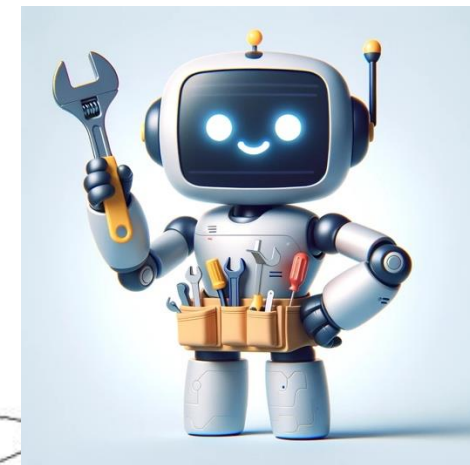




Mental health service Navigation using LLMs

- Colin Gallagher
- Daniel Russo-Batterham
- Noel Faux



**The Victorian
Collaborative Centre**
For Mental Health & Wellbeing

**MELBOURNE
DATA ANALYTICS
PLATFORM**



Some of the team

Dr Colin Gallagher

- School of Population and Global Health

Dr Daniel Russo-Batterham

- Melbourne Data Analytics Platform (MDAP)



Dr Noel Faux

- Melbourne Data Analytics Platform (MDAP)



There are a lot of problems with
mental health services in Victoria



Mental Health and Wellbeing Act 2022



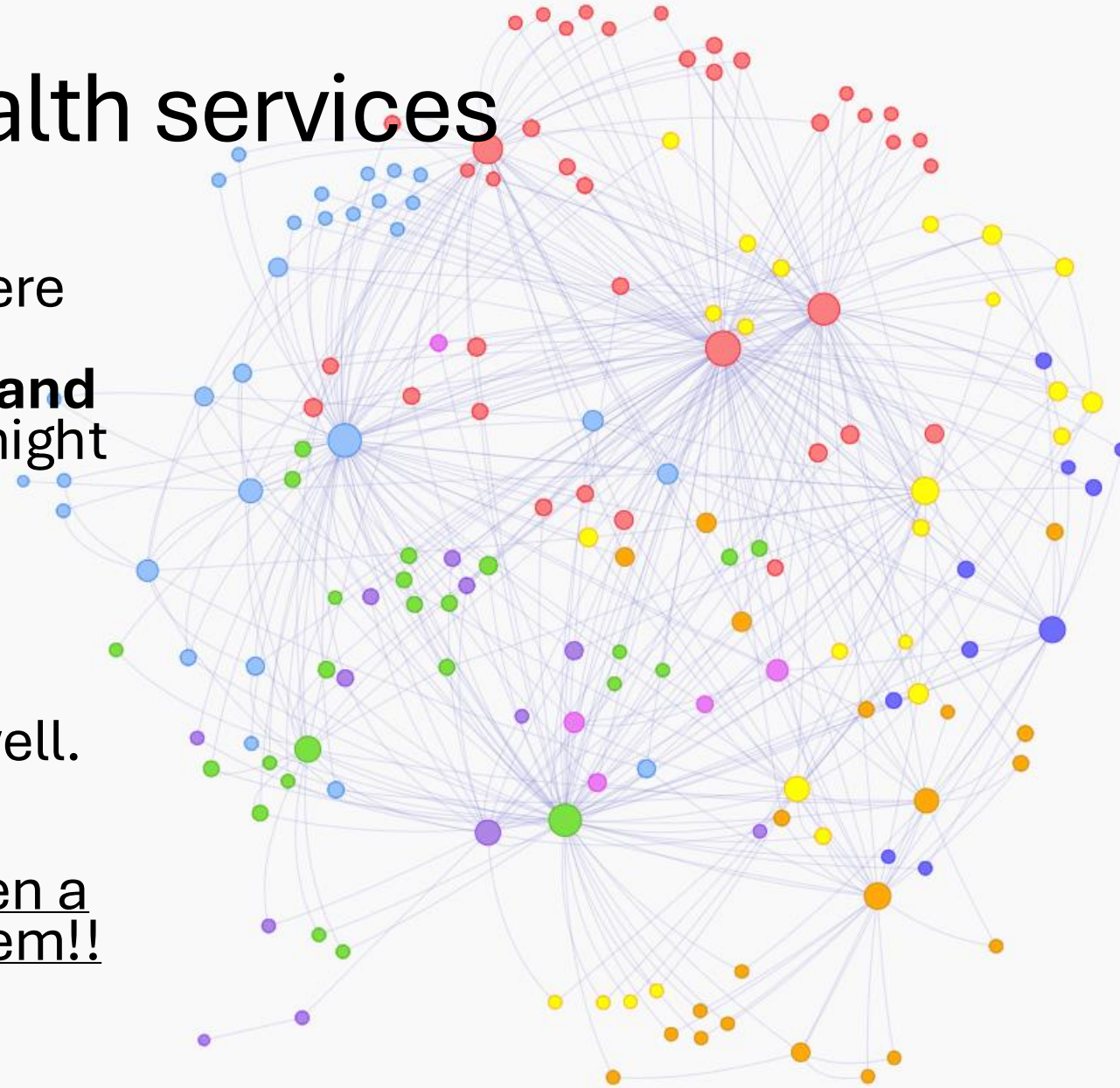
**Royal Commission into
Victoria's Mental Health System**



