

# Altmetrics for Librarians: 100+ tips, tricks, and examples

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About This Ebook

**Altmetrics for Librarians: 100+ tips, tricks, and examples**

Authored by Stacy Konkiel, Natalia Madjarevic, and Amy Rees © 2016

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# Introduction

Altmetrics are a hot topic in libraries nowadays, but what do they mean in a practical sense for the average librarian's work?

This is a topic that I've been wrestling with since 2009, when I was introduced to altmetrics by way of the [PLOS Article-Level Metrics program](#), which was launching just as I joined the company. Just one year out of library school and new to the world of scientific publishing, I was entirely taken with the idea of article-level metrics. Of course we should understand an article on its own merits, rather than the impact factor of the journal it's been published in! Of course web-based metrics could be used to understand how an article has performed on the web, and to supplement our understanding of impact provided by citations!

Fast forward to a year later, when Jason Priem—[coiner of the term "altmetrics"](#)—came to speak at PLOS about his then-passion: the idea of [the decoupled journal](#). He argued eloquently for a future in which publishers like PLOS would be mostly obsolete, where third-party services like Pubpeer would handle peer review and other core functions of publishing, and where filtering and recommendations would happen by way of the social web, rather than editors, thanks to altmetrics.

"Why rely on people I don't know to select what I should be reading, when I've got a Twitter network full of brilliant peers who are a lot better at finding and sharing stuff I'm interested in?" Jason asked.

After Jason's talk, I began to ponder how all of these "[revolutions in scholarly communication](#)" applied to libraries. What did we have to offer in the way of Open Access publishing or support for newer research services like data archiving, peer review, and other functions of scholarly communication?

More importantly, how would altmetrics apply to the work that librarians do on a day-to-day basis, like teaching information literacy concepts, selecting journals and books to add to our collections, managing institutional repositories, and so on?

With the release of the [Altmetrics Manifesto](#) in 2010, I found that my list of questions about altmetrics' applicability to libraries was growing. Soon, [plenty of speculative articles](#) were being published in the library literature about how libraries could potentially use altmetrics, but few concrete answers were being offered about the reality of their use in academic libraries.

Finding answers to librarians' real-life uses of altmetrics has since driven my career, and introduced me to like-minded librarians like Rachel Borchardt, Robin Chin-Roemer, Andy Tattersall, Kristi Holmes, Karen Gutzman, and David Scherer (among many others), who each share my passion for the promise that altmetrics hold for "revolutionizing" library services. They have also formed the basis for a national survey I've recently completed with Sarah Sutton and Rachel Miles, where we're going to the source—librarians themselves—to understand how librarians use these metrics. I share some of the results from that study for the first time in this ebook.

This ebook is intended to be a starting point for sharing what myself and colleagues (fellow librarians Natalia Madjarevic and Amy Rees who are now working at Altmetric) have learned about libraries and altmetrics in the six short years since the Altmetrics Manifesto was published. We intend for this volume to complement the many excellent existing library-oriented resources on altmetrics (chief among them being the books [Meaningful Metrics: A 21st Century Librarian's Guide to Bibliometrics, Altmetrics, and Research Impact](#) (ACRL Press, 2015) and [Altmetrics: A practical guide for librarians, researchers and academics](#) (Facet Publishing, 2016)), which are fantastic primers to what altmetrics are, the current tools on the market, and how altmetrics relate to citation-based metrics. Our book is different in that it provides the "nuts and bolts" needed to use altmetrics in a variety of library-land scenarios, including:

- Making collection development decisions
- Managing institutional repositories
- Helping faculty assemble evidence for their tenure & promotion packets
- Teaching workshops on altmetrics

We will also share our favorite resources for staying up-to-date on altmetrics research and news.

We have organized this book into three main sections: the General Overview, which will share resources related to doing outreach on altmetrics on your campus and how to track influence and attention using altmetrics data; Special Issues in Librarianship & Altmetrics, which will discuss altmetrics' applicability to various roles commonly found in academic libraries (collection development, scholarly communication librarianship, etc); and The Future of Altmetrics, which will share our thoughts on where the field of altmetrics is headed, and how you can stay abreast of changes moving forward.

