SOiL CRC

Performance through collaboration

MILESTONE REPORT

Project 2.3.002

Visualising Australasia's Soils: Extending the soil data federation

Implementing private sector data sharing

Milestone 13.1
Implementing private sector data sharing 2024

IMPLEMENTING PRIVATE SECTOR DATA SHARING

CONTENTS

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1. INTRODUCTION

The Visualising Australasia's Soil (VAS) project, being undertaken through the Co-operative Research Centre for High Performance Soils (Soil CRC), aspires to create a research data federation, based on agreed governance and data stewardship frameworks, that allows relevant soil data from the private and public sectors to be discoverable through intuitive-to-use internet portals. One of the principal aims is to motivate Australasian soils data custodians to make their data Findable, Accessible, Interoperable, and Reusable (FAIR), thus providing a range of benefits for research, on-farm decision making and policy development.

At the project commencement in February 2019, it was recognised that the research challenges in creating and implementing a successful and enduring public-private soil data system are considerable. They include the social challenges of finding the value proposition for the participants and end-users, the technical challenges of making it all work in an intuitive-to-use, seamless and effortless manner, and a business model that allows it to prosper.

Social engagement research in Phase One of the VAS (2019-2021) found that none of the farmer groups, catchment management authorities and universities participating in the project had a track-record of openly sharing their soils data in the public domain (Sexton 2020). This was partly due to the lack of technical capability, the perceived barriers to sharing, and the lack of a value proposition to do so. The technical capability was resolved in Phase One of the project through the construction of a soil data aggregator that allows the participants to load their data, via a self-serve system, into a secure cloud-based data infrastructure to provision their data to the federation, according to international data standards. The design of the data aggregator addresses the challenge of taking varied data content and formats from a variety of data providers and making it available to potential users in a standard format, with standard content, via a standard mechanism. That is, to make it compliant with FAIR guidelines, and is based on the International Standard ISO19156 and OGC Observations and Measurements (O&M) model to store field and laboratory environmental data in a domain independent structure.

Phase Two of the VAS (2021-2024) has worked with the project participants to improve their data literacy and enter their data into the VAS aggregator. Those data that have been uploaded now conform to the standards and are interoperably available (subject to the data custodian's consent) for any future purpose, such as serving data (machine-to-machine) into other tools and applications, artificial intelligence engines, decision support systems, or public soil data sharing portals (e.g., the Australian National Soil Information System: ANSIS).

As of June 2024 the data aggregator holds contributions from 12 VAS partners (nine farmer groups, two catchment managers, and one university) as well as three other organisations (two catchment managers and one university). This comprises 44 datasets, representing nearly 3,000 sites, from which approximately 10,000 samples with over 200,000 observations have been recorded. These data are mainly from south-eastern Australia and span a time frame from 1988 to the present day.

In addition, data collected from approximately 70 soil moisture and temperature sensors amounts to well over 500 million observation records.

The sharing of soil data is implied in both the project aims (i.e., maximise the re-use potential of the federated soil data) and the long-term objectives (i.e. motivate Australian farmers to make their data FAIR). However, the reality is that most data custodians still are reluctant to openly share data. The reasons are complex but generally include (Ollerenshaw et al. 2022):

- Data custodians' uncertainty about whether they had the right to share soil data
- Farmer groups' need to retain the trust of their members
- Concern about VAS sharing their data with other federations (in the future)
- Concern that long-term data availability and security may cease with the project
- The difficulty in supplying the required metadata (e.g., who 'owns' these data?)

While these concerns can be allayed to some extent by implementing appropriate social architecture tools, such as access controls and licensing arrangements, the decision was to proceed with a few use-cases (or case studies) to explore the barriers and demonstrate the soil data sharing options.

2. USE-CASES (CASE STUDIES)

Four use-cases (or case studies) were researched to explore the barriers and develop solutions to sharing soil data.

2.1. Catchment Management Authority soil data

The Corangamite Catchment Management Authority (CMA) launched their soil health strategy in 2007 (Clarkson et al. 2007) which included establishing monitoring sites to check progress towards the resource condition targets in the strategy. To support the CMA's soil health initiatives, the Corangamite Soil Health Knowledge Base (SHKB) was launched as a collaborative research project between the Corangamite CMA and the Centre for eResearch and Digital Innovation (CeRDI) at Federation University Australia (Dahlhaus et al. 2018). The online portal, comprising an eLibrary and web-mapping interface, is still active[1] and provides online access to the soil data.

Soil health monitoring sites have subsequently expanded and the SHKB now displays the soil health monitoring sites for both the Corangamite CMA and the adjacent Glenelg Hopkins CMA. These comprise 101 sites in the Corangamite region which have been monitored (at set depths) on three occasions (February 2015; April 2018; May 2023) and 100 sites in the Glenelg Hopkins region that have been monitored on two occasions (February 2019; May 2023). The establishment of the sites and the collection of the data has been funded through Australian Government grants and the work was undertaken by Southern Farming Systems (SFS).

Although neither CMA is a Soil CRC partner, these data have been made publicly (openly) available in the VAS portal at the request of SFS (a Soil CRC member). The access to these data is subject to a condition to not disclose the exact location of the soil monitoring sites to maintain landholder privacy (at the request of the CMAs).

