

# Proposal

## Wimmera Information Portal (WIP):

A place to discover and share spatial information on the region

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## Background

During 2016, Federation University Australia (FedUni) through the Centre for eResearch and Digital Innovation (CeRDI) commenced a collaboration with a number of Wimmera based agencies.

A proposal was developed by CeRDI which presented a vision for development of an online portal that would enable stakeholders access to place based and region wide information on demand, with the aim of maximising the capacity for evidence based decision making, planning and service system development into the future (see [http://wip.cerdi.edu.au/resource\\_details.php?resource\\_id=4543](http://wip.cerdi.edu.au/resource_details.php?resource_id=4543)).

As an outcome of subsequent co-investment, the Wimmera Information Portal (WIP) was established. The WIP is an online portal which brings together existing social, health and wellbeing datasets and information created and managed by government agencies, organisations, community groups and individuals to inform planning, decision making and response strategy development.

The WIP provides a single point of access to extensive information from a variety of data custodians relevant to the Wimmera region, using spatial mapping to enhance usability and integration of data from a variety of data sets.

The initial pilot of the WIP provided access to data on demographics, physical activity, healthy eating, economic factors, education, mental health and climatic conditions.

Data to be federated within the portal over the longer term will draw from a broader range of data sets and focus on demographic characteristics, families, children and young people, health conditions and behaviours, social determinants of health and mental health and wellbeing, to enhance the ability of the portal to meet the information needs of stakeholders.

Given the success of the establishment phase, there is now an opportunity to develop programmatic research plans with partner organisations as well as explore other funding opportunities to enhance the sustainability of the WIP going forward.

This proposal has been developed to support further investment and expansion of the WIP and associated engagement and research.

## The research context

In comparison to urban Australia, rural communities face significant disadvantage across a broad range of domains, particularly in health, education, employment and socioeconomic factors.

Wimmera specific research mirrors and, in some instances, reflects greater disadvantage, than other parts of rural Victoria. Given the scope of rural disadvantage in general, including issues within the Wimmera region, effective response strategies have become a priority.

Evidence suggests that addressing systemic disadvantage requires interagency collaborative practice to facilitate development and implementation of holistic and coordinated responses to complex social, community and health issues. Despite strong evidence around the importance of collaboration for addressing systemic disadvantage attainment of this goal has always been problematic.

The difficulties encountered are linked to organisational, sector, professional and funding differences, and the tendency for the creation of domain specific silos, despite issues being linked, multifaceted and spanning a range of service areas.

In regional areas, there is the desire for local planning and targeted decision-making for community, health and social services. Despite large amounts of data being publicly

available it is held by a variety of government agencies, organisations and community groups with no method for integration.

Technology been identified as an important mechanism for interagency collaboration and information exchange. Although there has been significant exploration of information technology within social, health and community services these technologies are usually sector and discipline specific, rather than multidisciplinary.

An enhanced ability to use multi-sectoral information to build a holistic response to, and understanding of, linked issues (social, environmental, educational, health etc.) was viewed as a priority for the Wimmera region.

The ability to combine and capture data through a single point of access to support informed decision making and enhanced practice capacity has been embraced by the WIP, and enables better understanding the unique aspects and issues within region.

## WIP Principles

The WIP is underpinned by three guiding principles:

### Principle 1:

That the role of information technology as a mechanism for overcoming systemic barriers and enhancing capacity for holistic responses to complex issues is acknowledged as a foundational principle for inter-agency service system planning and development.

### Principle 2:

That a service planning and development resource for social services in the Wimmera region be characterised by federation of data that is current, relevant to the regional context and driven by inter agency cooperation.

### Principle 3:

That a Community of Practice be established as a central resource to the project in order to ensure that information sharing and knowledge building is maximised. The establishment of this Community of Practice will also ensure that resources developed are as representative and as responsive as possible within the context of a complex and multifaceted service system arena.

