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Open access initiatives by research active institutions in Australia & Aotearoa New Zealand: a snapshot of the landscape in 2022.

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Executive Summary

Background

Over the past 20 years open access has evolved from a set of aspirational principles to a diverse range of practices and policies that span the entire publishing ecosystem of journals, books and data, and which includes new and older models of publishing. This open landscape is now diverse and complex.

Open Access Australasia (OAA) is the foremost advocacy organisation for open access (OA) in this region and has tracked developments in OA since 2013. However, there is no existing comprehensive overview of support for open initiatives in this region.

Methods

A systematic search strategy was designed to find open initiatives using information provided first by Open Access Australasia members, followed by a search of all universities, and selected relevant health, government and non-profit research organisations. Open initiatives included open access policies, open repositories, open journal publishing, open book publishing and support for external open initiatives. We also assessed the degree of open access as determined by the Curtin Open Knowledge Initiative (COKI) dashboard.

Results

The average number of OA initiatives as defined by the categories of this study and out of a total of 31 investigated was: universities 9.8; health 0.8; government 4.5; non-profit 1.1. Distribution across the sectors showed considerable variation.

Policies

33 of 56 universities included in this study have an OA policy. Only 8 universities have a specific policy on open data publicly available. Only 7 of 51 government research active institutions included in this study have OA policies but double that number (14) have policies on open data. By contrast only 4 of the non-profit institutions included in this study have OA policies, and only 1 had a policy for open data. None of the health research institutes examined had open access policies.

Repositories

51 of 56 universities operate a repository. 32 provide access to open data. 13 of 52 health research active institutions have their own repository, and 4 have data repositories. 33 of 51

government research active institutions have both publication and data repositories, and 5 of 28 non-profits have repositories with 2 also having ones for data. In the absence of a repository, several health research institutions, government and non-profit institutions collected and collated their publications, allowing a clear route to those that were open to the public from a single searchable page.

Open publishing

31 of the 56 universities published easily discoverable open journals, and 24 published more than one. 13 published open monographs. Only 1 health, 3 government and 5 non-profit institutions published one or more open journals.

Open access rates

Using data from COKI, overall, no university examined at this time is achieving more than 58% open publishing. The average percentage of open publishing for universities across ANZ according to the COKI data is 39%. This is lower than all other sectors who are achieving an average rate of 47.5% (health) 43.6% (government) and 50.8% (non-profit.)

Support for external open access initiatives

Support for these initiatives was low overall and showed no consistent pattern. The Global Sustainability Coalition for Open Science Services (SCOSS) is supported by most universities (26), facilitated through Council of Australian University Librarians (CAUL.) The Directory of Open Access Journals (DOAJ), the second most supported initiative (18) can also be supported via SCOSS. Although arXiv and Directory of Open Access Books (DOAB) had some support with 10 and 9 universities contributing, support for the other initiatives was low with 8 institutions or fewer offering direct support.

Conclusions

A variety of approaches are needed to enable open access to research publications, books and data. As is the case for other countries, there is no consistent approach even within groups of similar organisations. There is no obvious association between the number of open initiatives that an organisation supports and the proportion of open access publications from that organisation. Support for international open access infrastructure initiatives is very low, other than where support is coordinated through a consortium such as CAUL.

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Background

In the past 21 years, since the Budapest Open Access Declaration, OA has developed from a theoretical concept to a concrete range of initiatives and business practices that have affected every part of the global publishing ecosystem. Australia and New Zealand (ANZ) were part of the very early initiatives: ANU had the first Open Access Repository in the region, QUT had the world's first open access policy for its repository; Koha open-source library system was developed in Aotearoa New Zealand in 2020.

Open access developments have accelerated year on year and most recently they have been predominantly led by organisations in Europe, and North and Latin America. The main ones from the past few years have all demonstrated a few key characteristics to be successful. First, they have been led at a very high level, either by government or by another top policy body; second, either at the beginning or very early on they have used extensive consultation across key parts of the relevant sector; third, they have been adequately resourced to move from a theoretical concept to concrete actions.

The key initiatives that are currently driving open access policy globally are Plan S, led by cOAlition S; OA2020; and the UNESCO Open Science Recommendation.

Plan S is an initiative of cOAlition S, an international consortium of research funding and performing organisations initially from funders in Europe that was launched in September 2018.¹ Plan S requires that, from 2021, scientific publications that result from research funded by public grants must be made open access, specifically “With effect from 2021, all scholarly publications on the results from research funded by public or private grants provided by national, regional and international research councils and funding bodies, must be published in Open Access Journals, on Open Access Platforms, or made immediately available through Open Access Repositories without embargo”². These publications, either in a journal or in a repository must have a CC-BY licence. In September 2022 the National Health and Medical Research Council (NHMRC) in Australia joined cOAlition S and updated its policy to be in alignment with Plan S³. Although Plan S initially seemed to be just focused on journal based (“gold”) open access - it now has expanded to recognise the need for a diversity of approaches including a substantial body of work on no fee (“diamond”) open access, supporting increasing transparency in publishing and equity in open access. It has also extensively advocated for rights retention for authors.

OA 2020 is an open access advocacy organisation led initially from the Max Planck institute in Germany. It was one of the first international organisations to take a very active role in promoting concrete routes to open access, and the model it has led is through transformative agreements. OA2020 works closely with cOAlition S and related organisations⁴.

The UNESCO Open Science Recommendation was adopted by all UNESCO countries in November 2021. Open access to research publications are recognised as a key component of

open science i.e. “Open scientific knowledge refers to open access to scientific publications... that are available in the public domain or under copyright and licensed under an open licence that allows access, re-use, repurpose, adaptation and distribution under specific conditions”⁵.

There are also a number of key advocacy groups including the Scholarly Publishing and Academic Resources Coalition (SPARC),⁶ the Confederation of Open Access Repositories (COAR)⁷, and the ongoing Budapest Open Access Initiative group (BOAI),⁸ which emphasise the need for a diversity of approaches to open access - “bibliodiversity”.

In Australia and Aotearoa New Zealand there has also been increased activity in open access over the past five years especially with work by: the NHMRC; Australia’s Chief Scientist; New Zealand's Chief Science Advisor; Council of Aotearoa New Zealand University Libraries (CONZUL) and the Council of Australian University Librarians (CAUL).

The NHMRC initiated a consultation on a revision to its open access policy in 2021. NHMRC and the Australian Research Council (ARC) have had policies in place since 2012/3. The NHMRC policy revision proposed was in alignment with Plan S, requiring immediate open access to publications arising from the research it funded. In September 2022 NHMRC published the revised policy which was as proposed.³ It comes into immediate effect for new grants and in 2024 for current grants. In addition, NHMRC has joined cOALition S. The open access policy is part of a wider piece of work supported by the NHMRC’s Research Quality Steering Committee.

Dr Cathy Foley, Australia's Chief Scientist, has taken on open access as one of her pillars of work since her appointment in 2021. She has spoken about developing a national open access approach, which includes access to previously published research for all Australians - not just in universities - and also a route to make future research open.⁹

CONZUL has undertaken a substantial body of work on open access which has led to close monitoring of amounts of open access there since 2017.^{10,11}

In 2022 the New Zealand Prime Minister’s Chief Science Advisor released a report “The Future is Open: Intern report on Open Access publishing in Aotearoa” which made a clear case for a national approach to open access.¹² In November 2022 Ministry of Business Innovation and Employment (MBIE) introduced an open access to research policy for all new MBIE-funded research¹³ - the first national OA policy in Aotearoa New Zealand. The policy calls for research to be made open either via fully open access “gold” journals or via institutional repositories. A 12-month embargo is allowed. The policy comes into effect for new research funded from 1 January 2023.

As of January 20, 2023, CAUL has now negotiated 21 ‘Read and Publish’ agreements involving 12595 journal titles which have been taken up by universities across Australia and Aotearoa New Zealand.¹⁴ CAUL has developed a program for monitoring these agreements, and supports a community of practice for their implementation. These deals now form a substantial part of the financial agreements that CAUL has with publishers, and include two of the three largest

publishers, Springer Nature and Wiley, with only Elsevier outstanding and likely to be added with others in the future [note: as of January 2023 CAUL has negotiated Read and Publish agreements with [Elsevier](#)]. These deals are in alignment with international work that has been led by OA2020. Some of the organisations in Europe that were early leaders in OA2020 now have more than 80% of their research open access through these deals.

It is notable that despite all this activity globally and in Australia and New Zealand there is as yet no national policy approach to either open access or open science in either country.

Review of the literature

In recent years, many excellent literature reviews documenting initiatives and engagement with open access (OA) on an international scale have prefaced a variety of accomplished research projects.¹⁵⁻¹⁹

Using different methodologies and datasets, studies have looked at the global share of OA publications overall, between countries²⁰ and between geographic regions.²¹ Others have examined progress towards OA at the institutional level comparing across countries²² and within institutions by discipline.^{23,24} Work assessing strength, barriers and needs relating to OA uptake have been completed.^{19,24} Other projects have investigated the rising cost of OA publication¹⁵ and researcher compliance (or lack thereof) with funder mandates and institutional policies.²⁵ The diversity of pathways to OA have been explored.¹⁶ OA as currently practised has been interrogated for diversity and inclusivity.^{19,26} A small number of studies have made excellent progress in synthesising the results of this disparate body of research, although the heterogeneity of data sources, methods of harvesting, varying definitions of types of OA and inclusion criteria, as well as the complex and overlapping nature of the OA landscape itself makes such a project daunting.²⁰

Research looking specifically at Australia and Aotearoa New Zealand brings the regional context to many of these same issues. ANZ has a healthy community of OA researchers undertaking projects to evaluate many facets of the complex OA landscape in the region.

ANZ's share of OA outputs has been found to be below the world median and below potential.^{18,20,27} Having taken a lead in the original establishment of institutional repositories, these resources are currently underutilised^{11,18} and there are no mechanisms to either enforce or incentivise researchers to self-archive.²⁸ Without built in ways to measure compliance with institution or funder mandates it is difficult to estimate how much effect these initiatives are having but non-compliance is significant.²⁵ OA institutional policies are lacking in half of Australian universities (this is not the case in NZ where 7 of 8 universities now have policies) and existing policies are unclear and inconsistent.¹⁷ Barriers to a wider uptake of OA in the region has been thoroughly discussed, with particular emphasis on academic research culture¹² and cultural differences across disciplines that impede or encourage OA. A lack of inclusion and diversity in traditional research practice has resulted in a greater uptake of OA options amongst

women.¹⁹ Lack of centralised leadership, strategy and infrastructure is another factor impeding a more effective transition to OA.^{17,18,27} The continued monopolisation of scholarly publishing by a small number of commercial publishers, pressuring researchers and libraries into choosing APCs and ‘Read and Publish’ agreements as the only way to OA is another focus of discussion.^{12,15} Diverse paths to OA are recommended²⁷ and ambitious possibilities are raised, such as the establishment of an Australian PubMed Central.²⁹ There is a sense that a true window of transition has arrived with the Open Science movement and that ANZ research institutions can play an active role in the creation of what comes next.^{12,30}

Studies are lacking however, that look at the response to OA by research active institutions outside of the Academy, though some studies see the usefulness of a coordinated cross-sector approach.²⁷ It may be that in presenting a comparison across different sectors, as this study intends, new insights can be raised. OA support and uptake is gauged by investment in institutional initiatives to promote understanding and practice of OA. In juxtaposing degree of OA engagement at the institutional level across the sectors we hope to describe a fuller picture of the current regional landscape.

Objectives

This Open Access Australasia (OAA) project reports on open access initiatives currently practised by research active institutions in Australia and Aotearoa New Zealand in 2022. To date there has not been a detailed investigation into OA practice in research institutions across the region that draws comparison across sectors and surfaces the diversity of approaches to OA. This study seeks to investigate the relationship between institutional OA practice and actual open research output. Data has been collected according to four broad categories of research institutions: universities, health, government and non-profit. Institutions were compiled from three overlapping sources: the [existing directories](#) already compiled by OAA; research institution ranking lists generated by SCImago Journal and Country Ranking Portal [SJR SCImago](#); and research institutions tracked by the Curtin Open Knowledge Initiative [COKI](#).

This study presents a representative sample, not a comprehensive collection, and is limited to the research active institutions included in these lists compiled from OAA, SCImago and COKI (see [Appendix A](#)). The intention is to provide a snapshot in time of the open landscape in the region, to describe outlines rather than details. It is intended as a jumping off point for further investigation. The purpose is to map broad areas of current strength in the region’s OA environment, but also to point out weaknesses where more needs to be accomplished to position the region strategically to respond to emerging developments in this fast-changing arena. This inventory presents insights about our understanding and application of OA and surfaces some of the questions we need to ask to move forward effectively. It seeks to lay a foundation from which to make recommendations on actions and priorities for the ANZ research community in the immediate future.

The second equally important objective is to design and test a methodology that OAA can use to monitor OA practices in the region going forward. This work can therefore be constantly and

iteratively updated, resulting in a living map of the open landscape. Component parts of this methodology include a collation of where to search - registries, directories, databases, aggregators; documentation of how to search - site delimited search strategies, database searches and alerts; and analytical tools for data collection and visualisation. It is expected that the methods and tools designed as part of this project will be refined and built upon in future updates, so that the monitoring framework will grow and improve.

However, this work demonstrates above all that monitoring OA initiatives is a very difficult proposition, that there is confusing and complex overlap between institutions within and across sectors, that OA practice does not lend itself to neat division into types within institutions, and indeed the very approach taken can produce varying results. As Robinson-Garcia et al have found in examining global OA outputs in PubMed Central (PMC) “the way we define and operationalize each for the OA types can affect the final numbers” as outputs categorised as “green” OA include a large amount of PMC content, which is taken from “gold” and “hybrid” journals as well as from repositories and other self-archived sources.²⁰ Indeed there is considerable overlap in how research is made open: a significant amount is accessible through more than one channel simultaneously (see Figure 10 below.) Attempts at monitoring OA will always be incomplete and subject to the arbitrary ways the information is collected and organised. Best efforts will nonetheless provide useful insight.

OAA is well positioned to coordinate ongoing self-reflexive practice on the part of the ANZ research community regarding open initiatives. It is hoped that reports such as this one will encourage coordinated direction, efficient sharing of resources and cross-institution and cross-sector awareness, opening possibilities for collaboration and synergy. This report shows proactive action in areas such as institutional policymaking, or in supporting a diversity of approaches to OA, can assist to align the ANZ research community with the growing global movement towards making research, especially public funded research, open. It is only by knowing the current state of the ANZ open access landscape that the research community can effectively respond to international changes in open scholarship anticipated by developments such as the UNESCO Open Science Recommendation.⁵ This project broad strokes the current OA landscape in ANZ and puts in place some mechanisms to facilitate monitoring, creating the capacity for informed and self-aware decision making and prioritisation on OA initiatives going forward.

Scope

Research active institutions

The university sector is the primary focus of this report, though we have endeavoured to collect OA initiatives in research-focused institutions representing 3 other sectors - health, government and non-profit. For this study the following broad definitions have been used:

- University: a higher education institution that provides undergraduate and graduate education and conducts research in a wide range of fields and disciplines.

- Health: an organisation that conducts research in the field of health and medicine on a wide range of health-related topics, receiving funding from a variety of sources such as government grants, philanthropic donations, and contracts for services.
- Government: an organisation that is owned, funded, or otherwise controlled by a national or subnational government conducting research in a wide range of fields and industries and may be focused on advancing knowledge, promoting economic development, and serving the needs of the community, receiving funding from a variety of sources such as government grants, contracts for services, and partnerships with private organisations.
- non-profit: a research institution that is not driven by the pursuit of profit but is typically focused on advancing knowledge and understanding in a specific field or industry and may receive funding from a variety of sources such as government grants, philanthropic donations, and contracts for services.

The aim was to build from an initial foundation of 33 OAA member institutions, 30 of which were universities, the remainder being non-profit institutions, and from their OA initiatives collated in the existing directories. The types of OA initiatives to investigate, such as institutional policies, repositories and open publishing, were therefore taken from these existing OAA directories.³¹ Website usage statistics indicated that there was significant interest in OA initiatives at the institutional level, which formed part of the impetus for this work.

A list of research institution rankings generated from the SJR SCImago Journal and Country Rank Portal³² was combined with the OAA member information. The categorisation of research-focused institutions into academic, health, government and non-profit from SCImago was retained to allow for comparison across sectors. The use of SCImago rankings ensured that the defining criteria for inclusion was that the institution was research-focused; thus, although we have included some research active polytechnics, for example, we have not included all, or other tertiary education institutions like TAFE.

To improve validity and representation, data from the Curtin Open Knowledge Initiative (COKI) was added.³³ Institutions that were not captured by SCImago but were tracked by COKI as publishing OA were added. Engaging with COKI, moreover, allowed for a comparison between institutional OA initiatives and percentage of open publications overall. COKI also allows for a finer grained analysis of avenues to OA, tracking repository, preprint and other internet sharing of research in addition to publishing in journals, allowing the range and diversity of OA practice to be presented and discussed. The SCImago classification of institutions into university, health, government and non-profit was confirmed by COKI. Occasionally there was a discrepancy between the two sources, which reflected the overlapping nature of some of these organisations. Some health or government research active institutions were closely aligned with universities; some non-profit organisations similarly had close ties to national or state governments. Outside of the clearly demarcated university sector that is the focus of this study, therefore, the categorisation into the other sectors is sometimes best fit rather than absolute; similarly, the cover of non-academic institutions is representative rather than comprehensive.

For a full list of institutions included in this study please see [Appendix A](#). Note that whereas some sectors are broadly cohesive in research objectives and culture, such as health, other

sectors like non-profit or government encompassed institutions with very varied missions and mandates, making it impossible to see them as a unified grouping. The non-profit sector, for example, included university and library councils, museums, and institutions practising environmental science and health research; the government sector included health and scientific research, but also data collected by state governments for monitoring, transparency, and community improvement measures. The heterogeneity of these institutions and their objectives make drawing generalised conclusions difficult. Yet the diversity of OA practice is evident.

Open access initiatives

Strict delineation of scope was essential as the OA landscape is multifaceted and complex. For this project, initiatives were broken into three main categories taken from the OAA member directories: policies, statements and guidelines outlining an official position on OA; open repositories; and open publishing.

An open policy was defined after Wakeling et al as “a document with the terms open access and policy in the title, **and** which was located either in the institution’s policy library, or elsewhere on the main university website”.¹⁷ Policies express a mandate researchers must follow as employees of that institution. Statements outlined a formal institutional commitment to OA in all or any of its forms but did not include mandatory obligation. Guidelines were defined as more informal explanations of OA principles or procedures, and for institutions that had a library were most often in the form of LibGuides. Other manifestations of written support for OA - such as an institution's “position” for example - that did not include a mandate were classed as statements, or guidelines if they were combined with an explanation of process. It is possible that rules of research conduct, for example, or guidelines for submission of theses, could contain stated mandatory expectations for staff and students outside of an official policy. It was not possible to capture such content here. It is therefore likely that totals presented are underestimated.

This work defines an open repository as a central gateway to a collection of digital copies of the intellectual and research output of an institution, with the stated intention of making this content accessible, insofar as copyright restrictions or confidentiality allow. This broader definition encompasses both university repository infrastructures and curated web collections of outputs with hyperlinked DOIs that can be found on health or non-profit research active institutions’ websites. The defining characteristic was the intention of collecting and preserving the institution’s research to render it open and accessible, recognising that the quality of metadata of curated webpage collections would vary, and would clearly differ from that of the university repositories. Supporting these institutions’ awareness of and access to more robust repository infrastructures and practices would allow greater sustainability of access.

Institutions that make journals or monographs freely available from their website or via an open-source publishing system like OJS³⁴ were deemed to be engaging in open publishing.

For greater granularity, sub-categories from OAA’s directories were employed.³¹ Policies, statements and guidelines were divided where possible into more specific coverage. Where policies specifically addressed book and book chapters, conference papers, theses, non-

traditional research outputs (NTROs), data or open science in addition to open access journal articles, each instance was counted as a separate initiative to express this granularity. Where the description was worded more generally, and distinctions were not evident the category ‘publications’ was employed.

Repositories were assessed for their inclusion of theses, grey literature, NTROs, reports, books and book chapters and data. It is acknowledged that while important for universities, some of these categories had less or no relevance for some institutions in other sectors. Grey literature includes information that is not formally published, (not distributed through commercial publishers, scholarly societies or academic presses) including a wide variety of formats such as reports, working papers, preprints, theses, and conference proceedings. Similarly, NTROs are defined as forms of research dissemination that are not traditional publications in academic journals, such as policy briefs, patents, performances, exhibits, software and digital media such as videos. Where many or all these output types were accommodated into one repository, each was counted as its own initiative. Where discrete repositories existed for different research outputs, such as data, this was recorded as a separate initiative.