[1] soilhealth.ccmaknowledgebase.vic.gov.au

The method used was to randomly position the soil health monitoring site within a 2 km x 2 km polygon for the Corangamite CMA data and a 5 km x 5 km polygon for the Glenelg Hopkins CMA data (Figure 1). The public user has access to all the soil observations and can chart trends over time (Figure 2). The exact location coordinates are available to SFS via the login (i.e., hidden from public view).

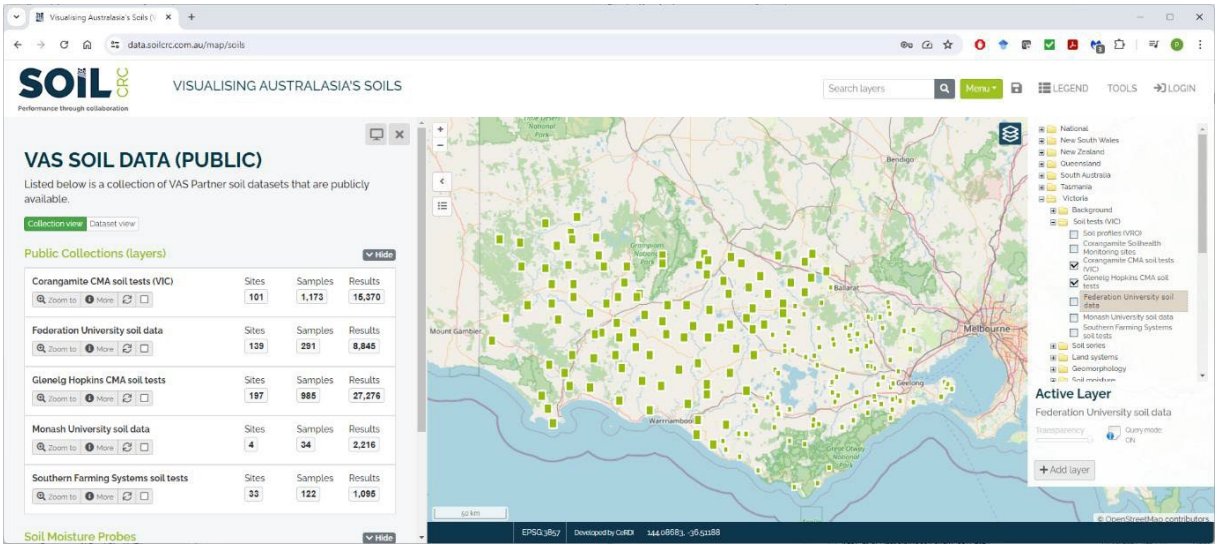

Figure 1. Screenshot of the CMA data in the public view of the VAS portal.

Figure 2. An example of charting trends over time for one parameter at one depth at a selected monitoring site.

2.2. University soil data

Selected soil data collected by Federation University (a Soil CRC member) and Monash University (not a Soil CRC member) has also been made publicly available in the VAS portal. The Federation University data currently comprises three soil data sets collected by Honours students for their dryland salinity research projects in 2004 and 2007, and a soil series mapping project in 2008. The Monash University dataset comprises acid sulfate soil data collected from four sites at Anglesea in 2013.

The only restrictions put on viewing or accessing data from these sites is to hide the landholder and property address details. Even though the Honours research data were collected on private property, permission was given at the time to publish these data in the student theses and subsequent reports for the research investors. The collection of the Federation University datasets was funded by various Australian Government grants and/or Victorian Government grants disbursed by the Corangamite CMA (i.e., public-sector funds).

At the current time, not all these data can be shown, as the functionality to display the soil profile data and descriptions in a visual graphic is still in progress. An additional five datasets contributed by Federation University are currently being processed.

2.3. Farmer group soil data

While the VAS aggregator holds 17 soil data sets uploaded by farmer groups, only one been made publicly available to date. This is a dataset of 33 sites, across southwestern Victoria (Hamilton to St Leonards) collected by SFS for lime trials conducted in 2014. To protect landholder privacy, the exact locations of the sites are randomly placed within a 2 km x 2 km polygon, and users can access all the observations and generate charts of properties by depth (Figure 3).

These soil data have been made available because they were collected through a public funding grant that stipulated that the project data should be ‘made available’.

