

**DISRUPTING  
DISADVANTAGE**  
PART 2

2021

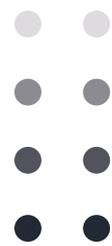
**Disrupting  
Disadvantage Part 2  
(2021)  
© CEDA 2021  
ISBN: 0 85801 310 X**

CEDA's objective in publishing this report is to encourage constructive debate and discussion on matters of national economic importance. Persons who rely upon the material published do so at their own risk.



# ABOUT THIS PUBLICATION

**Disrupting Disadvantage Part 2** focuses on the crucial role data can play in identifying where support is needed to stop children from being locked into a cycle of poverty. The report provides a roadmap for how better linked and accessible data could be safely rolled out in Australia to improve policy decisions and service delivery.



**CEDA –  
the Committee  
for Economic  
Development  
of Australia**

Level 3, 271 Spring Street,  
Melbourne 3000 Australia

**Telephone:** +61 1800 161 236

**Email:** [info@ceda.com.au](mailto:info@ceda.com.au)

**Web:** [ceda.com.au](http://ceda.com.au)

**About CEDA**

CEDA – the Committee for Economic Development of Australia – is an independent, membership-based think tank.

CEDA's purpose is to improve the lives of Australians by enabling a dynamic economy and vibrant society.

Through independent research and frank debate, we influence policy and collaborate to disrupt for good, and are currently focused on tackling five critical questions:

- How can Australia develop and grow a more dynamic economy?
- How can we build vibrant Australian communities?
- How can Australia develop leading workforces and workplaces?
- How can Australia leverage the benefits of technology?
- How can Australia achieve climate resilience and regain our energy advantage?

CEDA was founded in 1960 by leading economist Sir Douglas Copland. His legacy of applying economic analysis to practical problems to aid the development of Australia continues to drive our work today.

CEDA has more than 620 members representing a broad cross-section of Australian businesses, community organisations, government departments and academic institutions. Through their annual membership, CEDA members support our research both financially and by contributing their expertise, insight and experience.

CEDA's independence and nationally dispersed, diverse membership makes us unique in the Australian policy landscape, and enables us to bring together and harness the insights and ideas of a broad representation of our society and economy.

A full list of CEDA members is available at [ceda.com.au](http://ceda.com.au).



# CONTENTS

<b>Executive Summary</b>	<b>5</b>
<b>Recommendations</b>	<b>8</b>
<b>Introduction</b>	<b>10</b>
<b>1. How do we use data to identify and address disadvantage?</b>	<b>12</b>
<b>Peter Mulquiney, Laura Dixie and Andrew Ngai</b> Taylor Fry	
<b>2. How do we use data to engage our most vulnerable families?</b>	<b>27</b>
<b>Rhema Vaithianathan</b> University of Queensland and Auckland University of Technology <b>Diana Benavides-Prado</b> Auckland University of Technology <b>Gayani Tennakoon Mudiyansele</b> University of Queensland	
<b>3. A new Commonwealth-state approach to disrupting disadvantage</b>	<b>38</b>
<b>Jarrold Ball and Cassandra Winzar</b> CEDA	





# EXECUTIVE SUMMARY

*"Evidence shows the pandemic has further exacerbated the financial, employment and health hardships of Australia's most vulnerable and disadvantaged."*

In 2019, CEDA released the first in a series of papers on addressing entrenched disadvantage. It set the scene for examining how data, services and supports could be better connected to assist the 700,000 people who remain persistently detached from the economic and social opportunities that lie at the heart of wellbeing.

The full impacts of COVID-19 are still evolving, but evidence shows the pandemic has further exacerbated the financial, employment and health hardships of Australia's most vulnerable and disadvantaged. The urgency to act to provide an adequate safety net for those most in need and to reduce the risk of entrenching the next generation of disadvantage is growing.

The current situation reflects not only the impacts of COVID-19 but sustained under-performance for years in addressing disadvantage. As part of the UN Sustainable Development Goals (SDGs), Australia committed in 2015 to at least halve the proportion of men, women and children of all ages living in poverty. Six years on and with the proportion of Australians living in poverty remaining above 13 per cent, it is apparent that Australia has made no discernible progress against this goal.

Governments have set no intermediate targets, milestones, reform actions or reporting framework to reach this end goal. As a society we have increasingly relied upon organisations external to government to bring pressure and accountability to address disadvantage. Despite significant energy and effort this is not working.

*"We could and should choose to fundamentally change the way we support people in disadvantage and act earlier to prevent disadvantage becoming entrenched across generations."*

If current trends in child poverty are repeated for children expected to be born over the next decade, this points to a further 280,000 to 550,000 young Australians encountering child poverty in the future. These children will likely face developmental disruptions at a critical age and significantly increased risks of poverty in adulthood, becoming the next generation of disadvantaged Australians.

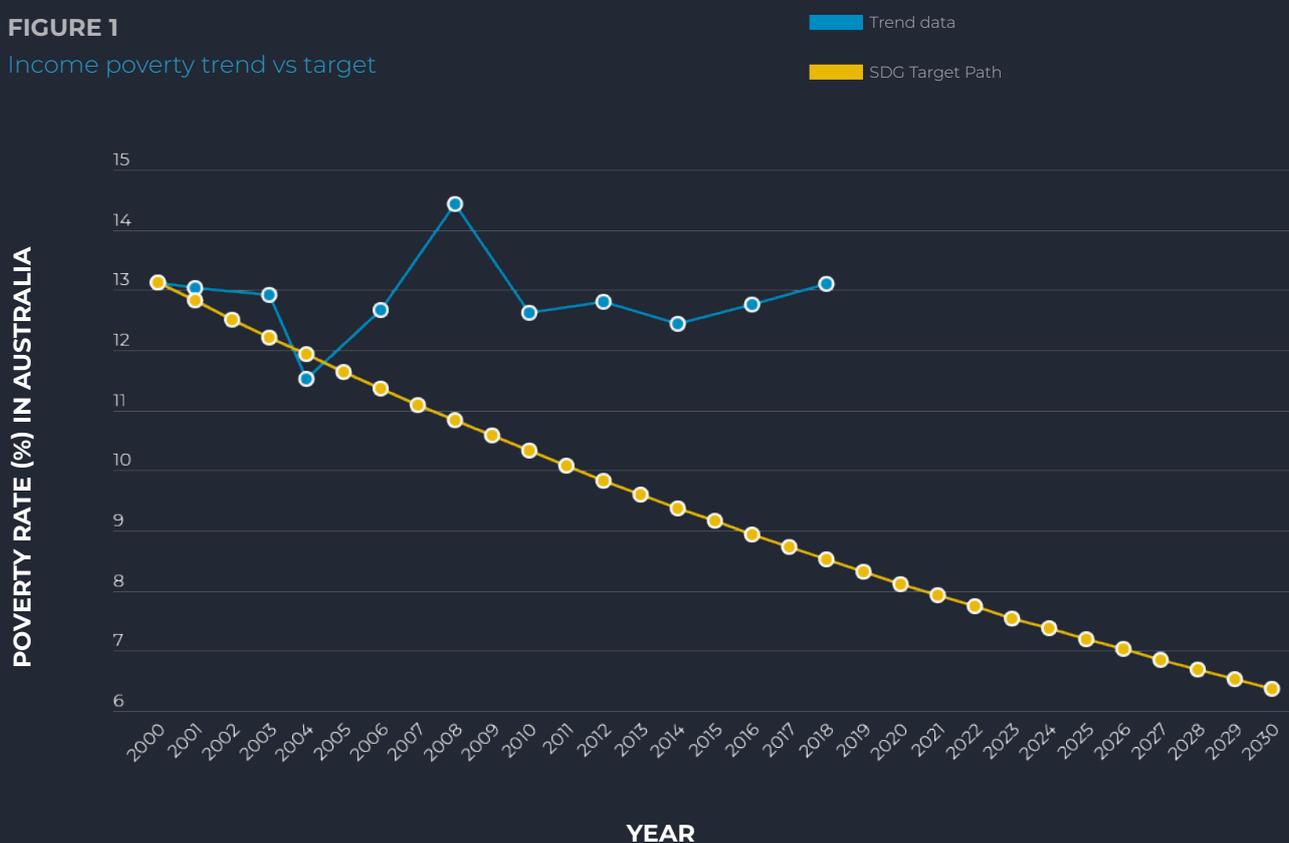
This outcome is not inevitable, but if we do not proactively respond to past performance and evidence of policy shortcomings it is a choice we are making as a nation. We could and should choose to fundamentally change the way we support people in disadvantage and act earlier to prevent disadvantage becoming entrenched across generations.

We need to use all the tools at our disposal to address this issue. There are growing opportunities and momentum across governments to connect and use administrative data, which could be transformative in overcoming disadvantage. Linked data can be an enabler to connect programs and resourcing more effectively across governments in support of better outcomes for people at risk of entrenched disadvantage from birth.

Australian governments – through the provision of human services including education, healthcare, income support,

**FIGURE 1**

Income poverty trend vs target



Source: ACOSS and UNSW Sydney - Poverty in Australia 2020; 50% poverty line (pre 2007 measure).



social housing, justice and child protection – collect a vast array of administrative data. When linked together in a careful and responsible way this data can be used to provide a sophisticated picture of the paths, predictors and preventors of entrenched disadvantage. This enables proactive delivery of better targeted, timely and integrated support to families and their children at risk.

We know that along with better economic opportunities, the right combination of supports such as remedial family therapy, drug and alcohol management and mental health programs can improve the lives of young people and break entrenched disadvantage. Linked administrative data can be used to customise and integrate such programs so that they are proactively provided to the most vulnerable, addressing the specific needs of individuals at the right times.

In addition, linked administrative data enables a focus on early intervention. We know that intervention in early childhood is more successful at influencing outcomes in adulthood than interventions in later childhood. Linked administrative data provides information on pathways from childhood through to adulthood, allowing the design and implementation of programs that disrupt disadvantage at critical points. Linked data can also be used to underpin the case for investing in preventative programs by more accurately estimating the costs and benefits over a person's lifetime.

For front-line workers, more effective linked data can and should enable better identification and prioritisation of the most disadvantaged who are the least engaged with services. We already have a multitude of prevention services designed to reduce adverse outcomes for socio-economically disadvantaged children and adults. Yet many of these programs are stretched too thin, trying to serve a larger number of clients than they were designed to, resulting in insufficient time to engage and re-engage with clients. Additionally, these programs tend to address the needs of only those families and children who are already engaged in government support through referrals from GPs, midwives or school social workers. We need to change how we engage the most disadvantaged in the community to a 'we find you' approach, rather than relying on families to seek out assistance, or waiting until families are in crisis and become known to service providers.

Breaking this cycle requires services to be effective in reaching and serving the most marginalised and at-risk children and families in the community. Integrated data and advanced analytics offer potential for reaching and serving people better, earlier and more intensively. Mobilising this data for impact and benefit requires a careful, responsible and sustainable approach founded on clear objectives, frameworks and coordination across governments. Social licence will need to be built over time, but with the use of appropriate guardrails, community consultation and communication of benefits, this can be achieved.

There are examples from both Australia and overseas that point to the benefits of integrated data, including New Zealand's Integrated Data Infrastructure, South Australia's Early Intervention Research Directorate, and early childhood intervention projects in Scotland and Romania. The evidence is building that integrated data approaches can make significant inroads into entrenched disadvantage.

## Recommendations

CEDA is recommending that governments develop and implement a new National Agreement to reduce disadvantage and poverty, with a focus on the development and use of integrated data as a circuit breaker for early intervention. The agreement should articulate an overarching objective to measurably reduce disadvantage and poverty towards Australia's SDG target. This agreement should be subject to community consultation and include a range of complementary initiatives to address disadvantage, such as enhanced income support and support for more affordable housing.

This proposal recognises that disadvantage is an issue that needs joined-up coordination and support from both levels of government. The Commonwealth and state governments each fund and administer supports and services that are critical to disadvantaged populations, including some that are jointly funded and interdependent.

The agreement should focus on two priority actions to integrate data and enable early intervention:



### Recommendation 1

Establish a consolidated linked national human services data asset by 2025.

The recently agreed Intergovernmental Agreement (IGA) on Data Sharing commits all jurisdictions to share public sector data as a default position, where it can be done securely, safely, lawfully and ethically. This IGA recognises data as a shared national asset and aims to maximise the value of data to deliver outstanding policies and services for Australians by informing better decision-making, evaluation, implementation and service delivery.

Governments can leverage this ground-breaking agreement to establish an integrated de-identified human services data asset – linking data from both federal government (such as Medicare and Centrelink) and state governments (such as health, child protection and justice data). This asset would provide the basis for designing and evaluating the effectiveness of targeted, timely and integrated support to families and their children to prevent child poverty as early as possible. Use of the data asset would be subject to strict protocols and with the purpose of improving service delivery and supports for the community.

Integrated data on this scale would facilitate better understanding of the paths, predictors and preventers of entrenched disadvantage. Identifying the scale of data sharing and its use could build from the work done during the pilot phase of the National Disability Data Asset (NDDA), which data and digital ministers supported in late 2019.



## Recommendation 2

Pilot predictive analytics to design early intervention services for young Australians at greatest risk of disadvantage.

While an integrated de-identified human services data asset will better connect the dots between Commonwealth and state programs and assist policy design and evaluation, it will not directly assist frontline practitioners in identifying and supporting those most in need. This will require linked identified data at the state and territory level.

The potential benefits of combining data with predictive analytics in this way are significant, but the threshold for community acceptance and necessary safeguards are understandably much higher. There is, after all, a significant difference between anonymised data being utilised in high-level policy design and a teacher having access to a family's health data.

As part of the agreement, states could therefore opt-in to pilot new approaches to service provision based on the use of predictive analytics. Pilots would be based on the maturity of their data assets and existing service models. Services could be piloted first in areas where social licence and community acceptance of using identifiable linked data is likely to be higher. For example, protecting children from exposure to maltreatment, inter-partner violence, severe mental health and substance abuse.

By piloting some interventions and communicating the approach and benefits to the community, social licence will be able to build over time. But this will need to be done methodically in consultation with impacted communities, practitioners and the community services sector. Significant data storage, use and application safeguards will need to be developed, communicated and implemented alongside these pilots. Guardrails, such as those developed by the Centre for Social Data Analytics<sup>i</sup>, will need to be in place to ensure data is only used to benefit communities and strengthen services and support.

<sup>i</sup> See <https://csda.aut.ac.nz/>

The priority data actions in this agreement will be enabled by governments accelerating momentum in the broader data policy agenda. This agenda must be given continuing priority by all governments to provide the enabling legislation, governance, privacy and public service capability to increasingly adopt a data-led approach to better policy and program design, evaluation and delivery.

Australia's response to the COVID-19 pandemic has demonstrated that clear objectives, political will, funding and innovative policy design can make a significant difference to economic and social outcomes in our community. As Australia emerges from the pandemic, it is critical that governments grasp the elements of recent success and apply them to finally make headway on reducing poverty and disadvantage. We have an obligation to use all the assets and tools at our disposal to overcome entrenched disadvantage. The use of data to identify and intervene with our most vulnerable is a crucial tool that has been underdeveloped and must be invested in by all levels of government.



# INTRODUCTION

*"Against a target to halve poverty by 2030 and the continuing risks of the COVID-19 pandemic further entrenching existing vulnerabilities, Australia must fundamentally change its approach to disrupt disadvantage in the next decade. "*

In 2015, the federal government adopted the UN Sustainable Development Goals along with other nations around the world. One of the goals is to end poverty in all its forms, including a national target to reduce by least half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions by 2030.

Australia has made no material progress against this target with 13.6 per cent of the population living in poverty in 2018, slightly higher than in 2015.<sup>1</sup> There were also 700,000 people living in entrenched disadvantage at last count – experiencing continuous income poverty for at least the last four years.<sup>2</sup>

The figures behind these headline numbers are even more sobering, suggesting that disadvantage starts at all too young an age and can become entrenched from there. Today, 17.7 per cent of children under the age of 15 are living in poverty.<sup>3</sup> This portends a bleak future with recent research showing children who grew up in poor households are 3.3 times more likely to be in poverty in adulthood than those who grew up in never-poor households.<sup>4</sup>

Against a target to halve poverty by 2030 and the continuing risks of the COVID-19 pandemic further entrenching existing vulnerabilities, Australia must fundamentally change its approach to disrupt disadvantage in the next decade.

CEDA has long supported proposals to lift income support payments to an adequate level, but this alone will not be sufficient to prevent the next generation of entrenched disadvantage and thereby reduce future rates of poverty.

*"We must find new ways to structurally disrupt disadvantage from birth."*

In 2019, CEDA proposed a new course of action in *Disrupting Disadvantage: setting the scene*. CEDA recommended using integrated government data and analytics to assist children at high risk of disadvantage at birth and targeting support to respond to these risk factors.

Australian governments have made strides in the collection and linkage of data in recent years, including reforms precipitated by COVID-19. But they are yet to embrace a data-driven approach that would reduce future disadvantage by disrupting it at the earliest possible life stage.

