

Author's Accepted Manuscript of: The 'impact opportunity' for academic libraries through grey literature

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Abstract

This paper proposes a new role for academic libraries as part of a wider 'research practice' activity for research institutions, incorporating support, training and expertise in relation to scholarly communication and research impact. The role libraries hold within research institutions is changing as the world shifts towards a digital and increasingly open future. This requires a rethink of the types of services and skill sets that are appropriate for an academic library to encompass. The increased focus of institutions and funders on the societal impact of research offers an opportunity for academic libraries to further integrate their work into the open research agenda. Libraries can draw on what is now over a decade of experience introducing open access, institutional repositories and research data management service to their academic communities to inform the development of impact services.

An immediate service that libraries can offer is assisting with the identification of, and sometimes deposit into the institutional repository of, works that are sitting outside the peer reviewed literature – grey literature. This material needs to be collected for the purposes of demonstrating outcomes and pathways to impact. This paper describes the need to consider item classifications within digital repositories. If this new service is considered an option into the future, libraries themselves and potentially research offices will need to look not just at workflows but also item classifications within systems to ensure they encompass this broader collection of works.

Keywords: Impact, grey literature, gray literature, open research, open scholarship, skill sets, research funding, research data management, academic libraries, research libraries

The ‘impact opportunity’ for academic libraries through grey literature

Introduction

For well over a decade, academic libraries have developed new services and roles around scholarly communication. This represents a shift from the provision of research material for consumption to becoming part of the production of knowledge, working in partnership with the research community. This process has been named ‘Digital Scholarship’ which “places libraries in a central role as a transdisciplinary site of scholarly engagement”¹. Now with the increased focus by funders worldwide on societal impact as a means of demonstrating value in research, there is a new opportunity for libraries to become integral to this need.

This paper is drawing on experiences in Australia and the United Kingdom (UK) to propose a new role for libraries as part of a wider ‘research practice’ activity for research institutions, incorporating support, training and expertise in relation to scholarly communication and research impact. In order to comprehend how this might eventuate, the paper will first detail what ‘impact’ means in this context, how it is increasingly on funder and institutional agendas and then look at how libraries can meet the new need.

1 Carolyn Mortiz et al., ‘De-Centering and Recentering Digital Scholarship: A Manifesto.’, *Journal of New Librarianship* 2, no. 2 (31 December 2017): 3138, <https://doi.org/10.21173/newlibs/3/2>.

What is ‘impact’?

In the context of this paper, impact is considered to be the effect of research outside the academic environment. There is an increased emphasis on the impact of research beyond the walls of the academy in areas such as government policy, population health, social, financial and environmental impact.

There are multiple definitions of impact, such as that from the Australian Research Council (ARC): “Research impact is the contribution that research makes to the economy, society, environment or culture, beyond the contribution to academic research”². This is very similar to definitions from other funding bodies such as UK Research and Innovation³ and the National Health and Medical Research Council (NHMRC)⁴, which includes effects on health and specifically refers to ‘verifiable outcomes’ of the research rather than the prospective or anticipated effects of the research.

Funder focus on impact

Impact was a component of the Research Excellence Framework (REF) exercise in the UK in 2014, where impact accounted for 20 per cent, outputs accounted for 65 per cent of the allocation of funding, and environment 15 per cent⁵. The REF2021 allocation was

² Australian Research Council, ‘Research Impact Principles and Framework’, Text (Australian Research Council, 27 March 2019), <https://www.arc.gov.au/policies-strategies/strategy/research-impact-principles-framework>.

³ UKRI, ‘REF Impact’, January 2019, <https://re.ukri.org/research/ref-impact/>.

⁴ ‘Research Impact | NHMRC’, accessed 16 June 2020, <https://www.nhmrc.gov.au/research-policy/research-translation-and-impact/research-impact>.

⁵ ‘Research Funding Formula Tweaked after REF 2014 Results’, Times Higher Education (THE), 20 February 2015, <https://www.timeshighereducation.com/news/research-funding-formula-tweaked-after-ref-2014-results/2018685.article>.

altered so the overall quality profile allocated on the basis of 25 per cent for impact, 60 per cent for outputs and 15 per cent for environment⁶. In addition there was a requirement from funders including the Research Councils, to provide an indication of the potential impact of their work. However, in early 2020, UK Research and Innovation announced it was no longer a requirement to provide a 'Pathways to Impact' plan or complete an 'Impact Summary' within grant applications⁷.