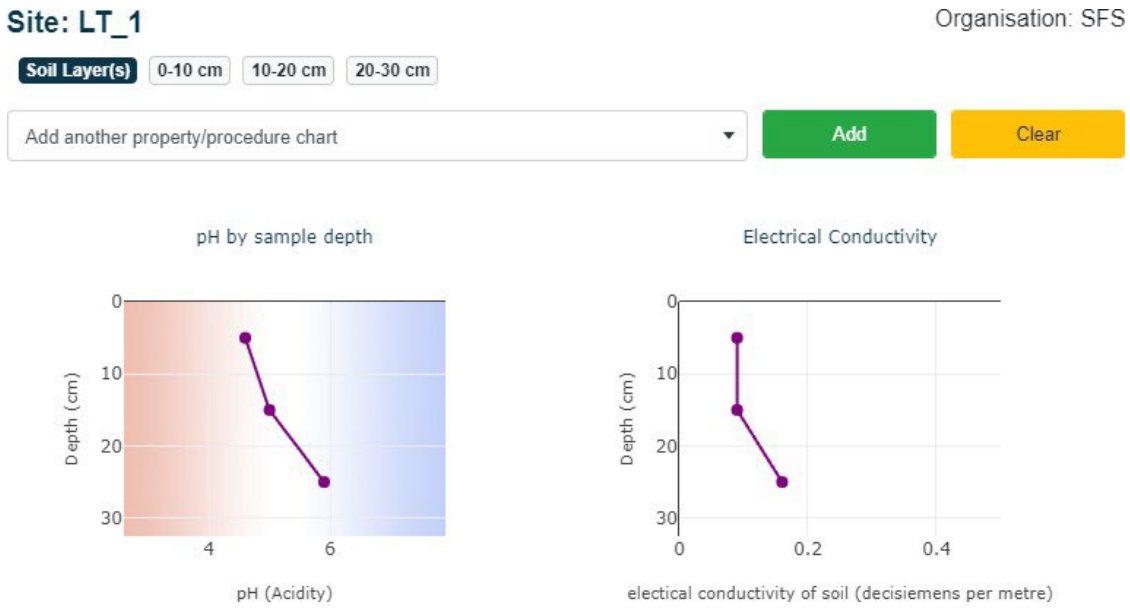

Figure 3. An example of charting two parameters by depth at a selected site.

2.4. Farmer group soil probe data

Most of the participating farmer groups in the VAS project have soil moisture and temperature probes installed, some of which include weather data recorders. These data are usually telemetered to a digital repository run by a third party and then displayed on the farmer group website, via a member login.

This use-case builds on a previous project undertaken by CeRDI for SFS, which established a portal known as Probetrax[2] in which the public can view the current plant available water (PAW) as a percentage value (%) at each probe site as a coloured dot. SFS members hosting a probe can login to the portal and view their time-series soil moisture and temperature down profile as graphs, together with the rainfall, if a rain gauge was fitted. Additionally they could set alerts to send an SMS message when the moisture or temperature at a given depth reached a set value. Subsequently the Probetrax functionality has been included in the SFS My Farm Dashboard[3].

The SFS soil moisture probe data is now publicly visible in the VAS portal (Figure 4).

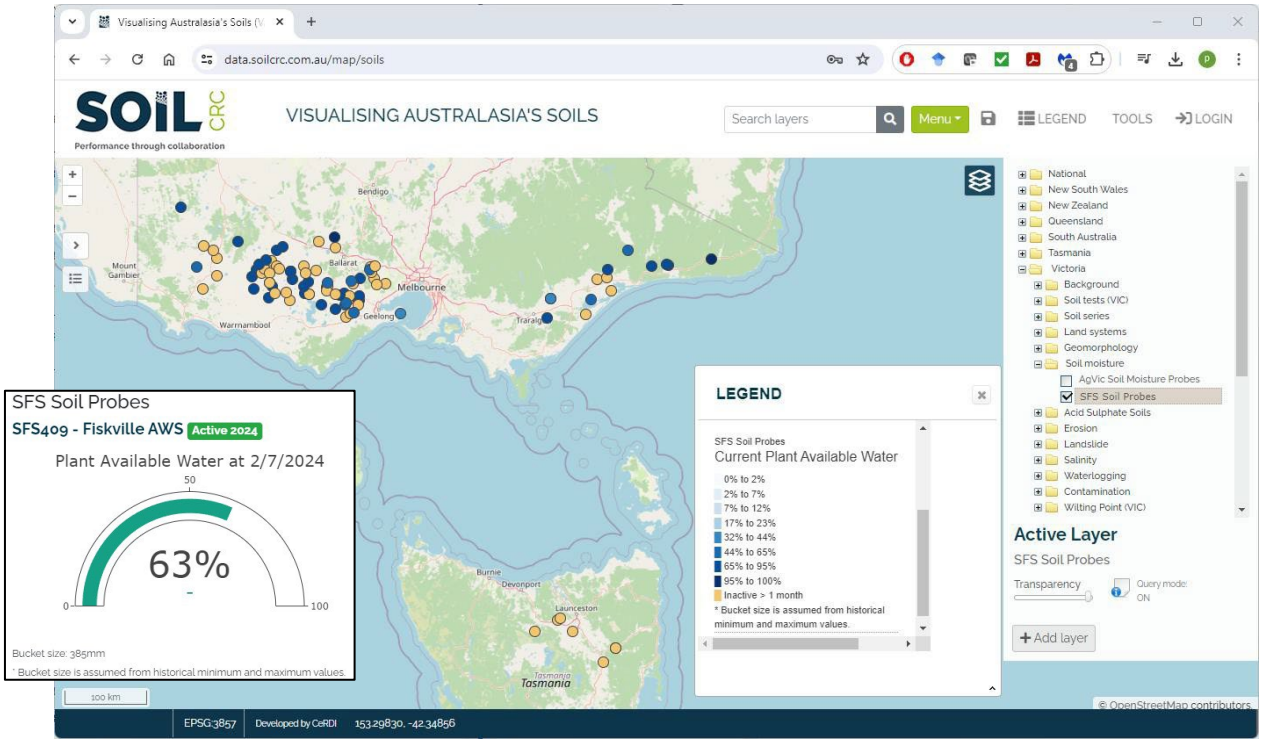

Figure 4. SFS soil moisture probes (public view @ 2 July 2024). Insert shows the 'speedo' meter that is seen when clicking on a probe location.