**The Victorian
Collaborative Centre**
For Mental Health & Wellbeing

Mental health services

- In Australia, there are **many organisations and services** you might go to for help.
- But they don't always work together very well.
- There is not even a single list of them!!

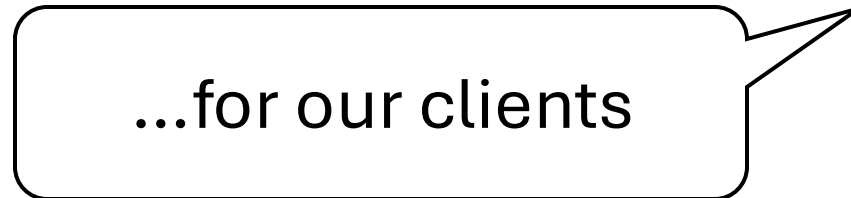
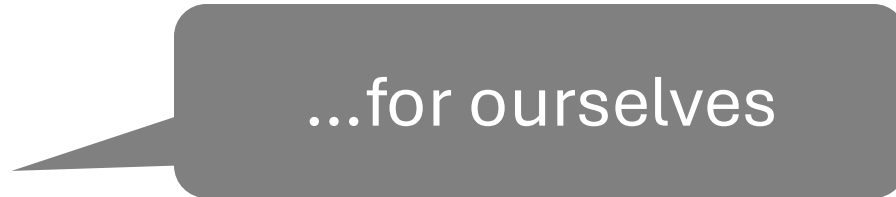
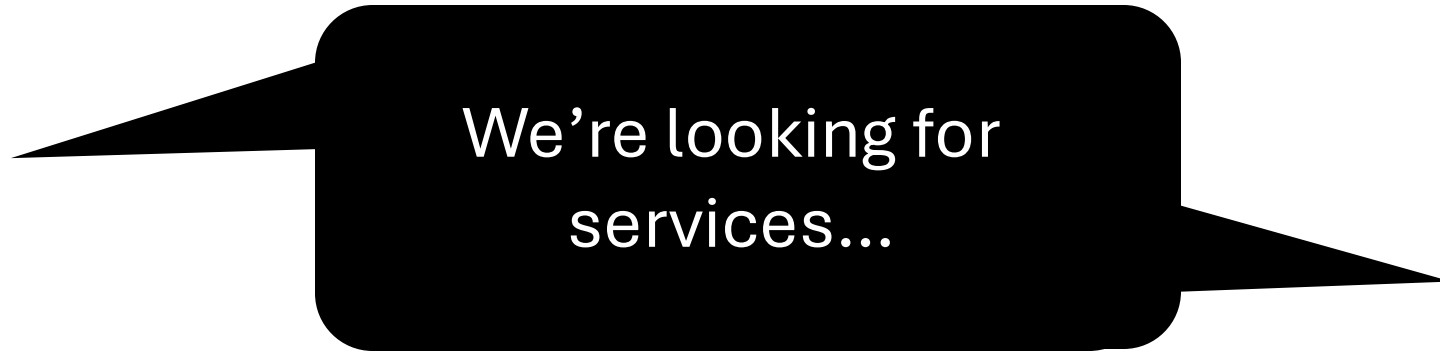


The Need:

Making it easier to **find** mental health services



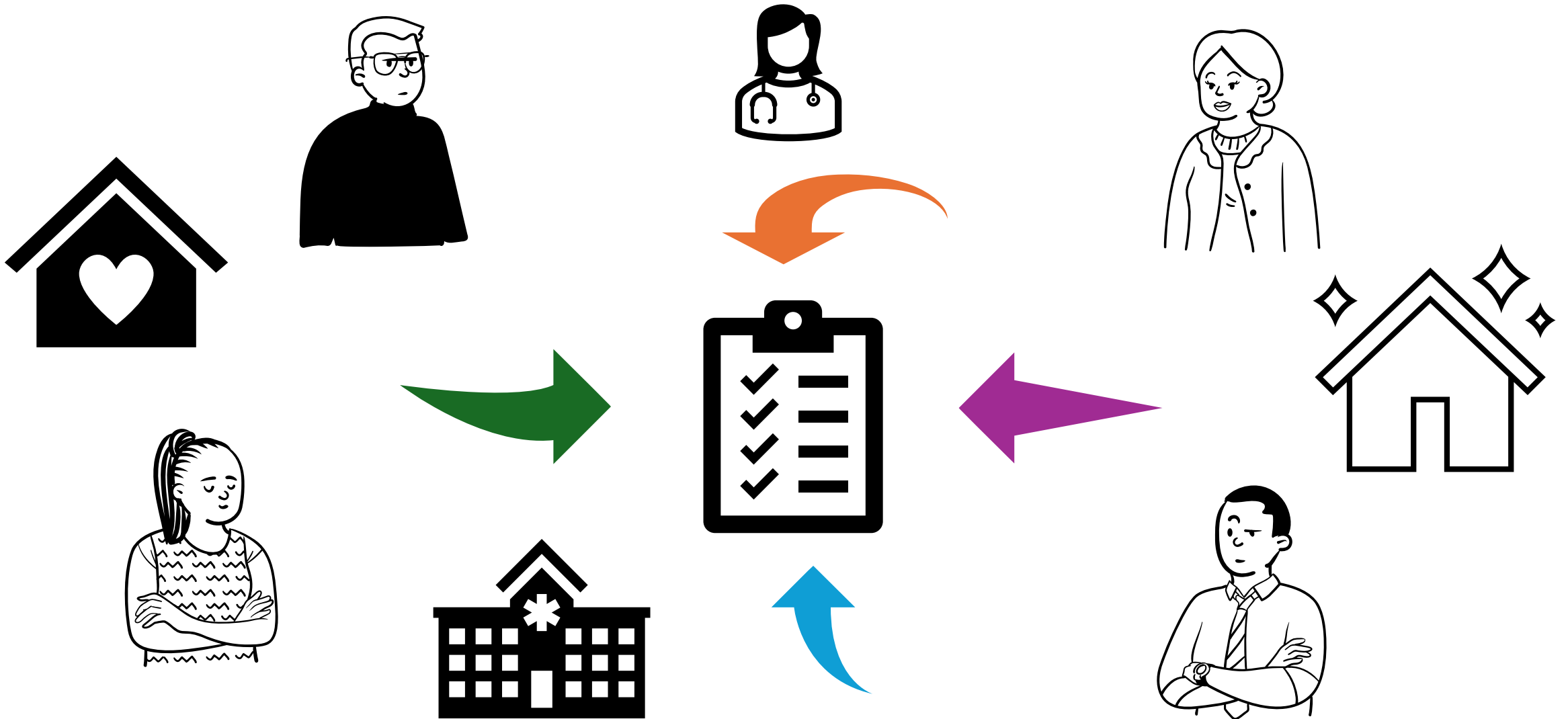
*Consumers (**Clients, Patients**)*



*Mental health Professionals
(psychologists, social workers, etc)*

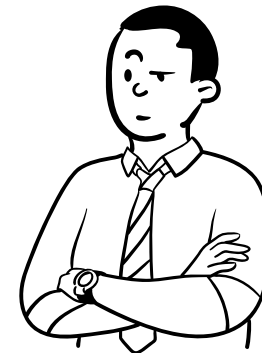
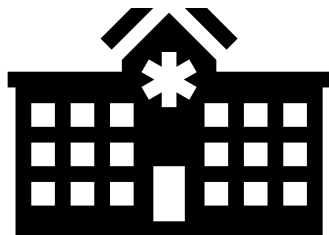
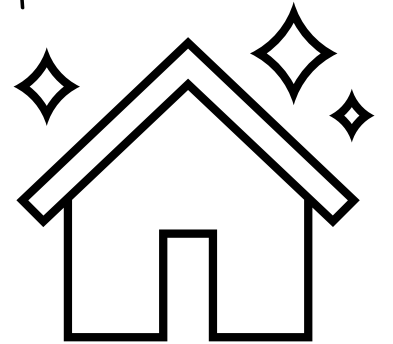
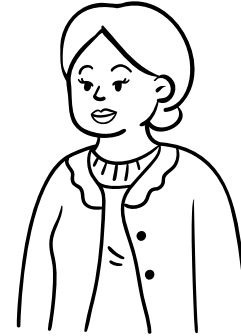
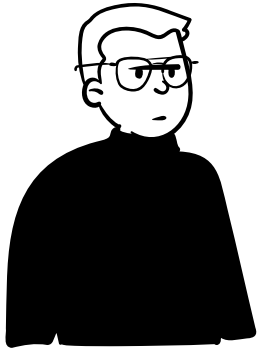
The Problem