We must find new ways to structurally disrupt disadvantage from birth.

This CEDA policy paper examines in greater detail how state and federal governments can adopt a data-led approach to disrupting disadvantage. It does this in three parts drawing on external expert contributions:

- Examining the system of data and variables required to detect and address disadvantage from an early age (Dr Peter Mulquiney, Dr Laura Dixie and Andrew Ngai of Taylor Fry)
- The potential to use an integrated data approach to engage with the most vulnerable and at-risk families who often do not access services designed for them (Professor Rhema Vaithianathan, UQ and AUT; Diana Benavides-Prado, AUT; and Dr Gayani Tennakoon Mudiyansele, UQ)
- A roadmap for federal and state governments to pursue a new coordinated, integrated and collaborative approach (Jarrod Ball and Cassandra Winzar of CEDA).

1.  
HOW DO WE USE  
**DATA TO IDENTIFY**  
AND ADDRESS  
**DISADVANTAGE?**





# 1. HOW DO WE USE DATA TO IDENTIFY AND ADDRESS DISADVANTAGE?



**Peter Mulquiney**  
Principal, Taylor Fry

**Peter Mulquiney** is a Principal of Taylor Fry. His role centres on analytics, drawing on more than 15 years' experience in actuarial consulting. He provides advice to business clients, the social sector and injury schemes. He is a qualified actuary and holds a PhD from the University of Sydney.



**Laura Dixie**  
Manager, Taylor Fry

**Laura Dixie** is a manager at Taylor Fry. She currently works across the health, education and social sectors, applying her skills to support government in making evidence-based decisions. She is a qualified actuary and holds a PhD from Victoria University of Wellington.



**Andrew Ngai**  
Director, Taylor Fry

**Andrew Ngai** works with government and general insurance clients on a range of actuarial and analytics projects, particularly in social policy, person-centric modelling, hospital funding and accident compensation. Andrew played a lead role in an Australian Government project predicting individual life pathways and interactions with the welfare system to help develop better policies for vulnerable people. He has also advised the Government for many years on activity-based hospital funding, conducted a range of actuarial projections and analyses for government accident compensation schemes.

### **Role of data to detect and support young Australians at risk of falling into entrenched disadvantage**

Australian governments – through the provision of human services including education, healthcare, income support, social housing, justice and child protection – collect a vast array of administrative data. This administrative data includes information such as income levels in households, utilisation of welfare support, educational attainment, measures of early childhood development and reports of domestic violence.

When linked together in a careful and responsible way this data can be used to provide a rich picture of the paths, predictors and preventors of entrenched disadvantage. This enables delivery of better targeted, timely and integrated support to families and their children at risk.

For example, we know that the broad availability of supports such as remedial family therapy, drug and alcohol management and mental health programs can improve the lives of young people and break entrenched disadvantage. Linked administrative data can be used to refine such programs so that they are targeted to groups that are the most vulnerable, address the specific needs and characteristics of each group and are delivered in a timely manner.

In addition, linked administrative data enables a focus on early intervention. We know that intervention in early childhood is more successful at influencing outcomes in adulthood than interventions in later childhood. Linked administrative data provides information on pathways from childhood through to adulthood and allows us to identify and design appropriate interventions. Linked data can also be used to inform the business case for an intervention by more accurately estimating the costs and benefits over a person's lifetime.

While Australian governments have recognised the importance of linked administrative data for tackling disadvantage – and there has been good progress in the collection and linkage of data in recent years – there are still several barriers which hinder its widespread use.

This chapter examines the linked data required to detect and address disadvantage from an early age and makes recommendations that would better enable the use of linked data.

## CASE STUDY 1

### NZ Ministry of Social Development (MSD)

The NZ Ministry of Social Development Investment Approach was developed in the 2010s and is an example of how a high quality linked administrative data asset has been developed over time and used to support better policy decisions and interventions. The following table shows some examples of how the MSD has analysed linked administrative data and used the results to drive policy or service design and delivery.

What did the data analysis enable?	What was the resulting policy/service response?
Quantification of pre-existing hypotheses – for example it was already recognised that early entry to the benefit system for work-able people was an indication of likely poor life outcomes. However, data analysis quantified the extent of this problem in the context of long-term benefit dependency (75 per cent of future benefit use and cost related to people who first came onto benefit in their teens).	This highlighted the need for MSD to prioritise their services to youth who were not in education, employment or training, and supported the case for the establishment of the Youth Service which helped these people develop life skills and educational qualifications.
Better understanding of individual pathways of benefit usage.	Supported by the analysis, MSD introduced a new tiered service delivery model which better aligned the intensity of service provision with clients' needs based on their projected future benefit use. This was an improvement from the previous one-size-fits-all model.
Identification of at-risk or priority cohorts, for example sole parents were likely to have high levels of long-term benefit use.	The Ministry investigated roadblocks to supporting sole parents into sustainable employment and found that, for example, standard childcare hours did not cover the hours that many retail and hospitality jobs operate. This led to a new Flexible Childcare Assistance product which allowed payments to be made to family and friends for taking care of children. This supported sole parents to work outside of standard childcare hours.
Evaluation of program effectiveness, such as the 3K to Work grant (a relocation grant to help jobseekers who have secured a full-time employment offer in a different region).	Data analysis showed that 68 per cent of grant recipients were still off benefits after a year – significantly higher than the 48 per cent for other clients with similar backgrounds who did not receive the grant, providing strong evidence that the 3K to Work grant was effective.

## Different types of data

The focus of this report is on making better use of linked administrative data to help detect and support Australians at risk of falling into entrenched disadvantage. The focus on linked administrative data does not discount the importance of other sources of data for understanding and preventing disadvantage. Longitudinal studies (such as the Australian Institute of Family Studies' Growing Up in Australia) and academic studies all play a crucial role in understanding the causes of disadvantage and designing interventions to assist those at risk. Indeed, while we focus on linking administrative data because it is relatively under-developed in Australia, the goal should be to link it with other kinds of data wherever possible to provide a richer picture – especially of needs that have not been registered in administrative data because people are not in contact with the relevant services. Linked administrative data, if set up appropriately, can offer valuable features, in particular:



Comprehensive coverage of all Australians, not subsets chosen for particular studies.



Long-term view – administrative data over decades allows us to understand how factors at an early stage of life influence outcomes and pathways later in life. This is crucial for identifying important risk and protective factors and quantifying the longer term pay-off of early intervention. This long-term data can help understand the social and fiscal costs potentially avoided by early intervention, which can in-turn help make the business case for their funding.



Cross-sectoral view – by linking data across government departments and agencies, the inter-dependencies of predictive factors and outcomes across areas such as health, income and welfare, housing, homelessness, child protection and criminal justice can be understood collectively.



Detailed pictures of individuals' interactions with key government services that can help with the design of more effective interventions to reduce entrenched disadvantage.

*"Researchers generally agree that low income or poverty is a constant factor in social disadvantage and is strongly associated with material deprivation, another hallmark of social disadvantage."*

To date, enabling linked administrative data has not been given the focus or priority it deserves. This focus is also the foundation needed to get to the richer linked data sets that integrate a range of different kinds of data.

## **Variables necessary in the early detection of future persistent disadvantage**

In this section we discuss the linked data required to measure and predict disadvantage and monitor outcomes.

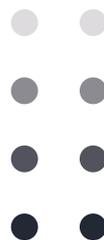
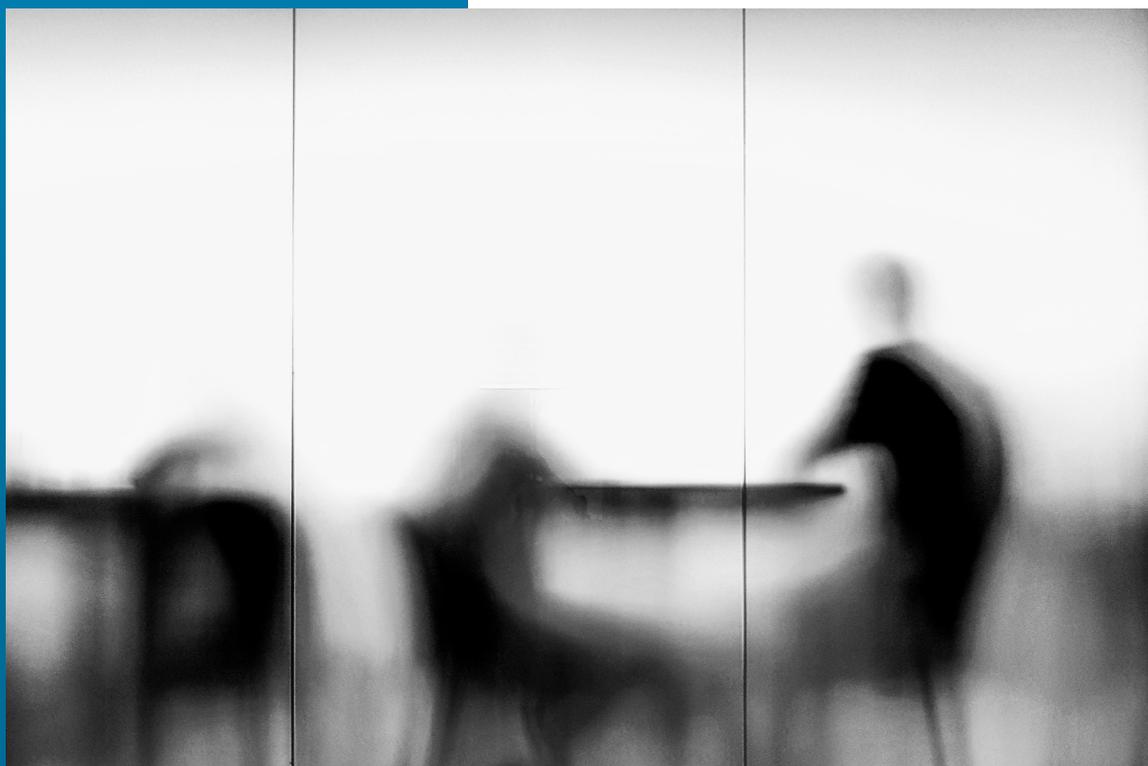
### **Variables to measure disadvantage**

Detecting and monitoring disadvantage requires definitions of what we are measuring.

#### **What is social disadvantage?**

Researchers generally agree that low income or poverty is a constant factor in social disadvantage and is strongly associated with material deprivation, another hallmark of social disadvantage. However, while many low-income families gradually transform to higher income families, some 30 per cent<sup>5</sup> of families in poverty remain in poverty for protracted periods and indeed, for the entirety of a childhood. Accordingly, it is families suffering long-term poverty which may be considered socially disadvantaged from an economic perspective.

Income poverty only provides a limited view of social disadvantage. It is also important to account for a range of other measures of health and social inclusion, such as the frequency of social activity and the presence of a permanently disabled or chronically ill parent, as these are likely to reflect the family's more chronic social deprivation in addition to their economic deprivation.





## An actionable measurement of disadvantage

Pragmatically, there are many contributing factors and measurements of disadvantage and they are often highly correlated. For example, in NSW, a comparison between vulnerable young children<sup>6</sup> and a random group of other young children (of similar age, gender, Aboriginality and socio-economic status) shows that the vulnerable group are expected to have significantly worse outcomes across a range of domains including welfare (1.4x higher usage), health (1.7x more likely to have alcohol and other drug related hospital admissions), safety (2.5x more likely to enter custody), housing (2.5x more likely to use social housing), and so on.

A comprehensive measurement of disadvantage would require a vast array of cross-sectoral variables and self-reported survey responses. However, for action, a simpler measure could be put in place that:

- Correlates with poor outcomes
- Is supported by stakeholders
- Is based on data that exists already (or is likely to exist soon) and covers a broad population

A first step would be to use an income-related measure (using welfare receipts and income tax data). Considering persistent welfare receipt as an example, this somewhat imperfectly:

- Correlates with poor outcomes. For example, comparing children of parents with extensive welfare receipt to children of parents with no welfare receipt, the former are<sup>7</sup>:
  - » Nearly 30 percentage points less likely to complete Year 12
  - » Nearly six times more likely to be dependent on income support as adults
  - » Likely to be dependent on working age benefits for twice as long
- Readily exists and covers a large portion of the population, particularly those at risk of entrenched disadvantage.
- At least partially mitigates some common criticisms of income poverty measures:
  - » Welfare is means tested and is therefore more reflective of low buying power than simply having low income (which may not always equal low assets)
  - » Payment rates mean people receiving welfare for extended periods can be considered to be experiencing material hardship
  - » Extended duration of receipt means this is not a point in time metric

Overlaying income information (from the ATO) and education or training course information would enhance the view that welfare dependence is directly connected with employability.

Taking an income-related view of disadvantage does not mean ignoring outcomes in other domains. Indeed, there are several outcomes frameworks used by Australian governments which attempt to provide a more holistic view of an individual's

outcomes across a wide range of domains including health, safety, social connectedness and employment. We believe such frameworks provide a useful and more complete picture of disadvantage over and above the one provided by an income-related measure alone. However, there are complexities in defining and measuring outcomes within such frameworks and we think significant progress can be made using the income-related measure above without first needing to overcome the definitional and measurement difficulties.

The key action required to progress this measure of disadvantage is to prioritise the linkage of state and Commonwealth data. At present most government administrative data is held by the states, which provide the majority of human services, while welfare and income data is held by the Commonwealth government. There are currently considerable barriers to linking Commonwealth and state data which are impeding its use across governments – this is discussed further in Chapter Three.

### **Predictive factors**

In addition to measuring disadvantage another important use of linked administrative data is the identification of familial risk factors associated with long-term or intergenerational disadvantage. Among these, some combination of parental mental illness; drug, alcohol or gambling addictions; low parental cognition and intra-family violence are often present and are usually the focus of child protection interventions by the state. Since most of these families remain intact, the children remain in socially disadvantaged circumstances. As the previous CEDA report observes, children growing up in families where the only risk factor was lack of parental employment are unlikely to become disadvantaged adults. It should be noted however, that children removed from disadvantaged families may also have very poor outcomes as adults and remain disadvantaged. A study using linked welfare payment data<sup>9</sup> found children and young people were 1.8 times more likely to need welfare if their parents have a history of receiving welfare themselves. They noted the intergenerational correlation was particularly strong in the case of disability payments, payments for those with caring responsibilities, and parenting payments for single parents.

Similarly, there exist protective factors which are associated with families not experiencing entrenched disadvantage. Administrative data generally captures (proxies of) risk factors and not protective factors. This is because service delivery is generally provided to those needing support. Absence of service is often the best available (proxy for) protective factors.

Data makes possible the identification of risk factors and thus early interventions which may prevent chronic disadvantage. For example, in NSW<sup>9</sup> risk factors such as age, parental alcohol and drug issues, maternal smoking during pregnancy, presence of birth defects, Risk of Significant Harm assessments, and use of mental health services were used to identify six groups of vulnerable children who are likely to have significantly worse social outcomes in later life.

*"A study using linked welfare payment data found children and young people were 1.8 times more likely to need welfare if their parents have a history of receiving welfare themselves."*

**FIGURE 2**

The following are examples of variables in the research literature<sup>10</sup> found to be risk and protective factors for future persistent disadvantage:

Category	Potential variables
 DEMOGRAPHICS	<ul style="list-style-type: none"> <li>• Age</li> <li>• Sex/gender</li> <li>• Number of siblings/children</li> <li>• Ethnicity and languages spoken</li> <li>• Indigeneity</li> <li>• Cultural and linguistically diverse</li> <li>• Geographical location</li> </ul>
 HEALTH	<ul style="list-style-type: none"> <li>• Mental health service use</li> <li>• Intellectual disabilities</li> <li>• Injuries, hospital admissions, emergency department presentation</li> <li>• Illnesses and medication use (e.g. via Medicare Benefits Schedule or Pharmaceutical Benefit Scheme data)</li> </ul>
 PERINATAL	<ul style="list-style-type: none"> <li>• Gestational age</li> <li>• Birth defects</li> <li>• APGAR score (a test given to newborns soon after birth)</li> <li>• Admission to special care nursery or neonatal intensive care</li> <li>• Maternal smoking during pregnancy</li> </ul>
 CHILD PROTECTION	<ul style="list-style-type: none"> <li>• Out of home care (OOHC) – duration, age at entry, type, number of placements</li> <li>• Concern reports, risk of significant harm reports</li> </ul>
 JUSTICE	<ul style="list-style-type: none"> <li>• Interactions with justice system, e.g. episode of custody, court finalisation for offence, juvenile caution</li> <li>• Alcohol or drug related offence</li> <li>• Domestic violence victim or offender</li> </ul>
 SOCIO-ECONOMIC	<ul style="list-style-type: none"> <li>• Parental welfare usage (e.g. duration on income support)</li> <li>• Welfare usage, in particular at a young age (e.g. young parents/carers, or students transitioning to working age income support)</li> <li>• Parental income, wealth and occupation</li> <li>• Whether parents are separated</li> </ul>
 HOUSING	<ul style="list-style-type: none"> <li>• Social housing or homelessness service usage</li> <li>• Changes in residence</li> <li>• Geographic region</li> </ul>
 EDUCATION	<ul style="list-style-type: none"> <li>• School academic results (e.g. NAPLAN)</li> <li>• School absences</li> <li>• School completion</li> <li>• Parental school completion and qualifications</li> </ul>

*"There is often little that is in the control of the child and their potential pathway to disadvantage, which is significantly influenced by risk and protective factors applying to their parents or other household members."*

It is also essential to obtain a household view of risk and protective factors. Many are relevant from both child and parental perspectives. This is particularly the case for non-health related risk factors during early childhood. There is often little that is in the control of the child and their potential pathway to disadvantage, which is significantly influenced by risk and protective factors applying to their parents or other household members.