SFS have made the legacy probe data available for research use on request. This amounts to over 600 million observations, spanning the period from 2012 to 2024. The current database for these data is approximately 160Gb in size. The data request service is currently in the testing stage and will be implemented by the end of VAS Phase 2 (31 July 2024). The service requires the requestor to complete a standard data sharing agreement form (currently under legal review – refer to Appendix A), which once executed, supplies a download link to the requestor. If the requestor

[2] https://probetrax.sfs.org.au/
[3] https://myfarmdashboard.sfs.org.au/

wishes to change the terms of the standard data-sharing agreement, they must negotiate with SFS directly.

As of 3 July 2024 there are 50 SFS probes active of 110 probes in total. The inactive probes are either broken or discontinued by the landholder hosting the probe (i.e., they no longer subscribe to the telemetry service). Many of the probes are dependent on the 3G telecommunications network which is being discontinued at the end of August 2024. Approximately 40 additional SFS probes located in Tasmania are yet to be included in the portal collection, as they are handled by a different service provider to the current data collection.

3. DISCUSSION

Encouraging the VAS participants to share their soil data with each other or to the public domain has been one of the more challenging components of the VAS research. Nevertheless, the four case studies documented in the previous section demonstrates that it can be achieved, subject to relatively minor conditions (e.g., obscuring exact locations in the public view).

While it is obvious to the private sector data custodians that better data leads to better decisions and provides proof of soil stewardship for compliance with environmental standards and sustainable development goals, the value in sharing their data remains yet to be proven. However, for the VAS project to succeed in reaching its ultimate goal of implementing an enduring Australasian soils knowledge system that is based on principles of data democracy, data sharing is essential.

The challenge of overcoming the barriers to data sharing are being explored in many sectors. One example that offers potential solutions is the proposed SEAF (Shared Environmental Analytics Facility) project[4] being co-developed in Western Australia (WABSI and WAMSI 2022). The SEAF overarching purpose is stated as:

> *Each year, a substantial amount of information on the State's biodiversity is collected by industry and government. Unlocking latent value from data collection and curation means not just sharing data but developing crucial analytics to get the greatest value possible for proponents, regulators, traditional owners and the wider community.*

To overcome the barriers to sharing sensitive data (e.g. environmental data collected by Traditional Owner groups, mining companies, commercial developers, regulators, and other stakeholders), the project intends to share only data analytics and modelling to inform the data-sharing community. In other words, the individual data are kept secure, but the federated datasets are used to provide anonymised information to the stakeholders. This presumes that the data custodians are willing to supply their data at no cost, but it may require implementing subsidies to recover data supply costs.

Similarly, one research priority for the next phase of the VAS project is to explore the use of artificial intelligence tools that will allow farmers to converse with the federated soil data in a way that requires data sharing but respects data privacy. For example, using language models that provides answers to frequently asked questions (FAQs),

[4] https://wabsi.org.au/our-work/projects/seaf/

such as: How much lime should be applied? What is the soil carbon gap? How much subsoil moisture will this field lose in the next three months? In this proposed use-case, the VAS soil data owners or custodians would tag their data as available for modelling, which would allow the pool of tagged data in the data federation to be used in providing credible and useful answers (via AI/ML models) to the FAQs.

A longer-term use-case is provided by the exemplar soil data federation of the European Soil Data Centre (ESDAC), hosted by the European Commission's Joint Research Centre (JRC). Recently described by Panagos et al. (2022), the ESDAC currently hosts 88 datasets, 6000 maps, six atlases, 500 scientific publications, and a copious amount of soil-related material sourced from the European Union Member States. In addition, through its data repository publishing activity, ESDAC has licensed over 50,000 global soil datasets during the past 15 years, which are also made available to their 12,000 subscribed users. Through the ESDAC website around 10,000 user licenses are granted per year, with 75% of the ESDAC users being from academia and the research community and the remaining 25% from the private sector (14%) and public administration (at EU, national, regional, and local level).

Apart from being the only harmonised soil database at European scale and the central place from where to find European wide relevant soil data, ESDAC provides EU-wide soil maps for 73 soil attributes which are used in policy development. It is a key component supporting the EU Soil Monitoring Law introduced in 2023 to help achieve healthy soils by 2050[5] as well as the Zero Pollution Action Plan[6] and the Farm to Fork Strategy[7].

