Open Access+ Service: reframing library support to take research outputs to non-academic audiences

The University of Manchester Library has established a key role in facilitating scholarly discourse through its mediated open access (OA) services, but has little track record in intentionally taking OA research outputs to non-academic audiences. This article outlines recent exploratory steps the Library has taken to convince researchers to fully exploit this part of the scholarly communication chain. Driving developments within this service category is a belief that despite the recent rise in OA, the full public benefit of research outputs is often not being realized as many papers are written in inaccessibly technical language. Recognizing our unique position to help authors reach broader audiences with simpler expressions of their work, we have evolved our existing managed OA services to systematically share plain-English summaries of OA papers via Twitter. In parallel, we have taken steps to ensure that our commercial analytics tools work harder to identify and reach the networked communities that form around academic disciplines in the hope that these simpler expressions of research will be more likely to diffuse beyond these networks.

Keywords
Scholarly communication; social media; Twitter; altmetrics; open access; public engagement

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Landscape

University of Manchester authors contribute to roughly 7,000 peer-reviewed journal and conference papers each year. The recent rise in funder and institutional open access (OA) mandates[1] means, as with many other UK universities,[2] most of these outputs are now made freely available to anyone who wants to read them.

The University of Manchester Library (UML) has established a central role in facilitating this rise in OA through its OA Gateway service[3] whereby authors use a simple interface to deposit author-accepted manuscripts or request payment of gold OA charges. This largely shields them from the laborious workflows required to ensure each paper complies with the ever-changing policy stack.[4] Due to the wide take-up of this mediated service, the Library now systematically processes most of the University's scholarly outputs, to the degree that they have become another 'special collection' of unique content requiring stewardship and dissemination.[5]

> 'the University's scholarly outputs … have become another "special collection"'

But is moving the collection from behind the paywall enough to realize the public benefit? For better or worse, research funding agencies play a key role in shaping institution-wide behaviour, but few require authors to ensure their work is described in a way that makes it comprehensible to non-specialist audiences.[6] Consequently, this collection, despite being free to read, remains largely inaccessible beyond the field.

Research marketing teams can connect those conducting research with those who may benefit from the outcomes of research. However, marketing budgets are spent prudently and in alignment with areas the institution decides most strategically beneficial. The University of Manchester, for example, promotes its research addressing global challenges under the Research beacons brand.[7] This is supported by a dedicated network of marketing

communications professionals who run campaigns based on the University's research activities in the fields of cancer, energy, advanced materials, global inequalities and industrial biotechnology.

Media Relations teams work with authors to produce summaries of research designed to attract journalists but it is often only more established academics who tend to liaise with media relations colleagues.[8] A review of EurekAlert suggested no more than 3% of University of Manchester papers are mentioned in a press release each year, and of these only a fraction will gain attention from the mass media.[9]

This leaves a very long tail of research not benefiting from any support from the University and not reaching the full range of potential audiences. Despite UML developing holistic services across the research life cycle, intentionally taking this special collection to audiences outside the University has been an under-developed service category. Might this be one logical progression of Lorcan Dempsey's concept of the inside-out model whereby institutional materials are made available to external audiences in new ways?[10]

Challenges

'taking this special collection to audiences outside the University has been an under-developed service'

Achieving meaningful involvement in this part of the scholarly communication chain poses challenges; most of these challenges stem from our limited track record in intellectually engaging with the contents within the collection to a degree that we can intentionally target external audiences.

In recent years, UML's role in managing the research outputs of the University has necessarily involved ensuring compliance with funder OA mandates and maintaining high metadata quality; and our discovery services have developed with an institution focus and oriented around the needs of internal scholarly audiences.

If we are to make a long-term investment in this service category, then we will need a mix of professional competencies not typically required in Library-based scholarly communication roles.[11] We will also need to form new partnerships with the many University functions already facilitating engagement between researchers and external audiences.

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Crucially, it will involve convincing a greater proportion of researchers to let us in to this part of their workflow, if indeed this part of their workflow exists. A recent survey in the social sciences revealed many reasons preventing researchers from sharing and discussing their research online.[12] Expectations of academics to ensure their research outputs are comprehensible to wider audiences are also not as clearly defined as other areas of the research life cycle.