Research impact was on the agenda in Australia in the early 2000s which culminated in a trial organised by the Group of Eight (Go8), Australia's leading research intensive universities, and the Australian Technology Network of Universities in 2012. This trial found through the process of developing case studies created qualitative narratives, community engagement and audit trails that there were limitations in the quality of writing and the lack of verifiable sources. The conclusion was qualitative assessment is time/cost-intensive⁸. The impact agenda was revisited with an Engagement and Impact (E&I) pilot exercise held in 2017 by the ARC⁹. This informed the development and implementation of the first full engagement and impact assessment

⁶ REF 2021, 'Guidance on Submissions', REF 2019/01, January 2019,

https://www.ref.ac.uk/media/1092/ref-2019_01-guidance-on-submissions.pdf.

⁷ 'Pathways to Impact: Research Councils Call Specific Guidance Now Available - UK

Research and Innovation', accessed 16 June 2020, <https://www.ukri.org/news/pathways-to-impact-research-councils-call-specific-guidance-now-available/>.

⁸ Australian Research Council, 'Research Impact Principles and Framework', Text (Australian

Research Council, 27 March 2019), <https://www.arc.gov.au/policies-strategies/strategy/research-impact-principles-framework>.

⁹ Australian Research Council, 'Engagement and Impact Assessment - Pilot Overview', Text (Australian Research Council, 30 May 2018), <https://www.arc.gov.au/engagement-and-impact-assessment/ei-pilot-overview>.

in which ran as a companion exercise to the Excellence in Research for Australia (ERA) 2018¹⁰. Unlike the UK, the Australian E&I exercise is not associated with funding. Towards the end of 2020, the ARC is running a consultation on the future of the ERA and E&I Assessment exercise which is likely to alter the nature of the both future exercises¹¹.

There is now an increased emphasis in Australia on research impact in research grant applications. As of 2020, both Australian funding bodies, the NHMRC and the ARC, require statements about research impact in their grant application processes. For example, NHMRC 2020 Investigator Grants Assessment Criteria allocate 20 per cent to ‘Research impact’ as part of the ‘Track Record’, which is “the value of an individual’s past research achievements, relative to opportunity, not prospective achievements, using evidence”¹². ARC Linkage Projects assessment criteria¹³ allocates 30 per cent to ‘Benefit’ which includes “the economic, commercial, environmental, social and/or cultural benefits for relevant Australian research end-users “ and “benefits of the

¹⁰ Australian Research Council, ‘Engagement and Impact Assessment - National Report’, 2019 2018, <https://dataportal.arc.gov.au/EI/NationalReport/2018/>.

¹¹ Australian Research Council, ‘ERA EI Review’, Text (Australian Research Council, 11 December 2019), <https://www.arc.gov.au/excellence-research-australia/era-ei-review>.

¹² ‘Investigator Grants | NHMRC’, accessed 12 July 2020, <https://www.nhmrc.gov.au/funding/find-funding/investigator-grants>.

¹³ Australian Research Council, ‘Grant Guidelines for the Linkage Program: Linkage Projects (2019 Edition) for Funding Applied for in 2020’, Forecast Opportunity View - LP2020: GrantConnect, accessed 12 July 2020, <https://www.grants.gov.au/?event=public.FO.show&FOUUID=DC691834-C0AB-6C8F-17B11C91128B0C3A>.

research for Partner Organisation(s) and other relevant end-users” and the ARC Research Opportunity and Performance Evidence statement includes a category for “identifiable benefits outside academia”.

A movement has been working towards adopting new methods of assessing research away from the reliance on the Journal Impact Factor as a proxy for measurement of success¹⁴. The San Francisco Declaration on Research Assessment¹⁵, and the Leiden manifesto on research metrics¹⁶ are two high profile examples. This change of focus has resulted in some shift in focus of what funders will assess. Recently the Wellcome Trust has required institutions receiving their funds be committed to responsible and fair approaches for research assessment¹⁷.