Similarly, open publishing was broken down into individual journals, journal collections and monographs. Institutions that published more than one open journal and provided a single access point were defined as hosting a journal collection.

Table 1: Categorisation of open access initiatives practised by ANZ research active institutions.

Policies, statements, guidelines	<ul style="list-style-type: none"> ● Publications (type of output not specified or described as peer reviewed publications) ● Books, book chapters ● Conference papers and presentations ● Theses ● Non-traditional research outputs (NTROs) ● Data ● Open Science/research/scholarship
Repositories	<ul style="list-style-type: none"> ● Publications (peer-reviewed, published, accepted manuscripts or preprints) ● Theses ● Grey Literature ● Non-traditional research outputs (NTROs) ● Reports ● Books, book chapters ● Data
Publishing	<ul style="list-style-type: none"> ● Journal ● Journal collection ● Books

It needs to be noted that during data collection it was found that there was not necessarily a direct fit between the aims of the OAA directories and the intentions of this project, and the categories taken from the directories were more useful for some types of institution than others. This point will be discussed in the limitations section.

Exclusions

The following open initiatives were deemed out of scope for this project and data was not collected or presented herein:

- OA initiatives that are outside of the regional ANZ focus, unless significant **institutional** participation
- Open educational resources used for teaching and learning
- Open source/open software/open code
- Citizen science projects

These important aspects of the open landscape warrant collection and analysis in future work to present a fuller picture of the landscape.

Searching to discover open science participation was also deemed out of scope, due to the heterogeneity and difficulty of discovery of such projects. These could not be systematically collected and have not been added to the current analysis. At present there is no central regional registry for open science projects, nor mandate to register. Without this it will prove extremely difficult to inventory open science projects across ANZ, though adding this essential component to the OA landscape is needed.

Methods

A Group of OA Practitioners drawn from Australia and Aotearoa New Zealand provided feedback on the methodology and analysis at regular intervals. The purpose of this group was to ensure that the work was informed by differing professional roles in open access practice from several institutions across the region. Membership consisted of individuals working in scholarly communications, open research, liaison librarianship and in academic research. Feedback was also provided by the Executive Committee of OAA at key stages, whose members serve in roles such as university librarian, director of research and head of scholarly communications, as well as being practitioners of academic research.

Open access initiatives

For each of the selected institutions evidence was sought for OA initiatives being practised in three broad areas:

1. Policies, statements and guidelines

2. Repositories
3. Publishing

Avenues of inquiry included:

1. Searching institutional websites for OA official documentation, for repositories, and for open journals or books being published. This study only includes what is publicly accessible.
2. Searching databases, conference proceedings, preprint archives, registries for written evidence describing institutional OA initiatives.
3. Surveying the existing members of OAA to update their OA institutional profile.

Search strategies

The websites of research active institutions were interrogated employing a site delimited Google search using a string of keywords. Truncation and the Boolean operator AND were automatically performed by Google. No exact phrase searching was required due to the inclusion of a proximity search of the word 'open.'

For example:

open AROUND(2) (access OR research OR science OR scholarship OR data OR publishing OR journal OR repository OR policy OR statement OR guidelines) site:examplesite.org.au

This basic search was modified depending on the institution type. For example, universities required a more complex search, including more keywords but limiting the search to the title field.

intitle: open AROUND(3) (access OR research OR science OR scholarship OR data OR publishing OR journal OR repository OR licence OR project OR initiative OR pilot OR design OR scheme OR model) site:examplesite.org.au

The first 3 pages of results (30 items) were scanned for each institution, as relevance ranking would place the most likely hits at the top. Due to the imprecision of searching using Google, however, these results were cross-checked by performing very simple individual or two-word searches on the site search of each institution, open AND policy, repository etc.

Site searches had to be constrained by time spent searching each individual site and number of results examined. It is therefore unlikely that the collection was comprehensive and only publicly available resources were included.

Academic databases were searched (Scopus, Web of Science) with a date limit of the last 5 years. For example:

(TITLE ("open access" OR "open research" OR "open science" OR "open initiative" OR "open data" OR "open citation*" OR "open engagement" OR "open publish*" OR "open infrastructure" OR "open reposito*" OR "open archive" OR "open licence" OR "open scholarship" OR "open journal*") AND TITLE-ABS-KEY (project OR initiative OR new OR novel OR ongoing OR method* OR pilot OR design OR plot OR scheme OR model)) AND PUBYEAR > 2017*

Results were filtered to ANZ institutions, then exported and screened for relevance.

Google Scholar was also searched from the advanced search screen using at least one of the words : Australia; Aotearoa; Zealand; paired with exact phrases open access; open research; open science; open data; open publishing; open infrastructure; open repository; open journal; open scholarship; open licence with a date limit of the last 5 years. Only the first 3 pages of results (30 items) were exported and screened for relevance.

Searches were also performed on the Open Science Framework ([OSF](#))³⁵ for project registrations and reports, on preprint archives using the Directory of Open Access Preprint Repositories ([DOAPR](#))³⁶ and on the Directory of Open Access Repositories ([OpenDOAR](#))³⁷ for ANZ content.

For examples of the searches employed please see [Appendix B](#)

Information was collected into an excel spreadsheet using the categories already outlined in Table 1. Institutions were scored Y for each specific OA initiative. Institutions were separated by type into academic, health, government and non-profit.

Total open initiatives by category and total number of initiatives across individual institutions were calculated. (See results section below, Figures 2 and 3)

Survey

A survey was sent out to the 33 members of OAA to update their existing institutional profiles on the site. These profiles list all the OA measures each institution currently undertakes, as well as any external OA initiatives they support. Ethics approval was not required for the survey since it was a resource improvement endeavour to update existing publicly available information. 21 responses from the survey confirmed and sometimes enhanced the data collected from the websites of member institutions, and at other times indicated an underestimation of the extent of an institution's OA practice on the part of the respondents.

One of the questions surveyed OAA members' support for external OA initiatives. This information would not be readily apparent by searching institutional websites but would enrich any picture of the OA landscape by showing global engagement on the part of ANZ institutions.

Figure 1: OAA members survey 2022, section 2, question 13, support for external open access initiatives

12. Does your institution or organisation financially or logistically support or endorse any of the following external initiatives?
We will list this information on our website.

- arXiv
- Centre for Open Science (CoS)
- Confederation of Open Access Repositories (COAR)
- Creative Commons
- Curtin Open Knowledge Initiative
- Declaration on Research Assessment (DORA)
- Directory of Open Access Journals (DOAJ)
- Global Sustainability Coalition for Open Science Services (SCOSS)
- Invest in Open Infrastructure (IoI)
- Knowledge Unlatched
- Open Library of Humanities
- SciPost
- Sponsoring Consortium for Open Access Publishing in Particle Physics (SCOAP3)
- unsub
- None of these

Members were also asked about additional external initiatives they support, and these were added to the original list. A Group of OA Practitioners (see below) provided feedback on more external initiatives for inclusion. All websites were examined for membership by OAA members and by ANZ universities in general. Not all displayed information about supporting members and contributors but many did. Results are displayed below in Figure 9.

To view the full survey please see [Appendix C](#)

Rates of open access output

To investigate any potential correlation between OA practice in the form of institutional initiatives and actual OA output, data on institutional rates of OA was utilised. For this study the data openly available from the Curtin Open Knowledge Initiative ([COKI](#)) hosted by Curtin University was chosen. COKI harvests, combines and analyses large amounts of research output, providing a database and analytical tools to help universities evaluate their performance as open knowledge institutions. The COKI Open Access dashboard was launched in 2022, allowing researchers to collect and interrogate data about open access publications on a national, regional and institutional level. For a full description of how COKI harvests and presents data please see <https://open.coki.ac/>

This project utilises the COKI dashboard to provide the overall percentage rate of open access output for each institution under investigation. COKI dynamically collects research outputs and divides the total number of OA by the total number of outputs to get the percentage rate averaged from 2000 to 2021. The OA initiatives we collected for each institution (the total number found as a percentage of the total number looked for) are plotted against the average percentage of OA publications 2000 to 2021 (Figures 4-7.)

The relationship was further explored for the universities, looking at OA output compared to OA policies and OA repositories specifically. (Figures 8, 9)

More granular data was also collected for each institution to examine what pathways were taken to OA. Each sector's overall publication rate was broken down into OA via publishers (including open access journals, hybrid journals and "no guarantees" where output is currently available but without reuse mandates for it to remain so), "other platforms" (including institutional, domain and public repositories, preprints, and other internet sources) and the percentage of overlap where output was accessible through both.³⁸ (Figures 10, 11)

COKI was selected for this work because it tracks open access via a diverse range of paths in addition to journal publishing. It is important to capture and represent the range of methods

being used to make research open, particularly in view of the importance of the repository route. COKI does this by compiling data from several sources including Unpaywall, Crossref, Microsoft Academic Graph (MAG)/OpenAlex and Research Organization Registry (ROR.)

It must be qualified that COKI only tracks outputs that have a DOI, and that number and percentage of accessible outputs constitute a time series from 2000 to 2021 which is continuously updated. As such, the data provided in this report reflects totals collected from COKI between November 2022 and January 2023, providing a snapshot in time. The COKI percentages employed here are averaged over 20 years circumscribing what can be concluded from these results. Although COKI institutional OA output can be investigated by year, analysis of annual data for each institution was beyond the scope of this project. Moreover, since the OA initiatives collected mostly cannot be ascribed to a particular year, it was felt that the COKI average rate was a better comparator. Furthermore, the open nature of both COKI and its data sources, free to interrogate by all, lends a transparency to the data comprising this project, as well as reflecting the values of open access.

Results

Open access initiatives

56 universities, 52 health research active institutions, 51 government organisations and 28 non-profit institutions across ANZ were surveyed for this study. Table 2 shows the total number of initiatives by category across the four sectors University (U) Health (H) Government (G) and non-profit (NP).

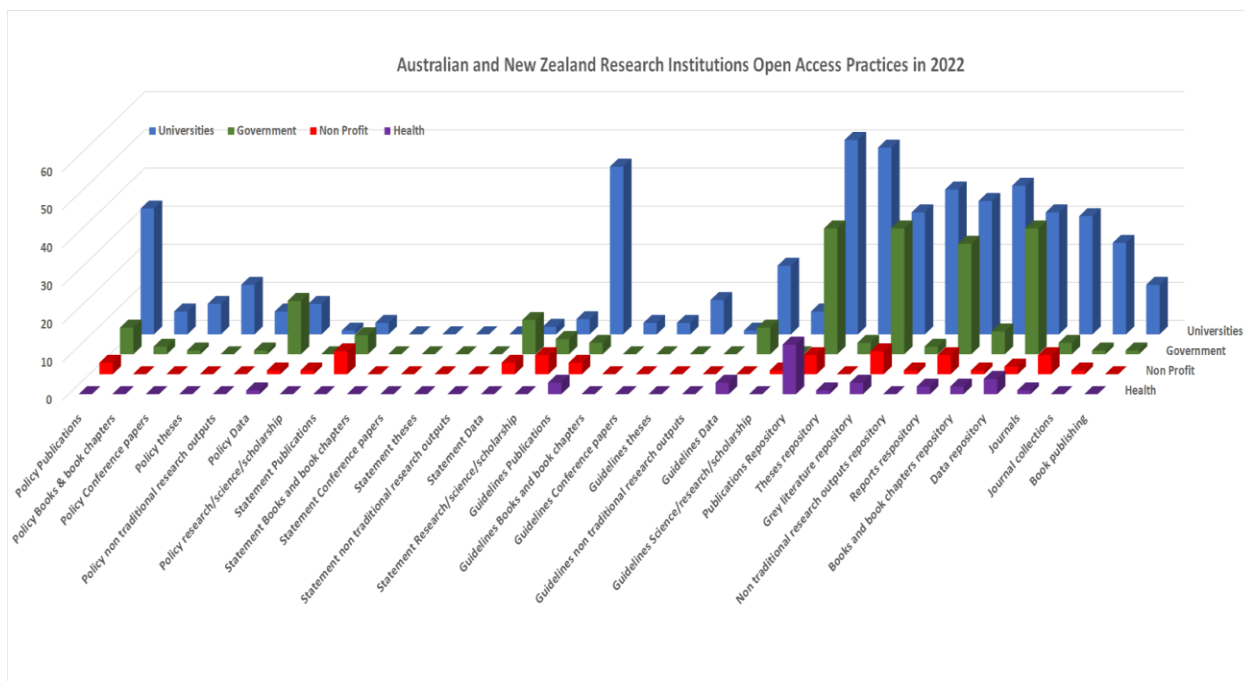
Table 2: Australian and Aotearoa New Zealand research active institutions OA Initiatives

	Open Access Initiatives	U	H	G	NP
Policies	• Publications (type of output not specified or described as peer reviewed publications)	33	0	7	4
	• Books, book chapters	6	0	2	0
	• Conference papers and presentations	8	0	1	0
	• Theses	13	0	0	0
	• Non-traditional research outputs	6	0	1	0
	• Data	8	1	14	1
	• Open Science/research/scholarship	1	0	0	1
Statements	• Publications (type of output not specified or described as peer reviewed publications)	3	0	5	6
	• Books, book chapters	0	0	0	0
	• Conference papers and presentations	0	0	0	0
	• Theses	0	0	0	0
	• Non-traditional research outputs	0	0	0	0
	• Data	2	0	9	4
	• Open Science/research/scholarship	4	0	4	5
Guidelines	• Publications (type of output not specified or described as peer reviewed publications)	44	3	3	3
	• Books, book chapters	3	0	0	0
	• Conference papers and presentations	3	0	0	0

	• Theses	9	0	0	0
	• Non-traditional research outputs	1	0	0	0
	• Data	18	3	7	0
	• Open Science/research/scholarship	6	0	0	2
Repositories	• Publications (peer-reviewed, published, accepted manuscripts or preprints)	51	13	33	6
	• Theses	49	1	3	0
	• Grey Literature	32	3	33	7
	• Non-traditional research outputs	38	0	2	1
	• Reports	35	2	29	6
	• Books, book chapters	39	2	6	2
	• Data	32	4	33	3
Publishing	• Journal	31	1	3	5
	• Journal collection	24	0	1	1
	• Books	13	0	1	0

Figure 2 presents this data plotted to show the comparison across sectors. Universities show the greatest overall engagement with OA across all initiatives; Government organisations show considerable commitment to open repositories, rivalling university totals in grey literature, reports and data. Both non-profit and health research active institutions show considerably less OA initiatives; the health institutions surveyed had the least OA engagement of the four sectors. Official institutional statements on open access in any of its forms are mostly absent, though government and non-profit institutions show the better practice here. The overall picture is presented in Figure 2 and the detail by institution type in Figure 3.

Figure 2: Australian & Aotearoa New Zealand research institutions OA practices in 2022



[Enlarged Figure 2](#)

Summary

Policies, Statements, Guidelines

33 of 56 universities included in this study have an OA policy. Of the Aotearoa New Zealand institutions (including research active polytechnics and universities) 7 of 12 have open access policies, and 26 of 44 Australian universities have policies. This is consistent with the findings of Wakeling et al's analysis of OA policies in Australian universities, where 20 of 42 Australian universities had OA policies¹⁷. The current study included 2 additional Australian institutions, and it is reasonable to assume that additional policies have been written in the time since the original study was conducted (November 2020 to January 2021). Only 8 universities have a specific policy on open data publicly available.

Universities have by far the greatest number of OA policies. Only 7 of the 51 government research active institutions included in this study have OA policies on publications but, reversing the university finding where policies on data were much less frequent, double that number (14) have policies on open data.

By contrast only 4 of the non-profit institutions included in this study have OA policies, and only 1 had a policy for open data. None of the health research institutes examined had open access policies, even those with strong ties to universities. In the context of the new mandates on open access and open data

put forth by MBIE¹³ and the NHMRC³ this year and the likelihood that other major funding bodies in the region will follow suit, this will need to be addressed.

Very few universities (9) and no health research active institutions had open access or open science position statements. By contrast, 18 government institutions and 14 non-profit organisations have statements on OA publications, open data, or open science.

Repositories

51 of 56 universities operate a repository. 32 provide access to open data, either in the same repository or a separate one. Universities that did not have the infrastructure to archive data advised researchers to use external options.

13 of 52 health research active institutions have their own repository, distinct from any university they may be associated with, and 4 had data repositories. In the absence of a repository, there were several examples of health research institutions collecting and collating their publications and allowing a clear route to those that were open to the public from a single searchable page. This was also true for government and non-profit institutions, and these were also counted as repositories for the purpose of this study, acknowledging problems of metadata quality and sustainability, as they demonstrated a commitment to making research free and open by the means available. 33 of 51 government research active institutions included in this study had both publication and data repositories, and 5 of 28 non-profits had repositories with 2 also having ones for data.

Open Publishing

31 of the 56 universities published easily discoverable open journals, and 24 published more than one. 13 published open monographs. (This study did not include the use of Pressbooks - see Scope.) This was by far the greatest number as the other sectors published very little OA; 1 health, 3 government and 5 non-profit institutions published one or more open journals.

Results by sector

Academic research institutions

Policies, statements and guidelines

56 universities were included in this study and 2 national aggregate organisations. 33 out of 56 universities have implemented OA policies regarding research publications. Some of these policies specifically included other types of research output, applying the policy equally to books and book chapters (6) conference papers (8) theses (13) and non-traditional outputs (6). 8 universities had policies pertaining to research data. Only 1 university offered an institutional

policy on the broader area of open science/research/scholarship. 7 universities mentioned access to Indigenous outputs in their publications policy, and 1 explicitly stated support for Indigenous data sovereignty in their OA data policy.

By contrast only 3 universities had position statements on OA publishing, 2 on open data, 4 on open science/research/scholarship and no stated position on any of the other categories.

44 of the universities offered detailed guidelines on OA publishing, but only 3 included information on how to make books and book chapters, or conference papers openly available, 9 described how to make theses OA, and 1 mentioned NTROs. 18 universities had guidelines on open data, and 6 explained open science/research/scholarship.

Repositories

51 of 56 universities had repositories for research publications. The institutions that did not were 2 military academies, 2 health colleges and 1 polytechnic grouped with the universities by SCImago/COKI. 49 of these repositories also explicitly housed theses. Universities also collected grey literature (32), non-traditional research output (38), reports (35), and books and book chapters (39) in their repositories. 32 of the universities surveyed had data repositories, either as part of their institutional repository, or as a separate entity, or, in a small number of cases, utilised an external facility such as Figshare to collect and make their data accessible.

Publishing

31 universities published at least one open journal and 24 of these curated a single access point to more than one journal, which was defined as an open journal collection. 13 practised the open publishing of monographs. (This study did not include the use of Pressbooks - see Scope.)

Health research active institutions

Policies, statements and guidelines

Only 1 of the 52 health research institutions included had policies on OA publications that were discoverable through a reasonable examination of their websites. There were no policies on any of the other categories and none had position statements of any description. 3 health institutions had guidelines on OA publishing and 3 had guidelines on open data. There were no policies, statements or guidelines referring to open science/research/scholarship. There was no identifiable recognition of access issues around Indigenous research or data.

Repositories

13 of the health research institutions reviewed had repositories. 1 included theses in their repository, 3 grey literature, 2 reports, 2 books and book chapters and 4 data.