Opportunity

Recognizing the potential role UML could play in amplifying the University's impact, we saw an opportunity to evolve the OA Gateway to allow us to systematically share plain-English descriptions of OA papers through a dedicated Twitter account. We also saw a chance to make our commercial analytics tools work harder to identify and reach the networked communities that form around academic disciplines.

We selected Twitter as it is effective for spreading information and has been widely adopted by the research community; indeed, tweets exceed 91% of the total social media activities recorded by altmetrics.[13] By producing simpler expressions of research findings, we hoped to increase the chances of tweets diffusing beyond the immediate academic networks that form around a discipline. Likely neighbouring networks might include a more diverse range of interested actors from business, city/regional/national policymaking, cultural partners, the healthcare sector, international agencies, local community, media, national education and the general public.

We did not want our new Twitter account to feel like a bot churning out papers available from our repository. An analysis of tweets referencing papers published in dental journals found 77% of tweets were mechanical in nature.[14] We wanted the account to convey the fact that it is run by real people; we also wanted the tone of our tweets to be distinct from the more promotional style adopted by media relations where enhancing the reputation of the institution is the goal.

We aimed to show authors the benefits of using social media to share the open outputs of research. That said, we did not want to unthinkingly advocate for Twitter in all circumstances, as assorted factors influence whether academics engage with social media[15] and the nature of public engagement differs across academic disciplines.[16] Therefore, any service development was to be on an opt-in basis.

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Open Access+

Enhance the OA Gateway

The OA Gateway receives over 2,000 deposits a year and so offers us a valuable touchpoint to reach authors with more Library services. In 2017 we added a check box allowing authors to indicate that their paper had potential to generate media interest and should be considered for a press release. When an author checks this box, we send the details of the paper to the relevant faculty press officer.

The positive reception to the press release feature gave us confidence to add a second check box allowing authors to opt in to receive help raising the visibility of their paper, and for the Library to promote the paper via its social media channels: a service branded as Open Access+ (OA+). When an author opts in to OA+, their paper moves through two simultaneous workflows: our established OA compliance workflow and a new OA+ workflow.

'a …check box allowing authors to opt in to receive help raising the visibility of their paper'

Communities of Attention report

The first part of the OA+ workflow involves the creation of a 'Communities of Attention' report listing Twitter accounts most frequently mentioning papers from the journal the paper will appear in.

To generate this report, which in the naming owes a debt to the work of Rodrigo Costas et al.,[17] a custom script queries the Altmetric API for all attention data for the most recent 1,000 papers in the journal and then tabulates the data into a spreadsheet. If the journal is very general in scope, then an alternative approach is used whereby the 1,000 most recent papers from the most relevant SciVal Topic or Topic Cluster[18] is used. A 'blocked list' of bot accounts are programmatically removed and the report is moved to a folder ready to be sent to the author/s. A guidance note is also provided encouraging authors to consider whether any of the accounts in the report may be useful to engage with as appropriate.

Non-technical abstracts

In parallel, the abstract of the paper is manually run through a tool developed by a team at the Israeli Institute of Technology which identifies and flags potential jargon by comparing the abstract against a corpus of over 90 million words.[19] The aim of this tool is to alert authors to terms in their abstract which may not be comprehensible to a non-specialist audience.

We e-mail the author/s a copy of the abstract with potential jargon phrases flagged, along with their customized Communities of Attention report. The e-mail also provides guidance on Kudos[20] and The Conversation,[21] both of which can be useful to reach broader audiences with more accessible descriptions of research findings. We also link to the Simple Writer app which challenges authors to explain their research using only the thousand most common words in the English language.[22]

Creating a Twitter thread

The paper does not advance to the next stage of the workflow until an in-house software application flags that it may have been published online. To do this it queries the Crossref API each day, using the article title of each opted-in record as a search string; and for every returned result including a DOI within the metadata, it marks the record as 'potentially published'. This approach allows the team to be alerted to the article's publication earlier than waiting for the paper to be indexed by either Scopus or Web of Science, and very often the day after online publication. Each morning, the team filter out 'potentially published' records and send them through the next stage of the OA+ workflow.