The WIP aims to develop a new model, using information technology, to access data sets across disciplines and maximise the potential for preventative and responsive work in the social service system in the Wimmera region.

This project is being undertaken as a partnership between a range of agencies and with CeRDI at FedUni.

## Centre for eResearch and Digital Innovation (CeRDI)

The Centre for eResearch and Digital Innovation (CeRDI) is a research centre within Federation University Australia located at the Ballarat Technology Park, Mt Helen.

CeRDI focuses on multidisciplinary research in the application of advanced information and communications technology (ICT) to bring about digital transformations and practice change, together with enhancements in effectiveness and productivity in industry, government and academia.

CeRDI is building a national reputation for:

- the application of ICT and the development of innovative, world-class knowledge management systems;
- significantly advancing the digital literacy and knowledge management capabilities of partner organisations;

- fostering partnerships for the development and implementation of eResearch with industry, government and academia; and
- measuring the impact of eResearch and digital innovation through longitudinal research.

Outcomes-focused, CeRDI is committed to building capacity and engagement with partner organisations and ensuring the uptake of technologies benefits and supports research partners, their staff and stakeholders, including the broader community.

Established expertise within CeRDI includes spatial information systems, visualisation tools, knowledge management and data interoperability.

CeRDI's spatial technology and visualisation capabilities have been developed and applied across projects in agriculture, natural resource management, health and wellbeing, hazards planning and resilience, heritage and culture and regional development.

CeRDI undertakes impact research through longitudinal research programs that explore factors relating to project implementation and development, knowledge building, practice change and decision making.

CeRDI's approach to research is characterised by the formation of long-term partnerships and a high level of co-creation with partner organisations.

## Wimmera Information Portal

The development of the WIP has involved an organic collaborative process with the project partners. Several meetings with project partners have been held to discuss ideas, datasets and portal functionality. The project partners include:

- Barengi Gadjin Land Council
- Department of Health and Human Services
- Department of Justice and Regulation Horsham
- Federation University Australia
- Goolum Goolum Aboriginal Cooperative
- Grampians Community Health
- Horsham Rural City Council
- Victoria Police Horsham – Western District Division Four
- Wimmera Drug Action Taskforce
- Wimmera Primary Care Partnership
- Wimmera Southern Mallee LLEN
- Wimmera Uniting Care
- Women's Health Grampians
- Yarriambiack Shire Council

The WIP portal was established in early December 2016, and has undergone progressive functionality and data enhancement since that time.

## ABS Census 2011

- Population (Estimates and Projections)
- Education (Post school qualifications)
- SEIFA Indexes

## Australian Early Development Census

- Developmentally vulnerable children

## Dept. Education and Training (VCAMS)

- Year 12 Completions /School locations
- Dept. Health and Social Services
- Sport and Recreation Facilities

## Social Health Atlas

- Youth unemployment
- Workforce participation
- Public Hospital presentations
- Children in low-income welfare dependent families

## Victoria Police

- Missing persons
- Mental health warning flags
- Family incidents

## Victorian Population Health Survey

- Smoking
- Fruit & Veg consumption
- Sugar-sweetened drinks
- Prevalence of Obesity
- Physical Activity – Sedentary behaviour
- Psychological distress

## Current WIP functionality

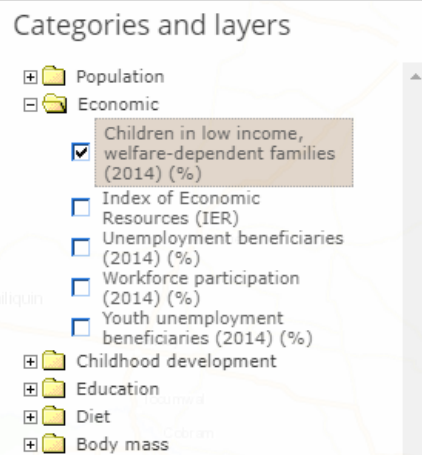
This section of the proposal provides examples of some of the functionality available via the WIP which can be accessed at <http://wip.cerdi.edu.au>