One of the more comprehensive sources of household information is welfare administrative data, because of the interconnectedness of household members' incomes for purposes of welfare benefits assessment.

This re-enforces the importance of linking state and Commonwealth data. The most complete information we have on household structure for disadvantaged households is Commonwealth data and so the linkage of this data with administrative data, particularly on service usage, from the states is critical to identifying where intervention will be most useful.

### **Progress to date for linked data**

To support the type of analysis and investment we are discussing here, linked data needs to:

- Cover a wide range of outcomes/services (breadth)
- Cover a large population (coverage)
- Be routinely refreshed with up-to-date data
- Have a simple and efficient process for researchers to access and assess
- Be stored and analysed in a safe manner that protects privacy.

### **The Stats NZ Integrated Data Infrastructure as a benchmark**

The [Stats NZ Integrated Data Infrastructure](#) (IDI) is a world leading example of data linkage and provides a current benchmark to compare against. The IDI brings together administrative data from essentially every government agency as well as census results and regular surveys of samples of the population. The inclusion of survey data enables some testing of how government service use aligns with self-reported wellbeing measures.

The IDI is refreshed every quarter, allowing for the inclusion of up-to-date information for key data sources and providing the opportunity for new data sets and or variables to be included. Some data sets are only refreshed annually where that aligns with key updates – for example, educational attainment.

Applications for projects to make use of the IDI are assessed on a six-week cycle<sup>11</sup>. They are reviewed by subject matter, legal and methodology teams. Access is limited to the data sets required for the project (not always all available). There are currently hundreds of users working on hundreds of projects leveraging the IDI.

There are ongoing efforts to create standardised tables for users to reduce the time to generate data sets, speed up the analysis and encourage consistency.

## Current state of data linkage in Australia

Analysis of linked health data has been used for a long time in epidemiological and clinical studies. Over the last ten years the use has both increased and broadened. In Australia, the 2017 Productivity Commission inquiry into Data Availability and Use noted that significant reforms were required to enable better sharing of data. This in turn would “*enable new products and services that transform everyday life, drive efficiency and safety, create productivity gains and allow better decision making*”.

Since then, some progress has been made with States and Territories in similar positions where the linked information from various departments within their own jurisdiction is available, but the processes in place are designed for one-off projects.

Generally:

- State health services data for the full population is linked with regular refreshes.
- Additional linkages to other state services are possible, but generally carried out on a project-by-project basis.
- Accessing the data is on a project-by-project basis. This involves a lengthy process of both data custodian permissions and ethics committee approvals. The scope of each research project is tightly constrained.

**FIGURE 3**

Some linked data assets have been set up by the Federal government and states with the intention they become more widely used and regularly refreshed. The table below highlights some examples.

Federal	ABS Multi-Agency Data Integration Project	NSW Human Services Data Set
Breadth	A broad range of federal data included, from the: <ul style="list-style-type: none"> <li>• Australian Bureau of Statistics</li> <li>• Australian Taxation Office</li> <li>• Federal Department of Education, Skills and Employment</li> <li>• Federal Department of Health</li> <li>• Federal Department of Social Services</li> <li>• Services Australia</li> </ul>	A broad range of services and registries covered, including: <ul style="list-style-type: none"> <li>• Health (state)</li> <li>• Education</li> <li>• Justice</li> <li>• Child protection</li> <li>• Disability</li> <li>• Housing sectors</li> <li>• Family linkages are also included</li> </ul>
Coverage	Full population	NSW population born after 1 January 1990 plus their parents and carers
Regular Refresh	Annual	Intended to be annual
Access Process	Every project needs to be approved by the ABS and some projects also require consideration by data custodians.  Access for approved researchers and project is via the ABS DataLab using the five safes framework.	Access to the Data Set is tightly controlled by two Public Interest Directions granted by the NSW Privacy Commissioner.

*"Overall, the required data exists, the linkage capabilities exist (although not at the scale required), the secure storage solution and privacy protocols exist."*

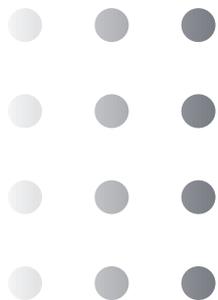
The linkage of data between the states and the Commonwealth remains a significant challenge for the states. Chapter Three explores some of these barriers. Several Commonwealth service data sets would be of significant value in social disadvantage research if they could be linked with the wealth of state data across other domains, including welfare data from the Federal Department of Social Services, income data from the ATO and health data from MBS and PBS.

Overall, the required data exists, the linkage capabilities exist (although not at the scale required), the secure storage solution and privacy protocols exist. Regular refreshes of linkages to cross-sectoral and federal data to enable measures of progress are lacking. Access is burdensome for all parties and work is potentially duplicated. An overarching infrastructure and access process is needed so valuable data assets can be accessed in a timely fashion to enable research that supports policy and provides insights to decision-makers.

### **The role of private sector**

There is also a role for the private sector, specifically non-government organisations (NGOs) in both the use of such data and in providing feedback about the effectiveness of interventions for various disadvantaged groups.

Most support for disadvantaged people, including children, is directly provided by government agencies. However, an increasing proportion is available from the private sector, specifically the NGOs. This support may be highly integrated and range from early intervention and prevention to

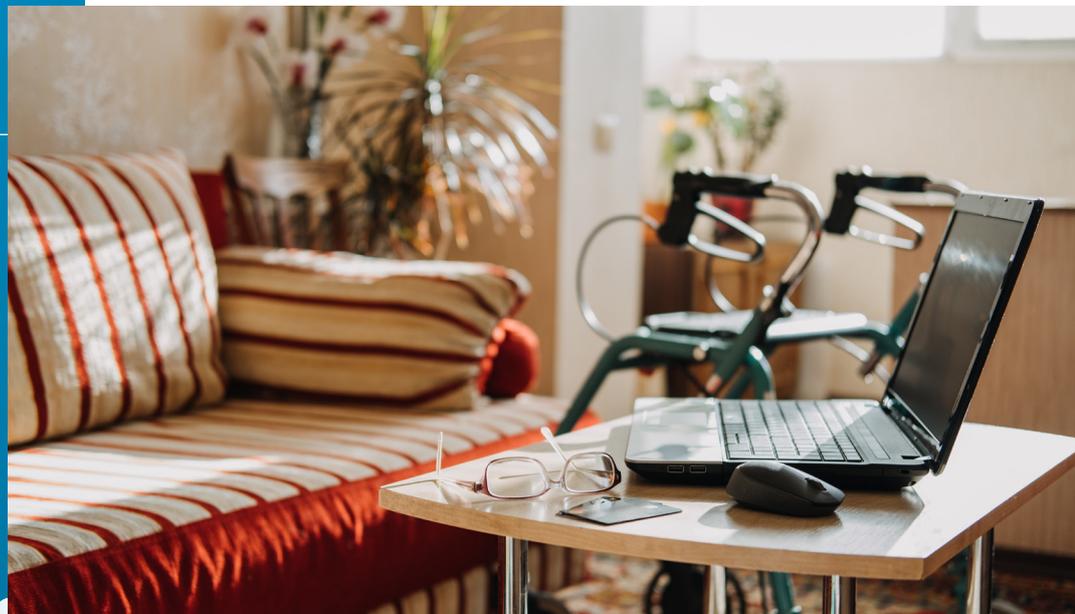


interventions during critical episodes, such as out of home (foster) care and acute drug and alcohol services. Many non-government organisations, such as the Benevolent Society, Anglicare and Catholic Care, have been providing these services for longer than governments, dating back to the Victorian era. Leading NGOs have sophisticated research departments and are often at the forefront of developing or adapting interventions to suit client conditions or emerging risks.

NGOs almost universally acknowledge that their work with disadvantaged people could be more effective if they had access to better linked data on the disadvantaged cohorts they work with.

### Challenges to getting this right

The challenges that need to be overcome to better use data to detect and support young Australians at risk of falling into entrenched disadvantage, fall into two broad categories – technical and political.



Technical challenges relate to the IT infrastructure and processes needed to securely store and link the data, allow regular data refreshes and provide access for data analysis. The experience of the Integrated Data Infrastructure in New Zealand, together with the numerous linkage projects that are carried out within Australia on a smaller scale, show that the technical ability currently exists.

A key recommendation of the Productivity Commission Data Accessibility Report was to streamline access to administrative data between governments and for a limited range of trusted users – such as approved researchers. We would go further than this and recommend that all governments commit to having a consolidated linked national human services data asset in place by 2025. That data set would link both Commonwealth

*"Key measures are likely to include storing the data securely with only remote access provided to researchers; requiring aggregated exports to be vetted; and training requirements for researchers."*

and state administrative data, providing the best understanding of disadvantage, as well as risk and protective factors, that our administrative data currently allows. It would also require regular refreshes so that the impacts of interventions can be monitored and so that interventions can be refined and improved over time. Regular updates are also important when Government needs to respond rapidly to emerging issues. This would have proved invaluable to both state and Federal governments during 2020-2021 in understanding the impacts of COVID-19 more widely.

Ethical and privacy considerations also need to be front of mind when using linked administrative data.

Ensuring data is used wisely and well and without breaching individual privacy is a challenge for Australian researchers and policy makers. Australians are concerned about the access to, and use of, their personal data. Even with de-identified data, the more information or services that are added the higher the re-identification risk. These legitimate privacy concerns can be managed. Key measures are likely to include storing the data securely with only remote access provided to researchers; requiring aggregated exports to be vetted; and training requirements for researchers.

The technical capability to develop an integrated data approach is there. However, there remain other significant barriers to overcome – particularly around political will and developing community acceptance. These are discussed in more detail in Chapter Three.



## Conclusion

Linked administrative data can be used to provide a rich picture of the paths, predictors and preventors of entrenched disadvantage. This in turn can provide the basis for delivering targeted, timely and better integrated support to at-risk families and their children.

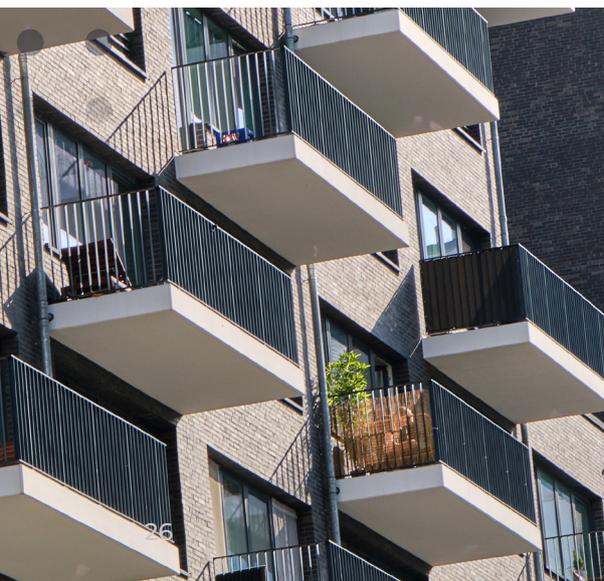
While Australian governments have recognised the importance of linked administrative data for tackling disadvantage, enabling the analysis of linked administrative data has not been given the focus or priority it deserves.

The administrative data available from Australian governments allows us to measure disadvantage – for example welfare and taxation data enables an income-based measure of disadvantage – and to identify a range of risk and protective factors associated with disadvantage.

Further, the technical and ethical considerations that are required for analysing linked and administrative data are manageable if the systems and resources are put in place to make sure they are subject to ongoing oversight and management. This has been demonstrated by Stats NZ Integrated Data Infrastructure, which has provided a streamlined process to access linked data for close to 10 years. Critically this data is regularly updated and covers the full population, almost every government service, as well as population surveys.

Current processes for approving projects, sourcing data and linking data tend to be carried out on a project-by-project basis. This duplicates work and creates barriers to research and timely monitoring and evaluation. Further, valuable linkages between Federal and state data are lacking.

To overcome these barriers, we recommend that all governments should commit to have a consolidated linked national human services data asset in place by 2025, starting with the linkage of key Commonwealth and state data sets.



2.

# HOW DO WE USE DATA TO ENGAGE OUR MOST VULNERABLE FAMILIES?





## 2.

# HOW DO WE USE DATA TO ENGAGE OUR MOST VULNERABLE FAMILIES?



**Professor Rhema Vaithianathan**

University of Queensland and Auckland University of Technology

**Rhema Vaithianathan** is a Professor of Social Data Analytics at the Institute for Social Science Research at The University of Queensland (UQ) and a Professor of Economics at Auckland University of Technology (AUT), New Zealand. She is the Director of the Centre for Social Data Analytics, a research centre with sites at AUT and UQ. Rhema is recognised internationally for translational research that uses data analytics for social good. She has been working with health data and collaborating with hospitals and health policy agencies for over 25 years, including work on indigenous health and disparities. Rhema has held numerous research positions in Australia, Singapore and the United States, including a Harkness Fellowship at Harvard University.



**Diana Benavides-Prado**

Auckland University of Technology

**Diana Benavides-Prado** is a Senior Research Fellow at CSDA, AUT. Her research interests span transfer learning and human-algorithm collaboration. She investigates fundamental aspects and applications of these paradigms. Diana's applied experience includes leading the design, experimentation and deployment of machine learning tools to support decision making in child welfare in several jurisdictions across the US.



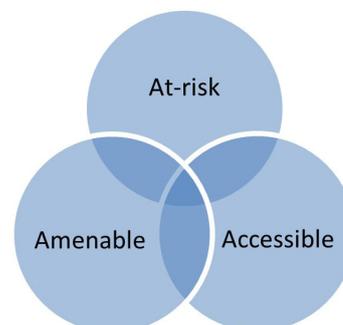
**Dr Gayani Tennakoon Mudiyansele**  
University of Queensland

**Dr Gayani Tennakoon Mudiyansele** is a postdoctoral research fellow at CSDA based at the Institute of Social Science Research, University of Queensland. Gayani is passionate about using data science for social good. Her work to date includes exploring machine learning methods with health administrative data to identify patients at risk of adverse outcomes or disengagement from services. Gayani's research interests include predictive risk modelling, explainable machine learning, and unsupervised machine learning with text and graph-structured data.

### Introduction

We already have a multitude of prevention services designed to reduce adverse outcomes for socio-economically disadvantaged children and adults. Yet many of these programs are stretched too thin, trying to serve a larger number of clients than they were designed to, resulting in insufficient time to engage and re-engage with clients. Additionally, these programs tend to address the needs of only those families and children who are already using services because referrals from GPs, midwives or school social workers are required. This chapter argues for the use of linked administrative data to better find and engage the most at-risk families earlier and more intensely.

There are three components to identifying the right families for a proactive prevention program: those who are at risk; those who are amenable to the program; and those who are able to and willing to engage with the program. In this chapter, we outline how data can be used to address the first component of prevention: finding at-risk families.



**FIGURE 4**  
Defining the 'right' families



## Alternative approaches to identifying families at-risk

In current prevention programs, we tend to identify at-risk families in one of three ways. The traditional approach is for professionals who are already engaging with the family, such as a GP, midwife or school social worker, to identify that they might benefit from additional supports and arrange a referral. While a human judgment approach is easy to use and tends to gain acceptance with the staff and organisations, there is considerable evidence that it is prone to error due to personal bias and other judgment errors.<sup>12</sup> Additionally, this approach is only useful for families that are well known and engaged with the referring service, usually requiring a stable place of residence. For many of the highest risk families, GPs or midwives might struggle to engage with them to deliver their own service, let alone referring them to others.

The second approach that is often taken is to use characteristics of the person – sometimes called a threshold model. Such an approach could be a simple set of eligibility criteria that families or children have to meet. For example, many nurse-visiting programs are restricted to low income, first-time young mothers.<sup>13</sup> The advantage of this approach is that it doesn't rely on intermediary referrals and instead the service provider can proactively contact the families who meet the criteria. The problem with these approaches is that they often identify too many families. This means that the services are either stretched too thin or pick and choose those most engaged clients from a long list of an eligible population. More time-intensive approaches are actuarial models.<sup>14</sup> Actuarial models are decision models that are not computerised but depend on a user (for example, a social worker) who answers a series of questions. These questions are then translated into eligibility criteria. Because these tools rely on frontline staff answering a series of (often subjective) questions before establishing eligibility for a program slot, they are prone to the same errors in human judgment both in their application and interpretation.

