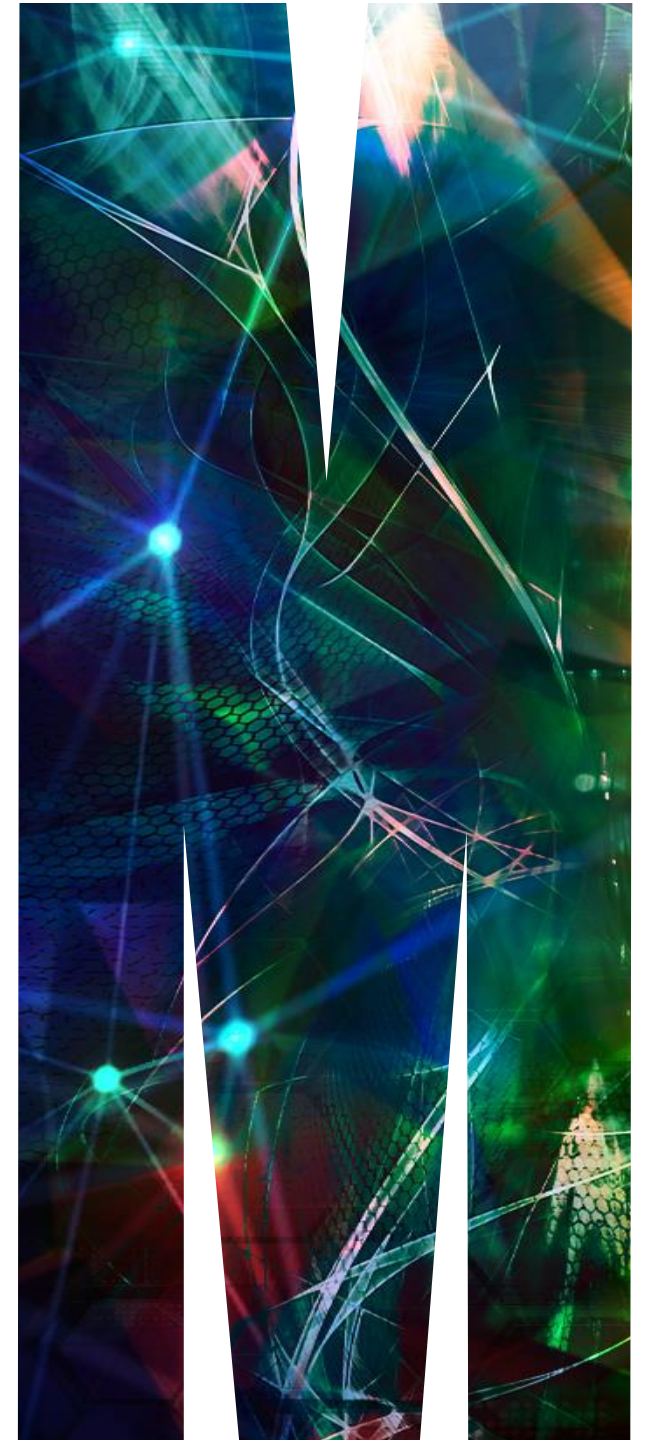


A Knowledge Management System Framework for an Australasia Open Biomedical Repository.