The screenshot displays the Wimmera Information Portal (WIP) interface. On the left, there is a 'Demonstration Site' information panel with a 'Please note' warning and a list of tools available, such as generating a community profile report and viewing map layers. The main area is a map of the Wimmera region, showing various data layers overlaid on a satellite background. A legend on the right side, titled 'Categories and layers', lists various data sources and indicators, including population estimates, economic indicators, and health-related data. The map shows several areas highlighted in blue, indicating specific data points or regions of interest. The interface also includes a navigation menu at the top and a 'Hints and Information' section at the bottom right.

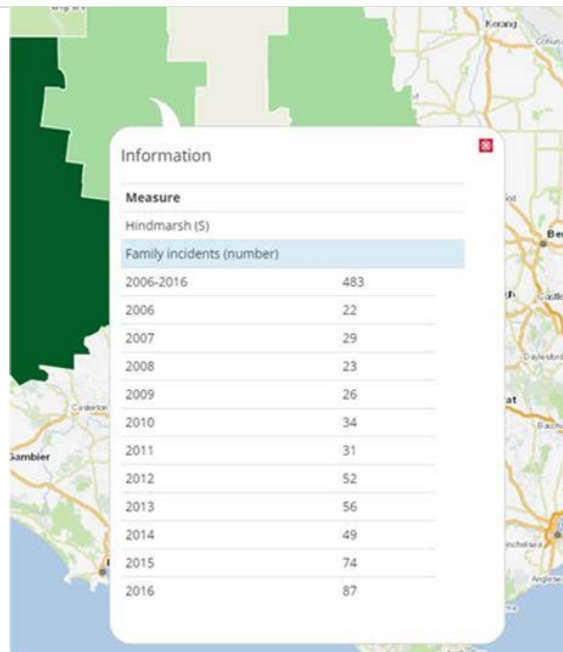
Data and spatial information layers within the WIP is categorised by themes:



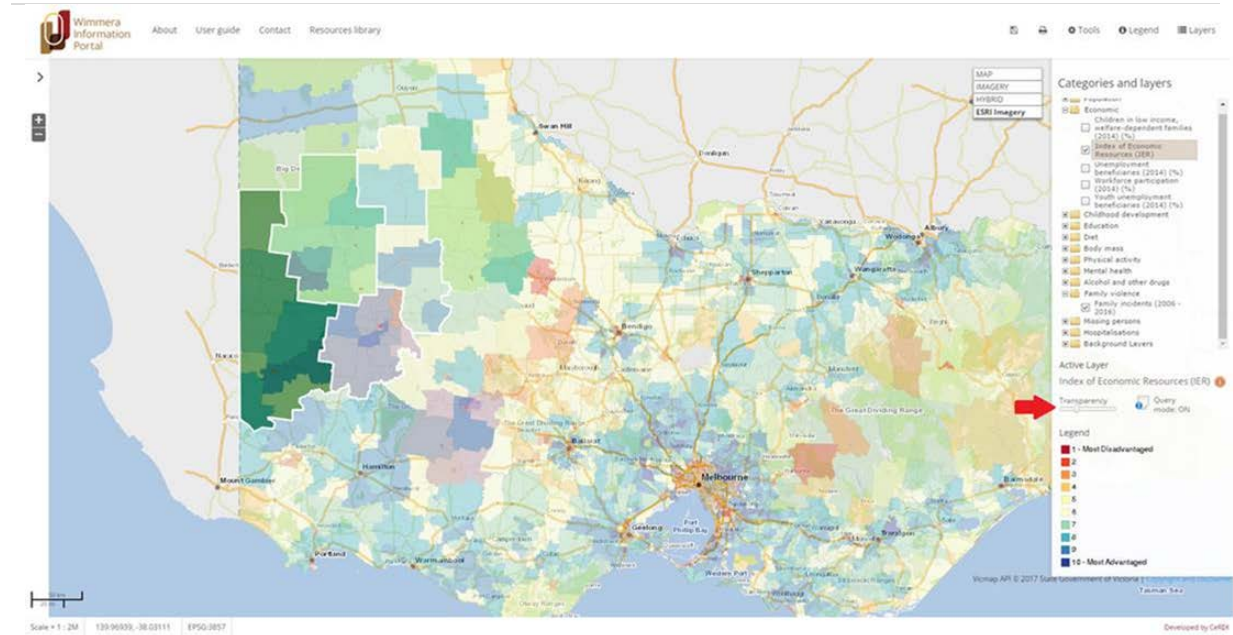
Information layers under each category can be accessed by pressing the + and viewed by selecting the relevant layer:



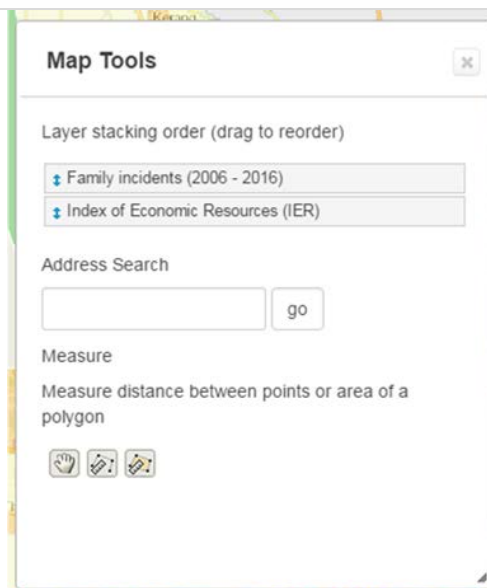
Summary information can be accessed by clicking on a LGA region. For example in the image below data on the number of family incidents in the Hindmarsh Shire is presented:



Transparency can be useful for fading layers in and out to compare different information at one time:

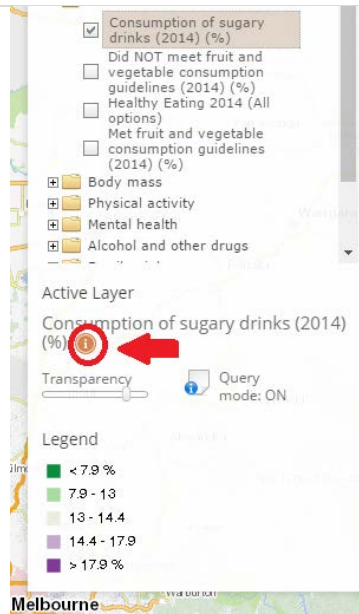


To adjust the layer order (which layer appears on top) click 'Tools' in the right hand top corner and you can move layer up or down:





Information about where the data has come from can be found by clicking on the information button:



**About this layer: Consumption of sugary drinks (2014) (%)**

**Proportion of adults who consumed sugar-sweetened soft drinks daily, by LGA, 2014**

Department of Health and Human Services 2016, Victorian Population Health Survey 2014: Modifiable risk factors contributing to chronic disease, State Government of Victoria, Melbourne.

The Victorian Population Health Survey program was established in 1998 and collects quality information at the State, regional and local government area levels about the health, lifestyle and wellbeing of adult Victorians aged 18 years and over. The survey follows an established method to collect relevant, timely and valid health information which is applied to policy development and strategic planning.

Information is collected via computer assisted telephone interview on overall self-rated health status, level of psychological distress, body mass index (to determine weight status), the presence of chronic diseases, nutrition, physical activity, smoking and alcohol consumption. Information is also collected on participation in screening for bowel cancer, cervical cancer, breast cancer, high blood pressure, cholesterol and high blood sugar in addition to community participation, levels of social support and connections with others.

Interviews are conducted in the major non-English languages in Victoria to ensure people of culturally and linguistically diverse backgrounds are represented.