This new focus for research assessment is reflected around the world. The Netherlands published a position paper called ‘Room for everyone’s talent’ in November 2019 which described a desire to balance valuing education, research, impact, leadership and (for university medical centres) patient care. The report notes that academics may be asked for a ‘top 10’ of impactful outputs rather than a complete

14 Universities UK, ‘The UK Forum for Responsible Research Metrics’, accessed 13 July 2020, <https://www.universitiesuk.ac.uk/policy-and-analysis/research-policy/open-science/Pages/forum-for-responsible-research-metrics.aspx>.

15 The American Society of Cell Biology, ‘San Francisco Declaration on Research Assessment’, 16 December 2012, <http://am.ascb.org/dora/>.

16 ‘Leiden Manifesto for Research Metrics’, Leiden manifesto for research Metrics, accessed 13 July 2020, <http://www.leidenmanifesto.org/>.

17 Wellcome Trust, ‘Guidance for Research Organisations on How to Implement Responsible and Fair Approaches for Research Assessment’, 2020, <https://wellcome.ac.uk/grant-funding/guidance/research-organisations-how-implement-responsible-and-fair-approaches-research>.

list of publications¹⁸. In Hong Kong, the University Grants Committee's Research Assessment Exercise has included research impact in RAE2020 for the first time, "with a view to encouraging the conduct of research of broader social relevance with high economic and social benefits".¹⁹

Norway changed their research assessment criteria at the beginning of 2019 to have new assessment criteria of Excellence, Impact and Implementation²⁰. In September 2017, Poland released a review of its research assessment noting a need for careful evaluation of the impact of research, taking into consideration the field-specific needs²¹. Poland also noted in the context of internationalisation that "openness of the research system is positively correlated with high scientific quality since scientists achieve greater impact when they collaborate internationally"²². Even in countries where research impact is not included directly in research assessment, impact is still on the agenda. The Times Higher Education impact rankings of institutions against the UN

18 VSNU, NFU, KNAW, NWO and ZonMw., 'Room for Everyone's Talent' (The Hague, November 2019), https://www.scienceguide.nl/wp-content/uploads/2019/11/283.002-Erkennen-en-Waarderen-Position-Paper_EN_web.pdf.

¹⁹ University Grants Committee, Hong Kong, 'Research Assessment Exercise', accessed 11 September 2020, <https://www.ugc.edu.hk/eng/ugc/activity/research/rae.html>.

²⁰ Research Council of Norway, 'Processing of Grant Applications', accessed 16 June 2020, <https://www.forskningsradet.no/en/processing-grant-applications/processing-applications/processing-of-grant-applications/>.

²¹ Jon File et al., Poland's Higher Education and Science System: Horizon 2020 Policy Support Facility : Peer Review., 2017, <http://dx.publications.europa.eu/10.2777/193011>.

²² ibid

Sustainability Goals were launched in 2019²³, with 85 countries participating in the 2020 rankings²⁴.

Institutional focus on impact

Increasingly institutions are identifying impact within their strategic plans, with some developing specific Research Impact strategies. To illustrate, in Australia, the University of Wollongong has a Research Impact Strategy White Paper²⁵, and La Trobe University's Research Impact Strategy runs from 2019 – 2022²⁶. In Europe, University College Dublin's Strategy for Research, Innovation and Impact runs to 2020²⁷. The UK has included impact in its research assessment process since the Research Excellence Framework 2014. The impact strategies of the University of Exeter²⁸ and Bangor

²³ 'Impact Rankings 2019 | Times Higher Education (THE)', accessed 13 July 2020, <https://www.timeshighereducation.com/rankings/impact/2019>.

²⁴ Times Higher Education, 'Impact Rankings 2020', Times Higher Education (THE), 4 March 2020, <https://www.timeshighereducation.com/rankings/impact/2020/overall>.

²⁵ 'UOW Impact | About Our Research Impact', accessed 11 September 2020, <https://research-impact.uow.edu.au/research-engagement-and-impact-at-uow/>.

²⁶ La Trobe University, 'Our Research and Its Impact', accessed 11 September 2020, <https://www.latrobe.edu.au/research/research-impacts>.

