

## Open Access, Repositories & New Metrics

The rise of the Internet and increasing journal prices helped pave the way for the open access movement. Now the rise of networked communication and the associated metrics can provide more advantages for researchers to use their institutions' repositories for open access versions of their research papers.

### Brief Background

Open access is a shorthand term that is generally accepted to mean digital literature that is free of charge and free of restrictions. According to Björk (2004), "'Open access' (OA) means that a reader of a scientific publication can read it over the Internet, print it out and even further distribute it for non-commercial purposes without any payments or restrictions."

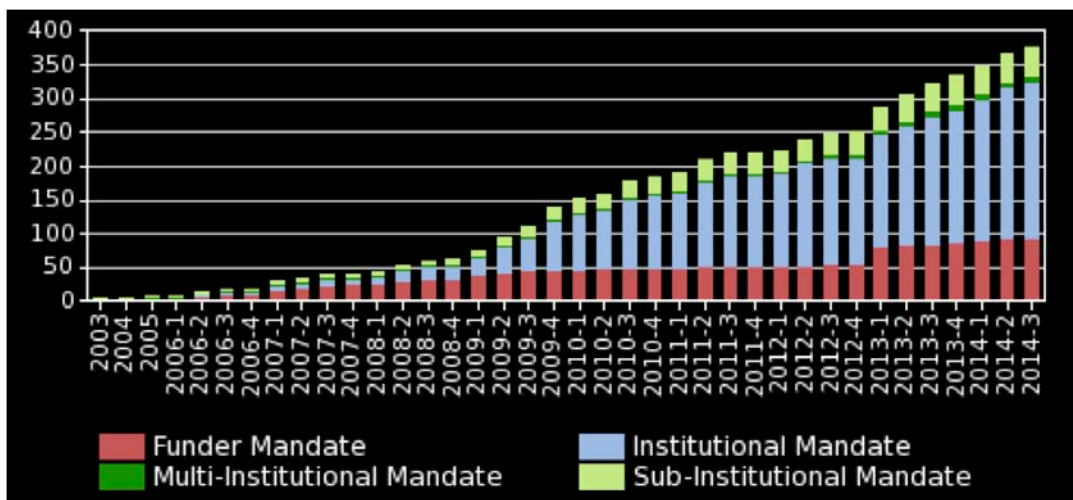


Some of the activities around open access date as far back as 1991 with the creation of arXiv.org as a repository for physics pre-prints. But, the bigger push to allow articles about scientific results – often funded by public tax dollars – to be free began with the combination of the ubiquitous use of the Internet and the rise of journal prices. The open access movement got a big push in 2001 when 34,000 global scholars signed "An Open Letter to Scientific Publishers," and in 2002 with the [Budapest Open Access Initiative](#).

### Mandates

Since the beginning many universities and research funders began adopting mandates requiring their researchers to provide open access to their research articles. [The Registry for Open Access Repository Mandatory Archiving Policies \(ROARMAP\)](#) is a database of all the open access mandates. As you can see from their chart, open access mandates have been rising every year and now includes over 350.





Not surprisingly, journal publishers have pushed back against open access, mostly fearing the value of their journals would decrease if research articles were freely available. While many researchers have embraced open access as a way for their work to be found and used more readily and more quickly, there are also many who do not follow their institutions' policies for depositing their articles in the institutional repository.

In the carrot and stick metaphor, these mandates are a stick; publish openly or else.

### Types of Open Access Publishing

The term "open access" covers several different activities, which can make the topic confusing. There is green vs. gold, or journal vs. self-archiving. In a recent article by Björk (2013), he outlines and discusses three different types of open access:

1. Open Access Journals
2. Subject Repositories
3. Institutional Repositories

The emphasis of this paper is to show that using metrics with an institutional repository can increase compliance with institutional mandates. However, the same methods and results can apply to the other two types of open access publishing as well.

### Altmetrics = "The Carrot"

If mandate policies are the stick, altmetrics can act as the needed carrot to make researchers want to post in an institutional repository. When the institutional repository looks like a black box, with little to no information about what happens to the



material deposited there, then there is little incentive for researchers to use it. Many institutional repositories provide download statistics for the articles within the repository, which are helpful, but altmetrics can provide much more.

### What are Altmetrics?

Altmetrics or alternative metrics is a catchall label that means metrics about how people interact with research output that goes beyond the traditional metrics based upon citations. For many, altmetrics is equivalent to how research output is interacted within social media, e.g. Twitter and Facebook. In a recent article, "[Are Altmetrics still Alternative?](#)" Plum Analytics co-founders Buschman and Michalek (2013) describe a more progressive view of altmetrics that includes metrics beyond those that track social media to include all types of interactions and various forms of usage and citations. In fact, at Plum™ Analytics, the term "ALLmetrics" is often applied because of processing all the interaction with research output. These interactions include, downloads, bookmarking, blogs, reviews, tweets, comments, etc. To make sense of all of this data it is important to categorize the metrics.