The third approach is to use integrated administrative data to build a predictive risk model (PRM) that can automatically screen and prioritise families based on their risk of harm. Predictive risk models are statistical/machine learning models that use existing data about families, such as birth records, public health and welfare records, to automatically generate the risk (probability) that a child or family will experience an adverse outcome in the future. Table 1 illustrates such an approach.

## CASE STUDY 2

Case study of the use of integrated data to identify children at risk of future child maltreatment or abuse: The Hello Baby Pilot in Allegheny County

### Background

In 2020, Allegheny County, Pennsylvania (the County surrounding the city of Pittsburgh) decided to use a Predictive Risk Model (PRM) to identify families at risk of child maltreatment.

### What problem was the Hello Baby PRM model trying to solve?

The County found that almost half the children who were severely maltreated were never known to child protective services. Additionally, many of the children identified by the PRM were not being served by County-funded prevention programs.

### How does the Hello Baby PRM model work?

When a child is born, the County uses the birth record data to contact parents and explain that County-held data about them will be used to identify eligibility for programs. Parents are given time to opt out. Once the opt-out period has passed, the PRM runs. Those families identified as being at the highest risk are proactively engaged – with phone calls and personal visits from community-based workers who have lived experience, as well as strong community relationships.

### Using PRM versus simple eligibility rules such as poverty or teen-parenthood

The County compared using a threshold model that used either Medicaid eligibility (as a proxy for poverty) or teen motherhood to recruit families. They calculated the relative risk of adverse outcomes for the eligible families versus non-eligible families. They found that using PRM as the eligibility rule identified families at considerably elevated risk of adverse outcomes.

For example, they found that a family recruited using the PRM tool was at 22 times higher risk of abuse or neglect, 14 times higher risk of homelessness and 27 times higher risk of maternal mortality. By contrast, eligibility based on the family enrolled in a poverty-related program or with a teenage mother were only between three to five times higher risk.

TABLE 1

Alternative approaches to eligibility and relative risk of adverse outcomes

	Families selected using PRM Tool	Families receiving a poverty related program (Medicaid)	Teen mothers
Number of eligible children	2626	2719	2285
Abuse and neglect (removals)*	22.24 [17.50, 28.25]	3.05 [2.56, 3.64]	3.57 [2.99, 4.27]
Homelessness services assessment*	14.81 [12.18, 17.99]	3.08 [2.34, 4.08]	2.27 [1.62, 3.18]
Maternal mortality	27.44 [11.74, 64.15]	5.39 [1.99, 14.59]	2.2 [0.51, 9.4]
Child post-neonatal mortality	4.47 [2.6, 7.7]	2.20 [1.10, 4.38]	2.31 [1.12, 4.79]
Violent, accidental and maltreatment related child mortality/near-mortality	5.54 [3.4, 9.0]	2.83 [1.54, 5.20]	3.26 [1.78, 5.96]

\* implies that the results are statistically significantly different between the PRM method of selection and the other methods.

### CASE STUDY 3

#### Using the Allegheny Family Screening Tool to support triaging of child abuse calls

##### Background

The leadership team at the Allegheny County (PA) Department of Human Services worked with a multidisciplinary team to develop the Allegheny Family Screening Tool (AFST). The team was led by Professor Rhema Vaithianathan from the Centre for Social Data Analytics (CSDA), along with collaborator Emily Putnam-Hornstein from the University of North Carolina and Children's Data Network.

##### What problem was the model trying to solve?

The AFST supports a key decision on child welfare made by call screening staff in the Allegheny County Department of Human Services (Allegheny County DHS): whether a given child maltreatment referral should be screened in for investigation. Prior to the tool, call screening staff and their supervisors made this decision largely based on judgement and available case history. Allegheny County DHS deployed the AFST in August 2016 and has since deployed updated versions of the PRM and the screening tool.

##### How does the PRM model work?

The AFST makes use of a score that is automatically generated by a PRM trained on the Allegheny County data. The Allegheny County PRM predicts home removals within two years of the referral. The AFST relies on the PRM score (taking the highest score across all children named in the referral) plus a set of evidence-informed protocols to inform and/or guide screening practice.

##### Impact

The use of the tool did not lead to an increase in children requiring investigation but did increase the number of children requiring intervention. The children identified through the tool were different than those identified through more traditional social worker approaches. The use of the AFST notably reduced the disparity between black and white children identified as requiring interventions. Ensuring the right targeting earlier on should lead to better outcomes for children and families.

## Using machine learning to stratify populations

Once data has been collated and linked, it can then be used with machine learning techniques to identify populations with high-risk factors. Social data tends to be structured – data that is able to be represented in tables. Previous research has shown that this data can be used to extract features that characterise individuals and events associated with these individuals and can be highly predictive of outcomes of interest,<sup>15</sup> including the Douglas methodology<sup>16</sup> and Birth Model methodology.<sup>17</sup> Machine learning methods such as LASSO Regression<sup>18</sup> are relatively simple techniques that achieve good levels of accuracy to support decision-making.

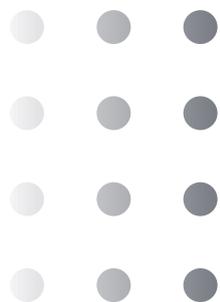
The challenge, therefore, is not the technical aspects of using the data to identify populations. One of the challenges of using machine learning methods to predict outcomes related to individuals is the degree of fairness in machine learning-based predictions for different population subgroups. Research under the umbrella of algorithmic fairness has investigated methods and methodologies for diagnosing and fixing differences in the performance of machine learning models for different subpopulations.<sup>19</sup> However, no single recipe works for each problem, and the solution usually requires both a technical and social perspective.

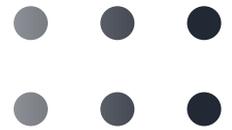
*"Another challenge when using machine learning for decision-making with impact on individuals is that of explaining machine learning models or their predictions."*

Similarly to the issue of fairness, another challenge when using machine learning for decision-making with impact on individuals is explaining machine learning models or their predictions. For example, if a family is being prioritised for services based on the mother's age, then people can understand the rationale. If it's because the family received a specific score from a complex machine learning tool, people might be more uncomfortable. In our experience, clear and early communication is valuable. At the Centre for Social Data Analytics, we produce public *Methodology Reports* for the machine learning tools we deploy. These documents include information on what decision points the tool is supposed to help; how decisions were being made prior to the tool; and how those decisions might be different. We also provide technical information about the training and validation of the tools.<sup>20</sup>

### **Getting social licence for an integrated data-driven approach**

Machine learning and other big data methods often require integrated data across multiple systems. It is important to note that data and analytics for operational use is very different to integrating data for research, planning and policy analysis. Much of the discussion to date in Australia has focussed on the need for integration in a latter context. For example, the Productivity Commission report on Data Sharing<sup>21</sup> (2017) and the Data Availability and Transparency Bill<sup>22</sup> (2020) currently in front of the Australian parliament appear to combine both types of data sharing under the same umbrella. However, most of the





*"If we are to advance the agenda of using integrated administrative data for serving at-risk families we need the broader community to agree that the benefits from the use of the data is in proportion to the problem that needs to be solved, and trust that the data will be used in the way that they expect."*

examples are about sharing historical data, where data sets from different Commonwealth and state systems are linked together for research, but where individuals cannot be identified. The primary difference between this type of data sharing – which has limited operational use – is that data integration for service delivery requires data across multiple systems to be integrated in an identifiable way and to be available to doctors, teachers and other frontline workers from across social service sectors.

An example of this would be if a state decides to integrate its health and education data for operational use. This means that frontline workers, such as a GP, would be able to look at, say, the truancy records of a young patient with mental health issues to better understand what is happening at school. Similarly, a school social worker would be able to receive an alert that a pupil's main caregiver has just been admitted to hospital so as to arrange for the pupil to get appropriate educational support. From the community's point of view, data sharing in an anonymised way for research planning and policy might be quite acceptable. However, knowing that teachers can access health data about them and their families might make people uncomfortable.

These sorts of cross-system data integrations require a much stronger social licence. However, if we are to advance the agenda of using integrated administrative data for serving at-risk families, we need the broader community to agree that the benefits from the use of the data is in proportion to the problem that needs to be solved, and trust that the data will be used in the way they expect. Figure 5 outlines the guardrails that the Centre for Social Data Analytics (CSDA) uses when advancing the use of integrated data for machine learning tools applied to high stakes and sensitive cases.

If data is not able to be integrated across systems, it might still be possible to identify families using only one system's data if that system has rich electronic case management systems or transaction data. For example, data collected at the birth of a child and integrated with maternal and family health records might be sufficient to identify children at risk of a range of adverse outcomes.

**FIGURE 5**  
CSDA Guardrails

 <p style="text-align: center;"><b>Agency ownership</b></p>	 <p style="text-align: center;"><b>Community voice</b></p>
<p>The agency needs to be seen to take ownership for the procurement, development and deployment of the tool. Agency leadership should have a strong understanding of the solution on offer, and be confident that the tool is a good fit for the policy and practice challenges they face. It is the agency’s job to make sure the tool is developed and introduced in a way that is appropriate for, and acceptable to, the local community. The agency may consider establishing a governance entity to ensure accountability for major project decisions. The agency should be prepared to publicly explain and justify the project.</p>	<p>To deploy predictive analytics in a trusted way, the agency needs to engage purposefully with its community, with a focus on groups who will be most affected. That might include advocacy groups, provider groups and individuals who have previously engaged with the government system, as well as leaders in related domains (for example health, law enforcement). The agency should plan community engagement from the start of the project. The chosen approach should meet the unique needs of their local community and should stand up to scrutiny upon deployment.</p>
 <p style="text-align: center;"><b>Evaluation</b></p>	 <p style="text-align: center;"><b>Ethical review</b></p>
<p>After deployment, the accuracy and impact of the updated decision-making system, which now includes the tool, needs to be evaluated. Evaluation would usually take the form of a quasi-experimental study or a randomised controlled study. Replication is another important way to ensure that the tool introduced is the same tool described in the methodology document.</p>	<p>An ethical review identifies ethical concerns about the proposed implementation of a tool and in response the agency should explain the steps it will take to address those concerns. If existing ethical guidance for a use case is available, a new ethical review may not be necessary. The agency should ensure that promised steps are taken and areas of concern are monitored, and should be prepared to report on the ongoing success of its response to ethical concerns.</p>
 <p style="text-align: center;"><b>Domain engagement</b></p>	 <p style="text-align: center;"><b>Transparency and fairness</b></p>
<p>Development of the tool should include input from one or more experts in the relevant domain. It is essential that the agency learns from, and works closely with, the frontline staff who will use the tool and be most affected by its introduction. The agency should engage regularly with those staff, providing high quality education and training, and involve key staff in the design of new business processes.</p>	<p>A commitment to transparency and fairness is essential. Transparency means the agency is actively working to share the thinking behind, and details of, the project. Fairness measures, including subpopulation analyses, external validation, ongoing quality assurance and post-deployment evaluation are the best ways the agency can counter common concerns about bias in the tool.</p>

## The challenge of proactively engaging with hard to reach clients

While integrated administrative data and machine learning offers major opportunities for the stratification of populations, the challenges to realising the benefits are the ability of frontline services to proactively engage with some of the most disengaged parts of society. In much of our work at CSDA, we have found that frontline workers – be they GPs, social workers or community nurses – tend to feel so overwhelmed by the complex cases they are already dealing with, that they have no interest or bandwidth to focus on people in their community who might be disengaged. For example, a GP might say I have hundreds of patients in my waiting room, why should I be trying to reach out to those who can't be bothered to turn up?

In CSDA's experience, many frontline services that were explicitly designed to support the most vulnerable over time morph to serving families from a much wider group, because of the difficulties engaging with hard-to-reach families. For example, evidence from New Zealand shows that the majority of children who are receiving the most intensive home visiting program are not from the highest risk strata.<sup>23</sup> The use of risk-stratification tools that identify those that are at highest risk allows commissioners of services to focus frontline services on these hard-to-reach populations and prioritise them for engagement and tailored service delivery.

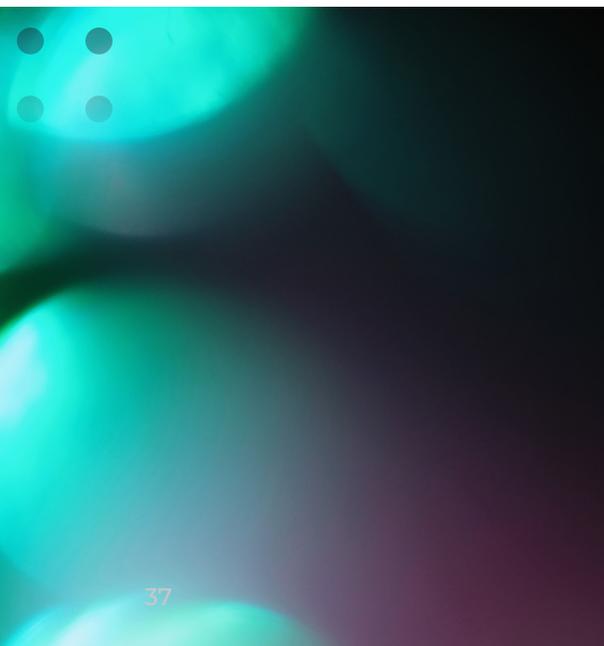
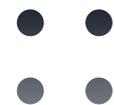


## Conclusion

In order to make a difference in overcoming entrenched disadvantage, we need to prioritise data and tools for frontline workers. Identifiable integrated data and the ability that such systems bring to allow health care workers, teachers, social workers and others to be able to join up their activities, has the ability to be transformational.

The current debate on data – and the data breaches that make front page news – leaves the conversation heavily weighted towards the risks. This has led to a situation where policy makers use these methods for inconsequential low-stakes activities rather than addressing some of the big social policy problems. In the area of disrupting disadvantage, the big policy problems include protecting children from the adverse effects of maltreatment, inter-partner violence, severe mental health, homelessness and substance abuse within families.

In Australia we face major challenges of increasing inequality and calcification of disadvantage. Breaking this cycle requires services to be effective in reaching and serving the most marginalised and at-risk children and families in the community. Integrated data and advanced analytics offer some potential for reaching and serving people better, earlier and more intensively. However, to do so we need middle-Australia to understand and accept that their data will be needed and to give agencies the social licence to innovate.



# 3.

# A NEW COMMONWEALTH-STATE APPROACH TO DISRUPTING DISADVANTAGE





# 3. A NEW COMMONWEALTH- STATE APPROACH TO DISRUPTING DISADVANTAGE



**Jarrod Ball**  
Chief Economist, CEDA

**Jarrod Ball** joined CEDA as Chief Economist in 2017 with over 15 years of experience as an economist across the public and private sectors. He has held senior roles at the Business Council of Australia, in EY's advisory services practice and at BHP. Jarrod also worked in the Federal Government and was a lead adviser on microeconomic reform for the Victorian Departments of Premier and Cabinet and Treasury and Finance. He is a member of CEDA's Council on Economic Policy and the Melbourne Economic Forum.



**Cassandra Winzar**  
Senior Economist, CEDA

**Cassandra Winzar** is Senior Economist (WA) at CEDA. Prior to joining CEDA she was Principal Economist at the WA Department of Communities (Housing Authority) where she focused on WA economic conditions and housing related research, including running the state government's Housing Industry Forecasting Group. Cassandra has also held roles as the WA-based Economist for the Reserve Bank of Australia and in Transfer Pricing at EY. Cassandra has a Bachelor of Economics (Honours) and Bachelor of Arts (Asian Studies) from the University of Western Australia.

*"The COVID-19 pandemic has reinforced the vulnerability of disadvantaged populations."*

Previous chapters have demonstrated that bringing together linked administrative data with positive and proactive engagement for those at risk of disadvantage could finally make inroads in reducing levels of poverty.

Progress has been elusive in the absence of formal mechanisms to set targets, identify reform actions collectively and track progress. Instead, it is left to organisations external to government to continually urge action and draw governments' attention to this area. This stymies progress and accountability for reducing disadvantage. There is a need to change the architecture of services and supports that are currently fragmented within and between governments. It is a notable gap in a country that prides itself for its safety net.



The COVID-19 pandemic has reinforced the vulnerability of disadvantaged populations. This is despite a temporary increase in income support and other temporary emergency measures that alleviated poverty for many during 2020. The JobSeeker coronavirus supplement improved the material living standards of disadvantaged Australians by providing an additional \$550 of income a fortnight, lifting payment rates above the poverty line temporarily in 2020. Overall though, the most adverse health and material impacts have fallen on lower socio-economic groups.

TABLE 3.1

Table 3.1 summarises the critical implications of COVID-19 for disadvantage and the associated policies implemented.