'a bullet-point summary of the paper which is ideal for including in a Twitter thread'

Developments in machine learning techniques now make it possible for summaries of papers to be automatically generated. Scholarcy[23] is pioneering this type of technology and provides the team with a bullet-point summary of the paper which is ideal for including in a Twitter thread. The benefit of using this tool is that it allows the team to efficiently obtain highlight summaries of papers at a scale that would be unfeasible otherwise, and in a way that would be impossible without domain expertise.

A member of the team will then draft a Twitter thread for review by the service lead. The thread will include a link to the OA paper, any underlying research data, the project, and any funders acknowledged within the paper. The Scholarcy-generated summary text is used to produce a narrative providing an accessible description of the findings. Images are also used throughout the thread to maximize engagement. The team will end the thread by tagging in the most relevant Twitter accounts appearing in the Communities of Attention report on the assumption that they may be interested.

'Images are also used throughout the thread to maximize engagement'

Once the service lead has reviewed the draft thread and made any necessary edits, it is then published on the @UoMOpenAccess account.[24] The thread is next enriched by the team collecting and linking to interesting discussions around the paper, and the Kudos abstract if available.

Success measures

Developing exploratory services at the intersection between open access, scholarly communication and metrics presents challenges in setting valid success measures, compounded by the fact that most societal impact benefits of using Twitter cannot be evidenced with quantitative measures.

We set out to develop reports based on the assumption that, triangulated against other data, it would be useful for individual departments to know the sheer volume of attention their research is achieving when assessing the effectiveness of their collective research communication efforts.

We were confident we could produce reports telling each department what proportion of their papers were in the top 10% most tweeted, but our goal was to show each department how their number compared with numbers from comparable departments from across each of the Russell Group universities. To do this, we used SciVal to identify 2014–2018 papers published by the department, and to identify comparator papers at other Russell Group institutions using the Research Topic feature in SciVal; we then used Altmetric Explorer to obtain information about the volume of attention received by the papers.[25] We were then able to calculate whether, when compared to other papers in the same SciVal subject field, the paper was among the top 10% most tweeted. The data is then included within a broader metrics report which is sent out twice a year to each of the 31 departments within the University.

We would not expect the OA+ service alone to impact a department's position within these reports but for those departments that have developed a strategy in the space, it would be useful to use to monitor progress against goals.

Early outcomes

Challenging assumptions about the Library's role within our institution entails risk, but so far there has been no resistance to us reframing ourselves to help expand the use of research beyond traditional academic boundaries.

We are still figuring out whether this could remain a long-term service category for us. In the eight-month period since the service launched, 15% of depositors opted in to the OA+ service. A more detailed breakdown revealed 24% of authors requesting gold OA payments opted in, whilst 11% of authors depositing an accepted manuscript to achieve green OA opted in. This level of engagement was consistent with our year one projections, during which we had not planned to undertake any promotion or advocacy as resourcing implications were being assessed.

'Challenging assumptions about the Library's role within our institution entails risk'

A breakdown by Faculty revealed that authors from the Humanities Faculty were the most likely to opt in to the service (26%), with authors from the Science and Engineering Faculty least likely (12%). (See Figure 1.) There is an interesting parallel between this data and the findings of a recent RAND Europe report which found only humanities and social science researchers citing 'non-academic impact' and 'collaborating with non-academic partners' amongst the five main drivers for change in the research system.[26]

'authors from the Humanities Faculty were the most likely to opt in to the service (26%)'