All Things Open, ALIA HLA Lunchtime Series 2020

Lisa Kruesi, PhD Candidate



Outline

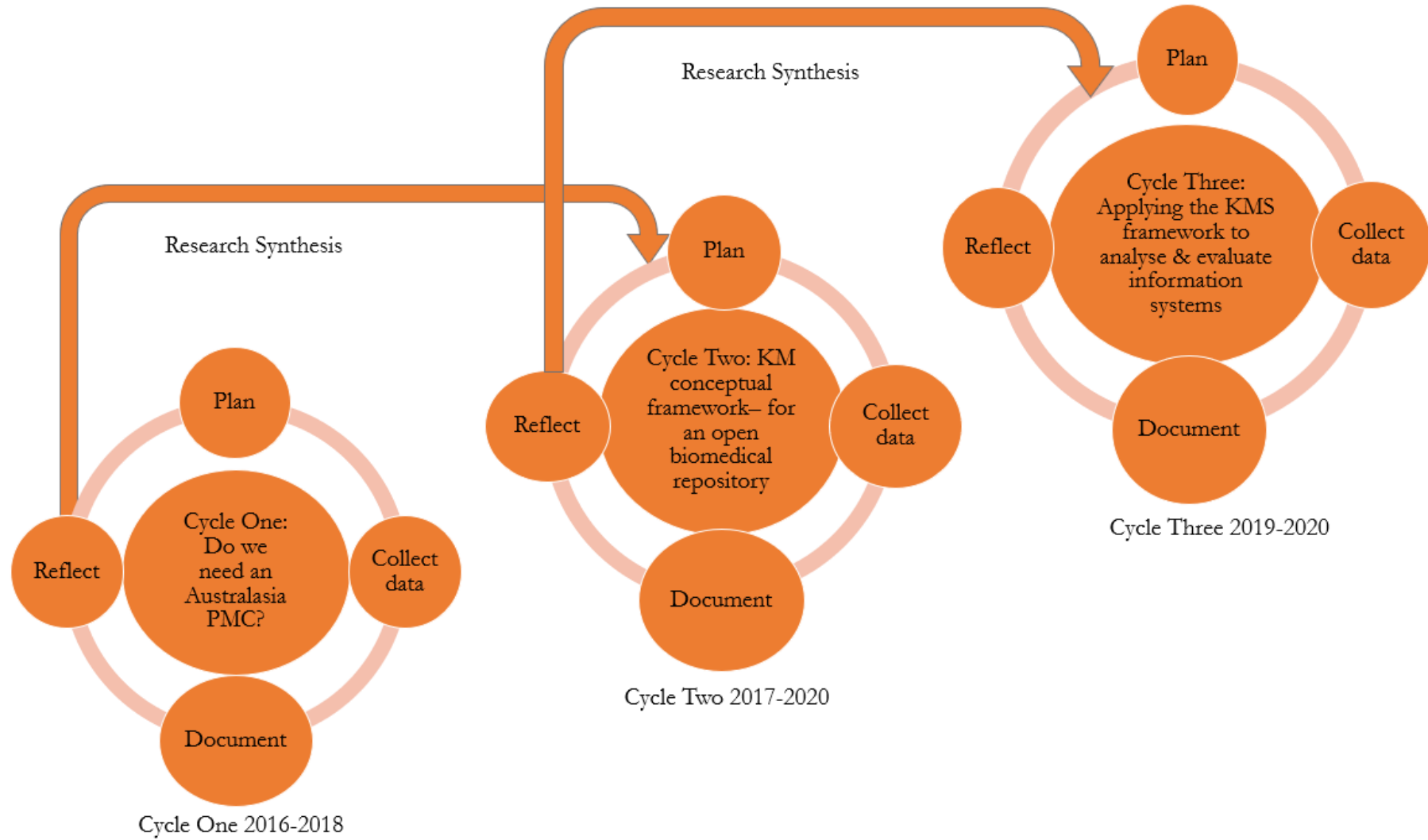
- Background
- Why a KMS Framework for an Open Biomedical Repository?
- What this is (research discussion)
- Recommendations (opportunities, findings & going forward)

Definition of a repository

“A repository may be defined as a set of systems and services that facilitates the ingest, storage, management, retrieval, display, and reuse of digital objects. Repositories may be set up by institutions, subject communities, research funders, or other groups. They may provide access to a variety of digital objects, including peer-reviewed journal articles, book chapters, theses, datasets, learning objects, or rich media files.”