The information is **diverse** and **dispersed** and **time-limited**.



The Problem

The information is **diverse** and **dispersed** and **time-limited**.



The Problem

The information is **diverse** and **dispersed** and **time-limited**.





Solutions using Large Language Models



Solutions using Large Language Models

- First place winner
- AI prize 2023

Your mission

Build (parts of) a prototype tool that helps people *talk their way through* mental health service listings.

- Query existing structured & semi-structured data
- Add new data via chat
- Use location and internet search results to help refine and return relevant results

Plenty of “stretch goals” if you want to go further.

Chatbot



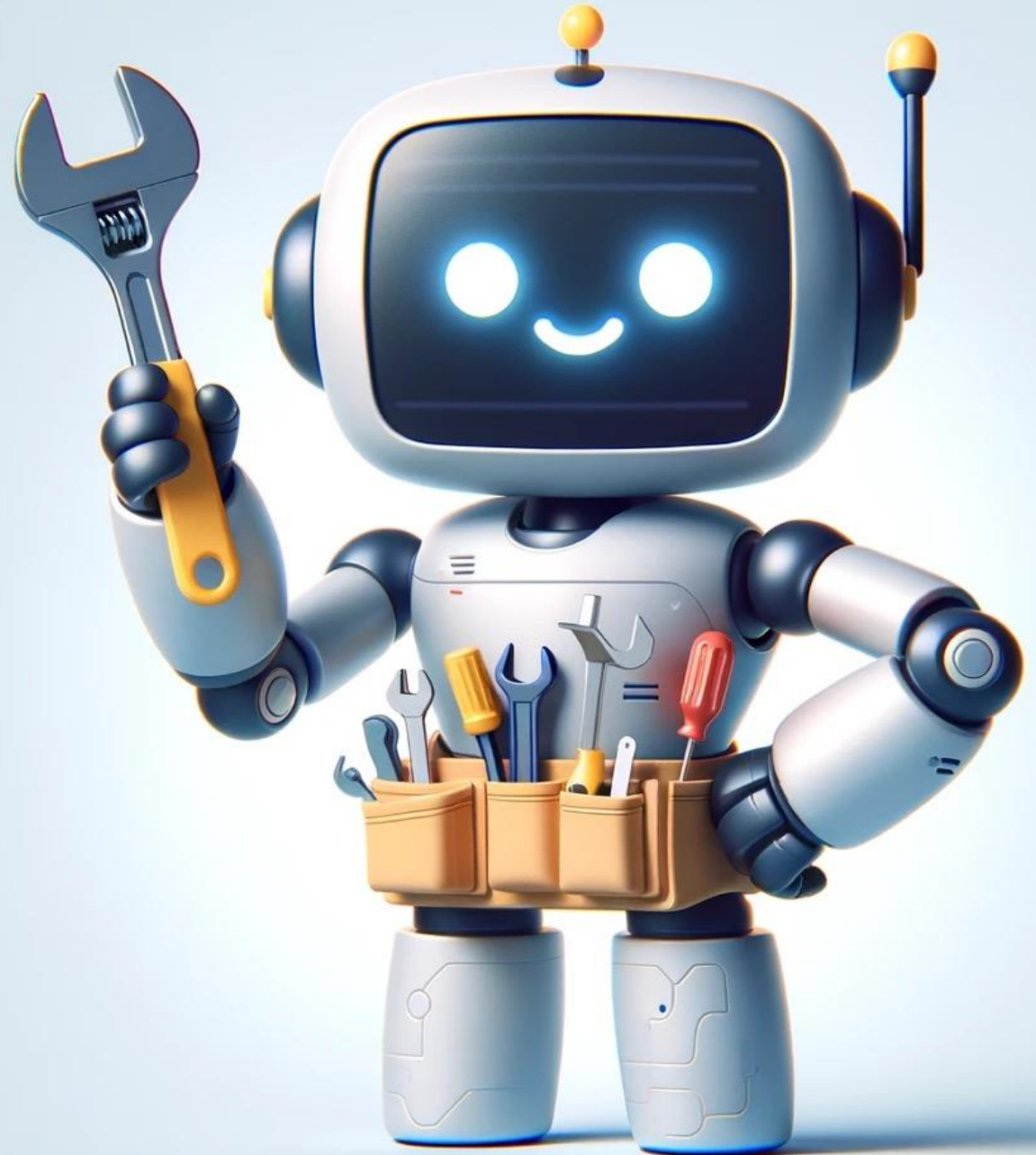
Streamlit



Agents and tools

Equipping chatbots with specialised tools such as :

- **Semantic** search of vector databases
- Google Places API
- Internet search





Thank you

Colin.Gallagher@unimelb.edu.au



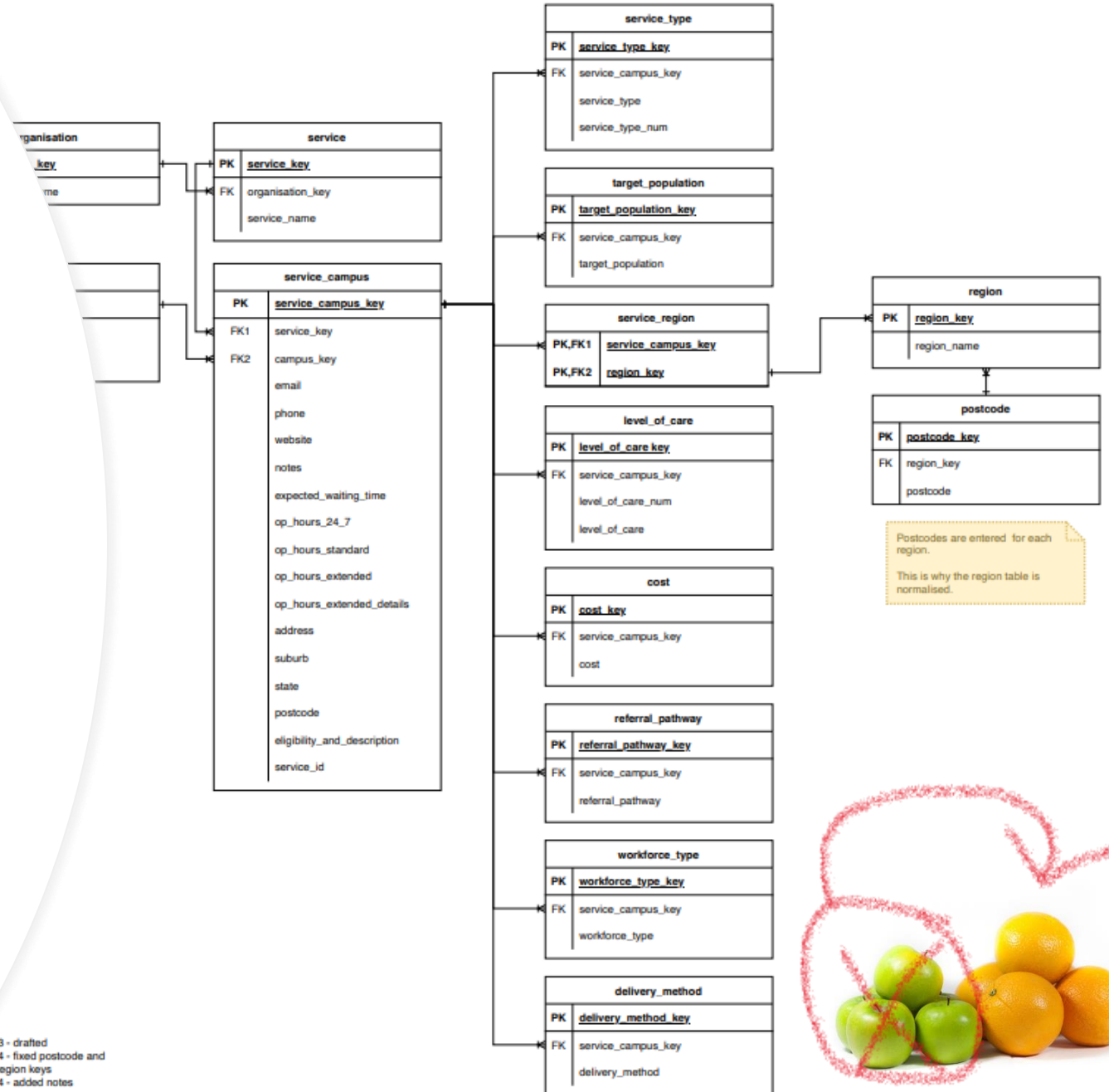
**The Victorian
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For Mental Health & Wellbeing