²⁷ 'UCD Research, Innovation & Impact Strategy', accessed 11 September 2020, <https://www.ucd.ie/innovation/about-us/ucd-research-innovation-and-impact-strategy/>.

²⁸ University of Exeter, 'Research and Impact Strategy 2015 - 2020 | Research Services', accessed 11 September 2020, <https://www.exeter.ac.uk/research/services/strategy/strategy/>.

University²⁹ serving as examples of the many in existence in the UK.

The institutional interest in impact is also reflected in new ways for institutions to identify and reward impactful work. The University of Cambridge Vice Chancellors' Research and Engagement Awards: "recognise outstanding achievement, innovation and creativity in devising and implementing ambitious engagement and impact plans which have the potential to create significant economic, social and cultural impact from and engagement with and for research"³⁰. The equivalent awards at the University of Reading celebrate "outstanding engagement and impact"³¹. In Australia, Monash University awards an individual annually and "celebrates success in collaborative working, partnerships, engagement and knowledge transfer activities that have led to significant impact".³² The Southern Cross University Impact Awards include a category for 'Community impact'³³.

²⁹ Bangor University, 'Our Research Strategy | Research at Bangor', accessed 11 September 2020, <https://www.bangor.ac.uk/research/research-strategy.php.en>.

³⁰ 'Vice-Chancellor's Research Impact and Engagement Awards', University of Cambridge, 16 February 2016, <https://www.cam.ac.uk/public-engagement/information-for-staff-and-students/vice-chancellors-research-impact-and-engagement-awards>.

³¹ University of Reading, 'Impact Awards 2020', accessed 11 September 2020, <https://www.reading.ac.uk/research/impact/research-engagement-awards-2020.aspx>.

³² Monash University, 'Research Impact Award', Information Technology, accessed 11 September 2020, <https://www.monash.edu/it/research/awards-and-successes/faculty-research-award-recipients/research-impact-award>.

³³ Southern Cross University, 'Southern Cross University Impact Awards - Southern Cross University', accessed 11 September 2020, <https://www.scu.edu.au/engage/impact-awards/>.

One potential reason for this focus, in Australia at least, is the declining proportion of research funding from government grants. Figures from 2018, the most recent available, show Australian competitive grants only constitute 14.6 per cent of expenditure on research³⁴. Funding for research is increasingly looking to industry – fuelling a focus on how the research might have real world implications. The recent collapse of the international student demand because of COVID-19 has forced a rethink of research funding in Australia, with the announcement of a \$900 million National Priorities and Industry Linkage Fund which will allocate block grants to universities to support their engagement with industry³⁵.

So far, this paper has described the move towards measuring and celebrating impact beyond the academy by both funders and institutions. The remainder of the paper will consider how and why libraries should see this as an opportunity to expand their scholarly communication offerings to encompass research impact as part of a broader move towards professionalising research practice development.

Impact is a cross-organisational endeavour

The impact agenda represents a new approach to research design and a different way to measure and record its value and represents a cultural shift across institutions. The impact agenda often sits within the institutional area that manages research income, partly because impact is associated with funding, grants and rankings as discussed

34 'UOW Impact | About Our Research Impact', accessed 11 September 2020, <https://research-impact.uow.edu.au/research-engagement-and-impact-at-uow/>.

35 Ministers' Media Centre, 'National Priorities and Industry Linkage Fund Working Group', Ministers' Media Centre Australian Department on Education Skills and Employment, 1 July 2020, <https://ministers.dese.gov.au/tehan/national-priorities-and-industry-linkage-fund-working-group>.

above. While this institutional placement is logical, addressing the impact question offers an opportunity for close collaboration across university administrative areas, of which the library is key.

Beyond the compliance aspect of the impact agenda, understanding the impact of research in institutions provides a greater opportunity for celebrating and promoting that research. The impact agenda aligns with multiple aspects of university activity, with clear opportunities for the commercialisation arm, the marketing and communication department, the research office and the library. There are also potential alignments with the alumni office. In addition, institutions need to consider how to support and reward the work researchers are investing in impact which opens a dialogue with Human Resources, not unlike the conversations required around pivoting away from a reliance on journal metrics for recruitment and promotion.