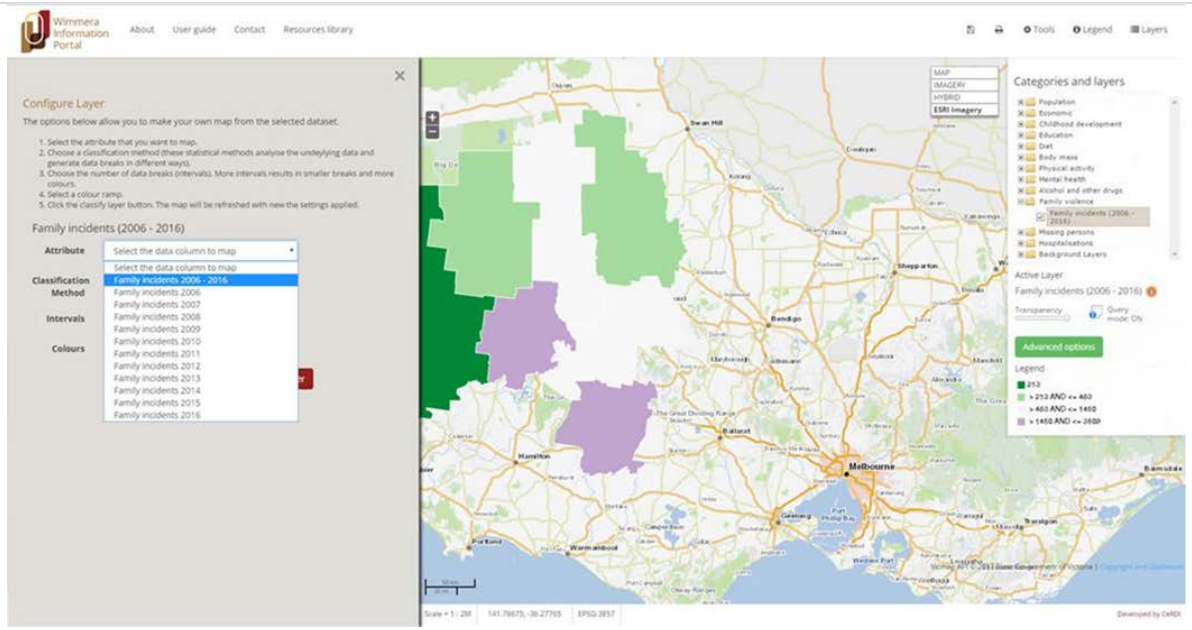
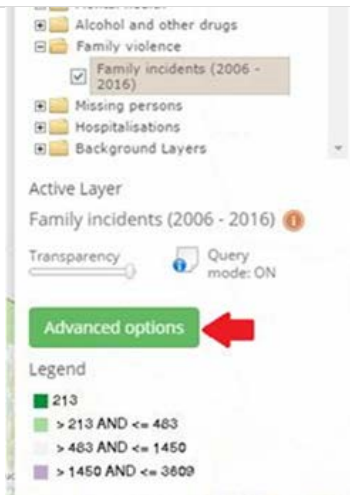
The sample size for the Victorian Population Health Survey was expanded to 33,654 respondents in 2014 so reliable information could be presented at the LGA level.

The term 'sugar-sweetened soft drinks' refers to any beverage with added sugar, and includes carbonated drinks, flavoured mineral water, cordial, sports drinks and energy drinks. Ready-to-drink alcoholic beverages were also included as sugar-sweetened beverages as they are mixed with other flavours such as fruit juice or soft drink. All clear, non-flavoured mineral water and soda water were excluded.