<p><b>Income support improved lives</b></p> 	<ul style="list-style-type: none"> <li>• Additional income support through JobKeeper payments and the JobSeeker Coronavirus Supplement lifted many out of poverty temporarily and helped others avoid it.</li> <li>• Recent research from ANU found that the lift in payments reduced the number of people in poverty by about a third. The authors concluded that the pre-COVID-19 social security system would not have been able to adequately respond to the huge negative economic shock and associated job loss.<sup>24</sup></li> </ul>
<p><b>Rapid policy experimentation and implementation is still possible</b></p> 	<ul style="list-style-type: none"> <li>• Out of necessity, governments took swift action and implemented unprecedented new policies in a short period of time. In 19 days during March 2020, the federal government committed to \$194 billion in new direct outlays to cushion the impact of COVID-19 on business and the community.</li> <li>• The International Labour Organisation estimates over 1600 social-protection policies were launched during 2020 in response to the pandemic.</li> <li>• Governments transformed support for homeless people, temporarily housing many vulnerably people in otherwise vacant hotels during the pandemic, reducing the risks of infection and transmission within this population.<sup>25</sup></li> </ul>
<p><b>COVID-19 has exacerbated existing disadvantage in many areas</b></p> 	<ul style="list-style-type: none"> <li>• COVID-19 mortality has been significantly higher for the most disadvantaged groups.<sup>26</sup></li> <li>• The geographical areas in Sydney and Melbourne most affected by COVID-19 tended to be home to essential workers who were more exposed to risk of infection, more likely to be earning lower wages and at greater risk of food insecurity.<sup>27</sup></li> <li>• At the height of the outbreak in Sydney, Foodbank was processing as many emergency relief hampers in a day as it used to do in a week.<sup>28</sup></li> <li>• In the middle of the most recent Sydney and Melbourne lockdowns, searches for emergency financial assistance (non-Centrelink) doubled in some areas.<sup>29</sup></li> </ul>
<p><b>Broad and growing recognition of the importance of government data and digital assets</b></p> 	<ul style="list-style-type: none"> <li>• Government administrative data has been used in near real-time to better understand economic conditions and the impact of government policy. For example, ATO Single Touch payroll data is now utilised in a monthly business activity release by the ABS and has also been used by economists to understand the effectiveness of JobKeeper payments.</li> <li>• Australians are becoming more comfortable with governments using their data to improve service delivery and wellbeing. For example, a recent survey of community attitudes shows that while half of all Australians think privacy is more at risk generally during the pandemic, the majority are comfortable with personal information being shared to combat COVID-19 and expect it to be protected.<sup>30</sup></li> <li>• Governance arrangements to better facilitate sharing of data have also been enhanced during the pandemic. As part of the formation of National Cabinet and changes to federal-state relations, a re-named Data and Digital Ministers' Meeting was announced as a regular, ongoing ministers' meeting to advance cross-jurisdictional data and digital platforms, services and protocols.<sup>31</sup> This group finalised an Intergovernmental Agreement (IGA) on Data Sharing in the middle of 2021 to commit jurisdictions to share data as a default position where it can be done securely, safely and lawfully.</li> <li>• Despite these positive developments, with COVID-19 moving many essential services online, including health, this has exacerbated the digital divide. Eleven per cent of Australians have little or no digital access or capability, which is strongly correlated with income and education levels.<sup>32</sup></li> </ul>



## A new agreement to reduce disadvantage

To stave off the risk of increasing disadvantage in the wake of COVID-19 and to make long overdue progress against Australia's Sustainable Development Goals target commitment, governments should formulate and agree a new National Agreement to reduce disadvantage, with a focus on the use of integrated data for early intervention.

## Why an agreement is increasingly urgent

An agreement to reduce disadvantage would focus many of the efforts currently being undertaken on data sharing, such as the Intergovernmental Agreement on Data Sharing, National Disability Data Asset pilot and under the National Agreement on Closing the Gap. The agreements and work already being undertaken in data sharing are heading in the right direction but to make real progress, we need a clear purpose, commitment and plan as to how to use the data to reduce disadvantage.

Estimates of child poverty suggest that anywhere between 9.2 and 17.7 per cent of children up to the age of 14 are living in poverty.<sup>i</sup> If similar trends continue for the over 3 million children expected to be born in the next decade, between 280,000 and 550,000 of these children will enter child poverty in the future.<sup>ii</sup>

As previous CEDA research has shown, episodes of child poverty disrupt a child's development and have long and enduring impacts over their life.<sup>33</sup> Recent research has also shown that children from poor households are 3.3 times more likely to suffer from early adult poverty, setting the foundation for entrenched disadvantage.<sup>34</sup>

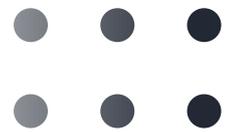
As an advanced economy with continuing economic opportunities and a safety net for vulnerable citizens, we should not accept this outcome as inevitable. Governments must collectively commit to change course. Historically such commitments backed up by strong policy action have changed outcomes. For example, Prime Minister Bob Hawke's pledge to end child poverty accompanied by increased benefit payments to children in low-income families may not have eradicated child poverty but it is estimated to have brought about a 20 per cent reduction in the child poverty rate.<sup>35</sup>

## A national approach is needed

Disadvantage is an issue that needs support from both levels of government. The Commonwealth and state governments each fund and administer supports and services that are critical to disadvantaged populations, including some that are jointly funded. Research commissioned by the NSW Government shows that for children aged under five with risk factors

i Range based on different sources of estimates and methodologies that exclude and include housing costs. See Roger Wilkins, Ferdi Botha, Esperanza Vera-Toscano and Mark Wooden (2020) *The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 18*. Melbourne Institute: Applied Economic & Social Research, University of Melbourne & Davidson, P., Saunders, P., Bradbury, B. and Wong, M. (2020), *Poverty in Australia 2020: Part 1, Overview*. ACOSS/UNSW Poverty and Inequality Partnership Report No. 3, Sydney: ACOSS.

ii CEDA calculation based on child poverty rates in NSW SPRC and HILDA, and birth projections in Centre for Population 2020, Population Statement, the Australian Government, Canberra.



*"Disadvantage is an issue that needs support from both levels of government."*

(eg. perinatal risk), around half of the future costs in government services are in areas of sole Commonwealth government responsibility – such as income support and Medicare.<sup>36</sup> The remainder are in areas of state government responsibility such as housing and child protection, as well as areas of joint funding such as health and education.

It is also apparent that the effectiveness and adequacy of services provided across the two levels of government is interdependent and will have flow on fiscal impacts. For example, an individual's experience in state government health and education systems will likely impact the future need for income support. Despite these linkages and Australia's lack of progress against international commitments to reduce poverty, we have not formally brought together the Commonwealth and state governments to collectively address disadvantage.

This contrasts with areas such as disability. A National Disability Agreement was introduced in 2009, recognising that the federal government provided income support and employment services for people with disability, while the states delivered specialist disability services such as accommodation and respite. The agreement set the stage for the development of a National Disability Strategy, which included six priority areas for action: inclusive and accessible communities; rights protection; economic security; personal and community support; learning and skills; and health and wellbeing.<sup>37</sup>

That strategy then led to further investigation of funding options through the Disability Investment Group and the Productivity Commission and eventually bipartisan support for a National Disability Insurance Scheme. Well before a National Disability Agreement was struck, there was strong advocacy and momentum for a new approach that overcame fragmentation and siloed services to better support people with a disability. While the agreement was certainly not perfect and major implementation challenges remain, it provided structure, coordination and accountability for reforming policy in an area of joint government responsibility for a vulnerable population.

### **What a national agreement to reduce disadvantage should contain**

The agreement should reaffirm or update Australia's previous commitment to reduce poverty by half as per the SDGs, with a focus on prevention of child poverty. This objective should be initially underpinned by a readily available benchmark such as income poverty, but over time a more sophisticated dashboard approach and targets could be developed utilising linked administrative data.

## An integrated data approach

CEDA recommends two priority actions for this agreement. These actions are directed at fundamentally utilising data to stem future disadvantage through more targeted assistance for young people in or at risk of poverty from birth. A timeline for the implementation of this approach is outlined below. Once a national agreement is in place and legislative and capacity barriers have been overcome, governments should focus on using data infrastructure that is already in place such as state data assets, and the NDDA pilot, and then developing it into a national human services data asset. Alongside this governments should also pilot the use of predictive analytics for early intervention in the most vulnerable households.

**FIGURE 6**  
National Agreement to reduce disadvantage

 <p><b>Human services data asset</b></p>	<ul style="list-style-type: none"> <li>Leverage the Intergovernmental Agreement on Data Sharing between Commonwealth and State and Territory governments, collaboration by the Data and Digital Ministers and lessons from the pilot phase of the National Disability Data Asset, to build a new integrated human services asset by 2025.</li> </ul>
 <p><b>Pilot predictive analytics for early intervention</b></p>	<ul style="list-style-type: none"> <li>States could opt-in to pilot predictive analytic approaches based on the maturity of their data assets and existing service performance.</li> <li>Piloted services may include protecting children from exposure to maltreatment, inter-partner violence, severe mental health and substance abuse.</li> </ul>
 <p><b>Complementary initiatives</b></p>	<ul style="list-style-type: none"> <li>Lift and maintain the adequacy of income support through adequacy reviews.</li> <li>Lift availability and affordability of suitable rental accommodation through an appropriate mix of investment in Commonwealth Rental Assistance and public housing.</li> </ul>

**FIGURE 7**  
Timeline for data integration



*"The agreement on using data to overcoming disadvantage would benefit from being part of a larger agreement that also addresses other key aspects, such as the adequacy of income support and the availability of affordable housing."*

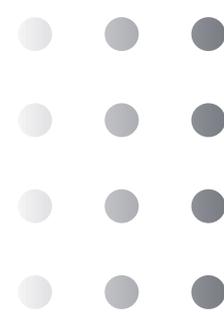
Further detail on critical policy, legislative, privacy and other considerations in developing an integrated data approach to addressing entrenched disadvantage are detailed in sections below.

### What else might an agreement contain?

The agreement on using data to overcoming disadvantage would benefit from being part of a larger agreement that also addresses other key aspects, such as the adequacy of income support and the availability of affordable housing. Both of these underpin our response to disadvantage and have federal and state implications for service provision.

Despite the recent \$50 a fortnight increase in the rate of Jobseeker, it remains well below the poverty line. Australia continues to have one of the least generous levels of unemployment assistance in the OECD.<sup>38</sup> The temporary COVID-19 supplement that substantially lifted the JobSeeker payment demonstrated the significant difference that increased income support can make to the lives of Australia's most vulnerable.

Consideration should be given to establishing a baseline for the adequacy of payments, which is then periodically reviewed and updated by an independent body such as the Productivity Commission. Such a review would consider factors such as economic conditions, the rate of other payments, arrangements in comparable advanced economies, the costs of housing and the costs of supporting children in education.





*"Income support goes hand in hand with affordable housing. The Productivity Commission has found that poor rental affordability is a driver of disadvantage and the number of low-income households renting in the private market and experiencing rental stress has more than doubled in the last two decades."*

Reviews would be designed to make recommendations on appropriate benchmarks for payments as an objective circuit breaker to current discussions on the appropriate level for these payments.

Income support goes hand in hand with affordable housing. The Productivity Commission has found that poor rental affordability is a driver of disadvantage and the number of low-income households renting in the private market and experiencing rental stress has more than doubled in the last two decades. At the same time, Commonwealth Rental Assistance (CRA), which has generally proven to be effective in assisting low-income households has fallen behind average rents over the last two decades.<sup>39</sup>

Public housing stock also needs to be sufficient to prevent the unnecessary transfer of budget costs from the state-funded public housing market into the federal-funded CRA in the private rental market. At last count there were over 150,000 people on public housing waiting lists.<sup>40</sup> Collectively, state governments have invested over \$10 billion to build 23,000 homes in recent budgets.<sup>41</sup>

Previous research undertaken for CEDA has highlighted that social housing for vulnerable Australians can lead to significant medium and long-term economic benefits.<sup>42</sup> Security of tenure in public housing has also been found to have positive impacts on children's educational outcomes. Despite this, public housing is expensive to build and is not the best option for some vulnerable renters.

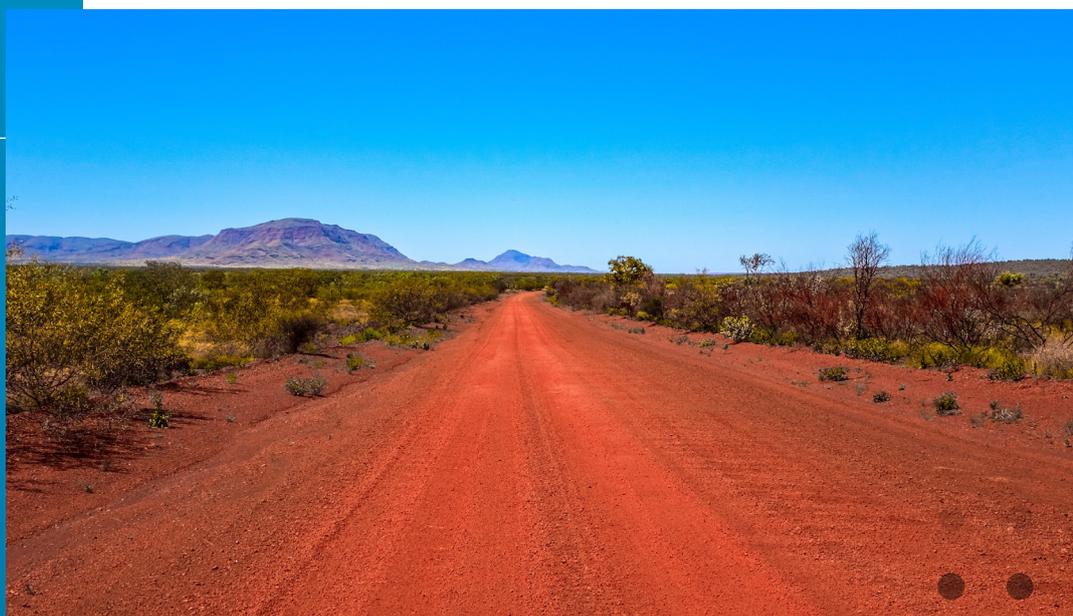
Governments should assess the extent to which further funding to lift the rate of Commonwealth Rent Assistance (CRA) is necessary vis-à-vis further state government investment in increasing the public housing stock. Based on this assessment, the federal government could determine whether it should lift CRA and/or provide matched funding to incentivise social housing construction at the state level.

The new agreement should not be expected to address every element or activity directed at this goal (e.g. National

*"Governments should also consult with and involve the community sector and disadvantaged people on the design and key elements of the agreement."*

Agreement on Closing the Gap will also contain relevant activities). It should instead focus on priority actions that governments can take in a coordinated way to maximise reductions in poverty and disadvantage.

Governments should also consult with and involve the community sector and disadvantaged people on the design and key elements of the agreement. This could build on lessons from the extensive community process undertaken to develop a new National Agreement on Closing the Gap, which was developed in genuine partnership between Australian governments and Aboriginal and Torres Strait Islander peak organisations.



## Accountability and measuring progress

Given the cross-government nature of the data and programs involved in this agreement, it should be overseen by the Council on Federal Financial Relations. As with other national agreements, it is proposed that progress is assessed annually by the Productivity Commission in its performance reporting dashboard.