Existing data



- **A directory of 600 service entries from 2023**
 - Collected by Northwest Melbourne Primary Health Network
 - An auxiliary list of about 100 more.
- A list of organisations, some services they provide, and the locations at which these services are provided.
 - Attributes of each
- Data are not richly informative, but a good skeleton

Mental Health Provider Directory - Entity Relationship Diagram



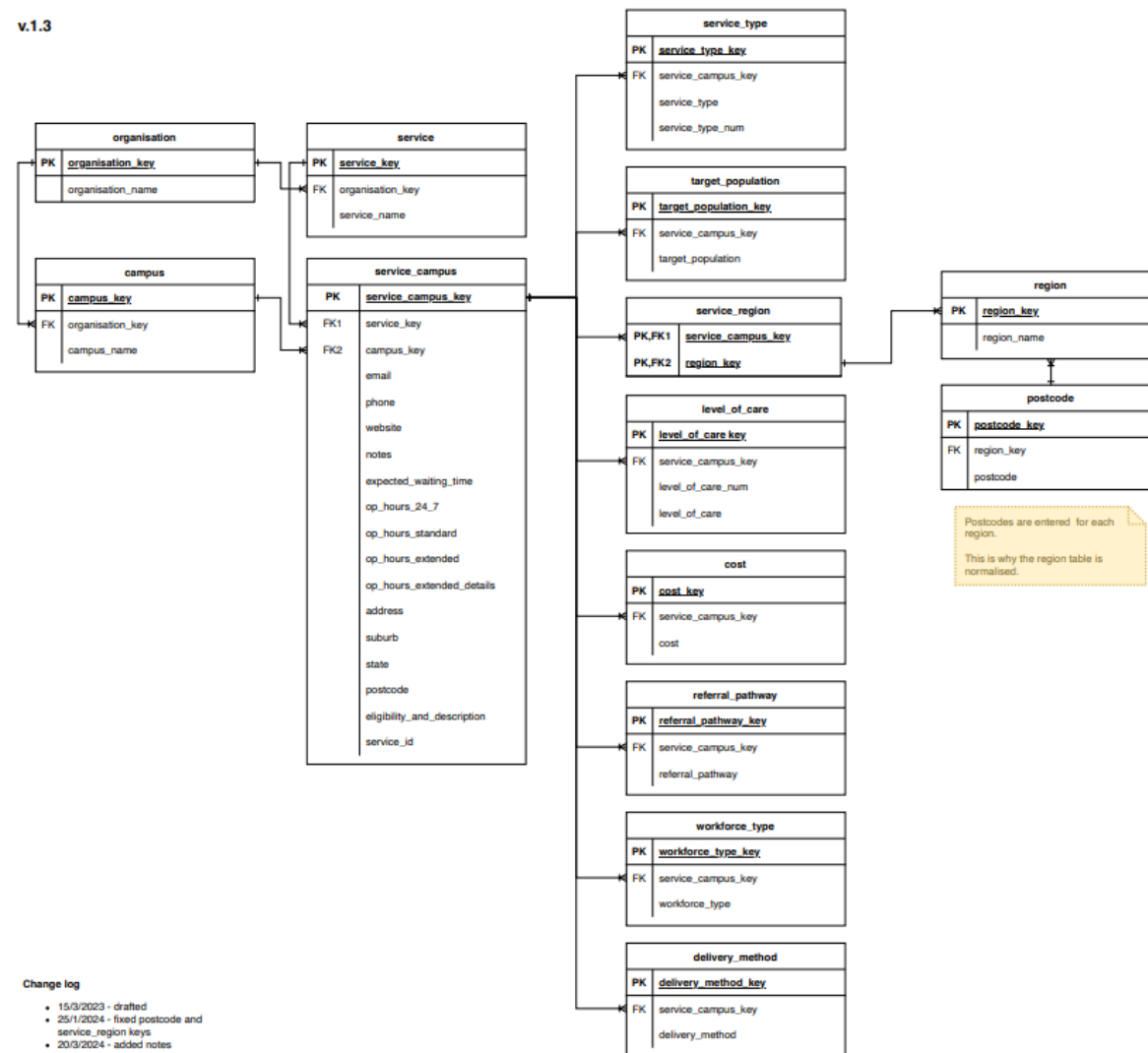
3/2023 - drafted
5/1/2024 - fixed postcode and
service_region keys
20/3/2024 - added notes