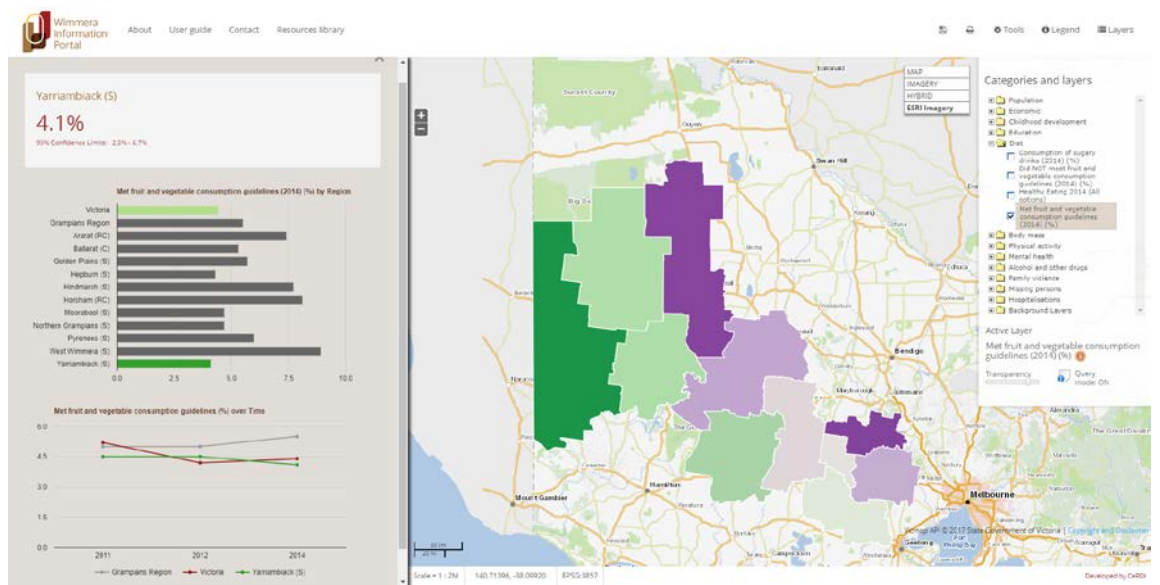
*Data were age-standardised to the 2011 Victorian population.  
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.*

Consumption of sugary drinks (2014) (%)

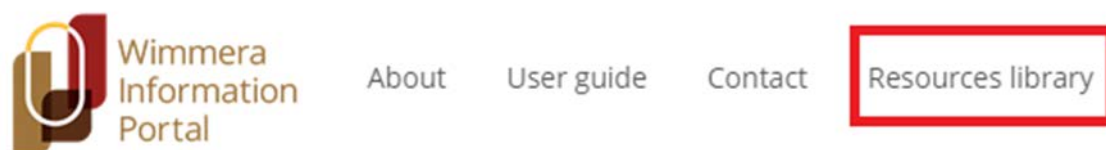
WIP functionality allows users to customise what they are seeing. For example if you select family incidents the default display shows the number of incidents between 2006-2016 but if you select 'Advanced options' you are able to change which data is displayed from the drop down list, as well as classification method and colouring:



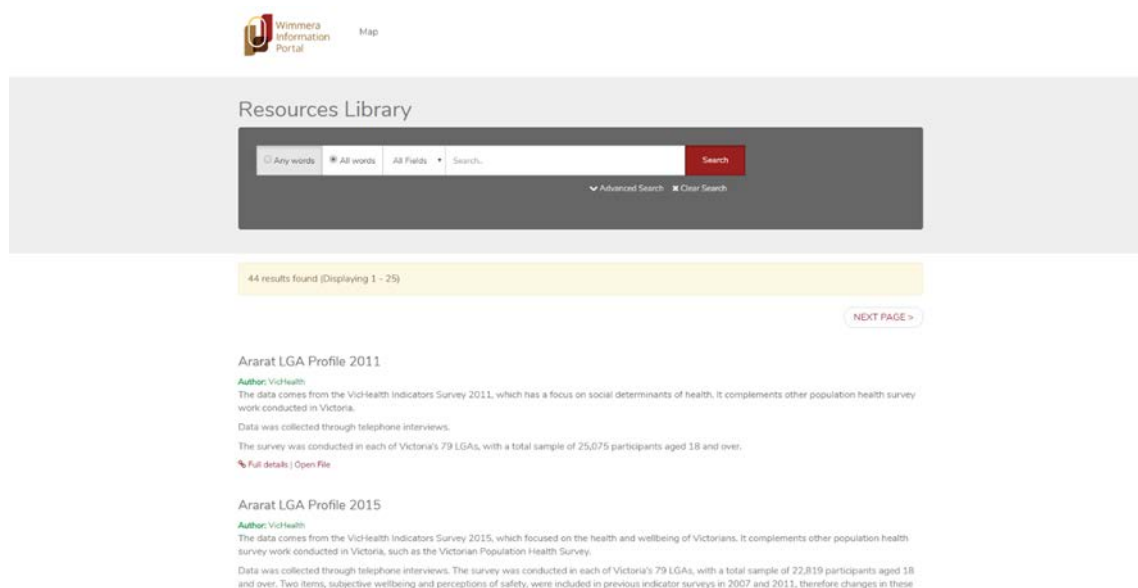
WIP functionality also supports the display of charts or graphical summaries of the data:



A resource library has also been established which currently contains a collection of documents related mainly to the data (e.g. Victorian Population Health Survey reports). The 'Resources library' can be accessed by clicking on the link on the right hand side of the screen:



Library resources can include web links, PDFs or both and can be searched using key words.



The WIP has provided new opportunities for combining and sharing data sets, supported knowledge management needs and enhanced collaboration opportunities.

## WIP development into the future

### Focus areas

Through the collaborative development of the WIP there has been identification of a number of priorities and areas of interest for potential expansion and future development.

#### Demographic characteristics

- Population by location, projected population changes, internal migration, births, deaths, age structure.
- Crime statistics with an emphasis on family violence prevention and community safety, building capacity for predictive operational planning through use of data discovery techniques, crowdsourcing and holistic data inclusion for trends identification.
- Housing: social housing and what influences people to need housing, housing stock
- Cultural diversity: this should include an identification of demographics on culturally and linguistically diverse groups, indigenous populations and rural clusters however

the focus is on the building of knowledge on cultural characteristics and the building of cultural competency. Helping Indigenous people and rural populations to tell their stories.

### **Families, children and young people**

- Family breakdown
- Service access rates – mapping the access to, and take up of, family violence services, child protection and out of home care

### **Health conditions and behaviours**

- Chronic disease – smoking, nutrition, physical activity, diabetes, cancer, cardiovascular disease, asthma, obesity.
- Deaths, ambulatory care sensitive conditions.
- Access to health services across the age spectrum

### **Social determinants of health**

- Social and economic indicators (relative disadvantage, population decline – including detailed population statistics and population distribution)
- Food insecurity and access
- Financial stress
- Welfare recipients
- Aged pensioners and carers
- Disability
- Dental health
- Income – personal and household
- Employment across the age spectrum, labour force participation
- Occupation and industry of employment
- Education – Literacy rates, preschool, school completion and university entry rates. This could be mapped in a variety of ways. For example comparing GIS postcode representation of FedUni student destination survey results with regional, state and national actual workforce demand

### **Mental Health and Wellbeing**

- Mental health rates
- Suicide rates
- Substance use, alcohol consumption
- Alcohol and drug use in the area (type of drugs, demographics, location and drivers). As drivers for use can often be related back to other health and social factors such as employment, education and housing the inclusion of the full scope of data on a single portal is critical.
- Impacts of drug use (family violence, crime, emergency department admissions and ambulance attendances).

The challenge with having so many possibilities is deciding what information is most useful, including enough information to provide a meaningful outcome without overloading the user. A mechanism that CeRDI uses to both inform data priorities as well

as the functionality required is through 'use cases' which are examples of how the technology may be used.

## Use cases

A key part of the technology approach which CeRDI utilises to build capacity and engagement with partner organisations and to ensure the uptake of technologies benefits and supports research partners, their staff and stakeholders, including the broader community – is the development use cases from different stakeholders' perspectives.