Some of the scenarios shared in this book use Altmetric's tools and resources as a jumping-off point for illustrating concepts, but we do not intend for you, the reader, to stop your exploration of altmetrics there. Other sources for altmetrics data include

Scopus, Impactstory, and PlumX, as well as data that can be manually gathered from across the web and that's not included in the existing altmetrics tools on the market (data like ResearchGate metrics, Academia.edu metrics, web statistics sourced from Google Analytics, and so on). Each tool or data source has its own advantages and limitations, and we encourage you to find the tools that best suit your needs.

We hope that you find this ebook useful to your work and welcome any feedback you have.

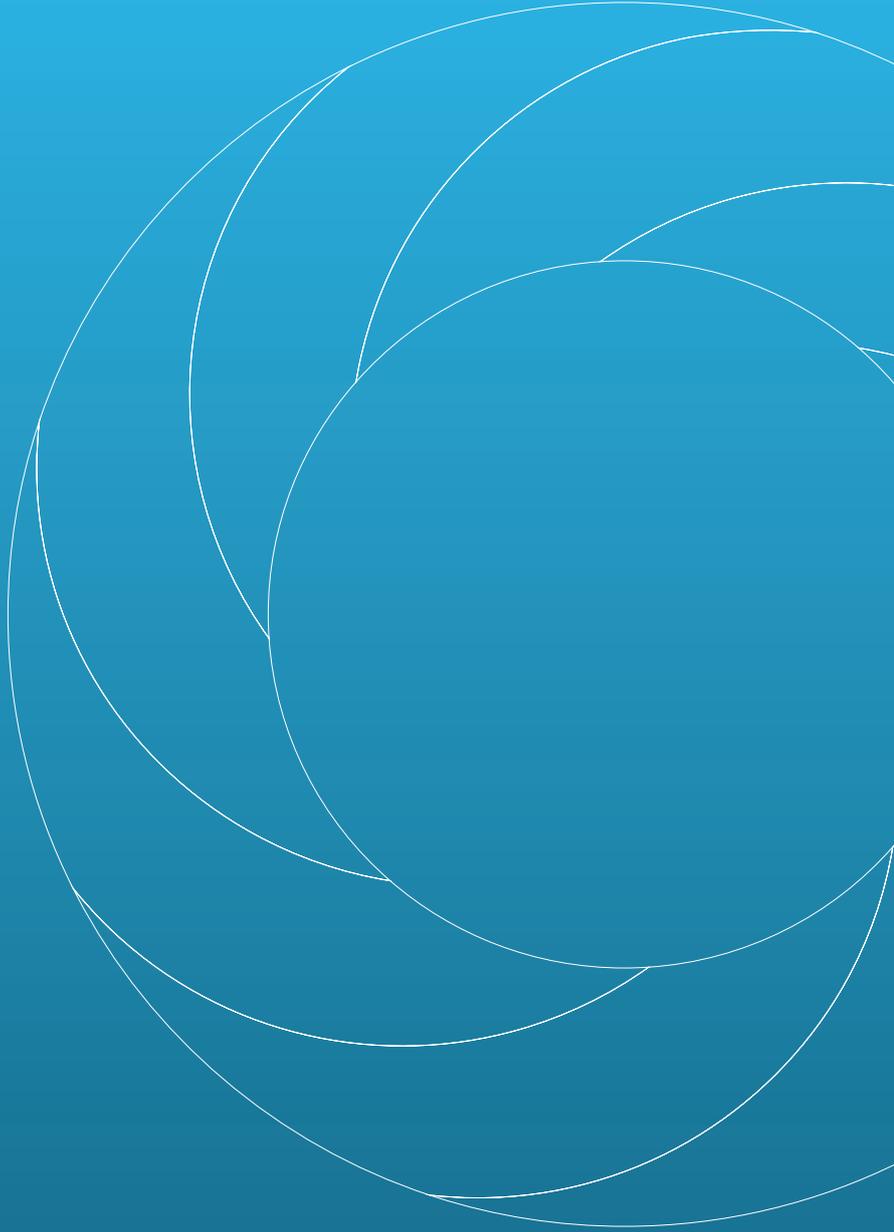
**Stacy Konkiel**

New Mexico, USA

Altmetric

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# General Overview





# Outreach on Altmetrics: A Complete Guide

Let's say that you are your library's biggest altmetrics advocate. You're up-to-date on the research, have participated in altmetrics-related workshops at library conferences, and are confident that altmetrics could be useful to your faculty and graduate students, in terms of helping them to understand the value of their research and share it with others.