Publishing

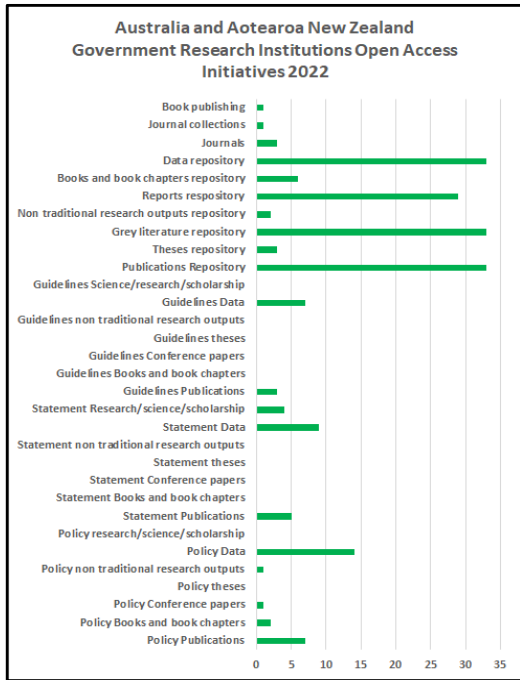
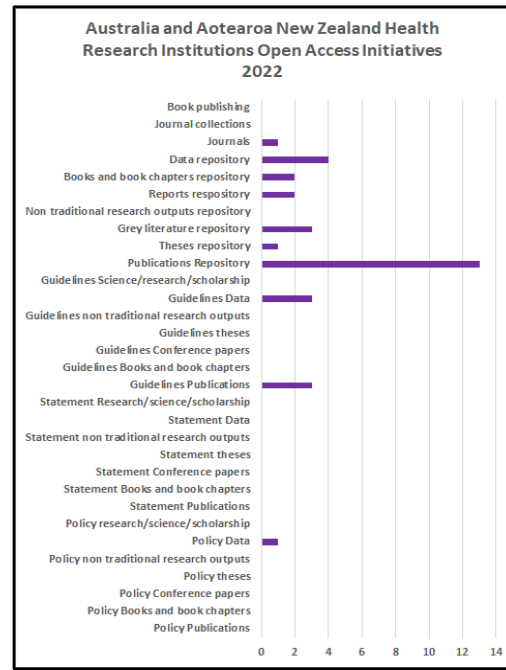
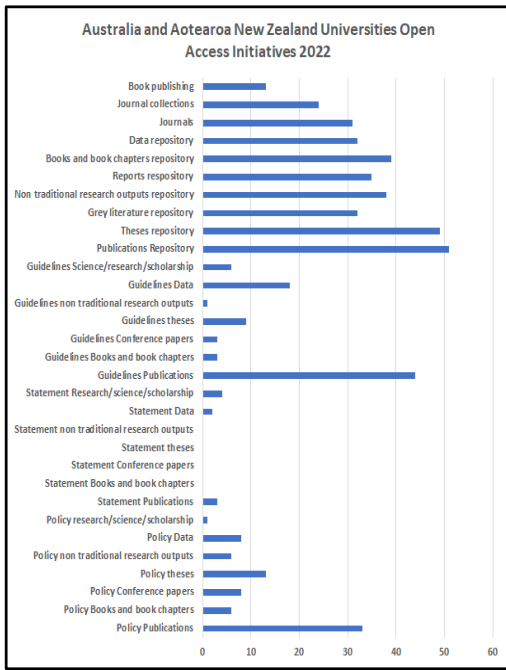
1 of the health research active institutions examined published an open journal. None published monographs.

Government research active institutions

Policies, statements and guidelines

Of the 51 government research institutions investigated 7 had policies on OA publishing. 2 included books and book chapters in those policies, and 1 conference papers and 1 non-traditional research outputs. 14 either included data explicitly in their OA policy or had a separate policy on open data. None had a policy on open science/research/scholarship. 5 institutions in this sector had official statements on OA publishing, and 9 had such statements about open data. 4 had statements describing their position on open science/research/scholarship. 1 government organisation acknowledged access requirements around indigenous research output; none of the data policies did so.

Figure 3: Australia and Aotearoa New Zealand open access initiatives by institution type in 2022. Please note that the x axis on these charts are different scales so they are not directly comparable.



Enlarged Figure 3

Repositories

33 of the 51 government research institutions had an OA publications repository, 3 including theses, 33 including grey literature, 2 NTRs, 29 reports and 6 books and book chapters. 33 of the institutions had data repositories; all data was open to the public without restriction.

Publishing

3 of the government institutions published at least 1 open journal and 1 curated a journal collection. 1 practised open book publishing.

Non-profit institutions

Policies, statements and guidelines

Of the 28 non-profit research active institutions examined, 4 had an OA policy on publications, 1 on open data and 1 on open science/research/scholarship. 6 had official position statements on OA publishing, 4 on open data and 5 on open science/research/scholarship. 1 institution referred to access to Indigenous research outputs in their policy.

Repositories

6 of these non-profit institutions had repositories for their publications, and 7 collected grey literature and made it available. 1 included non-traditional research outputs in their repository, 6 collected reports, 2 book and book chapters and 3 data.

Publishing

5 of the non-profit institutions published at least 1 open journal and 1 curated a journal collection. None published monographs.

Rates of open access output

Are OA initiatives associated with rates of openly available outputs?

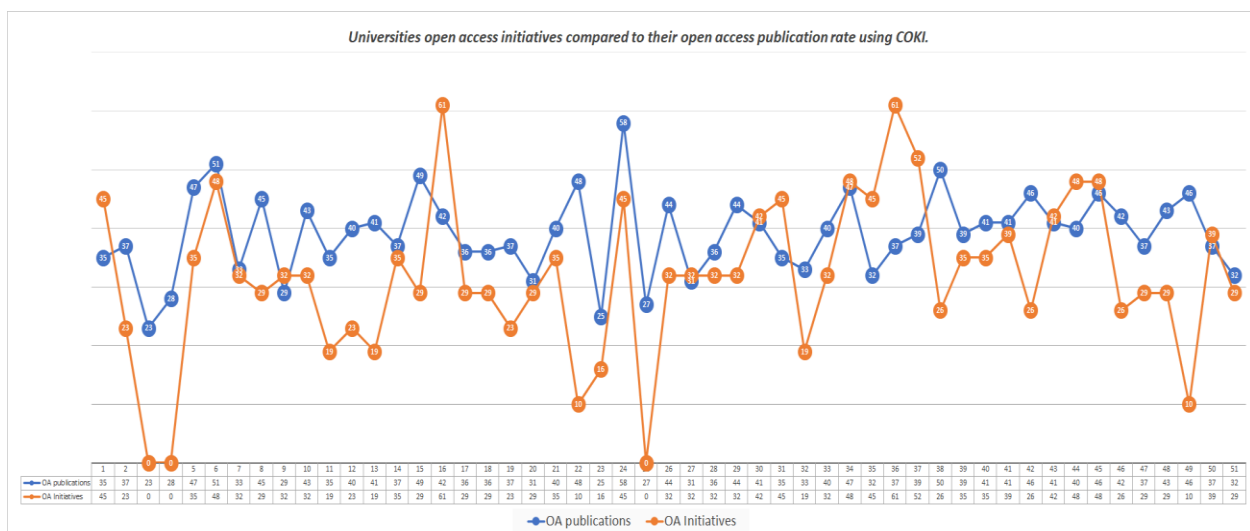
The COKI Open Access Dashboard was used to collect the percentage of OA publications by the institutions included in this study. COKI OA publication rates are averaged across 2000 to 2021, dividing number of OA outputs by total outputs by institution, updating on a weekly basis. COKI rates of OA include outputs shared through repositories, as preprints and via other internet avenues as well as those published in journals. These percentages are here plotted against the number of OA initiatives discovered for each organisation, as presented above in Figure 3. The number of OA initiatives were converted to a percentage of 31 which was the total number of

categories collected in this study, and then plotted against the percentage of open research outputs taken from COKI.

There were several institutions reviewed in this study that did not have corresponding COKI data on OA publication, particularly in the government and non-profit sectors, and therefore are not included in the results. OA initiatives collected for each institution cannot be regarded as definitive, but rather consist of those that were publicly discoverable in a reasonable search performed in a reasonable amount of time on the institution’s website. The results should therefore be viewed as representative rather than comprehensive. No extenuating context at an institutional level is considered and no formal statistical analysis was performed on the data. Nevertheless, the results presented below by institution type in figures 4 - 7 can provide insight, principally that the number of OA initiatives undertaken by an institution does not appear to be associated with the percentage of OA publishing evidenced by that institution.

Institutions have been anonymised and are represented by a number running along the x axis. Y axis values for each institution are plotted along the data line as percentages. It can be observed that overall, there is no clear relationship between the number of OA initiatives and the number of OA publications, and each sector displays a differing correspondence. It seems apparent that even a very low institutional practice of OA is not associated with a lack of OA publishing at that institution. Similarly, a high engagement with OA practice at the institutional level does not seem to predict an overall greater rate of OA output.

Figure 4: Universities open access initiatives compared to their open access publication rate using COKI.

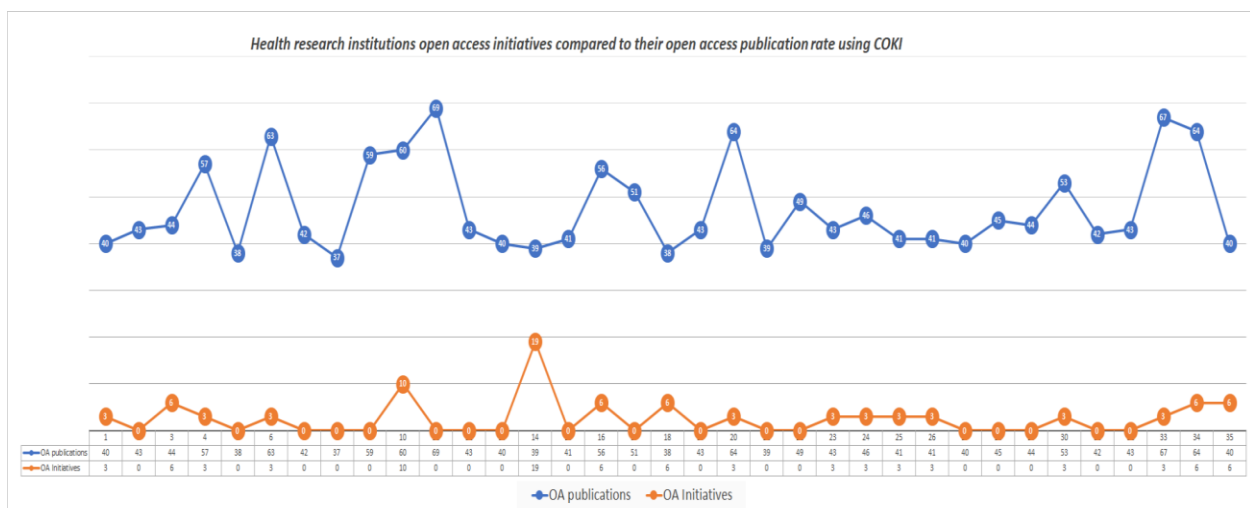


Enlarged Figure 4

The lowest percentages of OA publications from COKI, 20-30%, correspond to those universities with the lowest percentage of initiatives in the selection, between 0% and 29%. Similarly, those in the middle range, achieving OA publishing of 35% to 45% according to COKI, tend to have OA initiatives in the 30% to 40% range. There are some striking anomalies, however: the two universities demonstrating the highest percentage of OA initiatives recorded at 61% apiece, are only publishing the same percentage of open outputs as mid-range universities, 42% and 37% respectively. Where it might be surmised that the more OA policies and projects undertaken the greater the percentage of OA publications, the relationship is clearly not that simple. Similarly, 3 universities with no discoverable OA practices at all are still publishing approximately a quarter of their outputs in open venues. Another striking example of the lack of a predictable relationship is university “22” achieving almost half of their publishing as open (48%) while only undertaking a small amount of OA practice (10%) as an institution.

Overall, it is of note that the highest rate of open publishing by any university is 58% (this including repository, preprint and other internet availability in addition to journal publishing). The average percentage of open publishing for universities across ANZ according to the COKI data is 39%. This is broadly in line with studies that have found Australia’s university OA publications to be below the world median of 43%²⁰ and OA percentages in Aotearoa New Zealand to be 48% in 2021¹¹ (given that totals are averaged.) The average number of OA practices as defined by the categories of this study is observed to be 9.8.

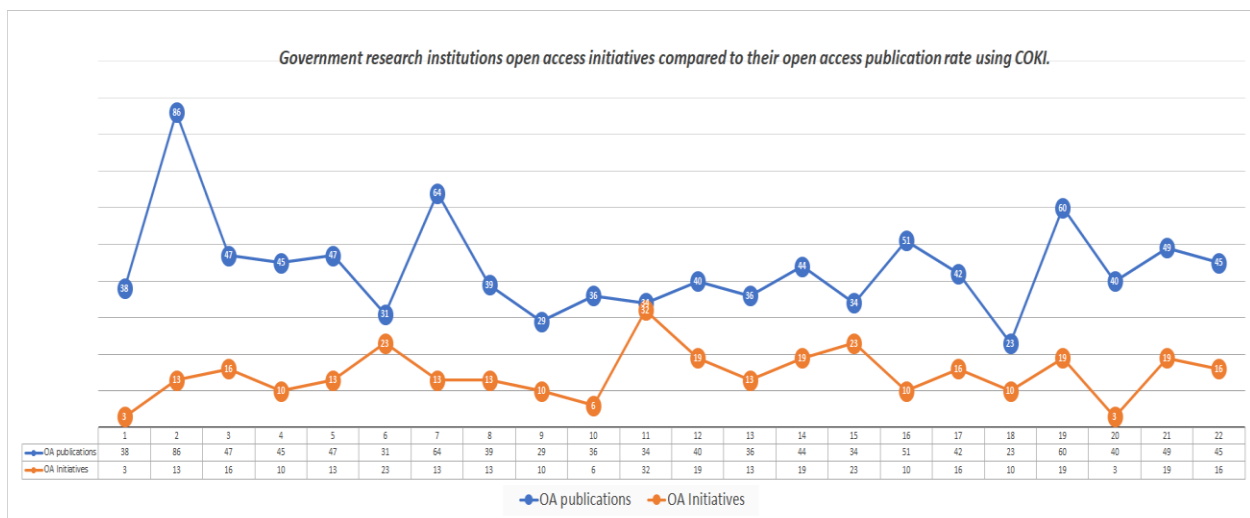
Figure 5: Health research institutions open access initiatives compared to their open access publication rate using COKI.



Enlarged Figure 5

Health research active institutions demonstrate the lowest engagement with OA of the sectors under review. Yet this does not seem to have impacted their OA publishing, which, ranging between 30-69%, not only equals the mid-range percentage of the universities, but both surpasses the top percentage (at 69% versus 58%) and exceeds the lowest range, not falling below 31%, (compared to 23% as the lowest for the universities.) The average percentage of open publishing for health research active institutions across ANZ according to the COKI data is 47.5%, considerably more than the universities. The average number of OA practices as defined by the categories of this study is observed to be only 0.8, considerably less.

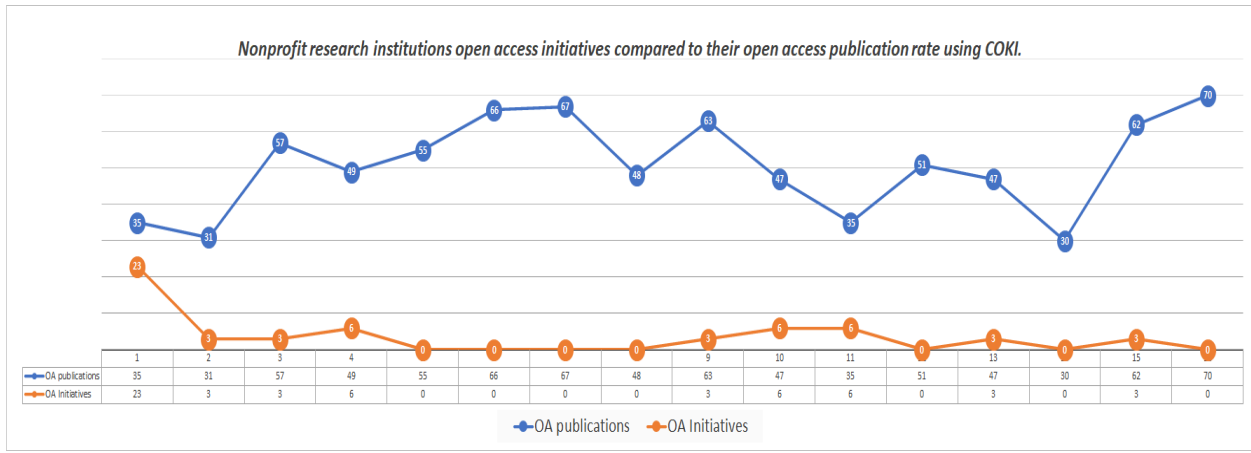
Figure 6: Government research institutions open access initiatives compared to their open access publication rate using COKI.



Enlarged Figure 6

Government research active institutions tell a similar story to health, in that the amount of open publishing achieved significantly surpasses open practices at the institutional level: institution “1” with only 3% of documented open practices (the lowest of the range) still demonstrated 38% open publishing; institution “6” with 23% open practices (one of the highest) displays fewer open publications at 31%. The highest percentage of OA publishing of any institution in this study is in this sector at 86%; interestingly, this institution only has 13% discoverable OA initiatives. The average percentage of open publishing for government research active institutions across ANZ according to the COKI data is 43.6%. The average number of OA practices as defined by the categories of this study is observed to be 4.5.

Figure 7: Non-profit research institutions open access initiatives compared to their open access publication rate using COKI.



[Enlarged Figure 7](#)

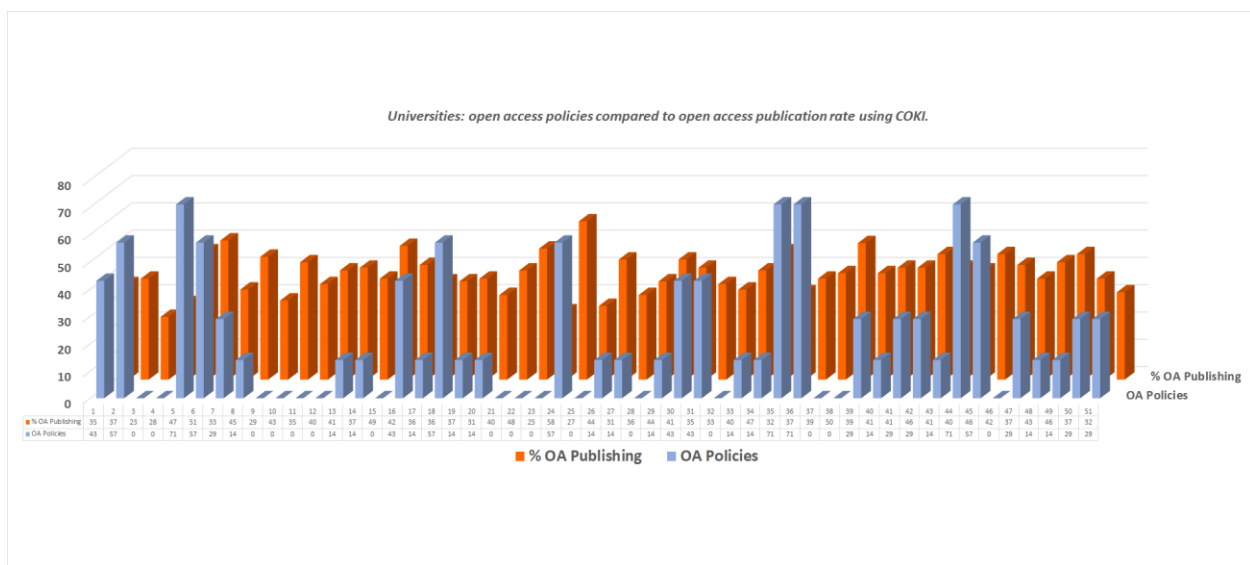
Non-profit research active institutions also show low engagement with OA, only slightly greater than health, yet they also demonstrate a healthy amount of open publishing. The lowest percentage of OA publishing is still 30% which is greater than the lowest of the universities or the government institutions, and the highest achieves 70%, also surpassing the universities. Interestingly the 70% is demonstrated by an institution with no apparent OA practice or formal commitment; similarly, the institution with the highest percentage of OA initiatives at 23% only publishes 35% of its output in open journals, showing once again that there is no clear association between the practice of OA as an institution and the average OA publication rate. The average percentage of open publishing for non-profit research active institutions across ANZ according to the COKI data is 50.8%, the highest average across the sectors. The average number of OA practices as defined by the categories of this study is observed to be 1.1, again, considerably lower than might be expected.

To further interrogate any possible correlation between OA initiatives and rates of OA publications more granular data was plotted for the universities. Each university’s OA policies and repositories were compared to average percentage rates of open publications. Since universities had the highest rate of OA engagement if open initiatives can be taken as a proxy, it seemed useful to explore further any association with rates of OA publishing.

Figure 8 shows university OA policies correlated with publication data. The total number of OA policies discovered on each university website was calculated and rendered as a percentage of 7, the total number of types of policy researched. Where a single OA policy covered more than one category - for example theses, book chapters and journal articles - each was scored.

Again, no clear association was evident. Universities with the most comprehensive set of institutional OA policies do not show the greatest rate of open publishing, with the notable exception of institution “24” where a significant investment in OA policies is matched by 58% open publications, the highest rate in our sample. The 16 universities with no discoverable OA policies have an open publication rate from the low 20s to high 40s percentage range. Institution “28” with no OA policy is publishing 50% of their output open.