ESDAC can guide the role of national soil data ecosystems, such as ANSIS. The role of VAS in these ecosystems is to interoperably provide harmonised soil data, subject to the sharing controls allowed by the data owners and custodians, to larger federations that have a role in national monitoring and policy development. While that may not be a strong incentive for farmer groups to share data in the short term, it may provide longer-term rewards as these national and international ecosystems become the yardstick for measuring soil health and stewardship, statutory compliances, monetary incentives for providing ecosystem services, and the social licence to operate.

However, at the present time, localised data sharing barriers are seen as the generally poor level of data stewardship and data literacy among soil data custodians. Soil data and metadata management and stewardship practices are often immature and ad hoc, with data spread across a variety of file formats and repositories, even within a single organisation. Since metadata is key to making data FAIR, the metadata quality has been a barrier to data sharing, access and reuse. Almost all the participants' soil data loaded to the VAS data aggregator to date required clarification of data ownership, licensing, project details, and soil test details to make it FAIR. Hence, educational tools to build data literacy within the participants and end-users has become a priority in the next phase of the VAS project.

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5 https://environment.ec.europa.eu/topics/soil-and-land/soil-health_en
6 https://environment.ec.europa.eu/strategy/zero-pollution-action-plan_en
7 https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en

To make the data input as seamless and easy as possible is seen as an essential function, if the VAS system is to endure beyond the life of this Soil CRC research project. It has equal importance to providing pragmatic value propositions for the farmer groups and catchment managers to maintain their investment in the VAS system for the longer term. Most VAS participants clearly understand that there should and could be value in sharing their soil data but remain to be convinced that it is a worthwhile activity. The scepticism comes in a variety of questions, such as:

- Will it be worth the investment of my time and effort? (i.e., What's the return on investment?)
- How often do I need to find soil data? (i.e., Why not just re-sample?)
- Are those soil data critical to my decision making? (or, Is it just 'nice to have'?)
- Do I want or need to keep soil data? (i.e., Why should I enter them into the system?)
- Do I want or need to share soil data? (i.e., What's the benefit to me?)
- Will the VAS system give me what I want to know? (or, Is it just a part of the answer?)
- Do I have to learn new skills or re-learn how to use it? (i.e., Each time I use it?)

It is clear that to share your soil data there must be an incentive that is highly rewarding, and it must be effortless and seamless, and carry no penalty or cost.

4. CONCLUSIONS

While it is obvious and logical that more and better data can improve decision making in both the public and private sectors, this generic value proposition remains insufficient for most VAS participants to willingly adopt the practice. This includes farmer groups, catchment managers, universities, and government research organisations.

Finding a convincing value proposition will require the implementation of credible use-cases, co-designed by the users. Since each user cohort has a different requirement from the soil data federation 'service ecosystem' (Frow et al. 2014), there will be a variety of value propositions to deliver. Using 'champions' within each user group to demonstrate the value of data sharing would provide the best opportunity for success.

Data sharing is a rapidly evolving research topic in many sectors and solutions will emerge from this research effort. The continued implementation of global data federations and of data-driven policies and statutes, such as those of the EU, will ensure that value propositions for data sharing will become obvious in the longer term.

5. REFERENCES

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APPENDIX A: EXAMPLE DATA SHARING AGREEMENT

Data Transfer Agreement

Agreement Details

University	**Federation University Australia** ABN 51 818 692 256 of University Drive, Mt Helen, Victoria 3350, Australia	
Recipient Organisation	[Insert name of Recipient Organisation] ABN [Insert ABN details] of [Insert address]	
Key Researcher	[Insert name and title] [Insert address] [Insert phone number] [Insert email]	
Commencement Date		
Completion Date		
Dataset description	Overview:	The dataset includes time-series observations derived from soil moisture sensors, soil temperature sensors, and rainfall gauges. The dataset includes soil moisture probe identifiers, geographic locations, and active status.
	Owner:	Southern Farming Systems, Inverleigh, VIC 3321
	Custodian:	Centre for eResearch and Digital Innovation, Federation University Australia
	Project:	Visualising Australasia's Soils
	Size:	Approximately 21 Gigabytes
	Date:	Circa 2012 to 2024
Purpose	The Data is to be used only for research purposes. Please indicate from the options below how you intend to use the Data:	
	☐ Academic research. *Please specify:*	
	☐ Government research. *Please specify:*	
	☐ Industry research. *Please specify:*	
	☐ Individual research. *Please specify:*	
	☐ Other. *Please specify:*	
Location	[Insert the location where the Recipient Organisation and Key Researcher will use and stored]	

Fee	Nil
University address for notices	Visualising Australasia's Soil Data Administration Centre for eResearch and Digital Innovation P.O. Box 691, Ballarat, Vic 3353 vas.support@federation.edu.au
Recipient Organisation address for notices	[Insert contact person name] [Insert organisation name] [Insert postal address] [Insert telephone number] [Insert email address]

Execution

Executed as an Agreement

Executed by an authorised person of **Federation University Australia** ABN 51 818 692 256 in the presence of:

……..……..	……..……..
Signature of authorised person	Signature of witness
……..……..	……..……..
Name of authorised person	Name of witness

Date: ……..……..

Executed by an authorised person of the [Insert organisation name] ABN [Insert ABN] in the presence of:

……..……..	……..……..
Signature of authorised person	Signature of witness
……..……..	……..……..
Name of authorised person	Name of witness

Date: ……..……..