There are already multiple examples of cross-administrative arrangements to manage scholarly communication activities. In the UK in particular, scholarly communication incorporates responsibility for compliance with funding requirements, and has cross-overs with work usually managed in the research office. The research office works with policy, the library works with artefacts, and scholarly communication straddles both. There are now multiple attempts to identify the skill sets required of library staff to manage work focused on scholarly communication and incorporating

open access, research data management, repository management, copyright, bibliometrics, publishing support and more^{36 37}.

There is an increased focus on Open Research which is happening at multiple levels including a national level in Ireland³⁸ and across Europe³⁹. Multiple institutions in the UK have adopted position statements on open research/scholarship⁴⁰. The European University Association is actively supporting universities in the transition to

³⁶ NASIG Executive Board, 'NASIG Core Competencies for Schol. Comm. Librarians', *NASIG Webpages* (blog), 11 August 2017, http://www.nasig.org/site_page.cfm?pk_association_webpage_menu=310&pk_association_webpage=9435.

³⁷ Pascal Calarco et al., 'Librarians' Competencies Profile for Scholarly Communication and Open Access', 2016, 6.

38 Pascal Calarco et al., 'Librarians' Competencies Profile for Scholarly Communication and Open Access', 2016, 6.

39 'Open Science - Research and Innovation - European Commission', accessed 13 July 2020, <https://ec.europa.eu/research/openscience/index.cfm>.

40 University of Cambridge, 'Open Research Position Statement', Text, 21 February 2019, <https://osc.cam.ac.uk/open-research/open-research-position-statement>; 'Open Scholarship at Oxford: Case Studies', accessed 13 July 2020, <http://openaccess.ox.ac.uk/2019/07/22/open-scholarship-at-oxford-case-studies/>; The University of Manchester Library, 'Position Statement on Open Research', accessed 13 July 2020, <https://www.library.manchester.ac.uk/using-the-library/staff/research/open-research/position-statement/>; The University of York, 'Open Research Statement', accessed 13 July 2020, <https://www.york.ac.uk/staff/research/open-research/>.

Open Science⁴¹, and MIT has launched a Center for Research on Equitable and Open Scholarship⁴². The impact agenda is aligned with Open Research.

Given a longstanding concern within academic libraries about relevance into a digital future⁴³ it is clear that it would be advantageous to these libraries to ensure they are an indispensable part of the wider research practice infrastructure. The open agenda has created a whole new area of work for academic libraries – no longer managing only the consumption of research materials, but also becoming further involved in the production of research. As impact becomes a more important aspect of university life, this offers an opportunity for academic libraries to further instil their services alongside those already developed to support scholarly communication.

Impact mirrors library experience with open access and RDM

Introducing a new way of thinking about how to demonstrate value in research has multiple challenges, spread across the need to explain the policy or requirement, the need to understand what information needs to be collected, through to the introduction of new tools to assist the process. The experience of libraries in leading discussions and advocacy about open access and research data management provide useful background in embarking on this work.

41 European University Association, ‘Open Science’, accessed 13 July 2020,
<https://eua.eu/issues/21:open-science.html>.

42 MIT, ‘Center for Research on Equitable and Open Scholarship | Advancing Knowledge in Service of Equitable and Open Scholarship’, accessed 13 July 2020,
<https://libraries.mit.edu/creos/>.

43 Eric Jennings, ‘The Relevance of Academic Libraries in the Twenty-First Century’, *College & Undergraduate Libraries* 20, no. 1 (1 January 2013): 107–16,
<https://doi.org/10.1080/10691316.2013.761037>.

The difficulty libraries have experienced in encouraging the academic community to engage with institutional repositories has been well documented over decades⁴⁴. The first Open Repositories Conference was held at Sydney University in 2006⁴⁵. There was a strong focus on evaluating repository platforms to inform decisions about which was appropriate to install. Libraries began introducing repositories with something of a technological determinist approach, which assumed that engagement would follow⁴⁶. This did not happen, partly due to the slow rate of diffusion of most new innovations^{47 48}.