Figure 8: Universities: Open access policies compared to open access publication rate using COKI.



Enlarged Figure 8

Figure 9 shows university repositories correlated with COKI publication percentage rates. Repositories were investigated for the type of research outputs they collected with a total of 7 possible categories of output, including articles, theses, grey literature, NTRs, reports, books and data. Totals were therefore calculated as a percentage of 7. Some institutions include data in their main repository and others maintain a separate holding for data: both were counted as having a data repository.

Figure 9: Universities: Repositories compared to open access publication rate using COKI.



[Enlarged Figure 9](#)

Again, there is no clear association correlating repositories to OA rate of publication. 20 of the universities have repositories that house all 7 of the research output types, showing comprehensive commitment, but their rate of open publication does not appear to be increased as a result. The 3 institutions without repositories of any description are publishing over a quarter of their output open, in a context where the highest open publication rate is only 58%.

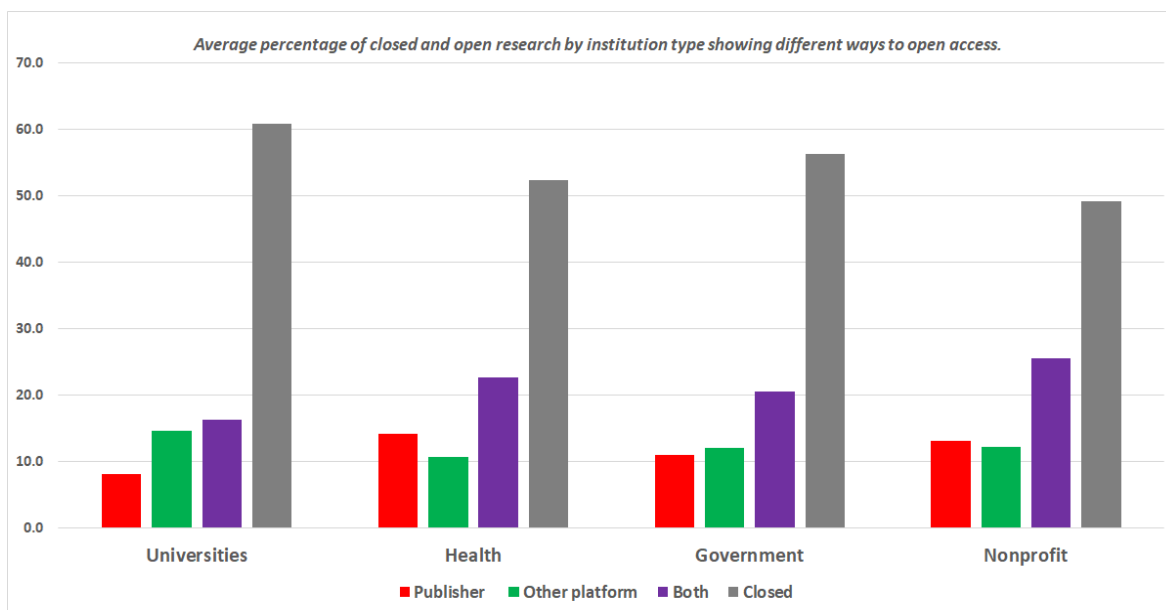
Different ways to OA

Institutional level data from COKI allows an investigation of the various paths taken to OA and their relative importance. Table 3 and Figure 10 show the average percentage of closed research outputs by institution type contrasted with research made open by publishers, by “other platforms” and by the combination of both. The category of ‘publisher’ encompasses all open journal types, hybrid journals, and those with no formal commitment to maintaining open access status into the future. “Other platforms” refers to any other path that opens access to research output, including repositories, preprints and free to the public internet sites like blogs, academic social networks (ASNs) and unknown sources. Again, percentages are averaged across 2000 to 2021 and do not therefore make manifest recent trends. Collected by institution, percentages for open via publisher, via ‘other platform’, by both and closed were then averaged across each sector.

Table 3: Average percentage of closed and open research by institution type showing different ways to open access.

	Open by Publisher	Open by Other platform	Open by Both	Closed
Universities	8.2%	14.6%	16.3%	60.9%
Health	14.2%	10.8%	22.6%	52.4%
Government	11.0%	12.0%	20.6%	56.4%
non-profit	13.1%	12.2%	25.6%	49.1%

Figure 10: Average percentage of closed and open research by institution type showing differing ways to open access.



[Enlarged Figure 10](#)

Average percentages of closed research are high across all sectors, with the universities having the most at an average of 60.9% and the non-profits included in this study having the least at 49.1%. Universities and government on average have utilised other platforms (repositories, preprints etc) more than publishers to achieve open access, though the difference is more

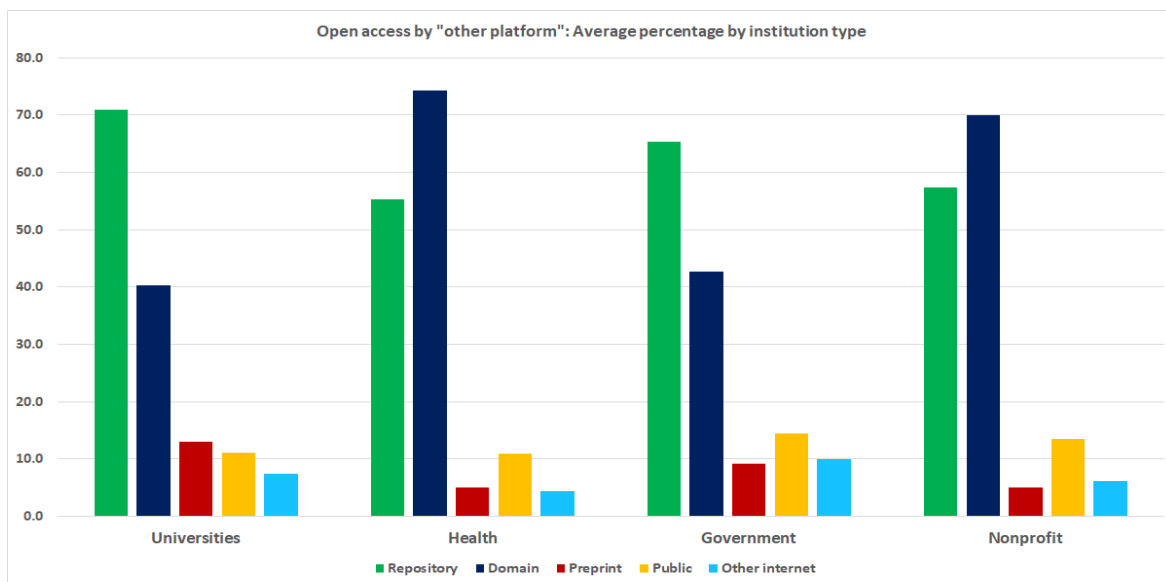
pronounced in the university sector (other platform 14.6%; publisher 8.2% on average) than government (12% and 11% respectively) By contrast the health and non-profit sectors favour the publisher path to open, though the difference for the non-profit institutions is marginal (12.2% other platform compared to 13.1% publisher) with health having a clearer difference (10.8% compared to 14.2% respectively.) The other three sectors all have higher average publisher rates than the universities, who show an average of only 8.2%. All sectors show a substantial average overlap where outputs are made accessible both through publishers and through other means simultaneously. This overlap makes conclusive statements about the most prevalent paths to OA difficult, since it is impossible to disambiguate.

‘Other platform’ data can be further interrogated for a finer grained analysis of the ways in which research is being made accessible other than by publishers. Following COI, repositories are split into 3 types in this analysis, institutional, domain (subject specific such as PMC) public (multidisciplinary, open to all, such as Zenodo), with preprints and ‘other internet’ accounting for the remaining open outputs. ‘Other internet’ here refers to research shared on professional profiles, ASNs like ResearchGate, personal websites, blogs, or otherwise unidentified places. Again, percentages are averaged over 20 years and do not reflect recent trends.

Table 4: Open access by "other platform": Average percentage by institution type

	Institutional Repository	Domain Repository	Public repository	Preprint	Other Internet
Universities	70.9%	40.2%	11.1%	13.0%	7.4%
Health	55.2%	74.2%	11.0%	4.9%	4.3%
Government	65.4%	42.7%	14.5%	9.1%	10.0%
non-profit	57.3%	69.9%	13.5%	5.0%	6.2%

Figure 11: Open access by "other platform": Average percentage by institution type



[Enlarged Figure 11](#)

Remembering that a substantial proportion of open outputs from all the research active institutions in this study are made available through other platforms rather than (or in addition to) publisher journals, Figure 11 surfaces some interesting insights across sectors. Universities and government rely mostly on institutional repositories here (70.9% and 65.4% respectively) and commit substantially less to domain repositories (40.2% and 42.7% respectively.) By contrast health and non-profits use domain repositories significantly more than their own, health especially with 74.2% of their research open by that path. Public repositories are used much less but comparably across the sectors with 11% to 14.5% of output being shared in that way, with government institutions leading. Preprints seem underutilised by all sectors, with universities availing themselves of this avenue the most at 13% and health, somewhat surprisingly, the least at 4.9%. Other internet sources account for the least used at 10% or less, although for the non-profit sector this pathway slightly exceeds preprints (6.2% compared to 5%.) Considering these sites are the least sustainable and reliable way to make research accessible 10% is still a significant amount.

Support for external open access initiatives

In addition to institutional initiatives, another indicator of OA engagement, commitment and momentum is ANZ support for the broader, global OA movement in all its permutations. OAA member survey responses regarding support for external OA initiatives formed the basis of a wider investigation into ANZ university backing for international OA ventures.

The OAA member survey asked about support for the following external OA initiatives:

- arXiv
- Centre for Open Science COS
- Confederation of Open Access Repositories COAR
- Creative Commons CC
- Curtin Open Knowledge Initiative COKI
- Declaration on Research Assessment DORA
- Directory of OA Journals DOAJ
- Global Sustainability Coalition for Open Science Services SCOSS
- Invest in Open Infrastructure IOI
- Knowledge Unlatched KU
- Open Library of Humanities OLH
- SciPost
- Sponsoring Consortium for OA Publishing in Particle Physics SCOAP3
- Unsub

In responding, members commented that they also supported the following additional external OA initiatives:

- Open Journal Systems/Public Knowledge Project OJS/PKP
- MIT Press Direct to Open D2O
- Australian Literature Resource AustLII
- Pressbooks
- Open Book Publishers
- Open Citations
- DRYAD
- Open Access Scholarly Publications Association OASPA
- Connecting Repositories CORE

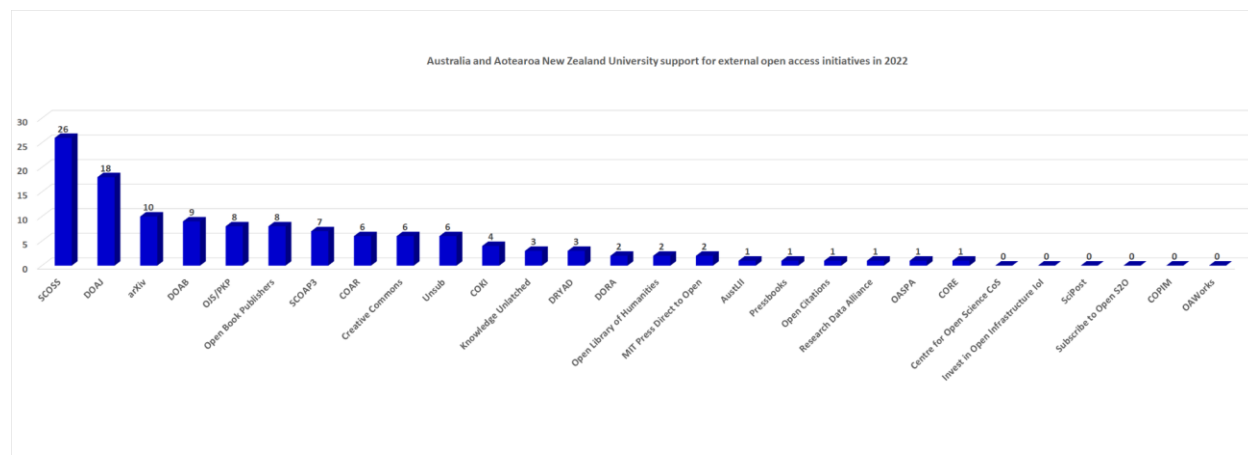
Additional external OA initiatives were included after consultation with the Group of Practitioners:

- Subscribe to Open S2O
- Community-led Open Publishing Infrastructure for Monographs COPIM
- OAWorks
- Directory of Open Access Books DOAB

The websites of these organisations were examined for membership or backing by ANZ universities. Some of the websites did not provide that information; where they did it was added to the survey data presented in Figure 12. Support was either direct or via another

membership such as the Council of Australian University Librarians (CAUL) or the Council of New Zealand University Librarians (CONZUL)

Figure 12: Australia and Aotearoa New Zealand University support for external open access initiatives in 2022



[Enlarged Figure 12](#)

The Global Sustainability Coalition for Open Science Services (SCOSS) is supported by most universities (26) facilitated through CAUL, to which most Australian universities belong. The Directory of Open Access Journals (DOAJ), the second most supported initiative (18) can be sponsored via SCOSS. Although arXiv and Directory of Open Access Books (DOAB) show some support with 10 and 9 universities contributing, support for the other initiatives is surprisingly low with 8 to 0 institutions participating. Initiatives such as AusLII, Pressbooks and CORE, utilised by many ANZ universities, seem to have only one individual university membership apiece, and others, like Centre for Open Science (COS) Subscribe to Open (S2O) and OAWorks appear to have none.

Discussion

The data presented is intended to be descriptive and representative, not comprehensive or conclusive, and is time specific. Yet some discussion points can be drawn out that provide insight into current OA practice across the university, government, health and non-profit sectors in ANZ. Major findings are described below in three sections - those arising from the examination of OA initiatives at the institutional level; insights that can be drawn from the comparison of these initiatives to OA output using data from COKI; and an initial picture of ANZ institutional support for external initiatives.

Major findings of this study

Open access initiatives

1. Across Australia and Aotearoa New Zealand in 2022 open access engagement and uptake at an institutional level is highest in the university and government research active sectors, and lowest in the health and non-profit research active sectors.
2. Across all sectors there is an almost complete lack of publicly available statements on open access, open data and open science, and fewer policies than expected.
3. Across all sectors awareness and understanding of the unique issues involved with Indigenous research and data is almost entirely absent in policies on OA and open data.
4. Almost all universities are using repositories, and more than half of government research active institutions also employ them, though health and non-profits show much less use.
5. Open publishing by these research active institutions is less than expected.

1. That universities are engaging the most with OA through direct initiatives on the part of each institution is to be expected. Universities, traditionally driven by a commitment to the dissemination of knowledge and the advancement of research, also have academic libraries spearheading a self-conscious effort to change practice and culture through spreading awareness of the benefits of OA to researchers and administration alike. Academic libraries are networked nationally and internationally and serve as a conduit of information about the global movement towards OA. Many of the OA initiatives examined were introduced and overseen by the university library, as evidenced by the LibGuide format that much of the supporting documentation takes. Libraries write the guidelines, coordinate and maintain the repositories, and undertake outreach activities around the benefits of OA journals, open licences, and open data. They encourage compliance with university policies on submitting outputs to the repository.

Despite the best efforts of libraries and other OA advocates, for universities there is at present a fundamental tension between traditional ideals of open scholarship, collaboration and inclusion and the present commodification of research in practice which has become embedded as a cultural norm in the last few decades^{12,30}. Recent work has highlighted the

essential exclusivity of current university research practice^{19,21,26}. Uptake of OA initiatives in and of itself does not automatically lead to a needed culture change towards openness in the wider sense of inclusivity and diversity espoused by the global Open Science movement²⁶. A self-reflexive, centralised, coherent and coordinated strategy for future OA direction on the part of universities could enable this solid foundation of initiatives already established to support real change, not just in terms of accessibility to research, but also to promote an open, more diverse, more inclusive culture³⁰. Retaining and expanding bibliodiversity can only assist in such a transition.

Government institutions approach OA with a different set of priorities, motivated by a desire to ensure that the results of publicly funded research are widely available and accessible to all. OA is a way to promote transparency, accountability, and public engagement with research. Their narrative around OA is determined by different criteria than that of the universities and yet their mandate to embrace public access to outputs - and to engage the public in the use of data - seems unequivocal. The New Zealand government has had comprehensive principles and policies on OA and open data since 2010 expressed in the New Zealand Government Open Access and Licensing framework (NZGOAL)³⁹. The Australian government released a Declaration of Open Government in 2010⁴⁰ and committed to the use of Creative Commons licences for government agency data and reports. Although Australia has no central policy akin to NZGOAL presently (there previously was AusGOAL), the national government and most of the state and territory governments have constructed open data hubs in the last few years, including content such as metadata, code and analytical tools in addition to research data. The Australian Research Data Commons (ARDC) supports a national approach to research data in Australia. The governments of both countries show more than a decade of engagement with the concept and practice of OA. Therefore, it is perhaps not surprising that government backed research active institutions show the second greatest engagement, particularly through the use of repositories for making outputs and especially data accessible.

However, it also needs to be noted that government research active institutions are not homogenous. The government sector is made up of two distinct types of institution - one dedicated to research akin to the Academy, and the other focusing on collecting data for the purposes of effective governing. For the former, reasons to publish OA will be akin to motivations for universities or health around ideals of open knowledge and the practical benefits of sharing research. For the latter, OA may be motivated by political reasons of transparency and accountability. Ensuring consistency of approach to OA across varying cultures, incentives and motivations is a challenge within this sector, but a shared understanding of priorities and values could assist.

It is perhaps more surprising that the health sector does not appear to manifest more OA initiatives at the institutional level. The high public interest in health and medicine, the importance of ensuring that health information is widely available and accessible, and the recognition that health research often has immediate and significant implications for public health and patient care, all seem to suggest that health research active institutions would set a premium on adopting OA initiatives. Motivated by the goal of advancing medical knowledge and improving patient care, OA could be used to increase the visibility, impact, and accessibility of health research, within the boundaries of patient privacy. Yet policies, guidelines, repositories and publishing endeavours at the institutional level seem lower than expected. However, as will be discussed further below, engagement with OA on the part of health institutions manifests itself in open research output, irrespective of the number of institutional initiatives, particularly through domain repositories like PMC which harvest research automatically²⁰. As an early adopter of OA journals for publishing research, health institutions have a culture and practice already in place that does not require many initiatives at the institutional level. It is also impossible to know from the scope of this study, how much open policy, guidelines and infrastructure are utilised by health from the universities and government institutions with which so many are aligned. Nonetheless, coherency and consistency across the sector will need to be addressed to ensure compliance with stricter mandates about accessibility from funders like NHMRC. Focusing on institutional repositories may be a solution that allows for greater compliance and supports bibliodiversity.

Non-profit research active institutions also have low engagement with OA if institutional initiatives can be taken as a proxy. Non-profits are often focused on a specialised mission, concerned with advancing research in a specific field or addressing a particular social issue, and may have little awareness of OA developments. Many of the types of OA initiatives included in this study may not be relevant to their priorities and practice. In terms of advocacy by organisations like OAA these institutions are hard to reach. Like health, however, a lower number of institutional initiatives is not associated with a lack of OA research output: on average 50% of the research output of these institutions was open. This may reflect the health focus of many of the non-profits that were included in this study, leading to the same culture and practice as the health sector described above. Non-profits also show considerable overlap with government institutions and may be influenced by their OA legacy. Operating in multiple sectors and difficult to categorise, certainly this sector is the hardest to assess and consequently the least understood in this study. A single centralised cross-sector approach that provided repository infrastructure and promoted diverse paths to OA would provide a foundation on which to solidify non-profits OA practice into the future.

2. The lack of publicly available statements on open access, open data and open science across all the sectors is conspicuous: of the 187 institutions examined for this study, only 25 had statements on OA, 26 on open data and 22 on open science/research. Even those with strong policies and guidelines and who were active in practice, did not have discoverable statements of the institutional position, values and ethos in regard to open information.

Likewise, only 43 of the 187 institutions investigated had a discoverable policy on open access. Only 24 have specific policies on open data. Only 2 have policies on open science. Considering the rising trend in OA publications over recent years in ANZ^{10,11,38} and internationally^{16,20} this deficit by research active institutions is unexpected.