Read and acknowledged by :

……..……..

Signature of Key Researcher

……..……..

Name of Key Researcher

Date: ……..……..

Background

A. The Recipient Organisation has requested the supply of the Data for the Purpose.

B. The University has agreed to supply the Recipient Organisation with Data on the terms set out in this Agreement.

Operative Part

1. Provision of Data

1.1 Ownership of Data

The Recipient Organisation acknowledges and agrees that the Data:

(a) have been developed, acquired or curated by the University; and

(b) are of considerable value to research and potential commercial applications.

1.2 Use of Data

The Recipient Organisation agrees that it will not, without the prior written consent of the University:

(a) sell, loan or otherwise provide or transfer any Data to any third party;

(b) use the Data or Derivatives for any purpose other than the Purpose; or

(c) use or store the Data or Derivatives in any place other than at the Location and under the Key Researcher's direct supervision,

and the Recipient Organisation agrees to promptly refer to the University any request for access to Data from a third party.

1.3 Title

All rights, title and interest in the Data and Derivatives (including all Intellectual Property rights subsisting in them) remain with the Data Owner and University at all times.

1.4 Compliance

(a) The Recipient Organisation must ensure Data and Derivatives are stored, transported, used and disposed of in accordance with all relevant Laws, codes of practice, ethical principles and any reasonable direction of the University.

(b) The Recipient Organisation must not use the Data or Derivatives in any research trials, or for diagnostic purposes, involving human subjects without the prior written consent of the University.

1.5 Not exclusive

(a) Any rights granted to the Recipient Organisation to use the Data under this Agreement are non-exclusive.

(b) The University may make the Data available to third parties without consultation with, or consent from, the Recipient Organisation.

2. No warranty

(a) To the extent permitted by Law, all express and implied warranties and conditions relating to the Data are excluded or, where such an exclusion is prohibited by Law, liability under any such implied conditions and warranties is limited to the extent permitted by Law.

(b) The University gives no express warranty that:

(i) the use of the Data or Derivatives will not infringe the Intellectual Property or other rights of any third party;

(ii) the Data are fit for purpose; or

(iii) the Data are of a particular quality or possess particular characteristics.

3. Acknowledgement

The Recipient Organisation acknowledges that:

(a) the Data is experimental in nature and that the speculative nature of scientific research is such that it is unreasonable to expect the University to give any assurances as to the performance of the Data; and

(b) the University's awareness of the Purpose of the project and the role of the Data does not constitute an endorsement of the project or advice on the project.

4. Provision of Information

4.1 Reports

(a) The Recipient Organisation must keep and maintain accurate and reasonably detailed records in connection with use, storage, transport and disposal of the Data.

(b) The Recipient Organisation agrees to provide the University with a report setting out such things as the Results of the research, Derivatives and Data IP produced, upon request from the University.

5. Intellectual Property

5.1 Ownership

(a) All Data and IP subsisting in or in relation to them are the custodianship of the University.

(b) The University grants the Recipient Organisation a non-exclusive, non-transferable, fee-free licence to use the Data for the Purpose only.

(c) All intellectual Property created by or on behalf of the Recipient Organisation as a result of using the Data other than in accordance with this Agreement will vest in and, by this Agreement, is assigned to, the University upon its creation.

(d) The Recipient Organisation must:

(i) sign all documents and do all things necessary to perfect and record the University's ownership rights under this clause 5; and

(ii) not directly or indirectly engage in any conduct that might impair or prevent the protection of Data IP or challenge the University's ownership of it.

5.2 Commercialisation

(a) If the Recipient Organisation wishes to commercialise or have commercialised any Results or Data IP, or otherwise deal in the Data or Derivatives for any commercial purpose, it must

first enter into an appropriate licence agreement with the University and data owner.

(b) The University agrees to negotiate in good faith a licence agreement on terms acceptable to all parties.

(c) Neither party is under any obligation to enter into a licence agreement on any specific terms, or at all.

6. Confidential Information and Privacy

6.1 General obligations

The Recipient Organisation must:

(a) hold any Confidential Information in strict confidence and not disclose, or cause or permit the disclosure of, the Confidential Information, except as permitted under this Agreement or with the prior written consent of the University;

(b) limit access to the Key Researcher;

(c) keep any Confidential Information secure and protected from any use, disclosure or access which is inconsistent with this Agreement;

(d) ensure all Key Researcher with access to any Confidential Information agree and be bound to keep the Confidential Information confidential and not to use the Confidential Information other than for the Purpose; and

(e) promptly notify the University if the Recipient Organisation suspects, or becomes aware of, any unauthorised use, storage, copying or disclosure of any Confidential Information.

6.2 Use of Confidential Information

The Recipient Organisation must:

(a) only use Confidential Information for the Purpose;

(b) not perform any analysis, synthesis, reformation, decomposition, disassembly or reverse engineering of any Confidential Information without the written consent of the University; and

(c) not make use of any Confidential Information to the commercial, financial or competitive disadvantage of the University.