Worldwide, uptake of deposits to institutional repositories has increased since 2006 but it is still not a majority of research output. There are annual rankings published

44 Nancy Fried Foster and Susan Gibbons, 'Understanding Faculty to Improve Content Recruitment for Institutional Repositories', *D-Lib Magazine* 11, no. 1 (9 February 2008), <http://www.dlib.org/dlib/january05/foster/01foster.html>; Bhuvra Narayan Luca Edward, 'Issues and Challenges in Researchers' Adoption of Open Access and Institutional Repositories: A Contextual Study of a University Repository', text (University of Borås, 15 December 2017), <http://www.informationr.net/ir/22-4/rails/rails1608.html>; Patricia Scott, 'Populating a New Repository for Open Access, HERDC and ERA. Riding on the Back of the Wave ...', 2009, <http://heswiki.onconfluence.com/display/radwiki/ERA+Under+the+Bonnet+-+Presentations>.

45 Australian Partnership for Sustainable Repositories, 'Open Repositories 2006: Webpage, Program and Evaluation', 21 May 2008, <https://openresearch-repository.anu.edu.au/handle/1885/46950>.

46 John P Walsh and Todd Bayma, 'Computer Networks and Scientific Work', *Social Studies of Science* 26, no. 3 (August 1996): 661–703.

47 Everett M Rogers, *Diffusion of Innovations*, Third (New York: The Free Press, 1983).

⁴⁸ Danny A Kingsley, 'The Effect of Scholarly Communication Practices on Engagement with Open Access: An Australian Study of Three Disciplines' (PhD, Canberra, Australian National University, 2008), <http://hdl.handle.net/1885/49304>.

that measure the percentages of work available as ‘green open access’ (in repositories, institutional or subject based)⁴⁹. These show that for the period between 2015 – 2018, only six of the 31 Australian universities listed have more than 50 per cent of their material available open access. The highest is Queensland University of Technology with 61 per cent, reflecting the fact this university was the first in the world to have an open access mandate, in 2004⁵⁰. As a comparison, over the same period, of the 58 listed UK universities, only one has less than 50 per cent of their outputs green open access. Fifty of the institutions have over 70 per cent available as green open access and 25 of them have over 80 per cent of their work available. This reflects strong open access funder mandates in place in the UK since 2015⁵¹.

There are similar differences between Australia and the UK in relation to the impact agenda. As the open access situation has clearly demonstrated, the strength of a funder mandate makes significant difference to the uptake of the requirement. As discussed earlier in this paper, the UK REF has significant funding attached to the impact reporting requirements, and partly because of this the responsibility of impact sits within the research office. In Australia there is currently no funding associated with impact reporting, which offers an opportunity for libraries to become involved in the impact agenda. Training courses in open access already cover topics such as academic online presence, bibliometrics and the distribution of knowledge. It would not be

49 Centre for Science and Technology Studies, ‘CWTS Leiden Ranking’, CWTS Leiden Ranking (Centre for Science and Technology Studies (CWTS)), accessed 13 July 2020, <http://www.leidenranking.com>.

50 QUT, ‘Policy F/1.3 E-Print Repository for Research Output at QUT’, 2004, http://www.mopp.qut.edu.au/F/F_01_03.jsp.

51 Research Councils UK, ‘RCUK Policy on Open Access’, 2013, <http://www.rcuk.ac.uk/research/outputs/>.

difficult to expand this to incorporate discussions about research impact beyond the academy.

The experience libraries have had with research data management will similarly be instructive when it comes to the impact agenda. Academic libraries in Australia and the UK offer research data management services, which began from different trigger points. In the UK the Engineering and Physical Sciences Research Council announced in February 2015⁵² that they would be undertaking: “‘dip-stick’ checking of availability of data under-pinning published research” which had been a requirement of their funding since 2011⁵³. This funder-driven requirement resulted in the establishment of research data services in institutions across the nation⁵⁴.

In Australia, the government has invested significant funds in research data infrastructure since 2004 through the National Collaborative Research Infrastructure Strategy⁵⁵. In 2009, the Australian National Data Service provided grants to universities in 2009 for ‘seeding the commons’ requiring 50 datasets to be deposited into their

52 Data Curation Centre, ‘Research Data Management Readiness | DCC’, accessed 13 July 2020, <https://www.dcc.ac.uk/events/other-dcc-events/RDM-readiness>.