Why is this the case? Research institutions often have value and mission statements in addition to policies and strategic direction documents publicly available on their websites. Yet comparatively few have accessible statements or institution specific policies on OA. Does this indicate a lack of awareness or priority on the part of the senior administration of these institutions? A formal statement of position on OA would seem to be a clear and useful foundation from which to build other initiatives, and a way to centre principles of OA in relation to practice. In the light of recent funder mandates such as those issued already by NHMRC and MBIE, stipulating that publicly funded research be made open, it seems likely that institutions will need to consider their public position. Wakeling et al, in their recent study of OA policies in Australian universities, found that inconsistent language, unclear purpose and requirements for staff and lack of incentives or monitoring for compliance were common, and recommend a more integrated and cohesive approach¹⁷.

3. Only 7 universities, 1 government and 1 non-profit research institution made any mention of considerations around access to Indigenous research in their OA policies, and only 1 university addressed this in their policy on open data. It is possible that some institution's older policies are in the process of being updated, and that guidelines around Indigenous content may occur in policies addressing researcher responsibilities (for example, referencing the Code of Ethics for Aboriginal and Torres Strait Islander Research⁴¹.) Yet there remains an egregious lack of awareness about a fundamental issue that cannot be separated from OA and must qualify its unthinking use.

The principle of free prior and informed consent with regard to data collection was set out in the United Nations Declaration of the Rights of Indigenous Peoples 2007⁴² (notably, both Australia and New Zealand voted against at the time and did not sign on until years later.) This principle has been extended to the ownership, control and governance of Indigenous data since 2016 in the Indigenous Data Sovereignty (IND-SOV) and the Indigenous Data Governance (IND-

GOV) movements⁴³. The UNESCO Recommendation on Open Science explicitly recognises the need for justified restrictions around accessibility for Indigenous Knowledge. Specifically for data the CARE principles (collective benefit, authority to control, responsibility, ethics) have been developed as a framework for correct ownership and custodianship of Indigenous data⁴⁴⁻⁴⁶. Internationally, there are now systematic reviews on the governance of Indigenous health data⁴⁷, institutional policies are being examined for adherence to local stipulations over Indigenous data⁴⁸ and specific procedures for collaboration with community and recognition of Indigenous control of genomic data are being proposed⁴⁹.

In ANZ, universities, health and government research institutions are responsible for massive collections of health and social research data and must recognise in their policies and embed in their practices the need to be sensitive to differing requirements for Indigenous content. A national approach to OA on the part of Australia and New Zealand could ensure this essential element by central directive. The impetus to do so becomes more acute as research funders increasingly mandate research outputs be made immediately accessible. Provisions that guarantee Indigenous data sovereignty and governance must be solidly embedded in a central policy rather than inconsistently addressed by individual institutions.

4. The widespread use of repositories amongst the universities is expected: the only institutions that do not have them have different priorities (military academies) or in one case has very recent university status. Most of these university repositories are collecting multiple kinds of research output including theses, data and NTROs. Government research active institutions also have a significant number of repositories and collect data and grey literature equally with their journal publications. Universities and government organisations again are similar here compared to the other 2 sectors, relying more on repositories as a route to OA than on publisher journals. Health and non-profit research active institutions are much less likely to have invested in their own repository and instead rely on domain repositories like PMC to make their outputs available.

‘Repository’ has been defined loosely here to include institutions other than universities that are seeking to preserve and share their research without reliable infrastructure. It is notable that institutions without local repositories often collect and curate their publications online for public access. There were so many examples of this that a wider definition of repository was employed for the purposes of this study. Although this approach to opening research outputs carries with it less consistency and quality of metadata and uncertainty of future access, it demonstrates a commitment to making research free and available. It will be increasingly difficult for institutions without formal repositories to maintain this approach, however, if they are to comply with funder mandates for immediate access to publicly financed research.

Lacking robust digital preservation and discovery infrastructure, this method will not be suitable or sustainable and highlights the need for repository infrastructure.

In the light of commercial publishers currently positioning themselves to hold a monopoly on ways to open research outputs^{12,15} maintaining and extending the repository as an alternative avenue, and as one that recognises diverse research formats, seems essential. Existing infrastructure could be extended by universities and government research institutions to other sectors, starting with existing cross-sector relationships: indeed, it could not be ascertained in this study how many were utilising repositories from other institutions via authorship arrangements. The enormous amount of work and resources that is currently duplicated across institutions in running and maintaining individual repositories can be called into question, however, particularly considering that many institutional repositories require updated infrastructure²⁹ There is potential for consolidation if a central approach to repositories was adopted on a national level²⁷.

5. Open publishing of books and journals by institutions represents another way to make research accessible. 40 research institutions were found to publish at least one open journal, the vast majority of these coming from the universities; only 14 were found to publish open monographs, 13 of these were universities. Only the universities of the institutions explored in this study demonstrated significant engagement with this approach, and that was less than expected. Infrastructure does exist to support this alternative path, such as Open Journal Systems (OJS)³⁴ and the Directory of Open Books (DOAB).⁵⁰ This path to OA is likely underutilised because it is one of the most resource intensive forms of OA engagement requiring the most buy-in from researchers and leadership. In a university research culture that emphasises publishing in journals based on their impact factor there is currently a lack of incentive. Yet the widespread adoption of the newly established open publishing platform Pressbooks by universities for the creation of teaching and learning materials indicates what can be achieved with institutional buy-in and support. (Note that Pressbooks was excluded from this study as most universities are using this platform to create teaching and learning materials at present, deemed beyond the scope of this project.) A centralised and consistent approach to open publishing that supported existing reliable and open platforms would take the onus off individual institutions to manage their own efforts in isolation.

Comparing OA initiatives with open output rates using COKI.

The COKI Open Access Dashboard tracks the diverse variety of ways that research outputs are made accessible. COKI institutional OA rates are aggregated from several platforms including repositories, preprint servers, and other internet locations in addition to commercial and open

journal publishers. Data is continuously extracted from Crossref, Unpaywall, MAG/OpenAlex and ROR: the data presented here reflects totals from November 2022 to January 2023. COKI breaks down publisher OA output into journal type but also offers granular data for 'other platform' OA - repositories are broken down into institutional, domain and public for example. OA tracking sources such as Elsevier's SciVal⁵¹ also collects data about repositories and preprint servers but does not allow further interrogation of these other ways to make research available. COKI makes visible diverse ways to make outputs accessible and emphasises that research is often made open in more than one way simultaneously. COKI, moreover, curates data relating to a broader range of institutions than SciVal which pulls from the database Scopus.

The COKI institutional OA rate averaged over the last 20 years (2000 to 2021.) was used for comparison: the scope of this project did not allow for a year-by-year analysis though such an approach would be able to surface specific trends. Such an analysis is recommended for future updating. The overall percentage for each institution therefore includes open output by publisher, and by 'other platform,' but is also weighted by being averaged across earlier years when OA was much less prevalent. Since in most cases there was no clear indication of when OA initiatives were introduced by an institution (policies were dated but other initiatives were not necessarily) it would in any case be difficult to know any specific year or range of years to use in a direct comparison.

Thus, in seeking to compare an institution's OA initiatives with their rate of openly accessible research outputs in this study it is not expected that an exact or a definitive relationship is presented, but rather that some interesting insights for further investigation can be raised.

1. The adoption of open access initiatives by individual research active institutions is not directly associated with open access output in any sector.
2. Universities, while clearly demonstrating the greatest commitment to OA in institutional practice and policy, manifest the lowest average rate of OA publishing across the four sectors studied.
3. Health, while clearly demonstrating the lowest commitment to OA in institutional practice and policy, manifests the highest average rate of OA publishing across the four sectors studied.
4. Research active institutions across all sectors are utilising diverse pathways to open access, making research accessible through non publisher routes such as repositories,

preprints and other internet sources rather than relying solely on traditional commercial journal publishers.

1. Across all 4 sectors, OA initiatives do not appear to be associated with rates of openly accessible output. (Figures 4-7.) Universities appear at first look to show the closest relationship, but examination at the individual institution level does not confirm this impression. A seeming paradox is revealed, where universities, with the greatest engagement with OA in terms of institutional initiatives manifest the lowest rate of OA outputs: similarly, health research active institutions with low institutional engagement are publishing a greater rate of open research. Government and non-profit research active institutions similarly do not demonstrate an association between their institutional OA initiatives and their rates of open output. Government institutions have differing motivations to publish their research OA and concentrate on the initiatives that allow them to meet these objectives most readily, i.e., open repositories for publicly available data. This goes some way to explaining their lower engagement rate at the institutional level compared to their published output. Mirroring health, non-profits have low engagement with OA as institutions but relatively high rates of OA outputs. Since half of the non-profit institutions included in this study were focused on improving health outcomes in different areas of medical research it is possible that these institutions are impacted by the same historical and cultural context as health, which is discussed below.

That the adoption of OA initiatives by individual research active institutions is not associated with increased OA output in any sector could indicate that external pressures exert more direct influence on open publishing than internal institutional initiatives. Recent examples would include global OA developments like the UNESCO Recommendation on Open Science⁵ and the US White House announcement requiring all publicly funded US research to be freely available by 2025⁵², regional government policies like NZGOAL³⁹, and updated funder mandates like those of NHMRC and MBIE requiring research financed by their grants to be publicly available^{13,53}. “General archiving” by external public repositories like PMC may also be responsible for increasing rates of OA without institutional or researcher agency²⁰. Arguably, there are also other historical and cultural factors that play a role in a sector’s research being open, some of which will be discussed now in relation to the university and health sectors.

2. Even the universities with the best record for OA publications over time according to data from COKI, are publishing a lower percentage of their output as open compared to their counterparts in health, government and non-profit. There are historical and cultural reasons why OA advocacy at the local level at universities is not translating easily through to increased OA output. There are many OA advocates at universities - particularly in libraries - who are

responsible for the creation, maintenance and promotion of OA initiatives and do tireless and continual work in this space. This explains why university engagement with OA in the form of initiatives is high.

Yet these advocates face formidable barriers resulting in OA output being lower than might be expected; these impediments have been explored extensively in the literature^{12,15,22,27}.

Universities with comprehensive OA policies, mandating open copies of outputs be deposited in the repository, have little way to monitor and enforce compliance. Current university culture and incentives are not aligned to embrace many of the paths to OA. There is a fundamental tension between the ideal of open knowledge dissemination and the current commodification of research evident in the current academic environment^{26,30}. Emphasis on researcher and journal impact factors (JIF) for promotion, funding and reputation often mitigates against the adoption of OA approaches. Already established researchers with the ability to pay the high article processing charges (APCs) levied by prestige journals can publish OA; those without these advantages cannot, unless they risk forsaking the JIF necessary to establish themselves^{19,54}. Publishing behaviour varies between disciplines and a resistant culture of some may lower the overall rate of OA²⁷. Awareness and understanding about OA can be lacking; some researchers fear potential loss of intellectual property rights and commercial opportunities if their research is made openly available. A small number of commercial publishers dominating the narrative present 'gold' OA through APCs as the only way to make research accessible, so that OA is seen as another financial burden, even though the majority of OA outputs are not published in 'gold' journals^{20,55}. The advent of transformative and 'read and publish' agreements have further muddied the waters for researchers who are already facing a complex and confusing OA landscape. 'Read and publish' is being pitched by commercial publishers and other parties as a solution to high APCs, further obscuring alternative ways to OA. OA advocates at universities are tied up explaining all these complexities to an increasingly overwhelmed Academy at the expense of promoting the alternatives. Consequently, university open outputs do not match expectations based on their institutional engagement with OA initiatives.

3. By contrast, health research has had something of a head start with OA historically, and publishing culture and behaviour is much more straightforward. The growth of open access in the health sciences has been driven by initiatives such as the Public Library of Science (PLOS)⁵⁶ which was founded in 2001 with the goal of making scientific and medical literature freely available to the public. In the US the National Institute of Health (NIH) Public Access Policy⁵³ mandated in 2004 that all research funded by the NIH be made freely accessible via PubMed Central (PMC.) which had been founded in 2000. Initiatives like these have established open as a cultural norm in health over the last 2 decades, as evidenced in the swift sharing of health

research in response to the Covid pandemic. As the COKI percentages show (table 4, figure 11) PMC and other domain repositories have been the avenue of choice for ANZ health research institutions. The major funder of health research in Australia, the NHMRC has had an OA policy since 2018, which was strengthened in 2022 by removing the 12-month grace period and stipulating the use of open licences³. Funder mandates in combination with an established history and culture of using OA journals and repositories may result in less impetus to develop OA initiatives at the institutional level. If the point of OA initiatives is to encourage and steward the transition to open publications, there is less need for this work if open research is already practiced. Health researchers have a clear mandate to use research to improve patient outcomes and a demonstrated understanding that sharing research can facilitate this aim, so incentive for OA is endemic.

4. It is clear from these results that publishing in journals, commercial or open, is not the only path to OA. All sectors are showing significant alternative practice- bibliodiversity. The pattern of this other practice seems to line up with the institutional culture and historical response to OA. Universities, originally encouraged and supported in establishing repositories, can utilise this existing infrastructure in the face of escalating APCs and institutional and funder mandates. Institutional repositories therefore remain the main path to OA. Some academic disciplines already embraced preprints and continue to do so, although preprint uptake across all the sectors is surprisingly low, perhaps related to a strong preference to share the final version (version of record) rather than the accepted across many disciplines. Similarly, government institutions have had the support and infrastructure provided to maintain and grow institutional repositories, along with sector commitment to transparency and mandates for practice, and so that path is prevalent. Health research institutions, by contrast, have had a greater proportion of OA journals and a culture where the open sharing of research is perhaps more normalised. Funding for clearly defined health research projects may allow for the inclusion of APC costs in the budget. Accordingly, they have invested less in institutional repositories and show greater output rates in publisher journals. Their repository of choice is of course PMC, and indeed archiving of research output is done by PMC, without any effort on the part of the researchers or institutions. The non-profits included in this study were health research oriented in the majority and followed a similar pattern.

Paths taken to OA are resource-driven and respond to local context, as has also been demonstrated on an international scale²². Maintaining this variety of paths - this bibliodiversity - is essential going forward as mandates increase. Obligated to make research open, researchers have the following options: to pay increasingly expensive APCs; to publish in journals included in read and publish agreements - which for some disciplines are limited; to publish in paywalled journals without any embargo - allowing immediate self-archiving, the

proportion of which is very low²⁵; or use an alternative route. Institutional and domain repositories are the obvious other way and supporting and extending this path is essential. Yet Figure 11 indicates that between 20 and 35 percent of research across all sectors was made open by public repositories like Zenodo, ASNs and other unknown internet sources, indicating that the impetus to follow additional routes is significant. Indeed, the continued use of ASNs like ResearchGate and Academic.edu - recently designated “grey” OA or “de facto repositories”⁵⁷ - indicates the desire of researchers to disseminate their work widely, but also shows the need for ease of use. Uploading a paper to an ASN takes seconds, whereas the process to submit to an institutional repository can be confusing and time intensive. Visibility, clarity and simplicity are likely to influence which path to OA is taken.

Support for external OA initiatives

Australia and Aotearoa New Zealand institutional support for global OA initiatives could be significantly increased, which would promote engagement with the international OA community and demonstrate commitment and momentum towards making research open in line with the UNESCO Recommendation on Open Science and in step with international advances.

The global open publishing ecosystem is underpinned by several key international initiatives, which range from those that span every discipline (DOAJ for open access journals) to ones that are very specialised (SCOAP3 for particle physics.) Notably most of the initiatives have a base or core leadership outside ANZ. This study assessed the level of support (by which we mean financial or other logistical or organisational support - e.g., through participation on committees or boards) for these initiatives, first through querying OAA members, and then through an iterative process of assessing the websites of the various initiatives and through internal discussions. We found that the level of ANZ support for external initiatives was strongest where there was a coordinated consortia approach - e.g., for SCOSS via the CAUL consortium. Other than that support was patchy and followed no obvious pattern. This lack of support may reflect logistical difficulties, for example time zones making meaningful participation difficult, low awareness or financial or other organisational constraints. This suggests that increasing ANZ support for external OA initiatives would be best facilitated through a central, consortia approach.

Limitations of the study

1. Types of OA initiatives:

Types of OA initiatives were selected a priori to match the work on directories maintained by Open Access Australasia. This was necessary to ensure that the work already performed by OAA was translated accurately into this project, forming the foundation from which to build. During data collection, however, it was found that there was not necessarily a direct fit between the aims of the original OAA Directories and the intentions of this project. Some of the initiatives included did not match the complexity and diversity of how institutions were engaging with OA. Others, while useful for universities and institutions that included a higher education component, were less so for other sectors. Types could not neatly be separated and treated discreetly; there was a great deal of overlap, and lines had to be blurred in assembling the analysis. Interrogating, adjusting, and adding types of open initiatives to this original set could yield a more nuanced picture of the open landscape that would better capture the existing heterogeneity. The definition of OA initiatives, for example, could be broadened to include outreach and promotion, incentivization, staff and workflow resourcing and system integration, though this type of information would not be discoverable on institutional websites and would require alternative methodology (see recommendations for future work).

2. Choice of institutions:

As already noted, the original set of research active institutions derived from SCImago ranking lists and from COKI captures only a representative sample across the region. Although the university sector coverage is close to comprehensive, that of the other three sectors is much less so. Institutions are often intimately connected. Universities host and collaborate with health research centres; government backed health and scientific research active institutions also align with universities; open projects may be co-convened and co-managed by multiple institutions. Such overlapping projects and approaches make any analysis and conclusions based on individual institutions as single units difficult. Rather, there could be value in making these inter-institutional and cross-sector connections and collaborations more visible.

3. Difficulty of discovering all relevant data

Site-delimited searching is an inefficient and flawed method for discovery. Success is dependent on the metadata of individual pages on individual websites built on various infrastructures with differing degrees of discoverability. Some policies may not be accessible without an institutional login. Frequency of updating was also an issue. It is therefore assumed that not all OA initiatives were found and captured in the data. NTROs and outputs from other knowledge systems are not captured here.

4. COKI dataset

Known limitations with the COKI dataset are described on their site <https://open.coki.ac/how/>. No present methodology of extracting data on OA publication rates is free from similar issues, such as reliance on DOIs.

Conclusion

This Open Access Australasia study shines a light on the current open access landscape across Australia and Aotearoa New Zealand. Recent international developments in OA, such as the UNESCO Recommendation on Open Science, indicate the timeliness of undertaking an assessment of the OA environment in the region. The study provides an impression of that landscape, a snapshot of the current terrain. It illuminates some future possibilities and directions.

Both countries have powerful advocates for OA in CAUL and CONZUL and support from organisations like Australia's OAA and Aotearoa New Zealand's Tohatoha³⁰. Yet ANZ's OA publication rate falls behind that of many countries, including Indonesia, Brazil, the UK, the US, and much of Europe. This study looks at OA initiatives undertaken at an institutional level across university, health, government and non-profit research active sectors to try to understand the reasons why. It is impressionistic and not comprehensive, but as far as the authors are aware, it is the first study of its kind to look at OA research initiatives and outputs outside of as well as within the Academy in the region.

Using the total number of individual OA initiatives as a proxy, universities show the greatest engagement with OA at the institutional level, followed by government, health and non-profit research active institutions. However, a comparison of this engagement with mean percentage rates of OA outputs calculated using the Curtin Open Knowledge Initiative (COKI) dataset, does not reveal a positive association. Indeed, universities with the greatest number of OA initiatives at the institutional level manifest the lowest average OA research output rate; conversely health research institutions with low rates of OA initiatives achieve a greater rate of OA publications. It is suggested that historical context and the unique research and publishing culture of each sector go some way to explaining these differences.

This study, also using data from COKI, was able to make visible the degree to which diverse pathways to OA are being taken. Notwithstanding the present popularity of 'read and publish' agreements, much of the research is not made accessible through commercial journals for some sectors, and only by a small margin for others. It is contended that this bibliodiversity - involving repositories of different kinds, "diamond" OA journals, preprint archives, open

publishing platforms and other internet sources - is essential to maintain a healthy OA ecosystem, one that is not solely determined by commercial interest.

OA in ANZ is currently practised in a piecemeal, inconsistent and reactive way, subject to the vagaries of resourcing, leadership and competing priorities of each individual institution. This approach does not allow for collaboration, resource-sharing, or synergy. Rather, consistent, clear policies with compliance measures and worthwhile incentives for researchers are required as a foundation for sustainable OA practice. Such policies need to be grounded in an awareness of the wider international context, emerging global developments, and must take in account differing perspectives on access, such as those expressed in the Indigenous Data Sovereignty movement. Policies and strategies would ideally be designed and implemented centrally, at the national level, based on broad consultation with stakeholders, for the greatest chance of succeeding in affecting the changes required to embrace the promises of open scholarship.