6.3 Return of Confidential Information

(a) If requested by the University at any time, and upon the expiry or termination of this Agreement, the Recipient Organisation must immediately return to the University, or destroy, delete and erase as the University directs, all original documents and copies that are or contain Confidential Information or that reproduce, are based on, utilise or relate to Confidential Information.

(b) The return, destruction, deletion or erasure of Confidential Information does not relieve the Recipient Organisation from its other obligations under this Agreement.

6.4 Privacy

(a) Each Party must comply with its obligations under all applicable laws in relation to the collection, storage, use and disclosure of any Personal Information or Health Information (as defined in any Applicable Privacy Laws) which it obtains during the conduct of the Project or to which it becomes privy as a result of this Agreement.

7. Publication

7.1 Consent to publication

The Recipient Organisation will not use the name or logo of the University in any publication without the University's consent, which will not be unreasonably withheld.

7.2 Procedure for publication

(a) Any restriction on a publication (including a student thesis) will be limited to the restrictions reasonably necessary to protect the University's Confidential Information, Data IP and Derivatives.

(b) The Recipient Organisation must acknowledge the contribution of the University in any publication.

8. Insurance

The Recipient Organisation warrants that it has, and will maintain at its cost, appropriate insurance coverage in respect of the loss of, or damage to, the Data, on terms consistent with prudent risk management.

9. Indemnities

9.1 General indemnity

The Recipient Organisation indemnifies, and agrees to keep indemnified, the University against any Loss suffered or incurred by the University arising out of the Recipient Organisation's use, handling and disposal of the Data and Derivatives or a breach of this Agreement by the Recipient Organisation.

9.2 Injury or damage

The Recipient Organisation indemnifies, and agrees to keep indemnified, the University against any Claim which may be made against the University by any person, in respect of:

(a) injury or damage to any property; and

(b) personal injury to, or death of, any person,

that is caused by or contributed to by an act or omission of the Recipient Organisation.

9.3 Release

The Recipient Organisation releases the University, and the officers and employees of the University, from any liability, Loss or damage incurred or suffered by:

(a) the Recipient Organisation; or

(b) an employee, sub-contractor, officer, customer, supplier or agent of the Recipient Organisation,

arising out of any act or omission of the Recipient Organisation in connection with this Agreement.

9.4 Benefit of indemnity

The University holds the benefit of this clause 9 on its own behalf and on behalf of University Personnel.

10. Termination

10.1 Termination on notice

C. Either party may terminate this Agreement at any time by giving the other party 30 days' written notice of termination.

1.1 Immediate termination by the University

The University may immediately terminate this Agreement by giving written notice to the Recipient Organisation if:

(a) the Recipient Organisation breaches a material term of this Agreement, which is not capable of remedy;

(b) the Recipient Organisation commits a breach of any of the provisions of this Agreement which is capable of being remedied to the University's satisfaction, but which is not remedied within 14 days after written notice of that breach has been given to the Recipient Organisation; or

(c) the Recipient Organisation suffers an Insolvency Event.

1.2 Immediate termination by the Recipient Organisation

The Recipient Organisation may terminate this Agreement immediately by giving written notice to the University if:

(a) the University suffers an Insolvency Event; or

(b) the University commits a breach of any of the provisions of this Agreement, and such breach is not remedied within 14 days after written notice of that breach has been given to the University.

1.3 Reservation of rights and remedies

Termination of this Agreement for any reason will not prejudice any rights or remedies already accrued to the University under, or in respect of, any breach of this Agreement.

1.4 Survival

Clauses 5, 6, 7, 8 and 9 survive expiry or termination of this Agreement, survive expiry or termination of this Agreement and are enforceable at any time at law or in equity.

2. General

2.1 Notices

Any notice under this Agreement must be in writing, and may be delivered to a party at the addresses and numbers set out in the Details of this Agreement.

2.2 Further assurances

Each party must promptly do all further acts required by Law or reasonably requested by the other party to give effect to this Agreement or any obligation under it.

2.3 Assignment

(a) The Recipient Organisation must not, without the prior written consent of the University and in accordance with this Agreement, assign, novate, subcontract or delegate its responsibility to provide the Services.

(b) Neither party may, without the other party's consent, assign or novate this Agreement.

2.4 Waiver

(a) Waiver of any right arising from a breach of this Agreement must be in writing and executed by the party granting the waiver.

(b) A failure to exercise, a delay in exercising or a partial exercise of a right created under or arising from a breach of this Agreement does not result in a waiver of that right.

2.5 Relationship between the parties

This Agreement is not intended to create a partnership, joint venture or agency relationship between the parties.

2.6 Severability

(a) A provision of, or the application of a provision of, this Agreement which is void, illegal or unenforceable in any jurisdiction does not affect the validity, legality or enforceability of that provision in any other jurisdiction, or the remaining provisions in that or any other jurisdiction.

(b) Where a clause in this Agreement is void, illegal or unenforceable, it may be severed without affecting the enforceability of the other provisions in this Agreement.

2.7 Variations

Any variation to this Agreement must be in writing signed by, or on behalf of, both parties.

2.8 Entire agreement

This Agreement replaces all previous agreements between the parties concerning its subject matter and contains the entire agreement between the parties.