Pinfield, S. (2009). Journals and repositories: An evolving relationship? *Learned Publishing*, 22(3), 165–175. doi:10.1087/2009302

Three Cycles of Research





Lisa Kruesi,
Monash
University,
Australia

To be or not to be? The prospects for an Australasia PMC

ALIA HLA Professional Development Day 2018:
Keynote, 19 July 2018

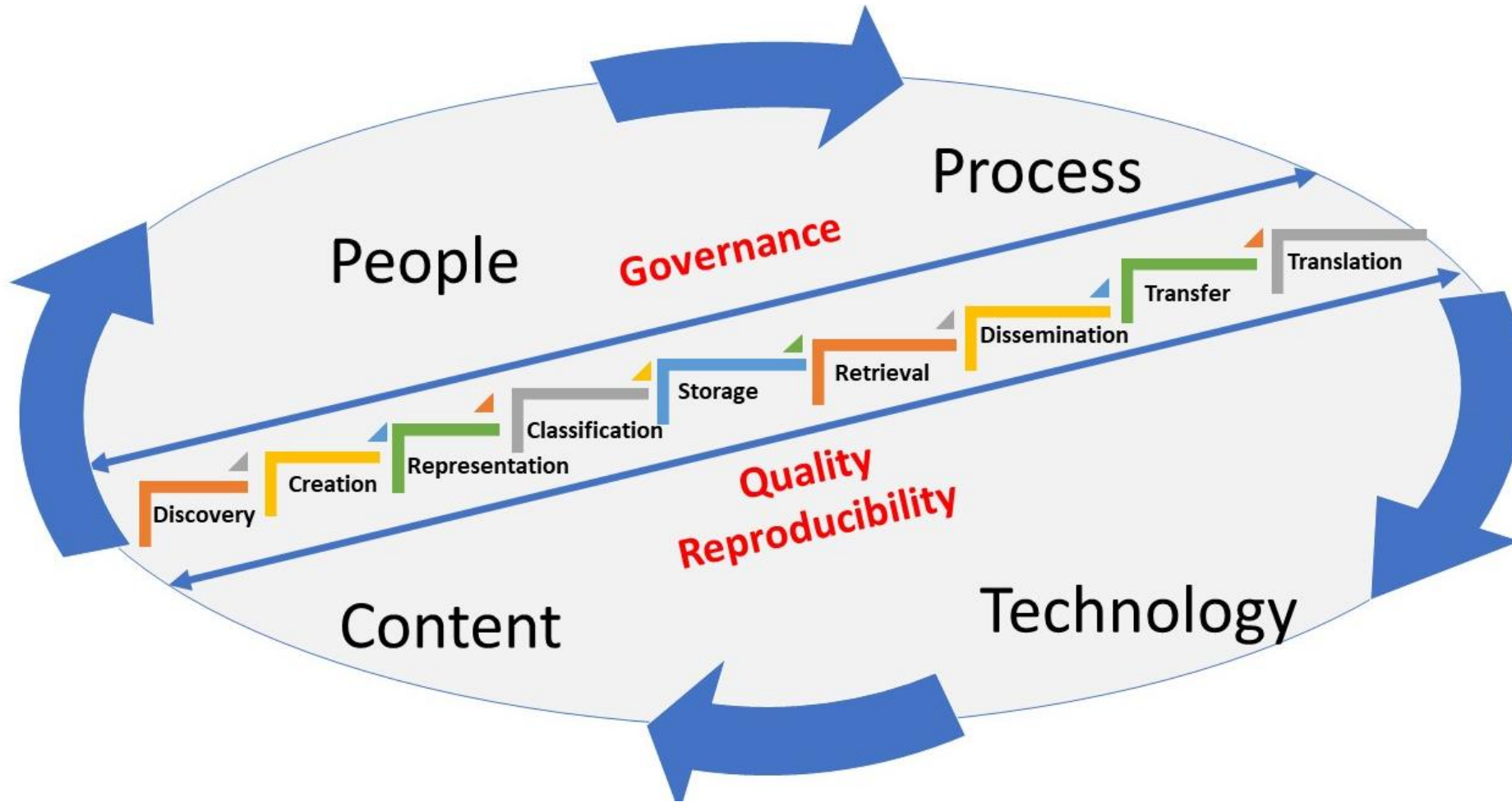


Australasia PMC

Cycle number and dates	Research proposition	Cycle theme	Research activities	Research outcomes	Research context
One (2016-2018)	There is stakeholder interest in an investigation on the opportunity for an Australasia open biomedical repository, as a potential member of PMC International.	A strengths, weaknesses, opportunities and threats (SWOT) analysis to assess the support for investigating membership of PMC International.	SWOT analysis of a potential Australasia PMC.	The research found sufficient interest to warrant an investigation into the feasibility of an Australasia OBR. The Australasia PMC Working Group was formed and supported my recommendations to the Australian Group of Eight (G08) University Librarians' Committee.	Canada PMC was discontinued. Europe PMC further developed. With an Australian Liberal/National Government in office the timing was not suitable for a national open access initiative.

Cycle number and dates	Research proposition	Cycle theme	Research activities	Research outcomes	Research context
Two (2017-2020)	A KMS approach provides a sound basis for developing a conceptual framework for an OBR.	Conceptual framework of an Australasia OBR	Development of a conceptual KMS framework for an Australasia OBR	The KMS framework was shown to be an effective means to explore how to develop a sustainable open scholarship platform that could optimise existing services and resources.	CAUL pursuing a national open science strategy and signalling a slow and steady approach. The Australasia PMC Working Group was discontinued. COVID-19 pandemic strikes.

KMS framework for an OBR



Snapshot of the KMS framework evaluation for an OBR

Cycle number and dates	Research proposition	Cycle theme	Research activities	Research outcomes	Research context
<p>Three (2019-2020)</p>	<p>KMS provides an effective theoretical framework for analysing and evaluating designs for repositories and platforms that support the advancement of open scholarship.</p>	<p>Use of the KMS framework to analyse and evaluate designs for open scholarship repositories.</p>	<p>The KMS framework was tested for any gaps in the conceptual design. An analysis and evaluation of two repositories and two platforms was undertaken to test the KMS framework.</p>	<p>Feedback indicated the suitability of the KMS framework for evaluating designs for an open scholarship system was confirmed.</p>	<p>UNESCO Recommendation on Open Science are finalised by Member States.</p> <p>Plan S comes into force throughout Europe.</p> <p>COVID-19 pandemic ongoing.</p>