## What would an integrated data approach look like?

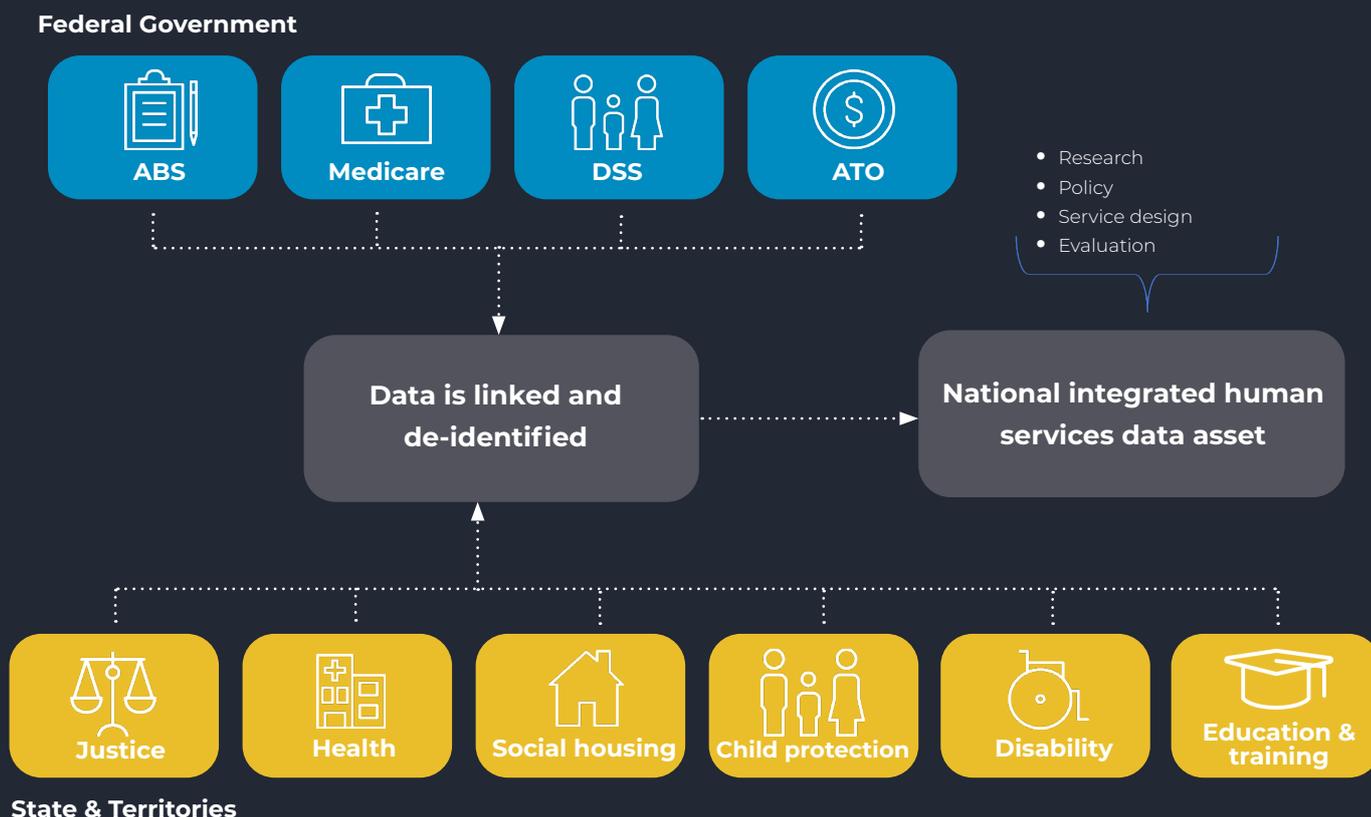
### A national human services data asset

A linked, de-identified, human services data asset provides the basis for delivering targeted, timely and better integrated support to families and their children to prevent child poverty as early as possible from birth, by better understanding the paths, predictors and preventers of entrenched disadvantage. At a broader level it will assist policymakers in designing better programs, evaluating what works and being able to target investment for the right programs and populations.

Various human services data linkage projects have been undertaken at a smaller scale or on a state basis, and usually on a time-limited basis, but further transformation of policy and programs requires a fully integrated inter-jurisdictional human services data asset. This includes data from government agencies at both state and federal level, and is not specific to a project or jurisdiction. It needs to be regularly updated, overseen and made available to a range of users (across jurisdictions) through robust governance arrangements. Given the range of interactions with both federal and state agencies, the benefits from a data-led response to disadvantage will not be realised without integration across jurisdictions.

Overseas examples such as New Zealand show the benefits of this approach. New Zealand's Integrated Data Infrastructure database, as highlighted in Chapter One, holds linked, de-identified data from government agencies, Stats NZ and non-government organisations. Figure 8 outlines how a national, integrated human services data asset would look in an Australian context – where key data sets from the state and federal governments are linked and de-identified before becoming available to researchers and policy designers to inform research, policy, service design and evaluation. Data would be linked and held by an independent body, such as the Australian Bureau of Statistics (ABS), who is already an Accredited Integrating Authority and has considerable experience in data linkage. A board or oversight body should oversee a national data asset to ensure its ethical use, with

**FIGURE 8**  
High-level architecture of the integrated human services data asset





top level oversight from the Office of the National Data Commissioner and/or the data and digital ministers.

It is important that a national human services data asset is accessible to a range of users across policy, research and service delivery. Benefits of access are a priority, but need to take into account associated risks. Usage needs to be bi-directional – if agencies are providing data, they should also be able to access the data once it is linked and de-identified. Currently many access arrangements are burdensome, limited and time consuming. It often takes 12 months to access linked data – far too long for rapid policy development.<sup>43</sup> Integrated data is needed to provide timely insights about the current results of interventions, and then used for data-driven research about how to break down silos and fragmentation in services to make interventions complementary and effective.

To achieve this there are several barriers that must be overcome, including governance, legislative, capability and community trust. We argue that most of these can be overcome if there is political will and demonstration of benefits. Much of the foundational work has been done through linkage projects to date. States should continue to develop state data linkage assets but we also need a national data asset.

Continuing the momentum of the work during the National Disability Data Asset (NDDA)<sup>44</sup> pilot is a way to achieve this. The NDDA is designed to measure outcomes for a significant cohort of Australians and would therefore need to cover multiple data sets across jurisdictions. This would make it more comprehensive than other multi-agency data projects such as MADIP<sup>45</sup>, or state-based data resources. Given the broad nature of the NDDA, if it is developed beyond the current pilot (due to end December 2021) it could accelerate other data integration initiatives.

Given all the opportunities created in national data sharing over COVID-19, the data sharing IGA work program, Closing the Gap and the NDDA pilot, we recommend governments take actions to continue the momentum in data sharing under the IGA and the Australian Data Strategy and put the foundations in place for Australia to develop an integrated human services data asset.

### **Piloting new interventions using predictive analytics**

While integrated data will assist policymakers in better targeting investments, designing and evaluating programs, more immediate and tangible benefits will be achieved by putting data and analytics in the hands of practitioners to trial new ways of delivering services.

Alongside the development of a national integrated data asset, we should be piloting the use of predictive analytics to identify families in need of early intervention and targeting services. This is an approach to engage the most disadvantaged in the community – we find you – rather than relying on families to seek out assistance or waiting until families become known to service providers.

States could opt-in to pilot new approaches based on the maturity of their data assets and existing service performance.

*"By piloting some interventions and communicating the approach and benefits to the community, social licence will be able to build over time."*

Services should also be piloted first in areas where social licence and community acceptance of using identifiable linked data is likely to be higher. For example, protecting children from exposure to maltreatment, inter-partner violence, severe mental health and substance abuse. By piloting some interventions and communicating the approach and benefits to the community, social licence will be able to build over time. Once the social licence to use data and analytics in more innovative ways grows, larger scale interventions can then take place.

This will require the use of identifiable data, as outlined in Chapter Two. The barriers that apply to de-identified data integration also apply to identifiable data linkage projects, but to a higher degree. Some of this is as it should be – identifiable data should not be used unless it will benefit the community. But the current balance swings too highly towards the risks, without due consideration of the benefits. Guardrails, such as those developed by the CSDA and outlined in Chapter Two, will need to apply.

The end goal is to deliver services differently, more effectively, with more impact to overcome entrenched disadvantage. To actually overcome entrenched disadvantage we need to use the data, analysis and insights to shape service provision, policies and programs and continually assess the effectiveness of the interventions. Success will be improving lives and community outcomes, and the use of data is a tool to get us there.

### **Understanding the benefits of an integrated data approach**

Key to progressing data integration is ensuring the community and governments understand the potential benefits. To gain both political momentum and public trust, the tangible benefits that can be achieved through targeted interventions guided by data linkage must be shown. This can result in a circular argument – where we need to show the benefits before getting the investment required to produce the benefits. We recommend a graduated approach – piloting some smaller projects and interventions and clearly communicating these outcomes, while continuing to invest in the infrastructure required for larger scale data integration. This should build public trust and government support along the way, without losing momentum on the larger goal.

There are some examples from Australia and overseas that point to the benefits of such an approach that could be replicated in Australia or scaled up. Chapter One outlines the benefits that have come from the New Zealand Integrated Data Infrastructure. Statistics New Zealand lists over 1200 research projects that have been published using its data, mostly in the health and communities sectors.<sup>46</sup>

At a state level, an example of political will and community support leading to the development of an integrated data approach can be found in South Australia. In South Australia, the Office for Data Analytics has a multi-agency data sharing agreement that facilitates the bringing together of



evidence-based factors in identifying and understanding vulnerable children and families.<sup>47</sup> The Early Intervention Research Directorate (EIRD) was established in response to the Royal Commission into the Child Protection System. In collaboration with the Office for Data Analytics, the EIRD has

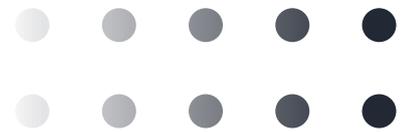


developed a cross-department linked administrative data set to support policy research and service planning for vulnerable families. The data set is updated quarterly and includes evidence-based risk and protective factors derived from Department of Human Service and data from health, child protection and education agencies. The data set also provides critical visibility of important system outcomes. This enables EIRD to adopt a public health approach to designing the family support service system. This includes supporting capability to:

- Maintain surveillance of population service demand and types of services needed
- Monitor and ensure equity in service prioritisation
- Ongoing assessment of service effectiveness by providing medium- and long-term outcomes for vulnerable families
- Understand the broader system impacts of adequate and timely service provision.

This approach also enables EIRD to identify critical intervention points and design new services that offer the right service at the right time, intervening earlier and prevent child abuse and neglect. These state-based data integration projects should continue to be developed, but to get the full benefits of integrated data we need to combine them with key data sets from Commonwealth agencies – particularly relating to health and income.

Chapter Two outlines the benefits of using integrated data to identify and intervene with the most vulnerable children and includes examples of pilot projects in the USA that could



be similarly replicated in Australia. These sorts of integrated approaches can direct resources to the children and families that need it most. Another example overseas is Scotland's Getting it Right for Every Child (GIRFEC) approach, which includes multi agency assessments to ensure early intervention. GIRFEC has been identified as one of the most successful international approaches to early childhood health and wellbeing.<sup>48</sup>

The GIRFEC practice guidelines note the importance of integrated information:

*"It is not about collecting more information, it is about placing together information from health, education and sometimes third sector organisations relevant information together, to obtain a comprehensive understanding of what is happening in the child or young person's life that is adversely affecting their development, wellbeing or learning. Collating useful information makes staff better equipped to identify needs clearly and to plan effectively using strengths and strategies that are likely to work."*<sup>49</sup>

Identification of children and families needing intervention with access to services is important, but to have real impact this needs to be just the first step in the process. The GIRFEC approach succeeds because it provides personalised support to children and families to navigate systems and services. An important part of this is that each child has a clear point of contact 'the named person' to support them in getting appropriate services.<sup>50</sup>

Similarly, in Romania UNICEF launched the First Priority: No More Invisible Children! project in 2011 to identify and provide services to the most vulnerable children. Underpinning this project is the Aurora methodology which includes a mobile application for front-line workers to identify vulnerabilities in families and children. The system also includes the ability for government staff to analyse aggregated child protection indicators at jurisdictional levels, and a public version to raise awareness of child protection issues.<sup>51</sup> Community engagement was an important part of the success of the pilot project. The quality of the data was important to allow for tailored services to match the identified vulnerabilities.

An evaluation of the pilot found the project had a considerable impact on identifying vulnerable children and connecting them with services, although it noted that many of the interventions will need to be long-term. It was considered an efficient use of resources with the ability to be scaled up.<sup>52</sup> UNICEF notes that trust in the system is of high importance for projects to have impact. It has developed the Responsible Data for Children principles on how data is collected, stored, analysed and used to improved children's outcomes.<sup>53</sup>

### **Broader barriers to progress on data integration**

At a high level, the intent to share data is there at all levels of government – but why is large scale data integration, that can

change the way services and supports are delivered, still not being realised? Many of the current barriers holding us back relate not just to human services data but to the linkage of government administrative data sets more broadly.

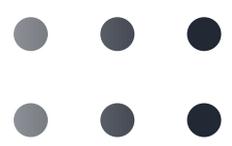
There is plenty of activity seeking to progress greater data sharing and linkage, but it is fragmented, uncoordinated and inefficient. Australia's system of delivering human services through both state/territory and federal governments makes data sharing more difficult and has led to Australia being behind its neighbours in data linkage and sharing. But that does not mean the impediments can't be overcome.

### Data linkage projects are being undertaken

As we highlighted in the first *Disrupting Disadvantage* report, some state governments have begun building integrated data assets. There has also been progress on national data assets as listed in Table 3.2. But much of this is duplicating activity, and there is not a fully integrated data asset that covers both state and federal data. In addition to this, there are also many one-off data linkage projects that have been done for specific policy or research purposes. The use of identifiable linked data for early intervention is far less advanced in Australia. However, Chapter Two outlines some successful uses of this approach overseas.

**TABLE 3.2**  
National and State integrated data asset projects

Jurisdiction	Project
<b>State</b>	
NSW	Their Futures Matter <sup>54</sup> NSW Human Services Data Asset
WA	Social Investment Data Resource <sup>55</sup>
SA	Early Childhood Data Project <sup>56</sup>
VIC	Victorian Integrated Data Resource <sup>57</sup>
<b>National</b>	
	Australian Early Development Census <sup>58</sup>
	Multi-Agency Data Integration Project (MADIP) <sup>59</sup>
	National Disability Data Asset pilot (NDDA) <sup>60</sup>
	Sax Institute – Secured Unified Research Environment <sup>61</sup>



*"The technical ability is now there to safely and securely share, link and analyse data."*

### Technical barriers

Chapter One outlines many of the technical aspects of data sharing and linkage and makes clear that technical capability is not what is limiting data sharing and insights in Australia. As evidenced by overseas experience, and smaller scale data linkage projects in Australia, the technical ability is now there to safely and securely share, link and analyse data.

The impediments to larger scale implementation are around governance, capability, legislation and community acceptance. Data systems and linkage capabilities across the states and at federal level are fragmented, and substantial improvements will need to take place to realise fully integrated data, but these are well within reach. Technical issues are often used to justify the non-release or lack of progress in data linkage and usage, but these can be overcome, as shown by small scale data projects listed above and large-scale projects overseas, such as in New Zealand. Overall, the required data exists, the linkage capabilities exist (although not at the scale required), the secure storage solution and privacy protocols exist. This should no longer be an excuse to holding back progress on data linkage and integration.

### Policy

Policy in support of data sharing is well progressed across jurisdictions but needs to move faster and take advantage of the growing momentum built during the pandemic. Commonwealth and state and territory governments have recently signed the Intergovernmental Agreement<sup>62</sup> on Data Sharing, with all jurisdictions agreeing to share data as a default position, where it can be done securely, safely, lawfully and ethically. The agreement recognises that data is an important shared national asset and is crucial to deliver high quality policies and services. Governments have also signed up to data sharing commitments under the National Agreement on Closing the Gap<sup>63</sup>.

The federal government is developing an Australian Data Strategy<sup>64</sup>, and many state and territory governments have done, or are developing their own data strategies and agreements on data sharing. The Australian Data and Digital



Council has also been formed to improve government capability and transform service delivery.<sup>65</sup> Governments now need to make the most of these agreements and pilot interventions, invest in infrastructure and demonstrate the benefits of integrated data for delivering better services and support to disadvantaged populations.

There have been many reviews into this space, including the PC's Inquiry into Data Availability and Use in 2017<sup>66</sup>, and at a state-based level, the 2016 review into WA's data linkage capabilities<sup>67</sup>. The benefits, risks and way forward are well documented, but there has been limited nationally coordinated action to implement the findings of these policy reviews.

### Legislative

There remain legislative barriers to data sharing at both the state and commonwealth level. Legislation around data sharing and privacy is important to facilitate data sharing while ensuring data and privacy is protected from misuse and that research and development is in the public interest.

The Data Availability and Transparency Bill is currently before Parliament and is an important outcome from the PC's 2017 Inquiry. This Bill: *authorises public sector data custodians to share data with accredited users in accordance with specific authorisations, purposes, principles and agreements; specifies the specific responsibilities imposed on data scheme entities; establishes and specifies the functions and powers of the National Data Commissioner as the regulator of the scheme; establishes and specifies the functions and membership of the National Data Advisory Council as an advisory body to the commissioner in relation to sharing and use of public sector data; and establishes the regulation and enforcement framework for the scheme.*<sup>68</sup>

Legislative barriers are more than just the absence of data sharing legislation. The PC's Inquiry in 2017 noted that there were more than 500 secrecy provisions in Commonwealth legislation that limited the use of data, and that these needed to be reviewed to see if they were still fit for purpose.<sup>69</sup> There has been no notable progress on this.

At a state level, there also remain considerable legislative barriers to data sharing. As well as the national data sharing legislation, there is a need for specific data sharing legislation at state level. This legislation is already in place in NSW<sup>70</sup> and South Australia<sup>71</sup> and similar legislation should be put in place for other states and territories. Many state-based acts also prohibit data sharing, even between and within government agencies for particularly sensitive information, such as in child protection. These legislative barriers need to be reviewed in a more modern context around privacy and the ability to manage risk, while weighing the benefits of allowing for appropriate sharing of data.

