
<i>Introduction to SAS/ACCESS Interface to Teradata</i>	This course teaches how to read Teradata tables in Teradata using the SAS 9.4 SAS/ACCESS Interface to Teradata.

3.2.2 SQL Mandatory Training

To gain a foundational knowledge of the SQL programming language, Deloitte recommends that analysts undertake the Oracle Databases for Developers: Foundations bootcamp. This course can be accessed through the Oracle Developers Gym website. The training delivered in this course is highly relevant to all analysts within the branch as it teaches SQL foundations in the context of Oracle databases, which are utilised in the data asset.

Course Module	Course Content
<i>Tables</i>	This module instructs users how to use and create tables within an Oracle Database using SQL.
<i>Columns and Data Types</i>	A review of the common SQL data types and their uses.
<i>Data Modelling</i>	This module provides an overview of the things you must consider when designing tables.
<i>Tables, Columns and Modelling Review</i>	Recap and testing module.
<i>Select and Where</i>	Teaches analysts how to use a select statement to get rows from a database and filter using a where clause.
<i>Joins</i>	This module teaches analysts about the different types of SQL joins: inner, left and right outer, full and cross.
<i>Aggregates and Group by</i>	This module covers how analysts can summarise data using aggregate functions and group by.
<i>Select, Joins and Group by Review</i>	Recap and testing module.
<i>Insert and Commit</i>	This module will teach analysts how to use insert to load data into database tables and save and undo your changes utilising commit and rollback.
<i>Update and Transactions</i>	Analysts will master the basics of changing values in tables using the update statement. It additionally, covers the concept of a transaction: a single, logical unit of work.
<i>Delete and Truncate</i>	This module will teach analysts how to remove data from a database using delete and truncate.
<i>Insert, Update and Delete Review</i>	Final review and recap of content within the course.

3.3 Data Analytics Workshops

The following table details the training workshops planned to support the capability uplift of the Data Analytics team. The proposed workshops have been scheduled for post the delivery of the March MO update to ensure enough time for delivery of the analytics work packages. These workshops will assist to reinforce behaviours and practices. Should an individual need immediate assistance, Deloitte will work with the analyst in a one-on-one mentoring and QA role. The dates for the workshop may be subject to change based on team availability from Deloitte and the Department.

These workshops will not be replacing online training that introduces users to basic concepts and methods. They will primarily revolve around interacting with the Asset to produce analytic outputs, using past analytic projects as use cases. This will allow the team to understand what has been produced in the past for the October update, and let them progress with the next phase. Recordings of these workshop will take place, for review and future training purposes for the branch.

Before the workshops commence, analysts should conduct their own reading on SQL and SAS syntax to prepare and to maximise time spent on concepts and analysis.

<i>Workshop Title</i>	<i>Date</i>	<i>Length</i>	<i>Topics covered</i>
<i>Indue & DACP data queries</i>	20/09/21	45min	<ul style="list-style-type: none"> • What data sets we want to query and how to join them • What tools and skills are required • Additional considerations (future of project and additional features being built)
<i>CDC Data Asset Introduction</i>	As required	1.5hr	<ul style="list-style-type: none"> • Software and access required to utilise the Asset • What is the functionality of the Asset • How to run the Asset • Data available within the dataset • How the data is structured within the Asset
<i>SQL Workshop 1</i>	7/03/22	1.0hr	<ul style="list-style-type: none"> • How to analyse data using aggregate functions with Group by commands
<i>SQL Workshop 2</i>	10/03/22	1.0hr	<ul style="list-style-type: none"> • What are the JOINS and UNION functions of SQL • Walkthrough of use cases and examples of JOINS and UNION functions
<i>SQL Workshop 3</i>	14/03/22	1.0hr	<ul style="list-style-type: none"> • Use of Import function for data analysis • How to update data for analysis • How to delete data from current analysis projects • How to insert additional data into analysis • How to alter tables for non-asset data
<i>SAS Workshop 1</i>	17/03/22	1.0hr	<ul style="list-style-type: none"> • Explanation of data step and how to manipulate data using this function • Explanation of the procedure to sort data using proc sort • How to export datasets from SAS • Walkthrough of SAS macros
<i>SAS Workshop 2</i>	21/03/22	1.0hr	<ul style="list-style-type: none"> • How to create data visuals within SAS • Walkthrough of summary functions available
<i>Longitudinal Analysis</i>	TBC	1.0hr	<ul style="list-style-type: none"> • Walkthrough and demonstration of how to analyse data to build a story that addresses a person's change in circumstances • Assessment of analysts understanding of the Asset and its tables
<i>Comparison Analysis</i>	TBC	1.0hr	<ul style="list-style-type: none"> • Defining, creating, and analysing comparison groups • Use of moving averages for comparison • Defining periods for comparison analysis

3.4 Ways of Working

To ensure capability for the branch is developed throughout the project, Deloitte will work in tandem with the Data Analytics team to provide mentoring to analysts. Deloitte SME's will conduct quality assurance and testing on analysis generated as part of the review of outputs prior to being included in the draft and final reports, providing any comments and questions to the analysts. This will also identify areas of strengths, best practices to implement in future analysis and skills which require further development.



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