Cycle Three: evaluate repositories & platforms

System	Description	URL
Europe PMC (repository)	Openly accessible repository, focus on biomedical research, links to research data, includes other research data sets and resources	https://europepmc.org/
Epistemonikos (platform)	Openly accessible, provides a summary of research evidence, includes biomedical research	http://www.epistemonikos.org
Trove (platform)	Openly accessible discovery interface, Australian information resources, multi-disciplinary, national resource	https://Trove.nla.gov.au
ResearchGate (repository)	Openly accessible, based on scientific social networking services and also serves as a repository as it has a specific feature that allows members to upload full-texts of their publications. The system is not an open access repository.	https://www.researchgate.net/

Results and analysis

System	Representation	Classification	Storage
<p><i>ResearchGate = RG</i></p> <p>Content is the “what” such as <i>research data, metadata, database records, classification schemes, articles, videos, graphs, maps, visualizations, reports and other digital objects</i></p>	<p><i>Representation comprises explicit knowledge in the form of digital scholarly objects or the metadata for the objects.</i></p> <p>Every publication registered also has its own page giving metadata and, in some cases, a preview and a link to a full text version, if the author has uploaded one to the site and the publisher has not requested that it be removed for copyright reasons (Clarke, 2013).</p> <p>Users can also become actively engaged by participating in the questions discussion threads, both by posing research questions and by sharing expertise.</p>	<p><i>Classification schemes and ontologies are used by repositories to allow users to navigate content</i></p> <p>Q = RG has indexed many citations for a single website and has become a major source for academic papers, perhaps even starting to challenge Google Scholar in this regard. Combined with the apparent citation advantage of uploading to academic social network sites (Niyazov et al. 2016), scholars should take RG seriously as a venue for disseminating their research. RG citations can potentially be manipulated by uploading non-peer reviewed or fake documents and hence should be used cautiously for research evaluation. (Thalwall & Kousha, 2017)</p>	<p><i>Content, including metadata, needs to be stored in a standard way, that can be efficiently migrated to future systems.</i></p> <p>This is not possible using RG</p>