53 Ben Ryan, ‘RDM Principles and Expectations’, prezi.com, 15 March 2015, <https://prezi.com/kflylbtckgvu/rdm-principles-and-expectations/>.

54 Cambridge University Libraries, ‘Research Data Management’, Text, accessed 13 July 2020, <https://www.data.cam.ac.uk/>; Oxford University, ‘Research Data Oxford’, Research Data Oxford, accessed 13 July 2020, <https://researchdata.ox.ac.uk/>; The University of Manchester Library, ‘Managing Research Data’, accessed 13 July 2020, <https://www.library.manchester.ac.uk/using-the-library/staff/research/research-data-management/>.

55 Australian National Data Service, ‘A Decade of NCRIS Investment in Data’, ANDS, August 2016, <https://www.ands.org.au/news-and-events/share-newsletter/share-26/a-decade-of-ncris-investment-in-data>.

repository per institution⁵⁶. The institutional library generally took on the responsibility for this work.

There is a recognition that implementing FAIR (Findable, Accessible, Interoperable, Reusable) research data principles⁵⁷ poses even greater challenges than the introduction of open access⁵⁸. Experience has shown that working with researchers on the planning of their research data before commencing their research makes it easier to share data safely at the end of the process. This is similar to impact – it is very difficult to demonstrate retrospectively and needs to be planned into the research process. The target audiences for both impact training and research data management training are PhDs and Early Career Researchers – both groups that library staff engage with regularly.

Indeed, there are potential opportunities for library staff to combine planning sessions with researchers at the commencement of a research project to cover the development of a research data management plan and to consider the potential impact of the work and how to plan the research project towards that end goal.

56 Australian National Data Service, ‘ANDS Project Registry’, Projects funded under the ‘Seeding the Commons’ program, accessed 13 July 2020, <https://projects.ands.org.au/getAllProjects.php?start=sc>.

57 Mark D. Wilkinson et al., ‘The FAIR Guiding Principles for Scientific Data Management and Stewardship’, *Scientific Data* 3, no. 1 (December 2016): 160018, <https://doi.org/10.1038/sdata.2016.18>.

58 ‘Open Data “Tougher” than Open Access and Needs “Mindset Change”’, *Times Higher Education (THE)*, 31 January 2020, <https://www.timeshighereducation.com/news/open-data-tougher-open-access-and-needs-mindset-change>.

The opportunity for the library as part of the research practice infrastructure

There is an abundance of guidance materials about what material needs to be collected to demonstrate impact. For example, the ARC has created support materials to assist researchers understand how to articulate their impact, such as the ‘Research Impact Pathway’⁵⁹, which describes the process from Inputs to Activities, to Outputs, to Outcomes, to Benefits. In response to the REF requirements to address impact, several support documents have been published to assist researchers and administrators understand what evidence is required to demonstrate impact⁶⁰⁶¹.

Societal, economic, health and other impacts relate to what happens to research outside of the academy, meaning there is a need to collect material written and shared by the research community beyond journals and books. Because this grey literature has historically not been relevant to the traditional measures of academic contribution, often it is not currently captured, even in repositories. There is a strong argument that all such material should be collected by institutions to reflect the full output of researchers. This is an area where libraries can offer immediate assistance with impact.

Evidence of impact can take many forms, from annual reports from organisations (including governments and NGOs), minutes from community meetings, letters of support, surveys, feedback from events, and testimonials from community

59 Australian Research Council, ‘Research Impact Principles and Framework’, 27 March 2019.

60 Digital Science, ‘The Societal and Economic Impacts of Academic Research - Digital Science’, March 2016, <https://www.digital-science.com/resources/digital-research-reports/digital-research-report-societal-economic-impacts-academic-research/>.

61 ‘Collecting Research Impact Evidence’, Vertigo Ventures | Impact Assessment and Reporting, accessed 12 July 2020, <https://www.vertigoventures.com/research-impact-evidence/>.

organisations. Given that librarians, by their profession, possess expertise in the location of information, they can offer support and advice to researchers needing to collect this material. In many of these instances, the material itself is not necessarily of a type that would lend to being shared in an institutional repository. However, there are outputs that researchers produce that are not traditional publication and therefore historically have not 'counted' in the promotion and reward processes, that could benefit from the exposure provided by a repository. Articles written in trade or professional magazines, news articles and the like are clear examples.