External influences such as funder mandates are now driving an increase in open access and will continue to do so. These directives could not translate into practice, however, without the foundational work already done inside institutions, whether through working to change disciplinary cultural norms, or by building and maintaining repositories, promoting OA through policies and guidelines, and experimenting with homegrown open publishing. This coal face work of promoting and practising OA at the institutional level undertaken by committed advocates is now more necessary than ever. Indeed, the need for OA advocacy on the ground in institutions has never been more urgent if we are to maintain a healthy OA ecosystem where diverse pathways to publicly accessible research are possible. The deliberate obfuscation of the OA environment by commercial publishers seeking to consolidate their monopoly on research publishing makes continuing to promote OA alternatives to 'gold' and 'read and publish' routes more essential than ever before.

Future work

Using current dataset:

- Content analysis of guidelines collected
- Infrastructure analysis of repositories

Expanding current dataset and improving methodology:

- Redefine, reorder and expand types of OA initiatives
- Redefine and expand the list of institutions included
- Addition of OA initiatives that were designated out of scope for the current project
- Undertake a survey outside of OAA membership
- Collaborate with COKI for a finer grained dataset

- Use open APIs for harvesting
- Investigate potential differences and comparisons between Aotearoa New Zealand and Australia.

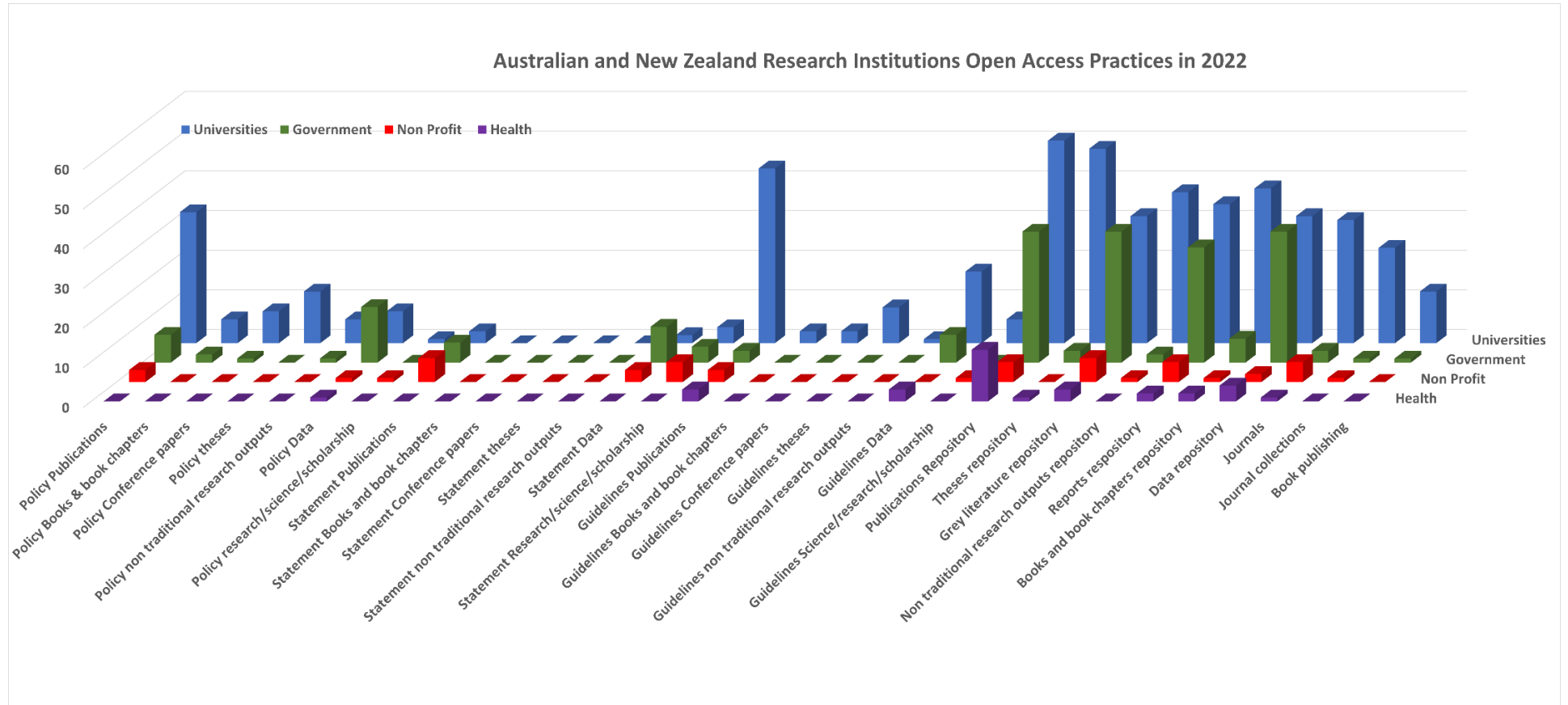
It is the intention of OAA to repeat this work in 18 months to 2 years. It is recognised that innovations in technology in the intervening time may have a significant impact on the methodology and will likely make possible a significant broadening of scope.

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- The Curtin Open Knowledge Initiative <https://openknowledge.community/>
- ChatGPT <https://chat.openai.com/chat> was used to assist in minor improvements of wording in some paragraphs; some additional research papers were sourced from Elicit <https://elicit.org/>.

Enlarged Figures

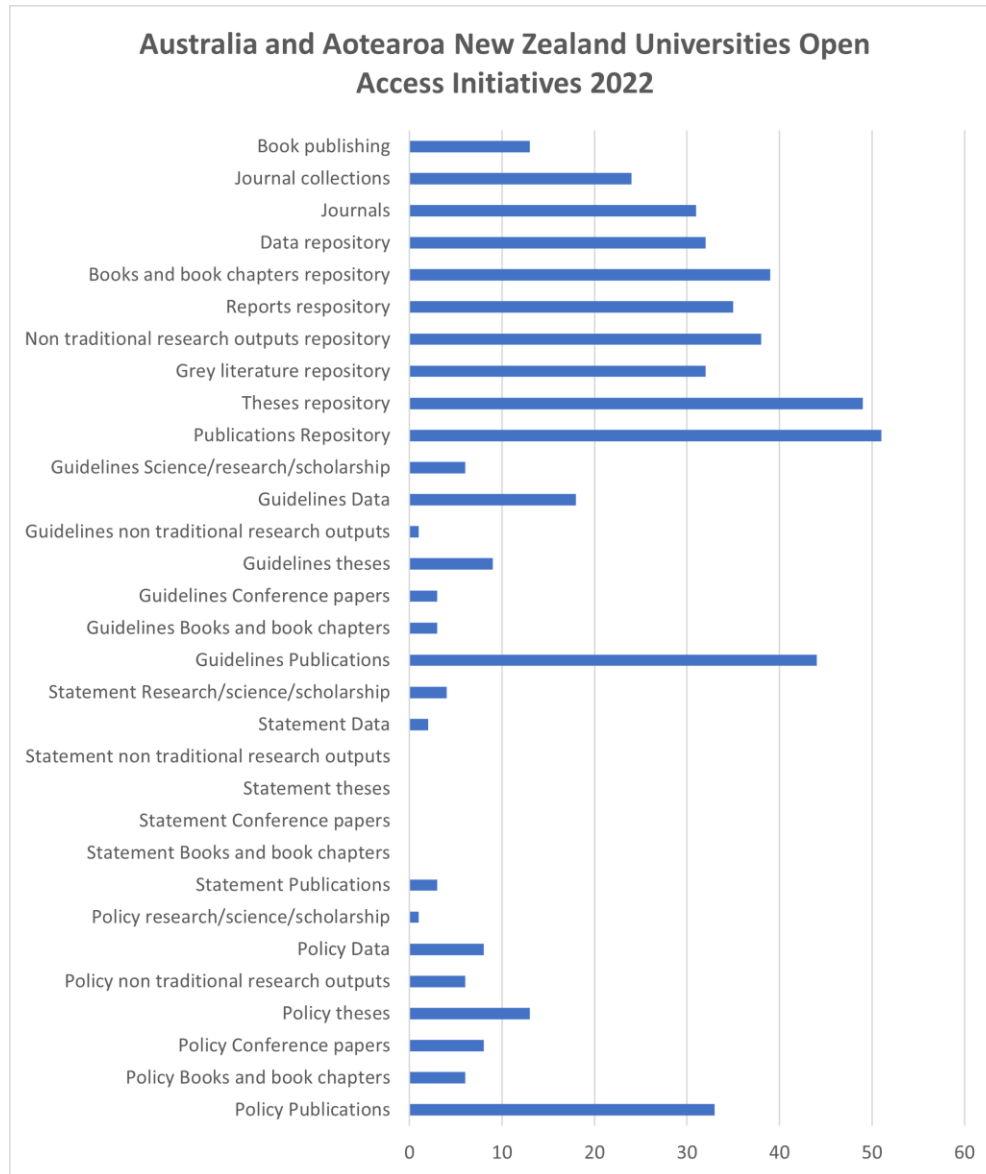
Figure 2: Australian & Aotearoa New Zealand research institutions open access practices 2022



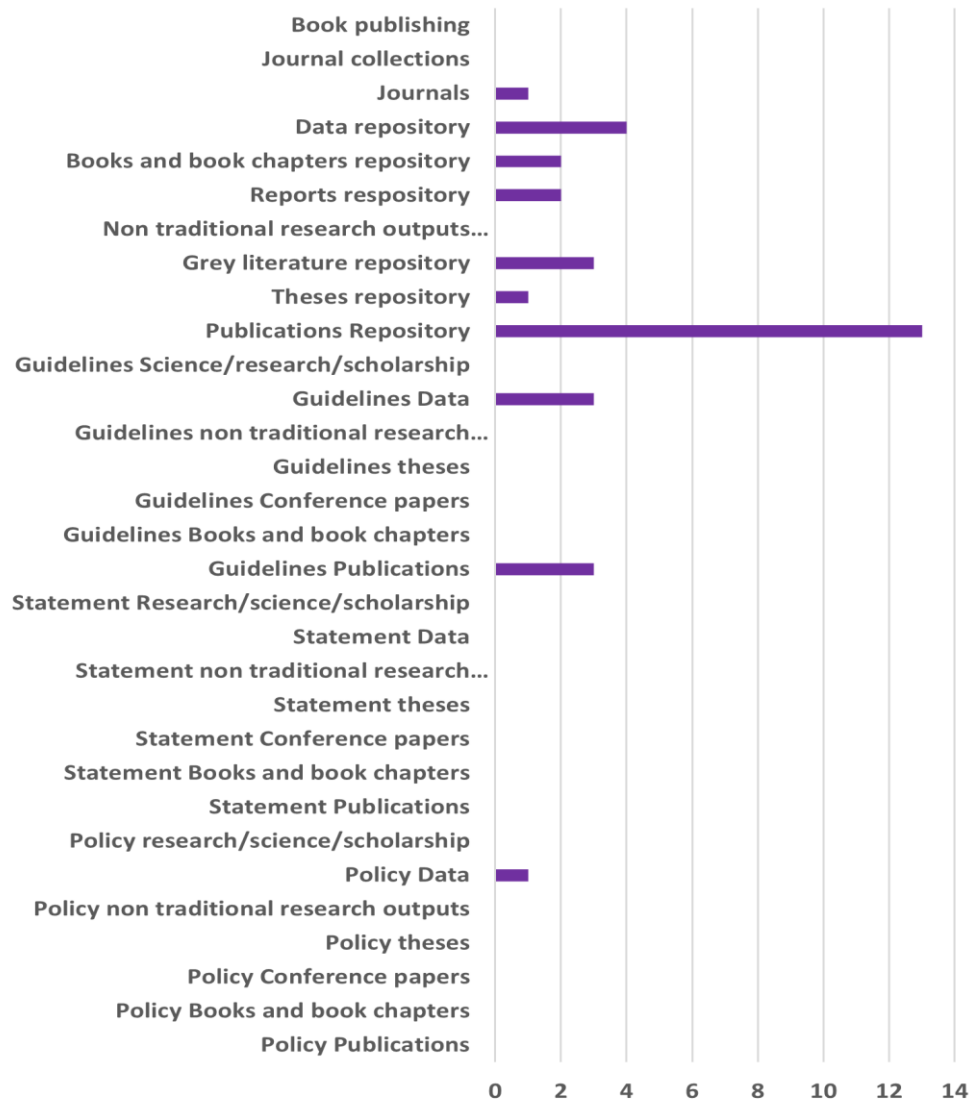
[Back to page](#)

Figure 3: Australia & Aotearoa New Zealand open access initiatives by institution type 2022.

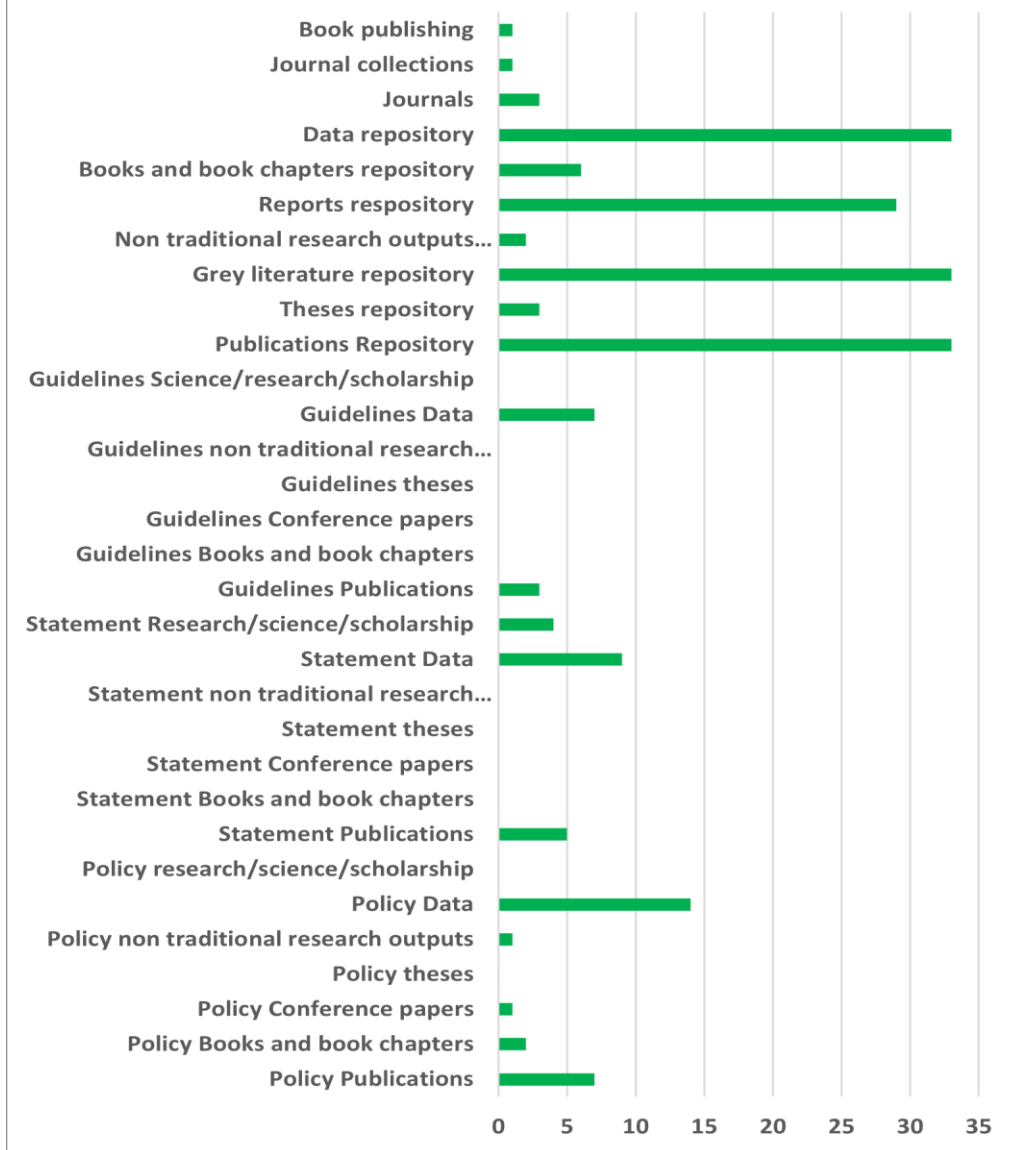
Please note that the x axis on these charts are different scales so they are not directly comparable.



Australia and Aotearoa New Zealand Health Research Institutions Open Access Initiatives 2022



Australia and Aotearoa New Zealand Government Research Institutions Open Access Initiatives 2022

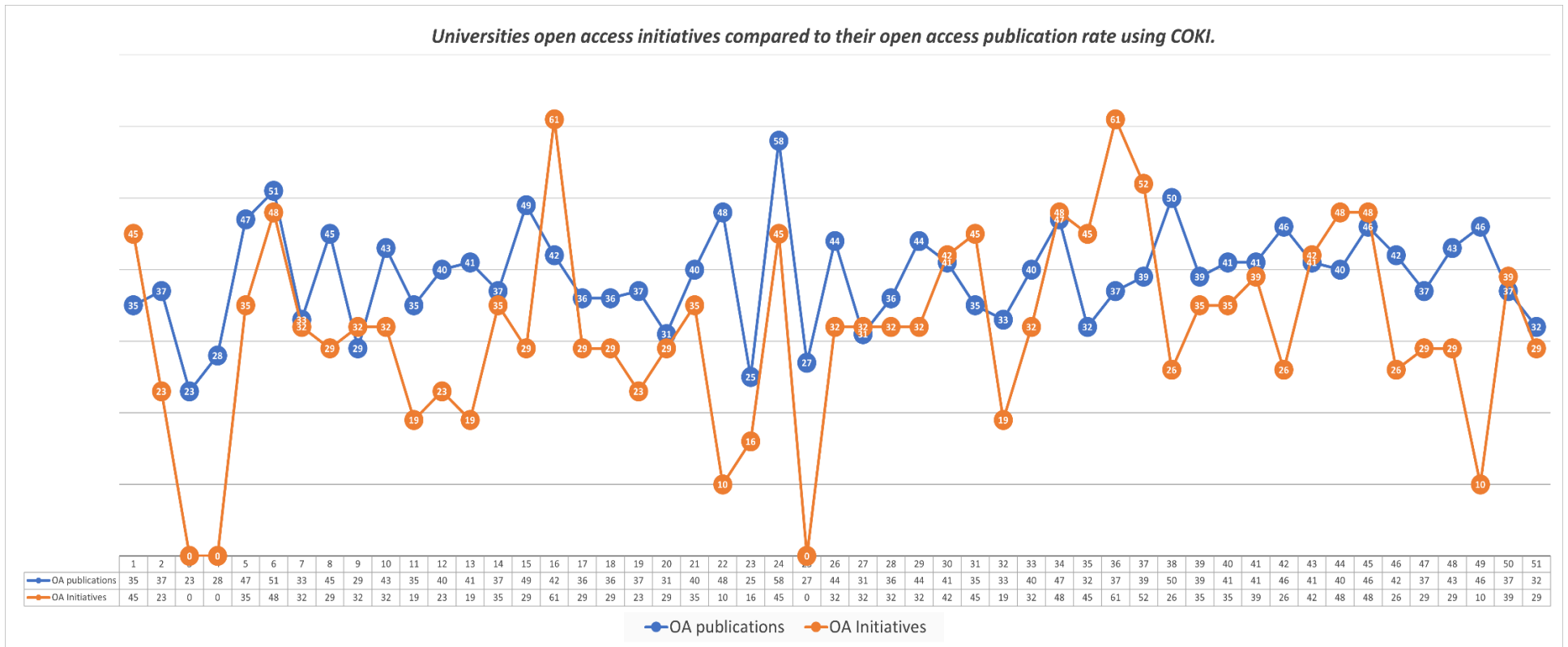


Australia and Aotearoa New Zealand Nonprofit Research Institutions Open Access Initiatives 2022



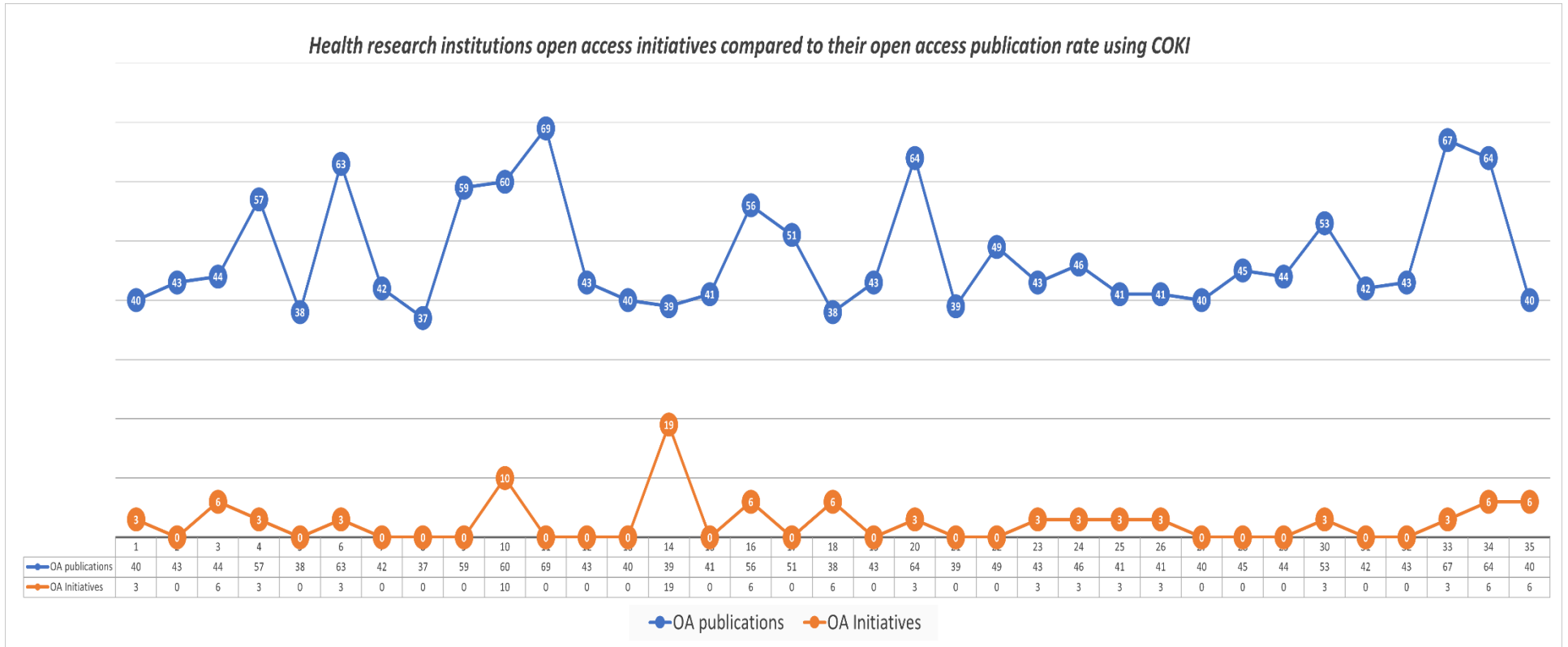
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Figure 4: Universities open access initiatives compared to their open access publication rate using COKI.