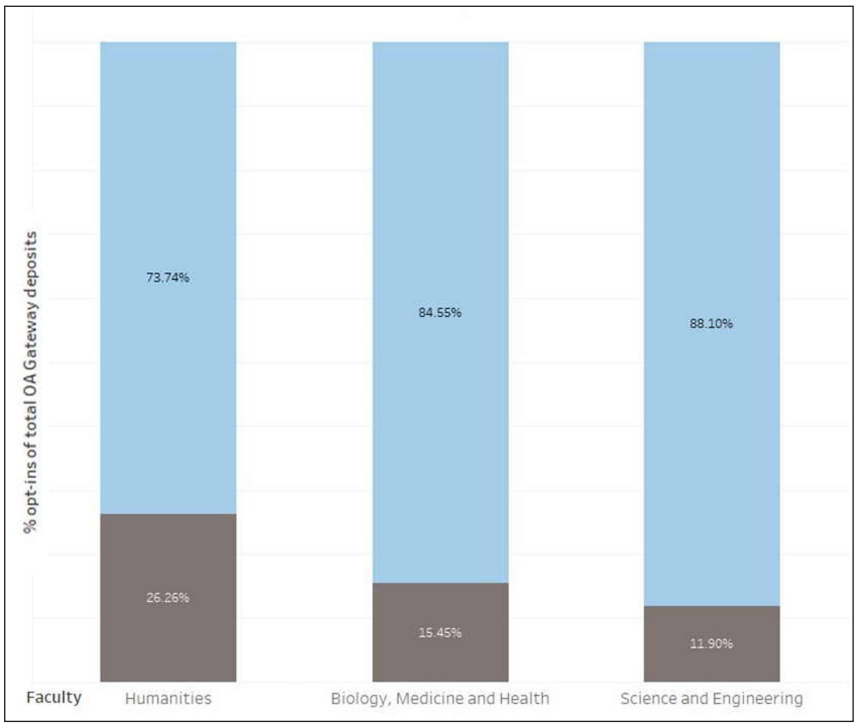

Figure 1. Breakdown of OA+ opt-in by Faculty

At this early stage we have not yet agreed on any interaction metrics focusing on how target audiences engage with our own social media activities. However, early data suggests papers promoted via the OA+ service tend to attract higher altmetric attention scores than papers which are not promoted through the service. For example, 23% of opted-in papers achieved an attention score of 21 or more; whereas only 12% of non opted-in papers achieved scores in this range (Figure 2).