Snapshot of the ResearchGate KMS framework colour grading

	Discovery	Creation	Representation	Classification	Storage	Retrieval	Dissemination	Transfer	Translation
People	Yellow	Yellow	Green	Yellow	Red	Green	Green	Red	Green
Process	Green	Red	Yellow	Red	Red	Red	Red	Green	Red
Technology	Yellow	Yellow	Red	Green	Yellow	Red	Green	Red	Red
Content	Yellow	Green	Green	Yellow	Red	Green	Green	Green	Green

Issues raised

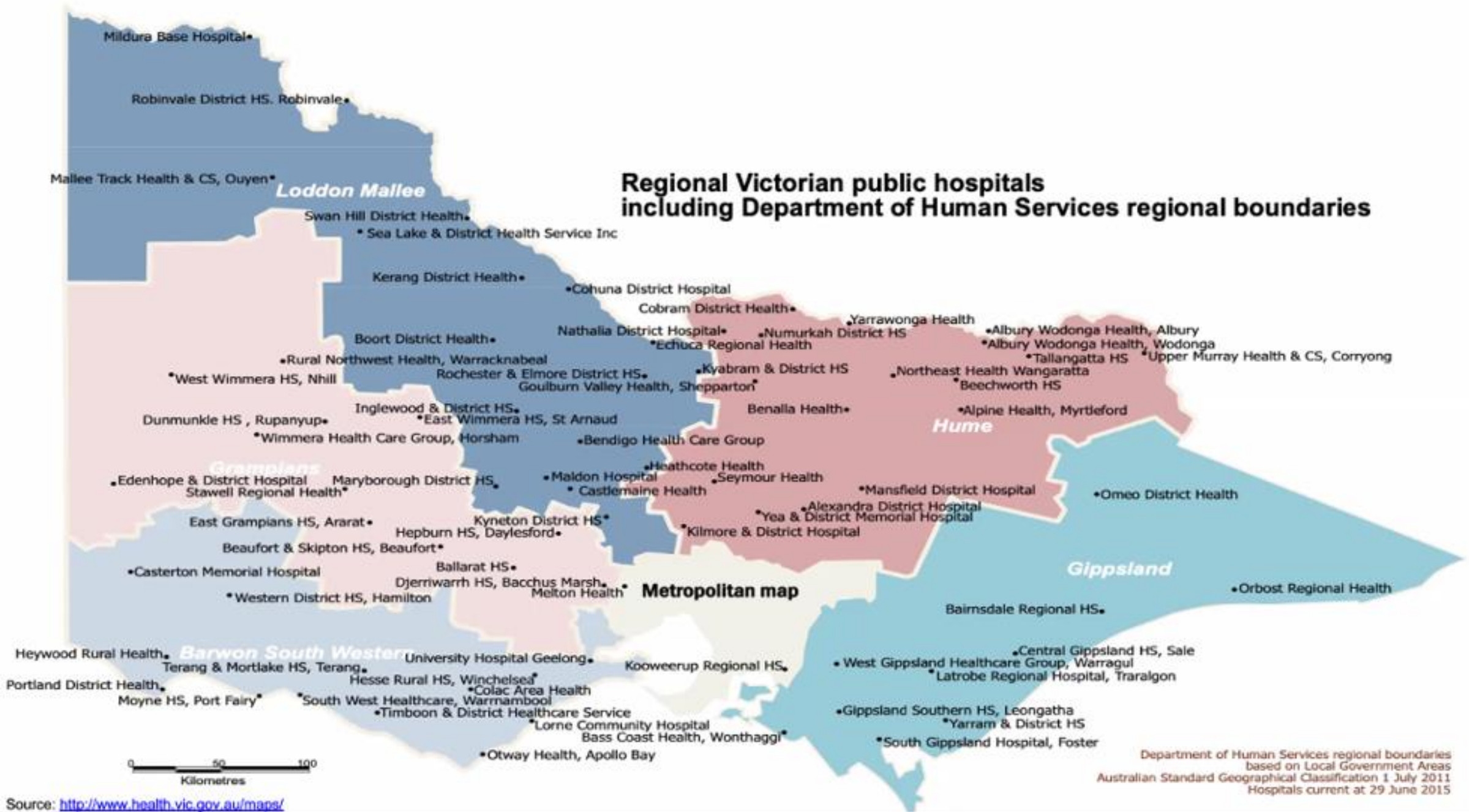
Regional, national and state challenges

- Significant hurdles exist in Australia
Regional/national approach is important for systems to reflect local design needs (e.g. tropical medicine, indigenous health)