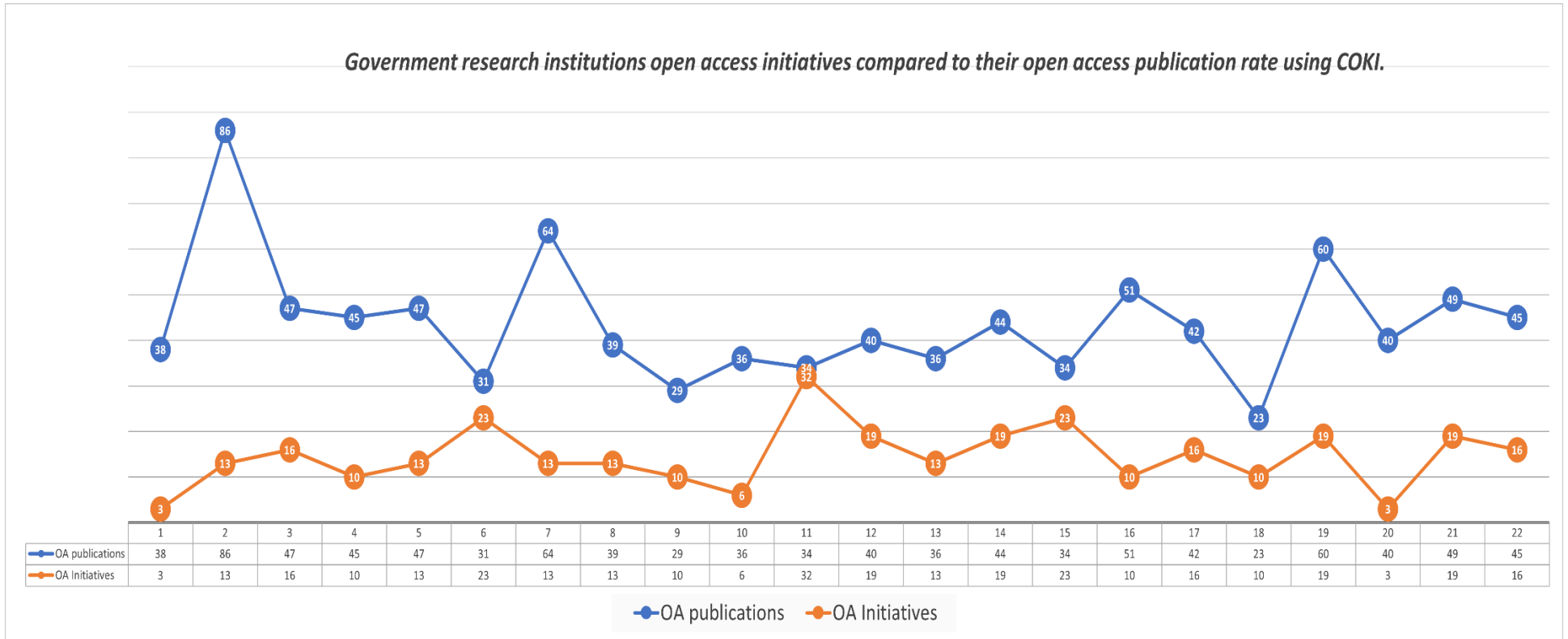
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Figure 5: Health research institutions open access initiatives compared to their open access publication rate using COKI.



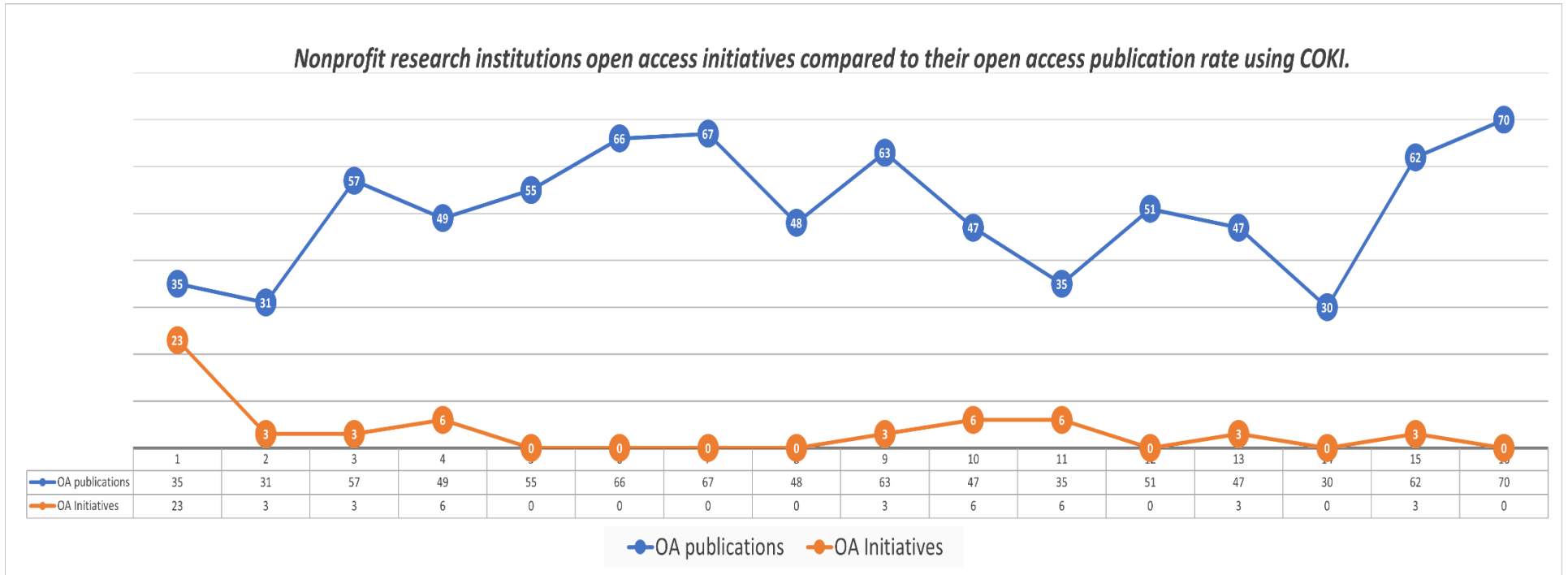
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Figure 6: Government research institutions open access initiatives compared to their open access publication rate using COI.



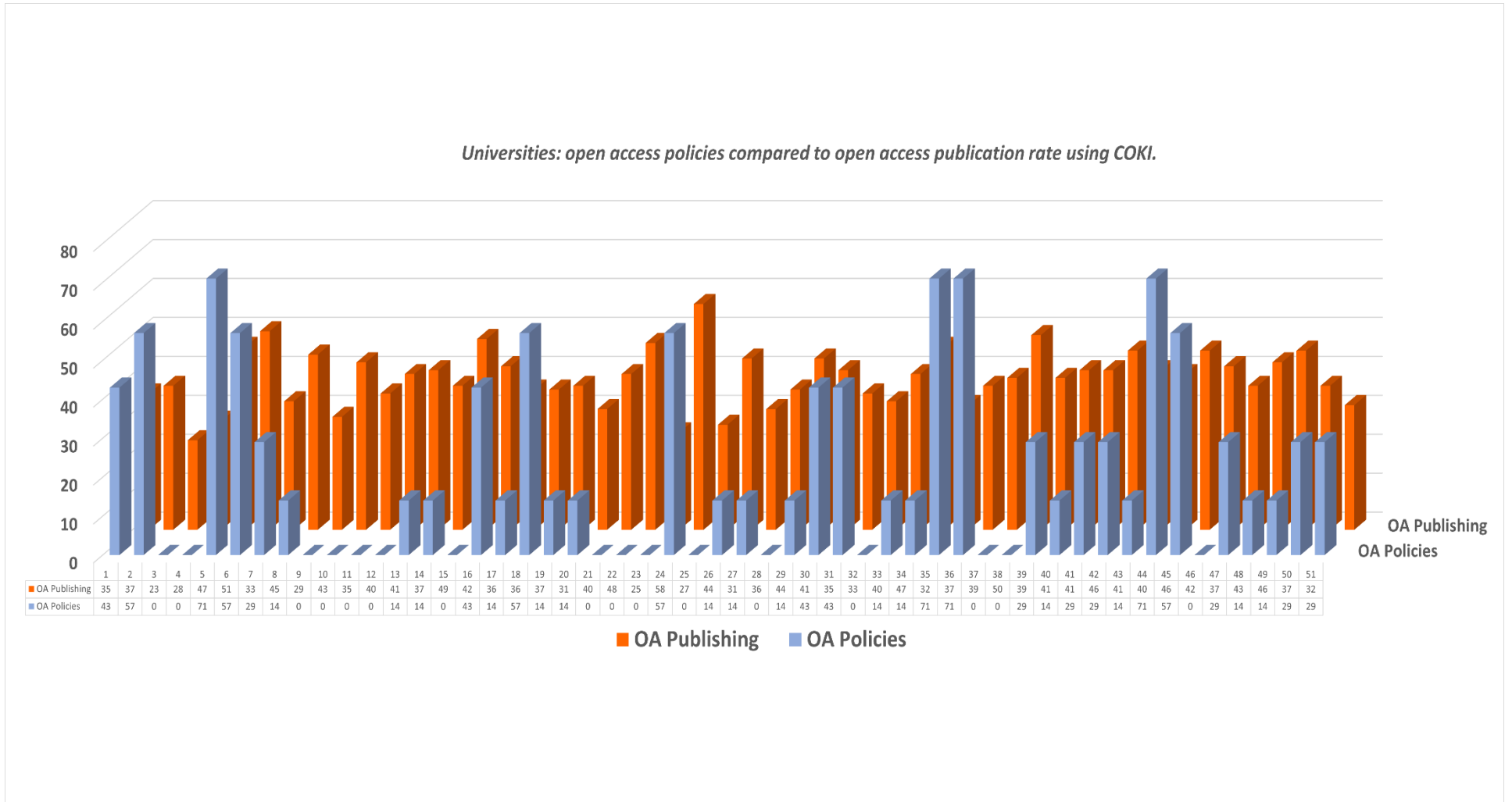
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Figure 7: Non-profit research institutions open access initiatives compared to their open access publication rate using COKI.



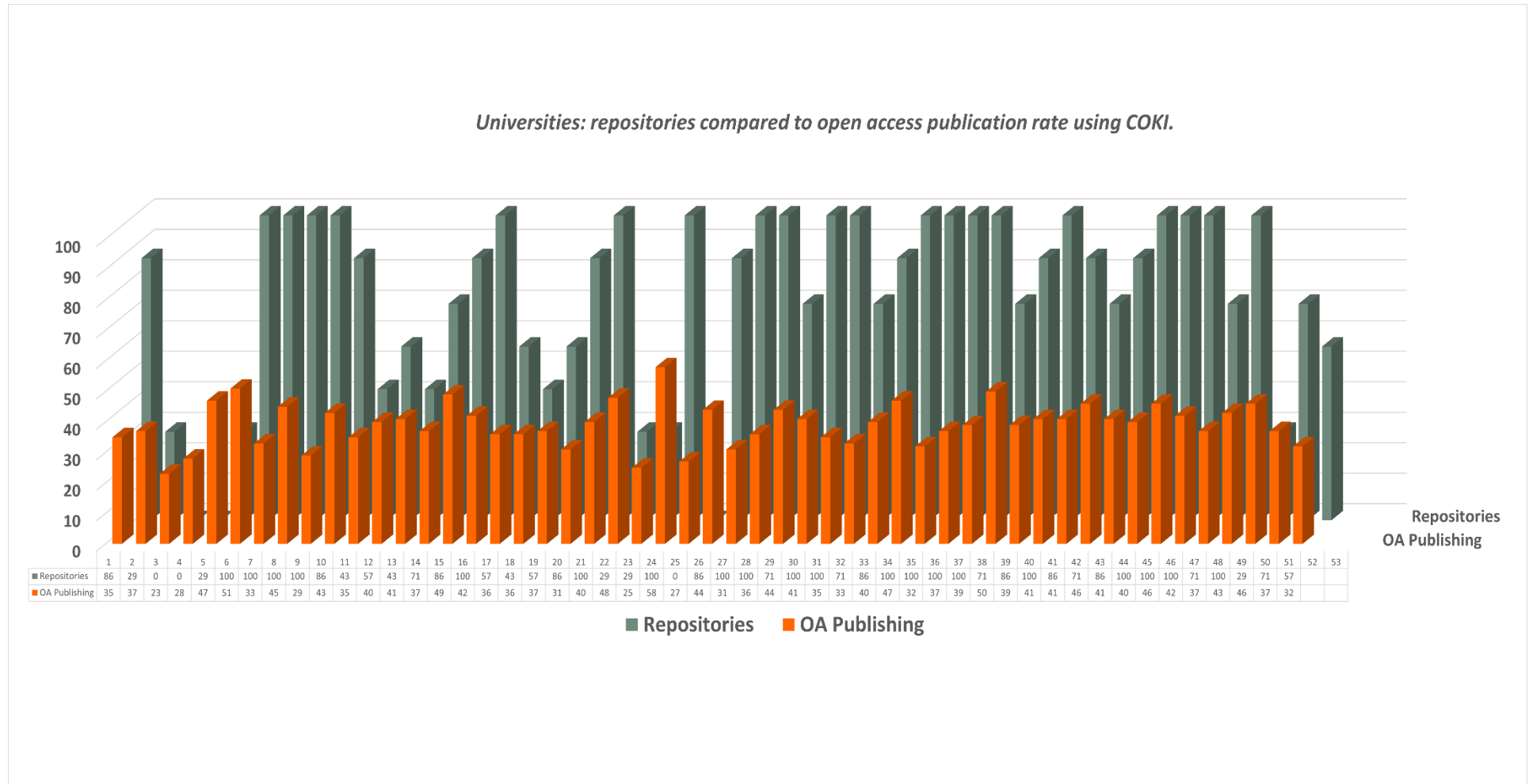
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Figure 8: Universities: Open access policies compared to open access publication rate using COKI



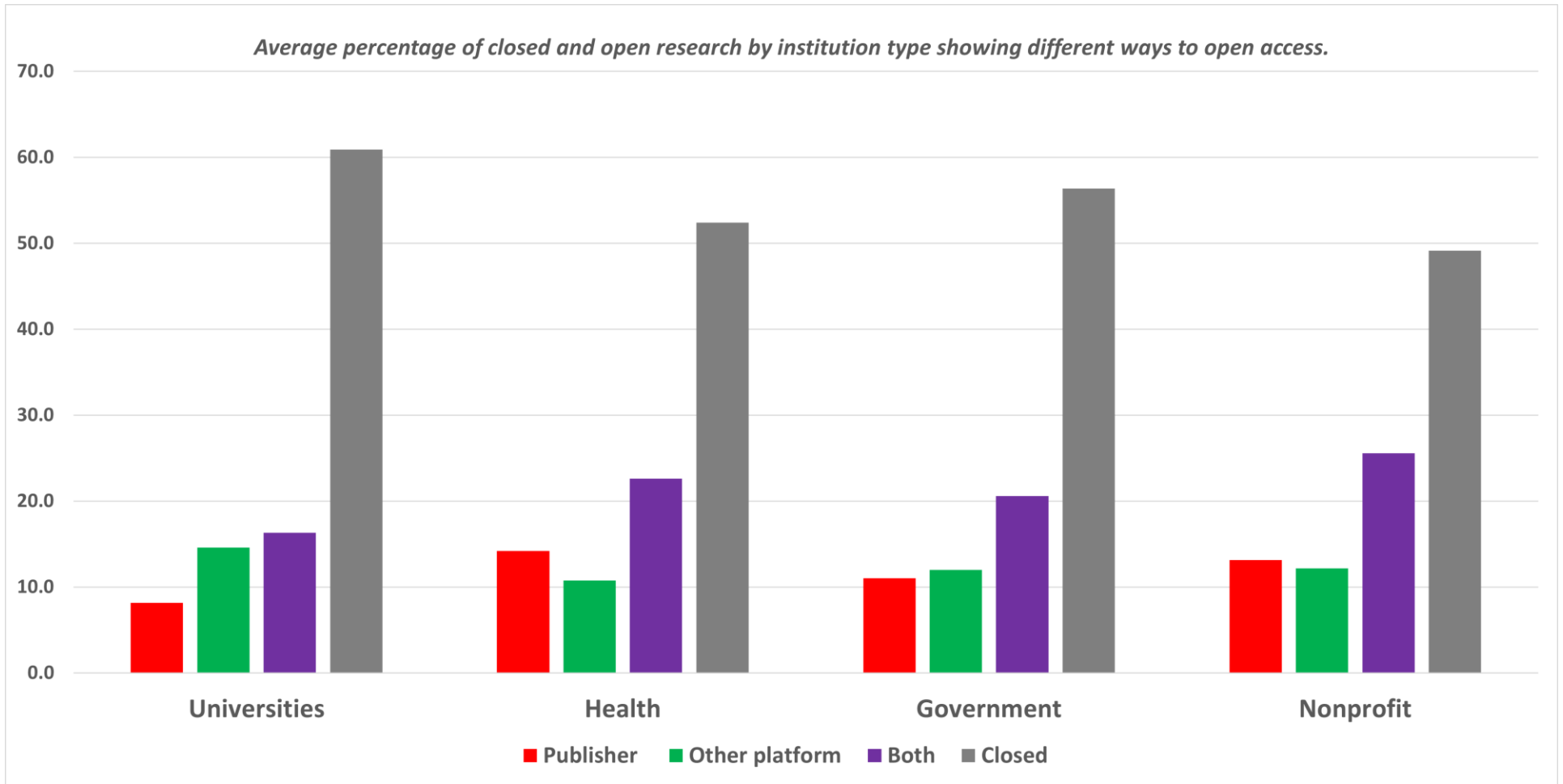
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Figure 9: Universities: Repositories compared to open access publication rate using COKI.