You organize a brown bag luncheon on altmetrics—hanging posters across campus, emailing your colleagues in the library and faculty, preparing an informative 40-minute presentation, and anticipating a lively question-and-answer session at the conclusion of your talk.

The day of the luncheon comes and, to your dismay, your only attendees are a curious graduate student, a skeptical and argumentative Humanities researcher, and three of your colleagues from Reference.

How did this happen?

Librarians who are passionate about altmetrics can sometimes forget that the concept is still relatively unheard of among faculty and their fellow librarians. Some of the important first steps to raising awareness of altmetrics often aren't taken before librarian-advocates ask others to commit resources: attention and time (which few of us have much to spare nowadays), or money to purchase altmetrics tools (difficult to find without demand from faculty).

In this chapter, we'll share some important building blocks for building an outreach program on altmetrics at your university's library: how to start internal and external awareness-raising campaigns, assembling reference materials like LibGuides, organizing workshops and brown-bags, and, crucially, how to respond to misinformation and skepticism.

## Starting an awareness-raising campaign

Altmetrics are a relatively new type of data, so it's no surprise that not a lot of researchers nor librarians know about them. Your first order of outreach business is to plan small and targeted outreach campaigns to three main stakeholder groups: faculty, graduate students, and your fellow librarians.

Librarian Heather Coates has previously shared her expertise on building successful outreach campaigns. She has graciously allowed us to adapt her advice below.

*The following section is adapted from [a guest post to the Altmetric blog](#) contributed by [Heather Coates](#), Digital Scholarship & Data Management Librarian at Indiana University-Purdue University Indianapolis (IUPUI).*

My perspective as a tenure-track librarian tends to be that of a practitioner-researcher. Practically speaking, this means that part of my job is to know how the scholarly ecosystem works – to understand how scholarly products are created, disseminated, used, curated, and evaluated.

Over the past three years, I have taught several workshops on using citation metrics and altmetrics to demonstrate excellence and impact in promotion and tenure (P&T) dossiers. To date, several things have led me to some insights that I think are helpful for librarians interested in supporting use of altmetrics: developing altmetrics workshops and doing one-on-one consultations; conversations with my campus's Associate Vice Chancellor of Academic Affairs and Director of Faculty Enhancement; and the experience of assembling my own dossier.

Here, I'll share useful strategies for offering successful altmetrics workshops on your own campus, and advice for crafting messaging that resonates with researchers at all stages of their careers.

### Get out of the library

Faculty do not typically think of the library for support in putting together their dossiers, so it is crucial to partner with the campus units that faculty do seek out for this expertise.

Luckily for my library, a valuable opportunity fell into our laps. In 2012, librarians were invited to work with the Office of Academic Affairs to support faculty in gathering evidence for P&T dossiers. This support began with a 2-hour workshop, which is now part of a regular series in support of faculty development. Here's how it went.

We started off in the fall of 2012 with a broad introduction to publication-based metrics. It was a fairly traditional library workshop that focused heavily on citation metrics from subject and citation databases, plus Google Scholar. However, we did describe the various levels of evidence (journal-level, article-level, and author-level) and introduce the idea that journal-level metrics are the least relevant to

promotion and tenure. We also introduced [Impactstory](#), a researcher profile that includes altmetrics data, and we also discussed sources for informal metrics like acceptance rates, library ownership counts for books, and indexing status.