One advantage to the author of using the institutional repository for collecting and disseminating these types of materials is the ability to provide 'tracking' information about usage data, and potentially providing a persistent identifier such as a Digital Object Identifier to allow the work to be picked up by Altmetric, for example. The work can also be tracked through the statistics within the repository. Another advantage is the potential archival role of collecting these works in an institutional repository. Some outputs such as submissions to reviews, reports for government and the like, while initially published online, often disappear as governments change and websites are updated. By capturing these into a repository, not only is the artefact protected, but remains available to the author as well as readers into the future.

Widening policies around what can be deposited to institutional repositories opens up multiple considerations for libraries hosting repositories. In the first instance, the guidelines around what is permitted to be hosted in repositories need to be considered. It is not uncommon for the deposit policy for institutional repositories to be

limited to Authors Accepted Manuscripts of published articles. Other repositories hold a very broad scope of material⁶².

Another issue is whether the repository hosts metadata-only records, or records where the attachment is closed (not just under embargo) or if it has a policy to only host fully open access items. This is relevant as there are different questions around copyright when we consider material that is published in outlets beyond academic journals. Much of the material collected as evidence for impact is already available elsewhere – such as in news stories, which means a different workflow might be needed to obtain permission to host this material.

Researchers working in fields where there are clear industry implications (such as teaching, engineering, dentistry, to name a few) are likely to be writing materials that are published outside the peer reviewed literature, aimed at a professional audience. But a professional article is not a ‘journal article’ and could be better classified as a ‘newspaper/magazine article’ or ‘commentary’⁶³.

This opens questions about the classifications or types within repositories and whether these would be able to accurately reflect this newer material. A 2014 report comparing existing policies, practices and guidelines and implications for the list of item types used by IRUS-UK identified 25 different types, including ‘other’ which in

62 Australian National University Policy Library, ‘ANU Policy Library - Procedure - Open Access Research’ (The Australian National University), accessed 13 July 2020, https://policies.anu.edu.au/ppl/document/ANUP_008803.

63 Information Services Australian National University, ‘Open Research: Type List’ (The Australian National University), accessed 13 July 2020, <https://openresearch-repository.anu.edu.au/handle/1885/1/browse?type=type&order=ASC&rpp=20&offset=20>.

turn included ‘Other publication’ and ‘Summary of impact’⁶⁴, but nothing related to professional publications. The Advanced Search within the global Directory of Open Access Repositories, OpenDOAR, offers only eleven Content Types including ‘Other Special Item Types’⁶⁵. Any decision made by an academic library to start collecting the material associated with professional activities for institutional repositories is likely to require an assessment of the content types currently available in the institutional repository.

Conclusion

The role libraries hold within research institutions is changing as the world shifts towards a digital and increasingly open future. This requires a rethink of the types of services and skill sets that are appropriate for an academic library to encompass. The increased focus of institutions and funders on the societal impact of research offers an opportunity for academic libraries to further integrate their work into the open research agenda. Libraries can draw on the experience they have over the past decade of introducing institutional repositories and implementing open access and research data management policies.

One immediate service that libraries can offer is assisting with the identification of, and sometimes deposit into the institutional repository of, works that are sitting outside the peer reviewed literature. If this path is considered an option into the future,

⁶⁴ Anne Reed, ‘Use of Item Types by UK Institutional Repositories’, *IRUS-UK*, 18 August 2014, 69.

⁶⁵ JISC, ‘OpenDOAR - v2.Sherpa’, accessed 11 September 2020, <https://v2.sherpa.ac.uk/cgi/search/repository/advanced>.

libraries and possibly research offices will need to look at workflows and item classifications within systems to ensure they encompass this broader collection of works.

In the longer term, impact offers libraries as part of a wider ‘research practice’ activity for research institutions, incorporating support, training and expertise in relation to scholarly communication and research impact. This could open new ways to collaborate across the institution with the research office, marketing and communications, commercialisation, alumni and human resources, further embedding the library as the centre of an effective research organisation.

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