Privacy legislation is not necessarily required to share data, but the lack of it in some states is leading to a reluctance from other states and the Commonwealth to share data.<sup>72</sup> Both WA and SA currently lack privacy legislation.<sup>73</sup> WA has been developing privacy legislation for several years, but progress was slow until it

*"In order to move to an integrated data asset approach, there needs to be an overarching agreement on data governance, while still allowing for data usage permissions on a project-by-project basis."*

was prioritised. SA has addressed some of these issues through its data sharing legislation. This is a relatively straightforward barrier that should be expedited. The WA review into data linkage capabilities noted that: *"Privacy legislation would create a high level framework enabling the legality for releasing data to be assessed, ensuring that standards applied for data release are consistent across Government."*<sup>74</sup>

### Governance, privacy and ethics

Data linkage projects in Australia have been piecemeal and relatively small scale – often done to support a particular project or policy. In order to move to an integrated data asset approach, there needs to be an overarching agreement on data governance, while still allowing for data usage permissions on a project-by-project basis. Robust governance structures are required to ensure community trust in data collection and use. Governance frameworks have been developed for individual data projects, and most are very similar. Instead of duplicating work across projects and jurisdictions, agreement should be made on one that applies more broadly, such as the framework already developed during the pilot phase of the National Disability Data Asset. A board or oversight body should oversee a national data asset to ensure ethical use.

According to the ONDC, data governance<sup>75</sup> is: *the oversight mechanisms that formalise responsibility and accountability for data and its management in an agency. The purpose of data governance is to ensure data is properly managed, according to policies and procedures developed by the agency, and that people understand their responsibilities. It enables an agency to understand, manage and reduce risks, including security and privacy risks relevant to the data it holds.*

The ONDC's Foundational Four<sup>76</sup> report has been created as the starting point to effective data management. This includes Leadership, Strategy, Governance and Asset Discovery. The report makes the point that priority must be given to data governance, and that if effective data governance is not in place, the other parts of the Foundational Four will have little impact.

Privacy and ethics frameworks must also be in place to ensure the safety and security of data and the appropriate use and release of data and findings. Frameworks for all these areas are already existing, for example the Five Safes Framework is widely used, including by the ABS and the AIHW, to appropriately secure data.<sup>77</sup> Under the data sharing IGA<sup>78</sup>, states and the Commonwealth agree to apply the ONDC Best Practice Guide to Applying Data Sharing Principles, which are based on the Five Safes Framework.

There does need to be appropriate consideration of the risks of releasing data and the benefits to timely access to researchers, government agencies and frontline workers. Many of the current processes are too heavily weighted towards reducing any risk that they do not allow for the benefits that might come from more access. Some of this can be relatively simply overcome, for example, ethics approvals should consider programs of work as well as one-off projects to allow ongoing access to linked data sets.<sup>79</sup>

*"Most importantly, agencies, researchers and analysts must be transparent around what data is being collected for, how it will be used and what safeguards will be put in place."*

The community will need to feel assured that agencies involved in data linkage are solely working in their best interest. The community is likely to feel more trust in the use of their data if linkage is done by an agency at arm's length from service provision and income support, such as the ABS, who is already an Accredited Integrating Authority and has considerable experience in data linkage.<sup>60</sup>

Most importantly, agencies, researchers and analysts must be transparent around what data is being collected for, how it will be used and what safeguards will be put in place. Users and the community must have a voice in how data is collected, kept and used.



Privacy and ethics are important for both a de-identified national data asset, and identifiable linked data for front line interventions. When linked data is identifiable, a higher level of safeguards are required. In addition to the measures outlined above, guardrails such as those developed by the Centre for Social Data Analytics, outlined in Chapter Two, need to apply. UNICEF's Responsible Data for Children principles are another similar example of guidelines for appropriate use of data.<sup>61</sup>

### Capability

Expansion of skills and capacity across the public service will be required to get the most out of a data asset. Capability remains a constraint. Collecting and sharing data is the first step in the process, but communities, agencies and researchers will expect the data to be used appropriately in policy analysis and development – this will require a considerable expansion in capability across collection, governance and use.

In order to get high value insights from linked data, the data collected must be of high quality. UNICEF's Responsible Data for Children principles note that a focus on accuracy is essential if



*"UNICEF's Responsible Data for Children principles note that a focus on accuracy is essential if data is being used to inform decision making and that low quality data could negatively impact usage."*

data is being used to inform decision making and that low quality data could negatively impact usage.<sup>82</sup> There are issues around consistency, availability and quality of data collected across agencies, particularly with many agencies not viewing data collection or management as a core function and therefore not allocating resources appropriately. There have been consistent calls for all levels of public service to invest in data analytics capabilities, but little progress has been made. Federal, state and local governments all need to invest in the capacity of their staff, to appropriately collect and use data. This could be guided by the Commonwealth Government's Data Skills and Capability in the Australian Public Service framework.<sup>83</sup> Increased resourcing will also be required to expand and improve data collection. Without higher data capabilities in the public service, there will be limited benefit from the improved collection and collation of data.

The current state of IT infrastructure in many departments is unlikely to be up to scratch to deal with large scale data sharing. Much agency data is not centralised, nor held in any easily accessible or standardised formats. Many of the actions required are straight forward – while governments have committed to improving access to data, many do not fully understand what data they have. The Office of the National Data Commissioner is currently leading a pilot program to develop data inventories for 20 per cent of Australian government agencies. This needs to rapidly expand to all agencies at both federal and state and territory level.<sup>84</sup>

### Community trust and acceptance

Community trust in government data collection and usage can be low with 40 per cent of Australians uncomfortable with government agencies sharing information with other government agencies.<sup>85</sup> This is particularly so in cohorts such as people with a disability, Aboriginal and Torres Strait Islanders, and low income groups<sup>iii</sup>, who may have had negative experiences from data misuse. Robodebt, concerns around Census data and MyHealth Record have all contributed to community concern in government usage of data.

The appropriate implementation of governance arrangements, privacy and ethics considerations will play a big part in gaining community trust and acceptance. But strong communication

<sup>iii</sup> For example, people from low socio-economic backgrounds have lower levels of trust in the Australian Bureau of Statistics, see: <https://www.abs.gov.au/ausstats/abs@.nsf/mf/1014.0>



of benefits, and involvement of community groups and users will be required. The use of a data asset would be for projects or activities that have the primary purpose of reducing poverty and disadvantage by providing more effective services and support to improve people's wellbeing. Given there has not yet been large scale data linkage in Australia, looking overseas provides examples of potential benefits.

The community needs to be informed and consulted on data sharing and integration, and to understand the benefits that can come from it. Research commissioned by Statistics New Zealand on *Public Attitudes to Data Integration*<sup>86</sup> shows that the public were accepting of data linkage if there was a demonstrable need and positive public benefits. Informed consent is key if personal or sensitive data is to be linked. The research found the public saw data sharing as unacceptable if there was no clear need or purpose or if it could be misused or result in unfair outcomes or for commercial gain. Positive messaging is required to ensure community support and trust, including demonstrating the benefits are greater than any risks and sharing examples of how data has been used to improve community outcomes.

These findings are similar to those of the Productivity Commission in 2017 which found that the social licence for data integration and usage will be there if the community:<sup>87</sup>

- Has a sound basis for believing in the integrity and accountability of the entities handling data.
- Feel they have some control over how their own data is used and by whom, and an inalienable ability to choose to experience some of the benefits of these uses themselves.
- Better understand the potential community-wide benefits of data use.

Under the National Agreement on Closing the Gap, the priority reform around data sharing, includes shared decision-making and access to data that is collected on Aboriginal and Torres Strait Islander people, and building capacity of organisations to use data. These sorts of agreements are crucial to build community trust and social licence.

The community is unlikely to be swayed by discussion of budget benefits or avoided costs to government – the conversation must focus on improved outcomes for people. We need to clearly show the benefits of the approach by piloting interventions and communicating the positive outcomes. This is particularly the case of interventions using identifiable data. These sorts of data integration require much stronger social licence. Crucial to success is making sure the broader community agrees that the benefits from the use of the data is in proportion to the problem that is trying to be solved, and trust that the data will be used in the way that they expect.

### Political will

There is clearly work that needs to be done to overcome the barriers outlined above. But these are not insurmountable and the foundations for data linkage are there. What is truly holding back action is a lack of political will to invest and proceed with

*"The same level of support does not appear to be there from some senior public servants and Ministers with the power to invest and develop data resources."*

large scale data integration. There still seems to be a reluctance at all levels of government to fully commit to data sharing.

The benefits of data sharing appear to be well understood, and have strong support from data experts, researchers and policy professionals within state and federal public service. However, the same level of support does not appear to be there from some senior public servants and Ministers with the power to invest and develop data resources. Without a true understanding of what can be achieved, there is limited desire to champion the issue. With limited long-term policy development or reform in the human services space, the value of an integrated data asset may not be fully understood at the most senior levels. Cultural change is required across all levels



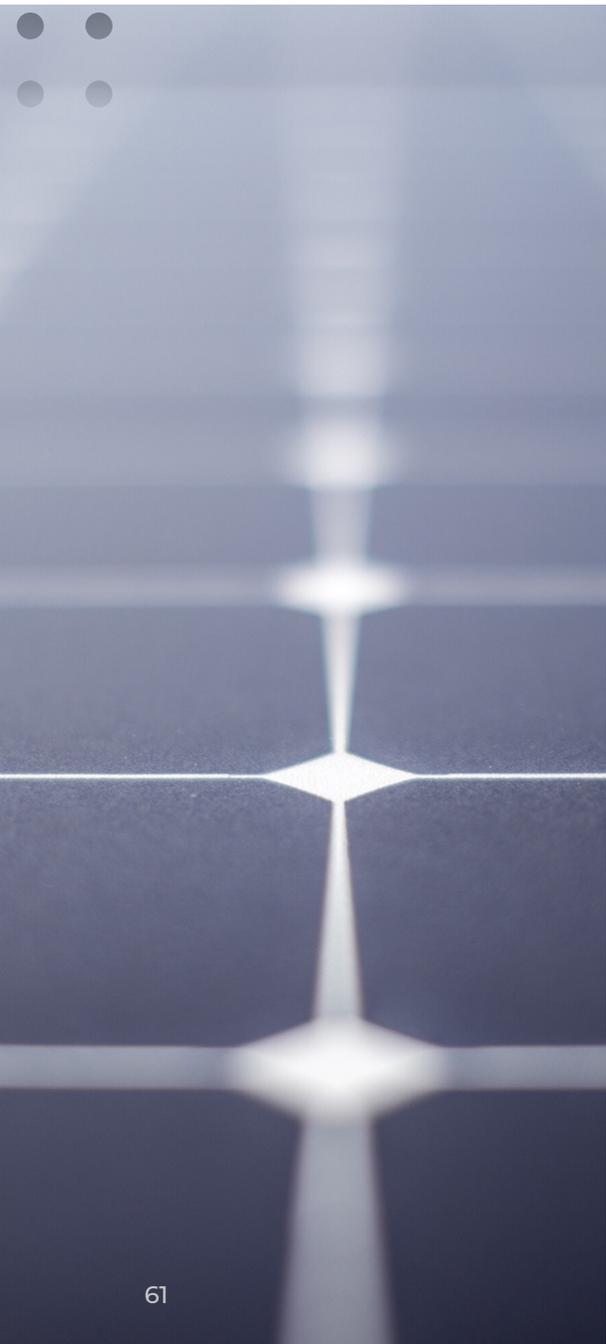
for data sharing to be seen as the default option for better policy and program design and delivery. The timing of political cycles also makes this difficult. This is a long-term endeavour with many of the interventions that would assist in overcoming disadvantage having upfront costs with very long-term gains.

The balance of risks and benefits to data integration is often poorly conceived and communicated. There is concern among public servants and politicians that data will be misused, misinterpreted or there will be privacy concerns.<sup>88</sup> Decision-makers are focused too heavily on the perceived risks, which can be overcome with appropriate privacy considerations, ethics and governance, while putting a lower weight on the benefits to the community and economy from this approach. Or more importantly in an area like disadvantage, the growing costs of not acting to change course.

The PC Inquiry in 2017 argued for immediate action in the data sharing space, noting that: "To delay these would create a debilitating loss of policy momentum and forgo the possibility of early gains in community acceptance for reforms." Despite this little progress has been made.

## Conclusion

It is apparent there is growing momentum and activity among governments towards increasing use, sharing and linkage of data. It is now time to accelerate this activity and combine it with collective determination, resources and actions to reduce disadvantage, and finally make progress against Australia's SDG goal to halve poverty by 2030.



## References

- 1 P., Saunders, P., Bradbury, B. and Wong, M. (2020), Poverty in Australia 2020: Part 1, Overview. ACOSS/UNSW Poverty and Inequality Partnership Report No. 3, Sydney: ACOSS.
- 2 Productivity Commission 2018, Rising inequality? A stocktake of the evidence, Commission Research Paper, Canberra.
- 3 Roger Wilkins, Ferdi Botha, Esperanza Vera-Toscano and Mark Wooden (2020) The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 18. Melbourne Institute: Applied Economic & Social Research, University of Melbourne & Davidson, P., Saunders, P., Bradbury, B. and Wong, M. (2020), Poverty in Australia 2020: Part 1, Overview. ACOSS/UNSW Poverty and Inequality Partnership Report No. 3, Sydney: ACOSS.
- 4 Vera-Toscano, E and Wilkins, R 2020 Does poverty in childhood beget poverty in adulthood in Australia? Melbourne Institute: Applied Economic & Social Research, University of Melbourne.
- 5 Productivity Commission 2018, Rising inequality? A stocktake of the evidence, Commission Research Paper, Canberra; as referenced by CEDA's recent research paper Disrupting Disadvantage: Setting the Scene.
- 6 NSW Their Futures Matter – Forecasting Future Outcomes 2018 Insights Report; 'vulnerable young children' refers to a group of children aged 0-5 with certain parental and perinatal risk factors and/or a Risk of Significant Harm assessment.
- 7 Australian Priority Investment Approach to Welfare, 2017 valuation report: <https://www.dss.gov.au/review-of-australias-welfare-system/2017-valuation-report>
- 8 Cobb-Clark, D. A., Dahmann, S., Salamanca, N., & Zhu, A. 2017 Intergenerational disadvantage: Learning about equal opportunity from social assistance receipt.
- 9 NSW Their Futures Matter – Forecasting Future Outcomes, 2018 Insights Report.
- 10 Risk factors have been identified in individual pathway modelling projects and longitudinal studies such as:
  - Their Futures Matter – Forecasting Future Outcomes <https://www.theirfuturesmatter.nsw.gov.au/investment-approach/investment-modelling>
  - Australian Priority Investment Approach to Welfare <https://www.dss.gov.au/review-of-australias-welfare-system/australian-priority-investment-approach-to-welfare>
  - Dunedin Multidisciplinary Health & Development Study <https://dunedinstudy.otago.ac.nz/>
  - Growing Up in Australia: The Longitudinal Study of Australian Children <https://growingupinaustralia.gov.au/>
  - Pathways of Care Longitudinal Study <https://www.facs.nsw.gov.au/resources/research/pathways-of-care>
- 11 See: <https://www.stats.govt.nz/integrated-data/apply-to-use-microdata-for-research/>
- 12 Kahneman, K. & Klein, G. 2009. Conclusions for intuitive experience: A failure to disagree. *American Psychologist*, 64(6), 515–526.
- 13 Olds, L. D. 2006. The nurse–family partnership: An evidence-based preventive intervention. *Infant Mental Health Journal*, 27(1), 5-25.
- 14 D'Andrade, A., Austin, J, M. & Benton, A. 2008. Risk and safety assessment in child welfare: instrument comparisons. *Journal of Evidence-Based Social Work*, 5(1-2):31-56.
- 15 Chouldechova, A., Putnam-Hornstein, E., Benavides-Prado, D., Fialko, O. & Vaithianathan, R. 2018. A case study of algorithm-assisted decision making in child maltreatment hotline screening decisions. *Proceedings of Machine Learning Research*, 81:1–15, 2.
- 16 Centre for Social Data Analytics. 2019. 'Implementing a Child Welfare Decision Aide in Douglas County: Methodology Report' Accessed at: [https://csda.aut.ac.nz/\\_\\_data/assets/pdf\\_file/0009/347715/Douglas-County-Methodology\\_Final\\_3\\_02\\_2020.pdf](https://csda.aut.ac.nz/__data/assets/pdf_file/0009/347715/Douglas-County-Methodology_Final_3_02_2020.pdf)