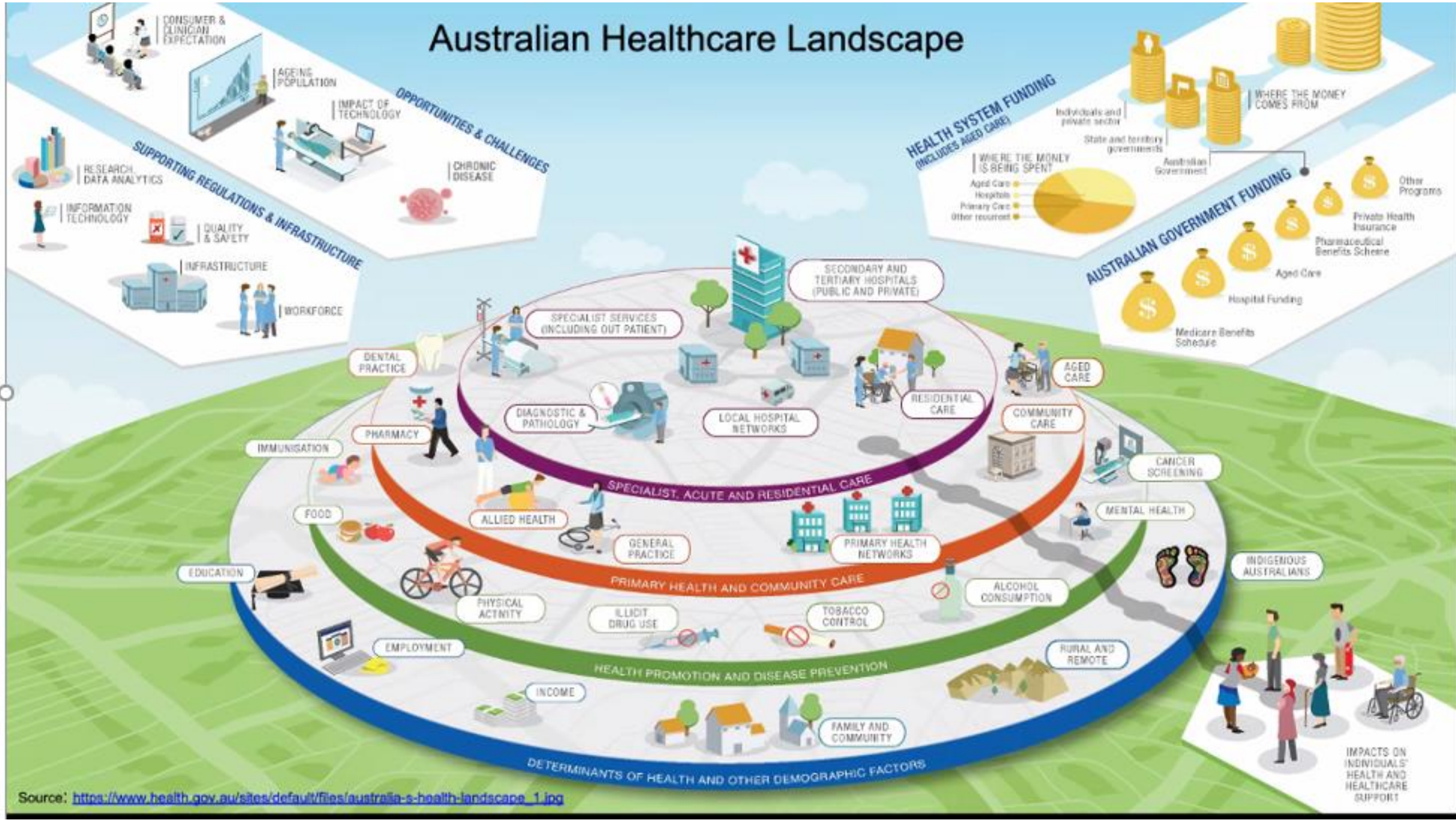
Repository challenges

- Compliance with open access mandates
The work of publishers to provide the accepted article content removes the submission burden from the researcher and is a key reason why the PMC model is effective.
- Formalities exist to become a member of PMC International

Regional Victorian public hospitals including Department of Human Services regional boundaries



Australian Healthcare Landscape



Source: https://www.health.gov.au/sites/default/files/australia-s-health-landscape_1.jpg

Opportunities

- Improving biomedical KM processes could put biomedical research under the spotlight and potentially lead to improvements with research quality
- Greater collaboration between Australasian health librarians in universities, hospitals, healthcare organisations and medical research bodies is recommended to overcome obstacles to implementing and advancing open science in the region
- Whilst most Australian library universities have discovery systems, it is recommended that the curation of national or regional repository collections be considered to help rationalise existing duplication



Laera, E., Gutzman, K., Spencer, A., Beyer, C., Bolore, S., Gallagher, J., . . . Rodriguez, R. (2021). Why are they not accessing it? User barriers to clinical information access. *Journal of the Medical Library Association*, 109(1), 126-132. [doi:10.5195/jmla.2021.1051](https://doi.org/10.5195/jmla.2021.1051)

Opportunities

- Library services gradually move on from the large package consortia 'big-deals' model that have taken place since the 1990s and investigate opportunities afforded from transformative agreements and the wider adoption of suitable information repositories for users
- Move from traditional appraisal of information resources to information systems – to evaluate other aspects e.g. discoverability, transfer (interoperability) and translation

Findings

- The KMS framework for an OBR demonstrated the significance of the interplay of existing services and resources. A repository is not just a *technology*. Framework goes beyond organisational limits.