#### USAGE

Clicks  
 Downloads  
 Views  
 Library Holdings  
 Video Plays

#### CITATIONS

PubMed Central  
 Scopus  
 USPTO

#### SOCIAL MEDIA

+1s  
 Likes  
 Shares  
 Tweets

#### MENTIONS

Blog Posts  
 Comments  
 Reviews  
 Wikipedia Links

#### CAPTURES

Bookmarks  
 Code forks  
 Favorites  
 Readers  
 Watchers

### ALLmetrics, the Institutional Repository & Pitt


By providing all of these categories of metrics you show your researchers a more complete picture of how the world is interacting with their research in the repository. The University of Pittsburgh (Pitt) was an early customer of PlumX™, a metrics impact dashboard from Plum Analytics, because they had the vision to realize that providing metrics in their repository, [D-Scholarship @Pitt](#), could encourage their researchers to use it.

One example of this in action at Pitt is the article titled "[An Electrographic Brain Interface in An Individual With Tetraplegia.](#)" In layman's terms, this is an article about using robotic arms for people with disabilities. Below are the metrics about this article available in their repository.

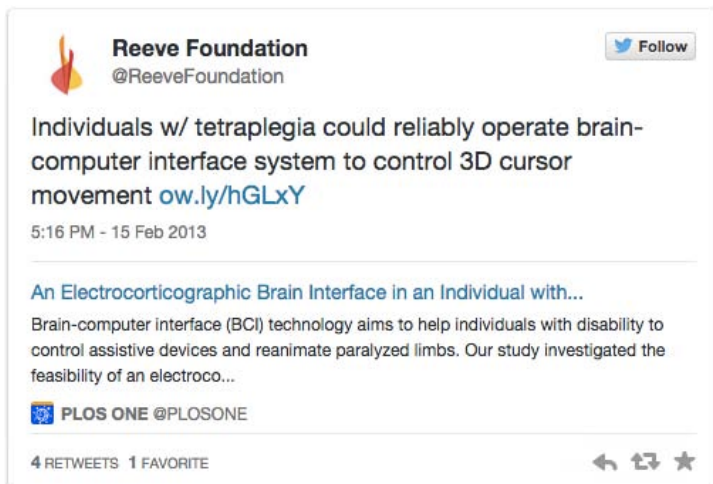




<p><b>Usage</b></p> <p>EBSCO - Abstract Views: 142          EBSCO - PDF Views: 62          EPrint - Downloads: 77          PLoS - HTML Views: 5687          PLoS - PDF Views: 780          PubMedCentral - HTML Views: 484          PubMedCentral - PDF Views: 206</p>	<p><b>Captures</b></p> <p>Mendeley - Readers: 81</p>
<p><b>Mentions</b></p> <p>Facebook - Comments: 6</p>	<p><b>Social Media</b></p> <p>Facebook - Shares: 12          Facebook - Likes: 3          Google+ - +1s: 4          Twitter - Tweets: 33</p>
<p><b>Citations</b></p> <p>PubMed - Citations: 16          Scopus - Citations: 34</p>	

 [see details](#)

This PlumX widget view of the metrics about this article is available in the repository. The widget contains the usage metrics about the article in the Pitt repository, represented as Eprint- Downloads (there are 77 of them). Yet, it shows so much more. It also shows the usage of the version in PubMed Central, the versions available through EBSCO databases, and the published version at PLOS. Besides usage, you can see the metrics in all of the categories. One particular interesting story about this article revealed through the widget is what is going on with Twitter. By clicking the tweet count, you can see the tweets about this article in context.



For example, the Reeve Foundation tweeted a link to the version of this article in the PLOS ONE journal.

This could reveal an interesting funding or promotion source to the researcher. This is something that would have been more difficult to find without all of the metrics with the article in the institutional repository.



## The Feedback Loop

This basic premise for a feedback loop is to provide people with information about their activities in real time (or something close to it), then give them the opportunity to change their behaviors. A well-known feedback loop is the speed limit signs. These signs are a proven method for getting drivers to slow down.



Metrics within your repository can have a similar effect. By providing your researchers data about their research in near real time, you can affect their need and desire to deposit their research in your repository. In other words, offering them a carrot rather than just a stick.

The examples above talk about using the metrics as a feedback loop in an institutional repository; yet, this methodology could also be used in a subject repository, or even with an open access journal.

## Open Data and Other Research Outputs

While this paper has concentrated on the article as the open research output, using metrics is not limited to published articles. There are often also mandates for open data. For example, the [American Heart Association requires grant applications to include a data sharing plan](#). If researchers deposit and share their data through a system such as [Dryad](#), then they can see similar metrics about their data.

Researchers have other activities that demonstrate their research results besides articles. They might deliver a presentation of their results at a conference and deposit the slides in [SlideShare](#). They might create a video demonstrating their discovery and post it to [YouTube](#). You can see metrics for these types of output too.

## Conclusion

From the highest level, open access is about making research results more accessible to everyone. While much has changed in the dozen or so years since the movement got its biggest push forward, the pace of change in open access is moving slowly compared to other technological and business changes in the same period. With the advent of new impact metrics, there can be a new reason to utilize an institution's open access repository.



## References

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