In the first 30 minutes of the workshop, we provided the explanatory content (what citations and altmetrics are, how they are sourced, and so on). The rest of the two-hour workshop was a mix of demonstrations and hands-on activities with tools like [Web of Science](#) and [Google Scholar](#). We wrapped with a Q&A panel that included two librarians and the Vice Chancellor of Faculty Affairs.

We learned two major things in the first workshop:

1. Many faculty already had Google Scholar profiles, and
2. Faculty were more interested than we assumed in altmetrics.

There was enough interest expressed post-workshop that we expanded the altmetrics section of our next workshop. Around that time, we also began offering this workshop each fall and spring semester, rather than once a year.

This allowed us to differentiate the focus of the workshops a little each time: for example, one year, we held two workshops (one for health professionals, science, and technology and another for humanities); another year, we focused on demonstrating impact in public scholarship and civic engagement, as well as for [team science](#). Our most recent workshops have focused primarily on altmetrics. We have also begun to differentiate workshops and guidance for the types of products and scholarship that faculty across campus are creating.

In general, the content covered in these workshops includes the following:

- Why metrics – proxy for quality
- Types of metrics
  - Journal-level, author-level, article-level citation metrics
  - Web and social media metrics
- Sources of metrics
  - Aggregators
  - Publishers
  - Repositories
- Evaluating metrics (check out this [comparison table](#) I created)
- Tips for gathering data
- Strategize
  - Gather
  - Record
  - Select
  - Visualize

The workshops have been so successful because we brought librarian expertise to a support system that was already established and in demand. Had we tried to host these workshops on our own, they would not have been as well-attended.

The most valuable aspect of this process for me has been the collaborative relationship developed with the Office of Academic Affairs (OAA). Thanks to them, I have learned a lot about the promotion and tenure process at IUPUI, as well as the dynamics between campus-level P&T guidelines and department- and school-level guidelines.

My advice for building these collaborative relationships with units like Academic Affairs is to go slowly and focus on developing a constructive dialog. Like the library, they exist to support faculty. Building a network of support in which faculty can succeed is a major driver for this collaboration. It also helps to counter the perception that libraries exist only to circulate books.

*[Editor's note: More tips for planning successful workshops can be found in the "Planning Altmetrics Workshop" chapter.]*

## Being change agents

Advocating for the use of diverse metrics for impact and reputation in P&T requires engaging with faculty, departmental administration, and campus administration to make change on campus. While "change" was not necessarily a goal when we started offering these workshops, guerilla advocacy has become a part of my conversations with faculty.

One advocacy tactic is to help researchers step back to see the value of all their scholarly products in new ways. An easy way to get them to think outside the box is to have them list all of the products resulting from a specific research project. This usually includes presentations, posters, white papers, policy reports. Sometimes faculty list code, models, data, and teaching materials, depending on their discipline.

With these specific products in mind, I then describe a couple of scenarios for how altmetrics can showcase the attention for individual items. This helps them to understand the power of altmetrics: rather than relying on a metric that describes the impact of the container for their work (i.e., the journal), they can point to specific evidence for exactly how their presentation or blog post or syllabus has been reused. This type of evidence is also more powerful for supporting a P&T case because it can relate directly to the items produced during the period of review.

The promotion and tenure process is about demonstrating potential for contributing to scholarly knowledge in your discipline, but that's difficult to do in the relatively brief window that faculty have to publish before they go up for tenure. Given the lag in accumulating citations, a great way to get buy in for altmetrics is to help faculty understand the portfolio of metrics that they can use to demonstrate the [impact of their work in multiple areas](#), more quickly than citations.

You can also raise awareness of altmetrics more generally through service on campus committees, getting involved with new faculty orientation, and engaging department chairs in discussion of their priorities and criteria. As a champion of altmetrics, the most important step is to become an adopter yourself – use altmetrics in your own promotion and tenure materials and discuss their value with your library’s promotion and tenure committee.

## Become an altmetrics expert

There’s no better way to be an effective instructor than to know that topic firsthand. So, you should become a user of altmetrics before you offer a workshop on them. Try to use altmetrics for your own professional advancement (annual reviews, promotion & tenure, grant applications, etc)–in doing so, you’ll very quickly learn the best places to find altmetrics data and which data types are the most useful to demonstrate particular flavors of impact.