- The significance of the *people, process* and *quality content* to the success of a repository and the criticality of the *technology*, although it is merely a vehicle for transporting the research content through its life-cycle. The inclusion of the entire biomedical KM processes in the design of an information system is potentially a way to speed up the transfer and translation of primary knowledge in the research pipeline
- The KMS framework differs to other frameworks as it can be used by the layperson and it is from a KM perspective

Findings

- Biomedical knowledge is a collaborative process and, whilst researchers are often bound by organisational constraints, the processes from creation to translation of biomedical knowledge are not bound by such constraints.
- How repositories point to the essential global libraries of living systematic reviews that report concisely on issues such as vaccine roll-out to recovery and school closures, is of critical importance in particular during a global pandemic.
- Establishment of an Australasia OBR is a means to have a quality website of essential medical and health sciences library knowledge, that can include prominent links to the essential global libraries.

Going Forward

- Based on the increase of full-text content added by publishers to PMC during the COVID-19 pandemic, measuring how much Australasia content is currently available from the repository
- Increase collaboration, further research is recommended to explore the relationships between, and the future of, library discovery systems, university publishing presses and repositories in the Australasia region. Greater optimisation of existing information systems such as Trove and other relevant Australasia open systems in collaboration with PMC International could be pursued
- Learn from and work with neighbours in the Asia-Pacific
- Investigate the potential to include improved retrieval and automation tools in the design of repositories