Entity diagram

Mental Health Provider Directory - Entity Relationship Diagram

v.1.3



Disambiguation (semantic search)

Q1: We accept referrals from a housing group in Melbourne but forgot the name.

A1:

I found a few housing organisations. Here are some options:

1. Wombat Housing Support
2. Launch
3. Housing First

Please let me know if any of these match the housing group you speak of.

Disambiguation (Google Places API)

Q2: *It was the second one. Thank you! **They are co-located with a nursing team for the homeless.** We also collaborate with them.*

A2:

I found a nursing groups near Launch housing. Here are some options:

1. Better Health Network

- Address: xxx
- Phone: xxx
- Website: xxx

2. Bolton Clarke Homeless Person's Program

- Address:xxx
- Phone: xxx
- Website: xxx

Please let me know if any of these match the organization you have in mind.

Disambiguation (general Internet search)

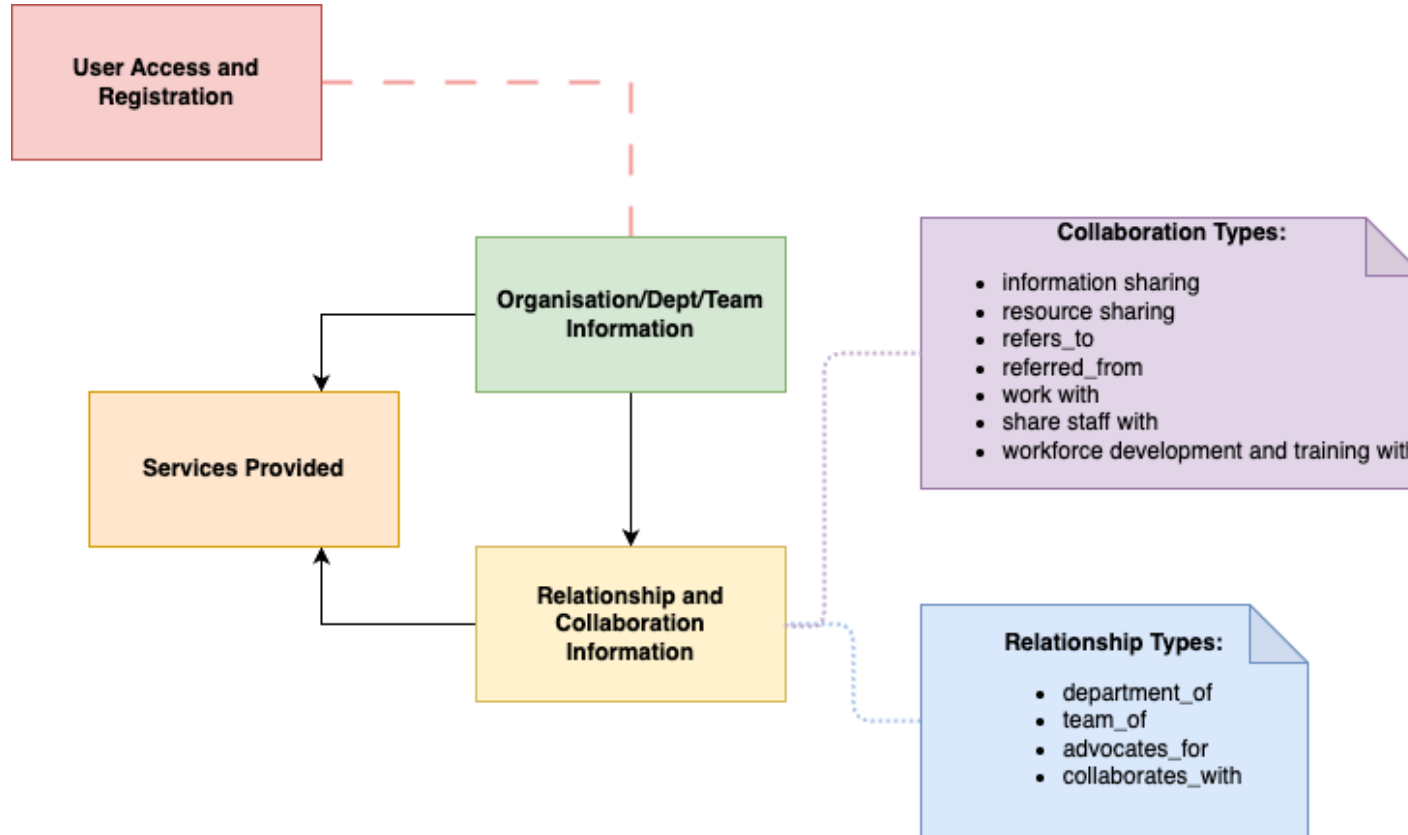
Q3: *Ah yes it is Bolton Clarke Homeless Person's Program. We also collaborate with a service for children youth in that location. I think it's called CALM.*