2.9 Governing law and jurisdiction

This Agreement is governed by and construed in accordance with the law of Victoria New South Wales, and the parties submit to the exclusive jurisdiction of the courts of Victoria.

2.10 Counterparts

This Agreement may be executed in any number of counterparts and by the parties on separate counterparts. Each counterpart constitutes an original of this, and all together constitute one agreement.

3. Definitions and Interpretation

3.1 Definitions

Claim means a claim, demand, action, or proceeding.

Confidential Information means information of the University, including:

(a) trade secrets;

(b) Intellectual Property;

(c) business and financial information, including systems of work, procedures, manuals and training material, reports generated in performance of the Services, products, service costs, prices, profits and sales, new business ideas, business strategies, product and service plans, marketing plans and studies, forecasts, computer programs, databases, computer codes and software ideas, technologies, concepts and designs, research projects and all information connected with research and development, reporting methods and

(d) any information that is marked, or the Recipient Organisation is told is, confidential.

Data IP means all Intellectual Property created, conceived, developed or reduced to practice by or on behalf of the Recipient Organisation using or relating to the Data, including all Intellectual Property in or relating to Derivatives.

Derivatives means anything derived by Recipient Organisation from or using the Data, including:

(a) structural or functional analogues and homologues and purified or fractionated subsets of the Data; and

(b) any improvements or modifications to the Data

Intellectual Property means all present and future rights to intellectual property including any inventions and improvements, trademarks (whether registered or common law trade marks), designs, copyright, any corresponding property rights under the laws of any jurisdiction and any rights in respect of an invention, discovery, trade secret, secret process, know-how, concept, idea, information, process, data, or formula.

Insolvency Event means any of the following:

(a) if a party comes under a form of external administration referred to in Chapter 5 of the *Corporations Act 2001* (Cth) or equivalent provisions in any Law, or has an order made against it for the purpose of placing the party under external administration;

(b) if a party is unable to pay all its debts as and when they become payable or the party fails to comply with a statutory demand within the meaning of sections 459E and 459F of the *Corporations Act 2001* (Cth);

(c) proceedings are initiated to obtain an order for winding a party up, or any shareholder, member or director convenes a meeting for the purpose of considering or passing any resolution for winding the party up;

(d) if a party is a local government organisation, the relevant government takes action to cease the party's operations, or to amalgamate them with the operations of another local government organisation;

(e) a party becomes bankrupt or enters into a scheme of arrangement with creditors;

(f) a receiver, liquidator or administrator is appointed for a party;

(g) an application is made, or proceedings are commenced, with a view to obtaining cancellation of any registration of a party or appointment of an inspector or other officer to investigate any of a party's affairs pursuant to any law; or

(h) anything analogous to, or of a similar effect to, anything described above occurs in respect of a party.

Law means all applicable statutes, regulations, by-laws, ordinances or subordinate legislation in force from time to time anywhere in Australia, whether made by the Commonwealth, a State, a Territory or a local government and, where the context permits, includes the common law and equity.

Loss means claims, actions, expenses, losses, liabilities, damages and costs (including legal costs) and indirect losses and damages including those arising from third party claims.

Personnel means any employee, officer, agent, contractor, sub-contractor, student or volunteer of the University.

Privacy Laws mean Commonwealth and/or State and/or Territory legislation, principles, codes and guidelines in relation to the collection, use, storage and security or disclosure of any Personal Information and/or Health Information (as defined in any applicable Privacy Laws)

Publication means any proposed manuscript, abstract, paper, journal article, student thesis, or content of any oral, poster or other presentation.

Recipient Organisation means, jointly and severally, the Key Researcher and Recipient Organisation.

Results means all outcomes of Recipient Organisation's use of the Data, including all information, data, Derivatives and tangible objects arising from Recipient Organisation's use of the Data.

16.1 Interpretation

(a) Headings and bold type are for convenience only and do not affect the interpretation of this Agreement.

(b) The singular includes the plural and the plural includes the singular.

(c) The word 'includes' in any form is not a word of limitation.

(d) Words of any gender include all genders.

(e) Other parts of speech and grammatical forms of a word or phrase defined in this Agreement have a corresponding meaning.

(f) An expression importing a person includes any company, partnership, joint venture, association, corporation or other body corporate and any government agency as well as an individual.

(g) A reference to a clause, party, schedule or annexure is a reference to a clause, party, schedule or annexure of, or to, this Agreement.

(h) A reference to any legislation includes all delegated legislation made under it and amendments, consolidations, replacements or re-enactments of any of them.

(i) A reference to a document includes all amendments or supplements to, or replacements or novations of, that document.

(j) A reference to a party to a document includes that party's employees, subcontractors, successors and permitted assignees.

(k) A promise on the part of 2 or more persons binds them jointly and severally.

(l) No provision of this Agreement will be construed adversely to a party because that party was responsible for the preparation of this Agreement or that provision.

(m) A reference to a body, other than a party to this Agreement, whether statutory or not:

(i) which ceases to exist; or

(ii) whose powers or functions are transferred to another body,

is a reference to the body which replaces it or which substantially succeeds to its powers or functions.