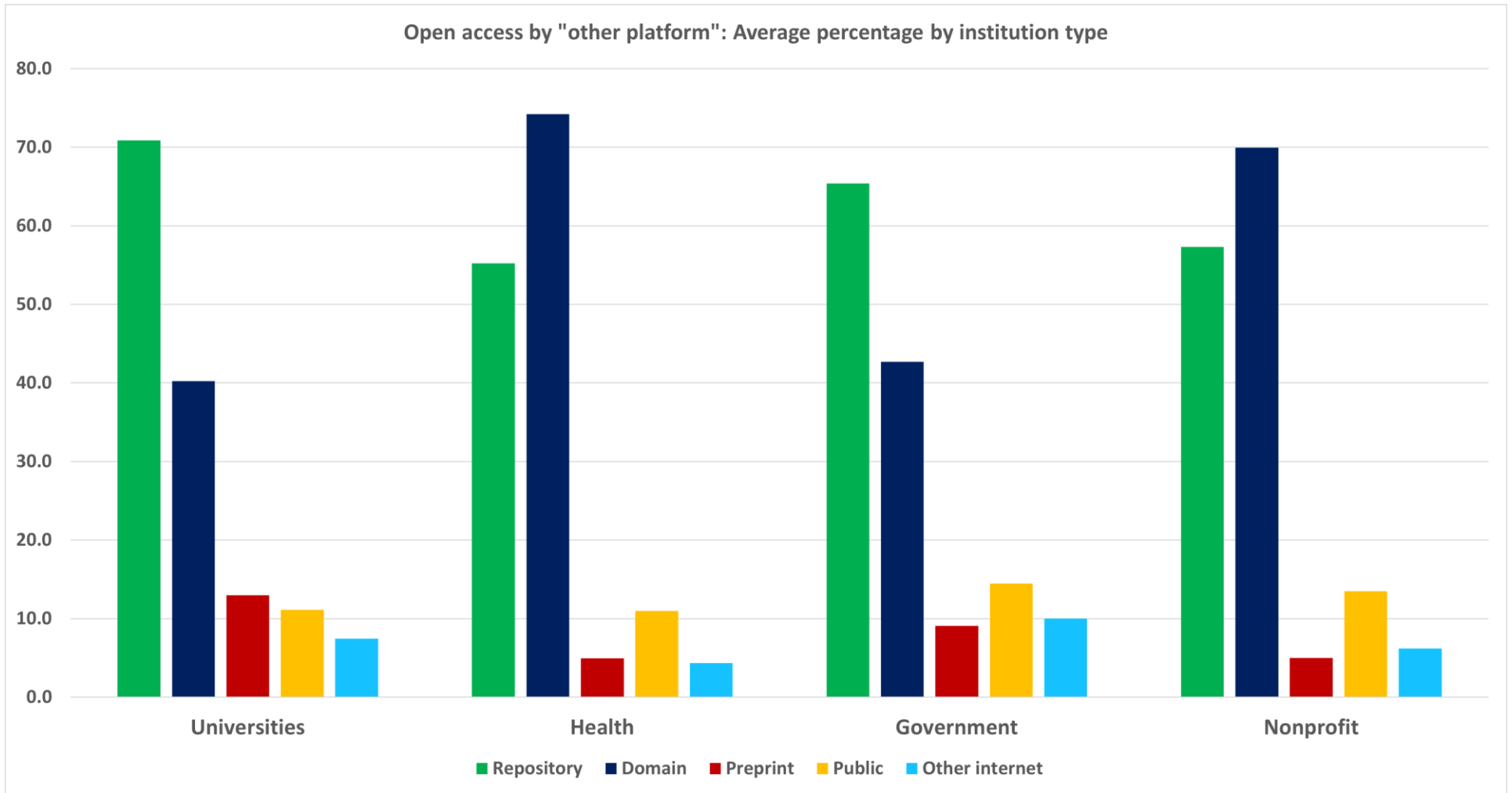
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Figure 10: Average percentage of closed and open research by institution type showing differing ways to open access.



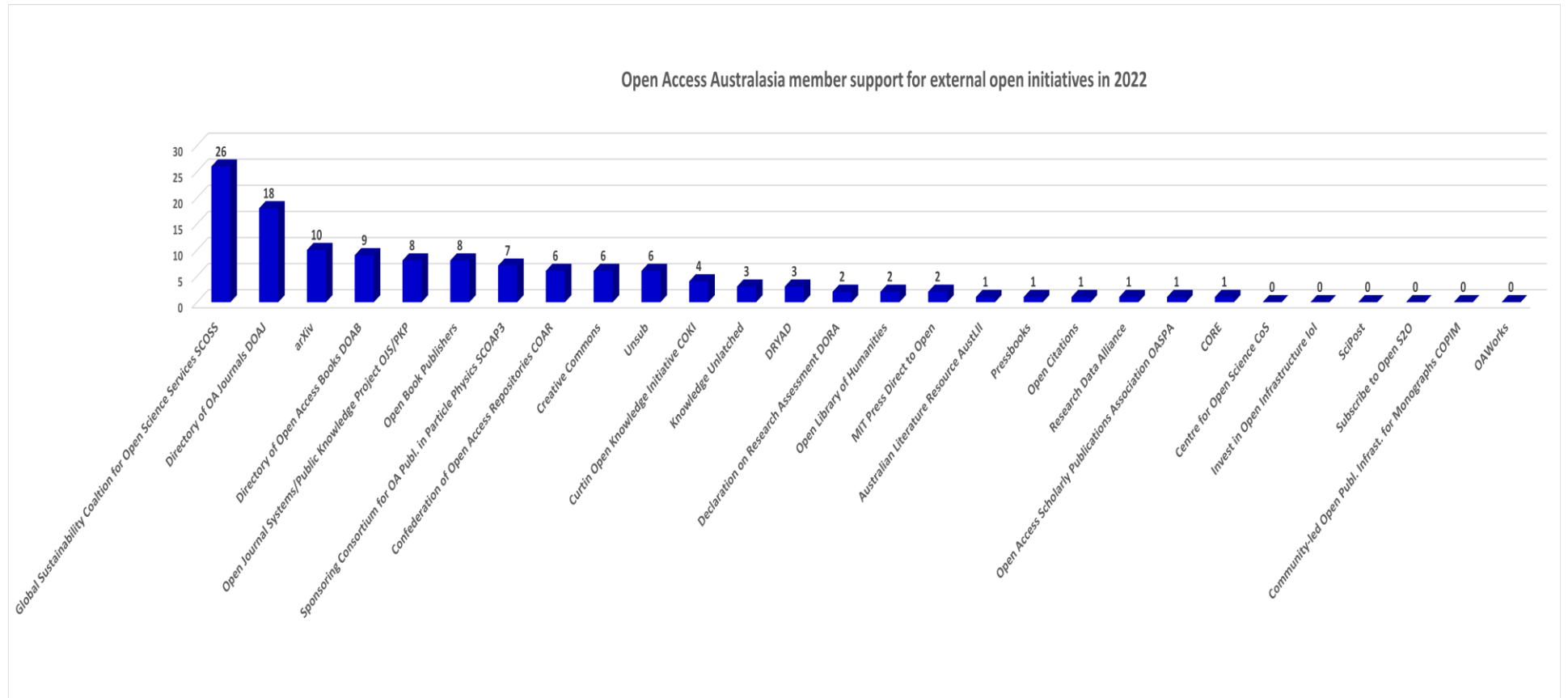
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Figure 11: Open access by "other platform": Average percentage by institution type



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Figure 12: Australia and Aotearoa New Zealand University support for external open access initiatives in 2022



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Appendices

Appendix A: Research active institutions

Research active institutions sourced from Open Access Australasia membership, SCImago Journal and Country Ranking Portal and the Curtin Open Knowledge Initiative. Institutions presented here are not in the same order as the anonymised data above so there is no direct correlation between this list and the presentation of results.

AUSTRALIA
UNIVERSITIES
Australian Catholic University
Australian Defence Force Academy
Australian Maritime College
Australian National University
Avondale University College
Bond University
Central Queensland University
Charles Darwin University
Charles Sturt University
Curtin University
Deakin University
Edith Cowan University
Federation University
Flinders University
Griffith University
James Cook University
La Trobe University
Macquarie University
Menzies School of Health Research
Monash University
Murdoch University
Queensland University of Technology
Royal Australasian College of Surgeons
Royal Melbourne Institute of Technology (RMIT)
Southern Cross University
Swinburne University of Technology
Universities Australia
University of Adelaide
University of Canberra
University of Melbourne
University of New England

University of New South Wales
University of Newcastle
University of Notre Dame Australia
University of Queensland
University of South Australia
University of Southern Queensland
University of Sydney
University of Tasmania
University of Technology Sydney
University of the Sunshine Coast
University of Western Australia
University of Wollongong
Victoria University
Western Sydney University
Group of Eight Australia
Queensland Universities
HEALTH RESEARCH ACTIVE INSTITUTIONS
Alfred Health
Austin Health
Baker Heart and Diabetes Institute
Black Dog Institute
Burnet Institute
Centre for Eye Research Australia
Concord Repatriation General Hospital
Flinders Medical Centre
Florey Institute of Neuroscience and Mental Health
Garvan Institute of Medical Research
George Institute for Global Health
Harry Perkins Institute of Medical Research
Illawarra Health and Medical Research Institute
Ingham Institute for Applied Medical Research
John Hunter Hospital
Liverpool Hospital
Monash Health
Murdoch Children's Research Institute
Nepean Hospital
Neuroscience Research Australia NeuRA
Orygen Youth Health
Peter MacCallum Cancer Centre
Prince of Wales Hospital
Princess Alexandra Hospital
Queensland Institute of Medical Research
Royal Adelaide Hospital

Royal Brisbane and Women's Hospital
Royal Children's Hospital Melbourne
Royal Darwin Hospital
Royal Melbourne Hospital
Royal North Shore Hospital
Royal Perth Hospital
Royal Prince Alfred Hospital
Royal Victorian Eye and Ear Hospital
Royal Women's Hospital
Sir Charles Gairdner Hospital
South Australian Health and Medical Research Institute
South Eastern Sydney Local Health District
St George Hospital
St Vincent's Hospital Melbourne
St Vincent's Hospital Sydney
Telethon Kids Institute
The Children's Hospital at Westmead
The Prince Charles Hospital
The Queen Elizabeth Hospital
Townsville Hospital
Victor Chang Cardiac Research Institute
Walter and Eliza Hall Institute of Medical Research
Westmead Hospital
Women's and Children's Hospital
GOVERNMENT RESEARCH ACTIVE INSTITUTIONS
ACT Government
ACT Health
ARC Centre of Excellence for All-Sky Astrophysics ASTRO 3D
Atlas of Living Australia
Australia Telescope National Facility
Australian Antarctic Program
Australian Government
Australian Institute of Marine Science
Australian Nuclear Science & Technology Organisation
Australian Research Council
Australian Research Council Centre of Excellence for Coral Reef Studies
Australian Research Council Centre of Excellence for Core to Crust Fluid Systems
Australian Research Council Centre of Excellence for Electromaterials Science
Australian Research Council Centre of Excellence for Nanoscale BioPhotonics
Australian Research Council Centre of Excellence for Quantum Computation and Communication Technolog
Australian Research Council Centre of Excellence in Plant Energy Biology
Australian Synchrotron

Commonwealth Scientific and Industrial Research Organization CSIRO
Defence and Science Technology Organisation Australia
Geoscience Australia
Government of South Australia
Government of Western Australia
Melanoma Institute Australia
National Health and Medical Research Council NHMRC
National Library of Australia (NLA)
National Measurement Institute
New South Wales Department of Health
New South Wales Government
Northern Territory Government
Northern Territory Health
Queensland Government
Queensland Health
South Australia Health
Tasmanian Department of Health
Tasmanian Government
Victorian Department of Health
Victoria State Government
Western Australia Health
NON-PROFIT RESEARCH ACTIVE INSTITUTIONS
Analysis and Policy Observatory (APO)
Australian Academy of Science
Australian Legal Information Institute (AusLII) (UTS & UNSW)
Australian Library and Information Association (ALIA)
Australian Museum Research Institute
Australian Red Cross Lifeblood
Baker IDI Heart and Diabetes Institute
Barwon Health
Brien Holden Vision Institute
Cancer Council Queensland
Cancer Council Victoria
Creative Commons Australia
Council of Australian University Libraries (CAUL)
Hospital Research Foundation
Hudson Institute of Medical Research
Lions Eye Institute
National and State Libraries of Australia (NSLA)
National Heart Foundation of Australia
South Australia Pathology
South Australian Museum
St Vincents Institute of Medical Research

Translational Research Institute
AOTEAROA NEW ZEALAND
UNIVERSITIES
Auckland University of Technology
Lincoln University
Massey University
New Zealand Tertiary College
Otago Polytechnic
Unitec Institute of Technology
Universities New Zealand
University of Auckland
University of Canterbury
University of Otago
University of Waikato
Victoria University of Wellington
HEALTH RESEARCH ACTIVE INSTITUTIONS *
Auckland City Hospital/auckland health district board
Royal New Zealand College of General Practitioners (CSIRO)
GOVERNMENT RESEARCH ACTIVE INSTITUTIONS
AgResearch Ltd
Callaghan Innovation
Cawthron Institute
GNS Science
Landcare Research
MBIE
National Environmental Data Centre
National Institute of Water & Atmospheric Research
National Library of New Zealand
New Zealand Forest Research Institute (SCION)
New Zealand Government
Plant and Food Research
Riddet Institute
NON-PROFIT RESEARCH ACTIVE INSTITUTIONS
Council of New Zealand University Librarians (CONZUL)
Enigma: he aupiki charitable trust
Flexible Learning Association of New Zealand (Public Knowledge Project)
Museum of New Zealand Te Papa Tongarewa
New Zealand Grassland Association
Tohatoha
*Hospitals were only included if they had institution specific open access initiatives

Appendix B: Sample search strategies.

Google	<p>For academic institutions: intitle: open AROUND(3) (access OR research OR science OR scholarship OR data OR publishing OR journal OR repository OR license OR project OR initiative OR new OR novel OR ongoing OR method OR pilot OR design OR plot OR scheme OR model) site:XXX.edu.au</p> <p>For non-academic institutions open AROUND(2) (access OR research OR science OR scholarship OR data OR publishing OR journal OR repository OR policy OR statement OR guidelines) site:alfredhealth.org.au</p>
Google Scholar	with at least one of the words: australia aotearoa "new zealand" paired with exact phrase open access; open research; open science; open data; open publishing; open infrastructure; open repository; open journal; open scholarship; open license limited to last 5 years
Scopus	(TITLE ("open access" OR "open research" OR "open science" OR "open initiative*" OR "open data" OR "open citation*" OR "open engagement" OR "open publish*" OR "open infrastructure" OR "open reposito*" OR "open archive" OR "open license" OR "open scholarship" OR "open journal*") AND TITLE-ABS-KEY (project OR initiative OR new OR novel OR ongoing OR method* OR pilot OR design OR plot OR scheme OR model)) AND PUBYEAR > 2017
Web of Science	"open access" OR "open research" OR "open science" OR "open initiative*" OR "open data" OR "open citation*" OR "open engagement" OR "open publish*" OR "open infrastructure" OR "open reposito*" OR "open archive" OR "open license" OR "open scholarship" OR "open journals" (Title) AND (project OR initiative OR new OR novel OR ongoing OR method* OR pilot OR design OR plot OR scheme OR model) (All Fields) and 2023 or 2022 or 2021 or 2020 or 2019 or 2018 (Publication Years)
Open Science Framework	("open science" OR "open scholarship" OR "open research" OR "open data" OR "open repository" OR "open access" OR "open infrastructure" OR "open journal" OR "open publishing" OR "open license") AND (australia OR aotearoa OR "new zealand")

Open Access Australasia member survey

Thank you for being a member of Open Access Australasia.

Please complete this short survey so we can ensure our information on your institution or organisation is up to date on our website. Please just complete once for each organisation or institution.

We would also like to make sure you and your institution are getting the most from your membership by highlighting some of our activities.

For more information please visit <https://oaaustralasia.org/>

Questions? Please email us at info@oaaustralasia.org

1. Email *

Information about your institution or organisation

2. What is the name of your institution or organisation?
3. Who is the primary contact for Open Access Australasia from your institution or organisation?
4. What is the job title of the primary contact?
5. What is their email address?
6. If you are not the primary contact, please provide your name and position below

7. Please help us ensure our records for your institution are up to date by listing any other essential contacts - including for invoicing - name, title, email address.

8. Is your institution's or organisation's address and description on our website up to date?

You can find your institution's profile on the ["about us" page](#) on our website.
Scroll down to the map and click on your institution's orange button underneath.

You can email us at info@oaaustralasia.org with any additions or changes to your profile.

Mark only one oval.

- Yes, it is up to date
- I'll send you an email with changes or updates
- Changes are listed below

9. List here any changes needed to your institution's or organisation's address or profile

10. Please mark if you have any of the following internal infrastructure/policies/statements/guidelines at your institution or organisation that support open access or open research. Please check that any descriptions and URLs on our website are correct.

You can find your institution's profile on the ["about us" page](#) on our website. Scroll down to the map and click on your institution's orange button underneath.

Check all that apply.

- Open repository
- Open journals
- Open book publishing
- Open policies
- Statements
- Guidelines
- None of these
- Other (please provide more detail in Q11 below)

11. Are any changes needed to descriptions about internal infrastructure/policies/statements/guidelines at your institution or organisation?

You can email us at info@oaaustralasia.org with any additions or changes to your profile.

Mark only one oval.

- Yes, it is up to date
- No, I'll send you an email with changes or updates
- Changes are listed below in Q11

12. List here any or additions changes or additions needed to descriptions or links about internal infrastructure/policies/statements/guidelines/courses at your institution or organisation.
-

13. Does your institution or organisation financially or logistically support or endorse any of the following external initiatives? We will list this information on our website.

Check all that apply.

- arXiv
- Centre for Open Science (CoS)
- Confederation of Open Access Repositories (COAR)
- Creative Commons
- Curtin Open Knowledge Initiative
- Declaration on Research Assessment (DORA)
- Directory of Open Access Journals (DOAJ)
- Global Sustainability Coalition for Open Science Services (SCOSS)
- Invest in Open Infrastructure (IoI)
- Knowledge Unlatched
- Open Library of Humanities
- SciPost
- Sponsoring Consortium for Open Access Publishing in Particle Physics (SCOAP3) unsub
- None of these
-

14. Does your institution or organisation financially or logistically support or endorse any other external open initiatives? Please provide name and URL
-

Your Open Access Australasia membership

15. Do you or anyone from your institution read the Open Access Australasia newsletter?
Sign up is [here](#)

Mark only one oval.

- Yes
- Yes and we also share it
- No
- I don't know
- I didn't know there was a newsletter

16. How informative do you find our newsletter?

Mark only one oval.

1 2 3 4 5

Not Very informative

17. [For Australian respondents only] Do you or anyone from your institution attend the monthly Australian Open Access Community of Practice zoom meetings?
You can find more information [here](#)

Mark only one oval.

- Yes, regularly
- Yes, sometimes
- No
- I didn't know there was an Australian community of practice

18. How useful do you find the Australian Open Access community of practice meetings?

Mark only one oval.

1 2 3 4 5

Not Very useful

19. Do you or anyone from your institution attend our regular webinars? You can view [past webinars here](#)
Mark only one oval.

- Yes, regularly
- Yes, sometimes
- No
- I didn't know there were webinars

20. How informative do you find our webinars?

Mark only one oval.

1 2 3 4 5

Not Very informative

Are there topics you would like to hear about in our webinars?

21. If you or colleagues have taken our OA101 course, what did you find the most valuable about it? What could we improve? If you have not had anyone take it, please could you let us know why?

22. In addition to Open Access Australasia, do you have other regular sources of information on Open Access?

23. Is your institution or organisation participating in Open Access week this year? [Please see here for details](#)

Check all that apply.

- Yes we are holding an event/s
- Yes we are attending event/s
- We are planning on promoting Open Access Australasia's events to our people I don't know yet, we
- are still deciding

24. Please let us know below or by email to info@oaaustralasia.org the details of any events you are holding and would like added to the Open Access Australasia Open Access week 2022 [website](#)

If you would also like to add your event/s to the [International Open Access](#) 2022 website [please submit details here](#)

Additional information

25. Do you have any feedback for us on the website, our activities, possible future work or would you like to share any other information?

Thank you very much for completing this survey

Your participation helps us keep our website up to date and improve our services

For more information please visit <https://oaaustralasia.org/>

Questions? Please email us at info@oaaustralasia.org