I am usually my own guinea pig for the strategies and tools I recommend in our workshops. I do my best to walk the talk, so to speak. In my mid-tenure review, I included a table of usage statistics (page views and downloads) for my materials in IUPUI’s institutional repository and on Slideshare, plus the full text of a few tweets related to my conference presentations. In my last annual review, I included a screenshot of my Impactstory profile, Storify conversations about my conference presentations, and an extensive table of metrics for my presentations on Slideshare.

My dossier is due in May 2016. My case will be based strongly on my engagement with and contribution to data librarianship as demonstrated by altmetrics, at least primarily. I am fairly confident that the reviewers will see the value of this evidence, [at least at my own institution](#).

Since preparing for my mid-tenure review (where I collected most of my impact data manually), aggregation tools like [Impactstory](#), the [Altmetric bookmarklet](#), [Google Scholar](#), and [PlumX](#) (a subscription database) have made gathering impact data much simpler. These services collect data from across the web and incorporate it into a single, article-level or researcher-level report – give them a go for yourself!

One final way to be an altmetrics expert is to keep on top of the altmetrics research literature. New studies are published all the time and are often shared in [this Mendeley altmetrics group](#).

To get started, check out these resources:

- [Altmetrics: A Manifesto](#)
- [The Right Metrics for Generation Open](#) [Impactstory blog]
- [Seven ways to make your Google Scholar Profile better](#) [Impactstory blog]
- [Altmetrics in the wild: Using social media to explore scholarly impact](#) [Arxiv preprint]

- [Altmetrics: What, why, and where?](#) [ASIS Bulletin]
- [The power of altmetrics on a CV](#) [ASIS Bulletin]
- [Ten ways librarians can support altmetrics](#) [Altmetric blog]

These readings contain great content (including strategies for using altmetrics and examples of researchers who have used altmetrics for grants and tenure) that you can borrow from when creating workshops.

- Steve Roberts' Lab - [Products page integrating Altmetrics](#)
- Erin McKiernan - [Right to Research Workshop](#) [Slideshare presentation]
- Fernando Maestre - [How I use altmetrics](#) [blog]

## Webpages and LibGuides

Beyond in-person outreach, many librarians opt to create library webpages or LibGuides that explain altmetrics and other research metrics.

One [recent study](#) of this “passive outreach” strategy found that sixty-one of sixty-two libraries belonging to Association of American University member-institutions offered such documentation. These websites tended to contain the following types of metrics:

- Journal Citation Reports (100%)
- Journal Impact Factor (98.4%)
- H-index (90.2%)
- Altmetrics (80.3%)

Other issues discussed included tools for finding various metrics and researcher identification systems like ORCID.

If you're interested in creating a LibGuide on altmetrics at your institution, we recommend checking out these up-to-date, balanced LibGuides first.

- [“Altmetrics”](#), University of Melbourne Library: Solid introduction to altmetrics and their benefits & limitations. Includes a list of tips on how to improve your altmetrics through social media outreach.
- [“Research Impact, Citation Analysis & Altmetrics”](#), University of Cincinnati Health Sciences Library: A comprehensive guide to traditional citation metrics and altmetrics. Includes guides and tutorials on how to find citations for your work, and (to a lesser extent) information on altmetrics tools.
- [“Traditional & altmetrics”](#) [page], Utrecht University Library: Part of a larger primer on research impact and visibility. Includes a comprehensive grid that compares metrics offered by and features of altmetrics services and citation databases.

- **“DataBank: Scholarly Metrics intro”**, Northwestern University Library: Information on scholarly metrics (including altmetrics) is broken down according to what’s being assessed (articles, journals, databases, etc).
- **“Iowa State University Guide to Altmetrics,”** Emma Molls & Megan O’Donnell, Iowa State University: A concise guide to what altmetrics are, where they come from, and how researchers can use them.
- **“Altmetrics”**, Andrea Horne Denton & Kimberly Barker, University of Virginia Health System Moore Library: A solid overview to altmetrics, aimed at beginners. Includes suggested readings and other educational resources. Useful for librarians.
- **“Altmetrics, las otras métricas: ¿Qué es altmetrics?”**, Biblioteca Universidad D Sevilla: An excellent Spanish-language primer on altmetrics, filled with references to other Spanish-language altmetrics research and resources.