Going Forward

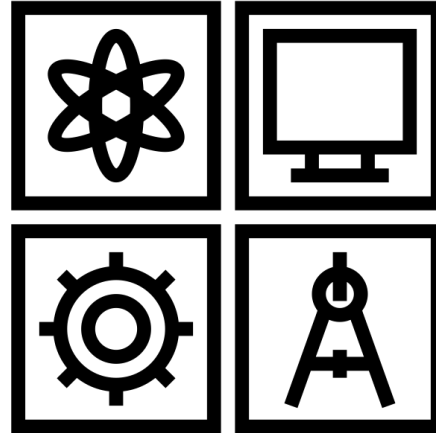
- It is important to shift knowledge out of silos, such as closed databases. Work with publishers to explore examples such as the Australian Informat databases
- Overall transferability of the KMS framework to multi-disciplinary and interdisciplinary information systems needs further work.
- Test the KMS framework further and explore the opportunity to help library students and librarian practitioners adopt a wider paradigm for the analysis of information platforms and repositories

Conclusion



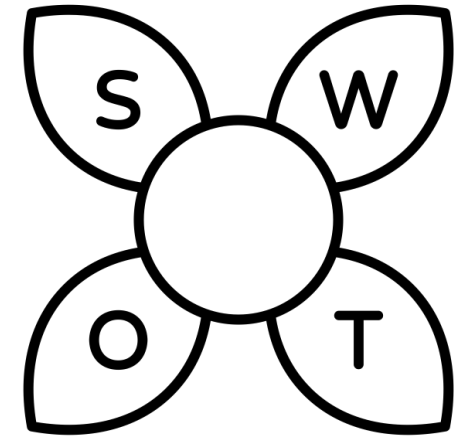
Australasia PMC

Open science



Created by Eucalyp from Noun Project

Repositories for multi & inter-disciplinary research output



Created by Vectors Point from Noun Project

Case studies

‘Open Science is not a finish line, but rather a means to an end. For research to be more efficiently disseminated, verified and credited, system-wide changes toward Open Access must be embraced across the scientific community.’
(PLOS, 2021)

Acknowledgement

Monash University
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Publications & presentations

27

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Australian Evidence Based Practice Librarians' Institute: Waurin Ponds, Victoria

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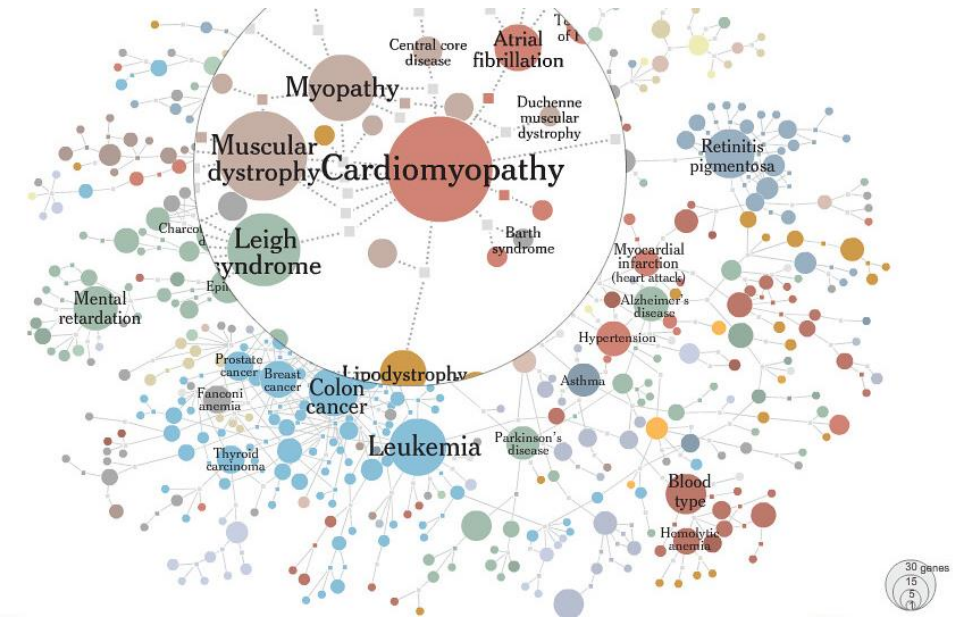
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Thank you and
time for questions



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