- 17 Centre for Social Data Analytics. 2020. 'Implementing the Hello Baby Prevention Program in Allegheny County Methodology Report' Accessed at: [https://csda.aut.ac.nz/\\_\\_data/assets/pdf\\_file/0003/425127/hello-baby-Methodology-Report\\_9-9-20-v2.pdf](https://csda.aut.ac.nz/__data/assets/pdf_file/0003/425127/hello-baby-Methodology-Report_9-9-20-v2.pdf)
- 18 Tibshirani, R. 1996. Regression Shrinkage and Selection via the Lasso. *Journal of the Royal Statistical Society. Series B (Methodological)*, 58(1), 267–288.
- 19 Corbett-Davies, S., Pierson, E., Feller, A., Goel, S. & Huq, A. 2017. Algorithmic decision making and the cost of fairness. Proceedings of the 23rd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining 797
- 20 Examples are available at <https://csda.aut.ac.nz>.
- 21 Productivity Commission 2017 'Data Availability and Use' accessed at: <https://www.pc.gov.au/inquiries/completed/data-access/report/data-access-overview.pdf>
- 22 The Parliament of the Commonwealth of Australia 2020 'Data Availability and Transparency Bill 2020' Accessed at: [https://parlinfo.aph.gov.au/parlInfo/download/legislation/bills/r6649\\_first-reps/toc\\_pdf/20174b01.pdf;fileType=application%2Fpdf](https://parlinfo.aph.gov.au/parlInfo/download/legislation/bills/r6649_first-reps/toc_pdf/20174b01.pdf;fileType=application%2Fpdf)
- 23 Vaithianathan, R., Rouland, B., & Putnam-Hornstein, E. 2018. Injury and mortality among children identified as at high risk of maltreatment. *Pediatrics*, 141(2).
- 24 Phillips, B, Gray M & Biddle, N 2020 'COVID-19 JobKeeper and JobSeeker impacts on poverty and housing stress under current and alternative economic and policy scenarios' accessed at: <https://csrcm.cass.anu.edu.au/research/publications/covid-19-jobkeeper-and-jobseeker-impacts-poverty-and-housing-stress-under>, 29 August
- 25 ABC 2021 'Homeless Victorians to be evicted from crisis accommodation following funding cut' access at: <https://www.abc.net.au/news/2021-10-11/homeless-victorians-to-be-evicted-from-crisis-accommodation/100525432> 11 October
- 26 ABS 2021. Provisional Mortality Statistics, Jan 2020 – Jul 2021, accessed at <https://www.abs.gov.au/statistics/health/causes-death/provisional-mortality-statistics/jan-2020-jul-2021> 28 October
- 27 Wilkins, R 2020 'Who's hit hardest by the economic effects of COVID-19?' accessed at: [https://melbourneinstitute.unimelb.edu.au/\\_\\_data/assets/pdf\\_file/0006/3387039/ri2020n10.pdf](https://melbourneinstitute.unimelb.edu.au/__data/assets/pdf_file/0006/3387039/ri2020n10.pdf) 28 May
- 28 Spriggs, D 2021 'Lockdowns drive massive spike in demand for support services' accessed at: <https://www.ceda.com.au/NewsAndResources/Opinion/Critical-services/Lockdowns-drive-a-spike-in-demand-for-emergency-re> 20 August
- 29 Ibid.
- 30 Office of the Australian Information Commissioner 2020 'Australian Community Attitudes to Privacy Survey 2020' accessed at: <https://www.oaic.gov.au/engage-with-us/research/australian-community-attitudes-to-privacy-survey-2020-landing-page/2020-australian-community-attitudes-to-privacy-survey> 24 September
- 31 Department of Prime Minister and Cabinet, 2020 'Data and Digital Ministers' Meeting' accessed at: <https://www.pmc.gov.au/public-data/data-and-digital-ministers-meeting>
- 32 Australian Digital Inclusion Index 2021, accessed at: <https://www.digitalinclusionindex.org.au/> October 2021
- 33 Hampshire A in CEDA (Committee for Economic Development of Australia) 2015, 'Addressing Entrenched Disadvantage in Australia' accessed at: <https://www.ceda.com.au/ResearchAndPolicies/Research/Population/Addressing-entrenched-disadvantage-in-Australia>
- 34 Vera-Toscano, E and Wilkins, R 2020 Does poverty in childhood beget poverty in adulthood in Australia? Melbourne Institute: Applied Economic & Social Research, University of Melbourne.
- 35 Cass, B and Whiteford, P 2009. Social Policy Research Centre University of New South Wales, Sydney, Social Inclusion and the Struggle against Child Poverty: Lessons from Australian Experience.
- 36 NSW Their Futures Matter – Forecasting Future Outcomes, 2018 Insights Report.

- 37 COAG 2012, *National Disability Strategy 2010–2020* accessed at: <https://www.dss.gov.au/our-responsibilities/disability-and-carers/publications-articles/policy-research/national-disability-strategy-2010-2020>
- 38 <https://newsroom.unsw.edu.au/news/general/50-boost-jobseeker-makes-australias-payment-second-lowest-oecd>
- 39 Productivity Commission 2019, *Vulnerable Private Renters Evidence and Options*, Commission Research Paper, Canberra.
- 40 Productivity Commission 2020, 'Report on Government Services' accessed at: <https://www.pc.gov.au/research/ongoing/report-on-government-services/2020>
- 41 Pawson, H., Martin, C., Thompson, S., Aminpour, F. (2021) 'COVID-19: Rental housing and homelessness policy impacts' ACOSS/UNSW Poverty and Inequality Partnership Report No. 12, Sydney
- 42 Ong ViforJ, R & Leishman C 2020 'Home truths: the role of housing in economic recovery' accessed at: <https://cedakenticomedia.blob.core.windows.net/cedamediacontainer/kentico/media/researchcataloguedocuments/information%20paper/pdfs/housing-and-the-economy-oct2020-v5.pdf>
- 43 Irvine KA, Moore EA. 2015 Linkage of routinely collected data in practice: the Centre for Health Record Linkage' *Public Health Res Pract*.
- 44 National Disability Data Asset 'About the NDDA' accessed at: <https://ndda.gov.au/about/the-ndda/>
- 45 ABS 'Multi-Agency Data Integration Project' (MADIP) accessed at: <https://www.abs.gov.au/about/data-services/data-integration/integrated-data/multi-agency-data-integration-project-madip>
- 46 Stats NZ 2021, 'Research using Stats NZ microdata' accessed at: <https://cdm20045.contentdm.oclc.org/digital/collection/p20045coll17/search>
- 47 South Australia Department of Human Services 2021 'Early Intervention Research Directorate' accessed at: <https://dhs.sa.gov.au/services/cfss/EIRD>
- 48 Nuffield Trust 2018 'International comparisons of health and wellbeing in early childhood' accessed at: [https://www.nuffieldtrust.org.uk/files/2018-03/1521031084\\_child-health-international-comparisons-report-web.pdf](https://www.nuffieldtrust.org.uk/files/2018-03/1521031084_child-health-international-comparisons-report-web.pdf)
- 49 Glasgow City Health and Social Care Partnership 2017 'Guidance on a common approach for professionals in Glasgow to assessment, planning and case management for children and young people' accessed at <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=16594&p=0>
- 50 Scottish Government 'Getting it right for every child – Names person' accessed at <https://www.gov.scot/policies/girfec/named-person/>
- 51 UNICEF 2020 'R4DC Case Study: The Aurora Project' accessed at: [https://files.rd4c.org/RD4C\\_Romania\\_Aurora\\_Project.pdf](https://files.rd4c.org/RD4C_Romania_Aurora_Project.pdf)
- 52 UNICEF 2017 'Summative evaluation of First Priority: no more invisible children!' accessed at: <https://www.unicef.org/romania/reports/summative-evaluation-first-priority-no-more-invisible-children>
- 53 UNICEF 2019 'Responsible Data for Children' accessed at: <https://rd4c.org/>
- 54 NSW Department of Communities and Justice 'Their Futures Matter' accessed at: <https://www.theirfuturesmatter.nsw.gov.au/> October 2021
- 55 WA Department of Treasury 2021 'Social Investment Data Resource' accessed at: <https://www.wa.gov.au/organisation/department-of-treasury/case-study-social-investment-data-resource> 2 November
- 56 Australian Early Development Census 2018, 'The South Australian Early Childhood Data Project' accessed at: <https://www.aedc.gov.au/resources/detail/the-south-australian-early-childhood-data-project-informing-innovation-in-child-protection-and-children-s-services>
- 57 Data Vic 2021 'Victorian Public Sector Data Sharing Policy' <https://www.data.vic.gov.au/victorian-public-sector-data-sharing-policy> 14 September
- 58 Australian Early Development Census, accessed at: <https://www.aedc.gov.au/>

- 59 ABS 'Multi-Agency Data Integration Project' (MADIP) accessed at: <https://www.abs.gov.au/about/data-services/data-integration/integrated-data/multi-agency-data-integration-project-madip>
- 60 National Disability Data Asset 'About the NDDA' accessed at: <https://ndda.gov.au/about/the-ndda/>
- 61 The Sax Institute, 'Secured Unified Research Environment', accessed at: <https://www.saxinstitute.org.au/our-work/sure/>
- 62 COAG 2021 'International Agreement on Data Sharing between Commonwealth and State and Territory governments' <https://federation.gov.au/about/agreements/intergovernmental-agreement-data-sharing> July 2021
- 63 Closing the Gap 'National Agreement on Closing the Gap' accessed at: <https://www.closingthegap.gov.au/national-agreement>
- 64 Department of Prime Minister and Cabinet 'Data and the Digital Economy' accessed at: <https://digitaleconomy.pmc.gov.au/fact-sheets/data-and-digital-economy>
- 65 Department of Prime Minister and Cabinet, 2020 'Data and Digital Ministers' Meeting' accessed at: <https://www.pmc.gov.au/public-data/data-and-digital-ministers-meeting>
- 66 Productivity Commission 2017, Data Availability and Use, Report No. 82, Canberra
- 67 Data Linkage Expert Advisory Group 2016 'A review of Western Australia's data linkage capabilities' accessed at: [https://www.jtsi.wa.gov.au/docs/default-source/default-document-library/a-review-of-western-australia-s-data-linkage-capabilities---developing-a-whole-of-government-model---december-2016.pdf?sfvrsn=f6c26d1c\\_0](https://www.jtsi.wa.gov.au/docs/default-source/default-document-library/a-review-of-western-australia-s-data-linkage-capabilities---developing-a-whole-of-government-model---december-2016.pdf?sfvrsn=f6c26d1c_0)
- 68 Parliament of Australia 2020 'Data Availability and Transparency Bill 2020' accessed at: [https://www.aph.gov.au/Parliamentary\\_Business/Bills\\_Legislation/Bills\\_Search\\_Results/Result?bld=r6649](https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bld=r6649)
- 69 Productivity Commission 2017, Data Availability and Use, Report No. 82, Canberra
- 70 NSW Government 2015 'Data Sharing (Government Sector) Act 2015', accessed at: <https://legislation.nsw.gov.au/view/whole/html/inforce/current/act-2015-060>
- 71 Government of South Australia 2016 'Public Sector (Data Sharing) Act 2016' accessed at: [https://www.legislation.sa.gov.au/LZ/C/A/PUBLIC%20SECTOR%20\(DATA%20SHARING\)%20ACT%202016.aspx](https://www.legislation.sa.gov.au/LZ/C/A/PUBLIC%20SECTOR%20(DATA%20SHARING)%20ACT%202016.aspx)
- 72 Data Linkage Expert Advisory Group 2016 'A review of Western Australia's data linkage capabilities' accessed at: [https://www.jtsi.wa.gov.au/docs/default-source/default-document-library/a-review-of-western-australia-s-data-linkage-capabilities---developing-a-whole-of-government-model---december-2016.pdf?sfvrsn=f6c26d1c\\_0](https://www.jtsi.wa.gov.au/docs/default-source/default-document-library/a-review-of-western-australia-s-data-linkage-capabilities---developing-a-whole-of-government-model---december-2016.pdf?sfvrsn=f6c26d1c_0)
- 73 Office of the Australian Information Commissioner 'Privacy in your state' accessed at: <https://www.oaic.gov.au/privacy/privacy-in-your-state>
- 74 Data Linkage Expert Advisory Group 2016 'A review of Western Australia's data linkage capabilities' accessed at: [https://www.jtsi.wa.gov.au/docs/default-source/default-document-library/a-review-of-western-australia-s-data-linkage-capabilities---developing-a-whole-of-government-model---december-2016.pdf?sfvrsn=f6c26d1c\\_0](https://www.jtsi.wa.gov.au/docs/default-source/default-document-library/a-review-of-western-australia-s-data-linkage-capabilities---developing-a-whole-of-government-model---december-2016.pdf?sfvrsn=f6c26d1c_0)
- 75 Office of the National Data Commissioner 'Foundational Four' <https://www.datacommissioner.gov.au/data-management/foundational-four>
- 76 *ibid*
- 77 AIHW 2021 'The Five Safes Framework' accessed at: <https://www.aihw.gov.au/about-our-data/data-governance/the-five-safes-framework> 1 September
- 78 COAG 2021 'International Agreement on data sharing between Commonwealth and State and Territory governments' <https://federation.gov.au/about/agreements/intergovernmental-agreement-data-sharing> July 2021
- 79 Data Linkage Expert Advisory Group 2016 'A review of Western Australia's data linkage capabilities' accessed at: [https://www.jtsi.wa.gov.au/docs/default-source/default-document-library/a-review-of-western-australia-s-data-linkage-capabilities---developing-a-whole-of-government-model---december-2016.pdf?sfvrsn=f6c26d1c\\_0](https://www.jtsi.wa.gov.au/docs/default-source/default-document-library/a-review-of-western-australia-s-data-linkage-capabilities---developing-a-whole-of-government-model---december-2016.pdf?sfvrsn=f6c26d1c_0)

- 80 Data.gov.au 2019 'Accredited Integrating Authorities' accessed at: [https://toolkit.data.gov.au/Data\\_Integration\\_-\\_Accredited\\_Integrating\\_Authorities.html](https://toolkit.data.gov.au/Data_Integration_-_Accredited_Integrating_Authorities.html)
- 81 UNICEF 2019 'Responsible Data for Children' accessed at: <https://rd4c.org/>
- 82 UNICEF 2019 'Responsible Data for Children' accessed at: <https://rd4c.org/>
- 83 Department of Prime Minister and Cabinet 2016 'Data Skills and Capability in the Australian Public Service' accessed at: <https://www.pmc.gov.au/sites/default/files/publications/data-skills-capability.pdf>
- 84 Office of the National Data Commissioner 2021 'New pilot program to deliver a government-wide data catalogue' accessed at: <https://www.datacommissioner.gov.au/media-hub/new-pilot-program-deliver-government-wide-data-catalogue> 20 August
- 85 Office of the Australian Information Commissioner 2020 'Australian Community Attitudes to Privacy Survey 2020' accessed at: <https://www.oaic.gov.au/engage-with-us/research/australian-community-attitudes-to-privacy-survey-2020-landing-page/2020-australian-community-attitudes-to-privacy-survey>
- 86 Opus 2015 'Public Attitudes to Data Integration' accessed at: <https://www.stats.govt.nz/assets/Uploads/Retirement-of-archive-website-project-files/Corporate/Public-attitudes-to-data-integration/public-attit-data-integr-2015.pdf>
- 87 Productivity Commission 2017, Data Availability and Use, Report No. 82, Canberra
- 88 Productivity Commission 2017, Data Availability and Use, Report No. 82, Canberra

## Design:

Mustard Creative

## Photography:

daavidpereiras/unsplash photos; twenty20photos/unsplash photos; Rawpixel/unsplash photos; elxeneize/unsplash photos; IrynaKhabliuk/unsplash photos; Michał Parzuchowski/unsplash photos; Pixabay/pexels; microgen/unsplash photos; Anthony Shkraba/pexels; Nadezhda Moryak/pexels; Vitaly Vlasov/pexels; Dimitry B/unsplash; Ha4ipuri/unsplash photos; AnnaStills/unsplash photos; FiledIMAGE/unsplash photos; Markus Spiske/unsplash; Maximalfocus/unsplash; wutzkoh/unsplash photos

### National

Level 3  
271 Spring Street  
Melbourne 3000 Australia  
GPO Box 2117  
Melbourne VIC 3001  
Telephone +61 1800 161 236  
Email [info@ceda.com.au](mailto:info@ceda.com.au)

### Queensland

Level 4  
232 Adelaide Street  
Brisbane QLD 4000  
GPO Box 2900  
Brisbane QLD 4001  
Telephone +61 1800 161 236  
Email [info@ceda.com.au](mailto:info@ceda.com.au)

### Victoria and Tasmania

Level 3  
271 Spring Street  
Melbourne 3000 Australia  
GPO Box 2117  
Melbourne VIC 3001  
Telephone +61 1800 161 236  
Email [info@ceda.com.au](mailto:info@ceda.com.au)

### New South Wales and the ACT

Level 14  
The John Hunter Building  
9 Hunter Street  
Sydney NSW 2000  
GPO Box 2100  
Sydney NSW 2001  
Telephone +61 1800 161 236  
Email [info@ceda.com.au](mailto:info@ceda.com.au)

### South Australia and the Northern Territory

Level 5  
2 Ebenezer Place  
Adelaide SA 5000  
Telephone +61 1800 161 236  
Email [info@ceda.com.au](mailto:info@ceda.com.au)

### Western Australia

Level 5  
105 St Georges Terrace  
Perth WA 6000  
PO Box 5631  
St Georges Tce  
Perth WA 6831  
Telephone +61 1800 161 236  
Email [info@ceda.com.au](mailto:info@ceda.com.au)