You are also welcome to adapt and reuse content from [WhatAreAltmetrics.com](https://www.whatarealtmetrics.com). It’s available for reuse and remixing under a CC-BY 4.0 license (please give authorship credit to Altmetric).

For more information on how to copy existing Libguides and Libguide pages into your own Libguide, [see this tutorial](#).

### Encourage the use of altmetrics tools

Usually, having a subscription to a database is not enough—you need to let your researchers know that they have access and help them learn how to use it, too!

The University of Stirling has created [a comprehensive LibGuide to accompany their Altmetric Explorer for Institutions subscription](#). It includes:

- Easy-to-understand documentation for Altmetric data
- Step-by-step guides for using the Altmetric Explorer for Institutions database
- Targeted guides for [faculty](#) and [students](#) on how to use Explorer for Institutions to achieve specific goals, like learning when their research is being discussed or finding “trending” research in their discipline.

If you have a subscription to an altmetrics tool at your institution (or want to encourage the use of free tools like Impactstory profiles or the Altmetric bookmarklet), creating a similar guide is a good way to go!

## Workshops & brown-bags

Following are examples of presentations that have been created by librarians worldwide to explain altmetrics to both faculty and their fellow librarians. You may find these examples to be useful starting points for thinking about creating your own altmetrics presentations. For an in-depth guide to workshops that goes beyond the basics, check out the “Planning altmetrics workshops” chapter that follows.

### Researcher-oriented workshops

Many universities host workshops for faculty and graduate students on altmetrics and other research metrics. Here, we’ve collected some of the very best for your reference.

- **“10 Easy Steps to Open Scholarship”**, Alison Hicks & Andrew Johnson, University of Colorado Boulder, 2014
- **“Enhancing the visibility and impact of your research”**, Karen Gutzman, Northwestern University, 2014
- **“Altmetrics for research: impact measurement & #hcsn”**, Robin Featherstone, Alberta Research Centre for Health Evidence, 2014
- **“Social media and altmetrics for scientists”**, Wouter Gerritsma, Wageningen UR Library, 2014

For a “meta” view on designing a library workshop on altmetrics, see [Young-Joo Lee’s poster](#), which describes how she conceptualized her workshop’s design—from needs assessment to delivery to outcome measurement.

### Librarian-oriented workshops

Some libraries also offer training for librarians on altmetrics and bibliometrics. The following presentations may be helpful in planning a similar training session at your library.

- **“Introduction to altmetrics”**, Linda Galloway et al, Syracuse University, 2013
- **“Measuring research impact with bibliometrics”**, Tanya Williamson, Lancaster University, 2014
- **“Altmetrics, Apples & Oranges”**, Pat Loria, University of Western Sydney, 2014
- **“Joining the ‘buzz’: the role of social media in raising research visibility”**, Eileen Shepherd, Rhodes University (now retired), 2014
- **“Are the scientists onto something with altmetrics?”**, Katie Brown, Charlotte School of Law, 2014

## Talking points

Anyone who introduces the concepts of altmetrics often hears a number of common questions and concerns about this new type of data. Below, we've collected talking points and answers to frequently asked questions that you can use to practice discussing altmetrics in one-on-one conversations with your fellow librarians and faculty.

**Altmetrics are complements for traditional metrics, not replacements:** Altmetrics have several advantages over citations: they're quicker to accumulate, they document non-scholarly attention and influence, and they can be used to track the attention for non-traditional research outputs. However, they can't tell us anything about the quality of the research. Citations are a useful indication of traditional scholarly influence, whereas altmetrics can tell us about public influence and non-traditional scholarly influence, which can [occasionally predict later citations](#). You need both kinds of metrics to get the full picture of research's value.