Use cases are generally statements representing ideal scenarios of how an end-user wishes to interact with the technology to provide an outcome. Based on some of the discussion to date the following use cases are put forward as examples:

### Informing place based interventions and evidence based practice

- Victoria Police provided an example of using the portal to inform the development of a position description for youth specialist officers. The WIP data was used to identify local issues likely to influence the focus for the position. The development of this new role was therefore supported by empirical evidence rather than subjective/personal experience. This provided a clear example of how WIP can inform evidence based practice.

### Providing efficiencies in reporting, funding applications

- Using the WIP to generate geographically specific statistical reports around identified issues – for example a funding round for community housing is currently open and to support this application evidence is required to demonstrate region need. Built into the WIP are reporting tools which can provide a report of statistics (in both table and graphical forms) related to community housing which can easily be downloaded and transferred into the funding application. Substantial time savings are achieved as a result of being able to access relevant data, information, reports and background information from a variety of sources within one portal.
- Outcome measurements – there are increasing requirements from both state and federal governments to enhance outcome measurement by providing more meaningful measurement of impact from investment. By developing functionality within the WIP regional stakeholders will be able to better meet new outcome measurement guidelines overtime. The goal would be to achieve a more uniform and efficient mechanism of outcome reporting

### Enhancing local responsiveness

- An issue identified by project collaborators is the time delay in receiving statistical data from government and other sources which limits the ability to respond at the time a response is needed. The inclusion of datasets that are more 'real time' for example aggregated and de-identified VicPol, hospital, ambulance attendance or health professional waiting lists would allow improved responsiveness of interventions and services directed towards local need.
- Using the WIP to determine when a correlation between climatic conditions and psychological distress is evident (e.g. an increase in psychological distress when drought conditions are emerging). Where a correlation exists this could provide justification for improved mental health resourcing and targeted interventions during drought periods.

## Future planning

- Local governments could use the WIP to compare the population density and the facilities available. This could help inform where investment in facilities is needed within their LGA based on both current and future population projections.

## A mechanism to make previous research and intervention outcomes available

- Although a lot of local work has been completed, research and intervention reports are often hidden within organisations and cannot be accessed more broadly. This can lead to duplication of similar work and not allow future work to build on what has been done in the past. Having the resource library available to publish research and other types of reports may enhance the effectiveness of future interventions by making it easier to build on past learnings and more effective tailor response for the Wimmera region.

These use cases seek to demonstrate potential future directions for the WIP. Actual use cases will be co-developed with Wimmera stakeholders.

By their nature, use cases are best co-developed through an iterative process that involves liaising with a variety of end-users who understand the potential of the available technologies to deliver a desirable or exceptional outcome.

CeRDI has a diverse team of experienced researchers, including domain experts, social scientists and technologists, to assist with co-developing the use cases.

## Cost and funding capacity

During the WIP establishment phase with three partners each contributed \$5,000:

- Wimmera Primary Care Partnership
- Wimmera Uniting Care
- Wimmera Southern Mallee Local Learning and Employment Network

Significant in-kind contributions and support have also been provided by these and other Wimmera partners.

Given the success and momentum that has been achieved through the WIP establishment phase we are now seeking to confirm future cash and in-kind contributions towards research and development associated with the Wimmera Information Portal over the next three years.

Once additional funding has been confirmed, the next step will be for CeRDI to work with Wimmera partners to develop the research, data and technology roadmap and also to explore opportunities to leverage partner funding with funding from other sources including, for example:

- Public Sector Innovation Funding
- Other government or philanthropic funding sources
- Cooperative Research Centre Funding (e.g. Digital Health CRC; SMART Ageing CRC and/or
- FedUni contribution toward a Masters/PhD scholarship.

## Further information

We look forward to confirming your support for the WIP. If you have queries of would like to discuss this proposal please contact Helen Thompson on 0417 059 659 or via email at [h.thompson@federation.edu.au](mailto:h.thompson@federation.edu.au).