A3: I have no record of a service for youth services named CALM near that location. [Performs internet search or Google Maps API] Could it be any of these?....

- Calm Youth (www.calm youth.com) – 123 Main St, Melbourne, VIC 3000 – provides brief description.
- CALM (<https://calm.org.au/>) – 456 Spring St, Melbourne VIC 3000 – provides brief description

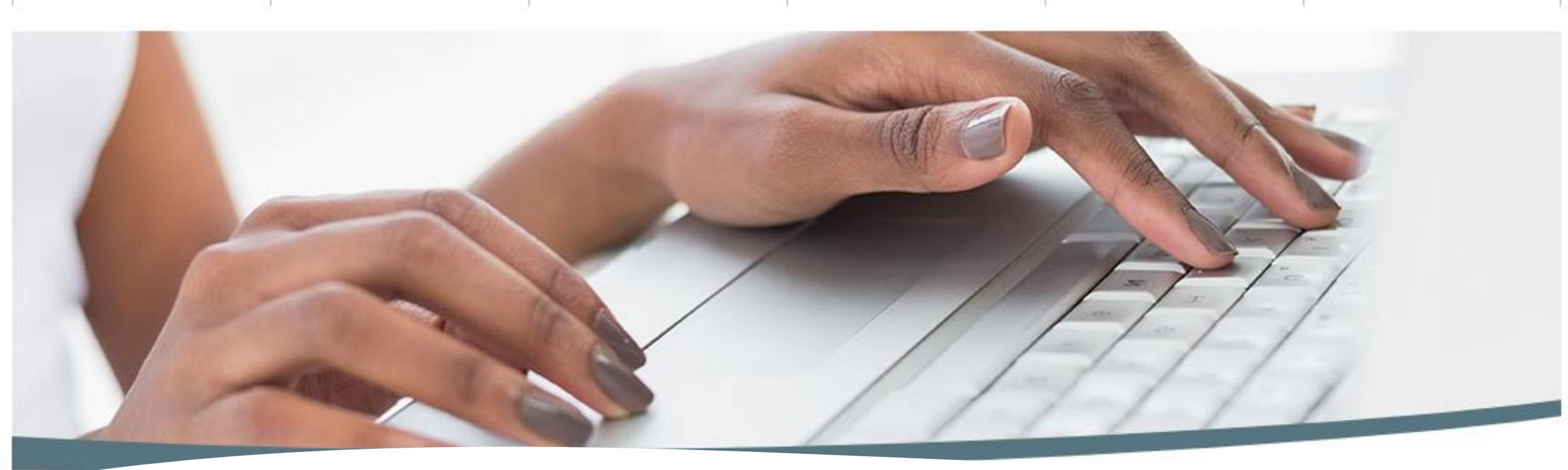
Q4: Ah yes, it's the second one.

A4: OK, I will add an entry for CALM. Please help me add more information about the services they provide...



Simplified data model





Integration with existing API

Stretch goals

<https://about.healthdirect.gov.au/nhsd/developer-and-integration-hub>

Stretch goals

- Standardised methods for classifying mental health services
 - IAR-DST - does the service help people with more/less severe symptoms (1-5)?
 - <https://iar-dst.online/#/>
 - NMHSPF – A standardised way of classifying the types of activities that service providers actually provide.
 - <https://www.aihw.gov.au/nmhspf>
 - DESDE-LTC - A standardised way of classifying the types of resources for mental health services (similar to DESDE-LTC).
- “Tell me about your service and I will classify it for you.”