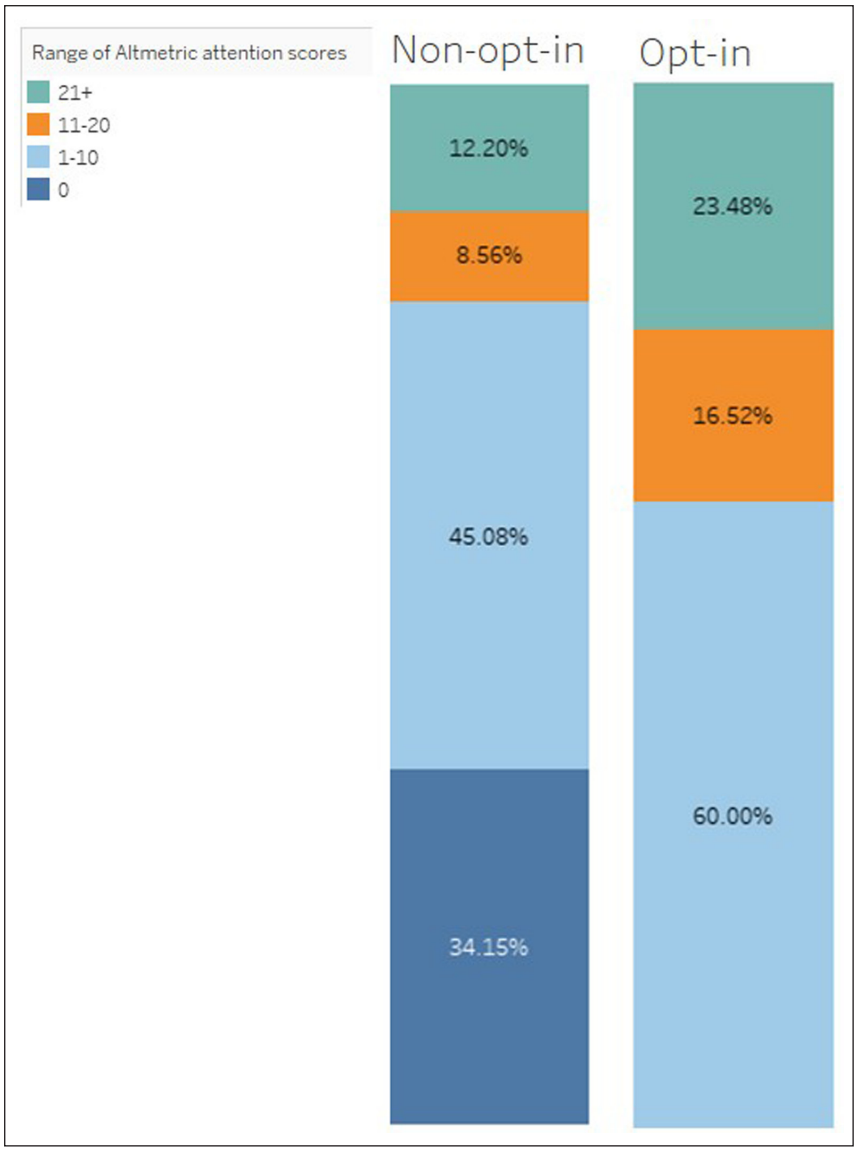

Figure 2. Altmetric scores of OA+ non-opt-in versus opt-in

Our key objective was to reach non-academic audiences by producing accessible descriptions of research that would be amplified by the existing networks that had formed around a discipline. Despite occasional engagements from non-academic accounts, anecdotal experience suggests most of the engagement with our tweets appears to be from academics within the field. This may be because the account is still new but more likely the problem is deeper. A study on this subject reinforced our observation that the reach of papers rarely extended beyond the same users who form a well-connected community around the field.[27] It may be an inherent feature of Twitter networks that it is very difficult to reach adjacent networks from within academic silos, irrespective of the language used.

Possible next steps

Evolving our existing OA service in this way has prompted many interesting questions about our role in modern scholarly communications and our relationship with researchers.

'it is very difficult to reach adjacent networks from within academic silos'

Having taken the first steps in this service category, we can be encouraged by some of the early outcomes. Reflecting on possible enhancements to our existing workflows, we could perhaps be more creative in how we construct Twitter threads.[28] Research also suggests engagement on Twitter is enhanced by the use of visual abstracts, compared with plain-English abstracts and standard tweets,[29] so this may be an area to investigate.

The Communities of Attention report in the current form are fairly rudimentary. By more intelligently mining the complex networks of social media connections,[30] we might produce more relevant audience suggestions.

Reflecting on a broader level, little flexibility is currently designed in to our system and it is unlikely that one uniform approach would be effective in all cases. Communication channels into communities are diverse and researchers hope to affect a range of outcomes through their overall public engagement activities; for example, some may be seeking to influence decision makers whilst others may wish to target more general audiences.[31]

We might then consider offering a more customizable range of technology-based services under the Open Access+ brand to more explicitly target specific audiences. In other words, having built Twitter into our operations, might we also look to other social media platforms?

Instagram is being adopted by disciplines such as neurosurgery as a new platform for communication between patients and neurosurgeons.[32] Reddit Ask Me Anything (AMA), which offers question-and-answer interactive interviews, may be another avenue to explore, especially as recent study of researchers who participated reported overall positive experiences.[33] A recent study also suggests Facebook may have been underestimated as a scholarly communication platform.[34]

'having built Twitter into our operations, might we also look to other social media platforms?'

Our existing locally managed services are resource intensive and finite capacity limits the ways we might expand the OA+ service offer. Whatever the next step, any further developments rest upon our ability to design significant efficiencies into our workflows. UIPath is one of a growing number of robotic process automation (RPA) software tools enabling the automation of high-volume, repeatable tasks. Early feasibility work using UIPath has been encouraging and has allowed us to almost fully automate the creation of the Communities of Attention report. If we are successfully able to automate further portions of our workflows, then this service category offers an exciting range of possibilities for future development.

'Early feasibility work using UIPath has been encouraging'

Abbreviations and Acronyms
A list of the abbreviations and acronyms used in this and other *Insights* articles can be accessed here – click on the URL below and then select the 'full list of industry A&As' link: http://www.uksg.org/publications#aa

Competing interests
The author has declared no competing interests.

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