**A majority of research doesn't have attention online—and that's OK:** It's likely just not being discussed on the sites that altmetrics aggregators track, like [more than 80% of other research online](#).

**Altmetrics are great for tracking the attention for datasets, software packages, and other non-traditional research outputs.** Altmetrics can prove just how valuable research software, data, and other outputs are to other scholars, policymakers, and members of the public. For example, take the metrics for [this script](#); Depsy shows that hundreds of other people worldwide need it run their own software. That's influential! And now its creators can get the credit they deserve.

Altmetrics can also help authors learn how their traditional research (articles and books) are making a difference outside of academia. A few ways authors can see this include:

- [Measuring the influence of research upon climate change public policy](#)
- [Understanding public reception for history research via Goodreads ratings](#)
- [Discussion in "trade" books, as understood via Google Books citations](#)

**Altmetrics can show us scholarly influence beyond citations:** Researchers do more than just cite articles: they save books to their reference libraries (creating Mendeley and CiteULike readership numbers); they adapt others' data (GitHub forks) and use it in their own analyses (data citations); and so on. Altmetrics are traces of these "alternative" scholarly activities.

**The value of altmetrics is primarily in the qualitative data that they can surface:** It's widely acknowledged that citation counts and usage data can't tell a person much about how research is actually used and regarded. Raw metrics can't distinguish between a citation that celebrates research and a citation that refutes another article. They also can't distinguish between the number of Mendeley readers that save an article versus those who go on to read it and cite it. However, the underlying qualitative data can serve as a signal for potential impact. Think of metrics as the smoke that signals the potential for (impact) fire. While metrics in isolation can be good indicators of simple attention, you need the qualitative data to truly understand research's impacts.

## Frequently Asked Questions

**How are altmetrics data collected?** Though the specific mechanics of how altmetrics are collected differ between providers, in general the process works like this:

1. **The altmetrics service (Altmetric, PlumX, Impactstory, etc) learns of a new piece of research:** either the work is published in a journal that the service tracks, an end user adds a work to their profile on the service, or a third-party like ORCID or CrossRef adds a record of the work to their system and then notifies the altmetrics service.
2. **Using a unique identifier associated with the work (e.g. a DOI, PubMed ID, URL, or other character string), the altmetrics service searches the data sources they track (e.g. Twitter, Wikipedia, policy documents, etc) for mentions of the work.** Sometimes, the altmetrics service will supplement this practice by also searching the source for author names or publication titles. In certain cases, PlumX queries the platform that hosts the work to gather platform-provided metrics (e.g. article downloads and views on a publisher's site, comments on YouTube, etc).
3. **The altmetrics service then searches its own database to find similar versions of the work and to compile the metrics for each version into a single report.** This practice is especially useful in instances when a journal article *and* a preprint of that article are both discussed online.

### **Altmetrics, ALMs, usage statistics, social media metrics: what's the difference?**

- *Altmetrics* are any data sourced from the Internet that tells us who is discussing research online, how often they're doing it, and in what contexts. News stories, policy citations and peer reviews are all types of altmetrics, but some have argued that it would be useful to group altmetrics under different headings, as they can tell us about different types of influence.
- *Usage statistics* are downloads, page views, session length, and other server log data that can tell us how many people visited an output online and how often they visited it.
- *Article-level metrics* are any metrics for a piece of research at the article (or output) level. They can include altmetrics, usage data, and even citations, but they shouldn't be confused with aggregated measures of attention such as the Journal Impact Factor and h-index.
- The above metrics are all distinct from *social media metrics*, which can include Facebook likes or shares, the number of followers a researcher has, or the number of views for a YouTube video that's unrelated to a specific piece of research. Altmetrics generally track metrics (including social media metrics) related to discrete research outputs; social media metrics relate to pretty much anything else.

**Aren't altmetrics easy to game?** The best altmetrics tools tend to a) employ anti-gaming strategies to avoid artificially inflated metrics, and b) downplay the quantitative data and emphasize the qualitative data (making it much easier to identify instances of gaming). Altmetric, Plum Analytics, and PLOS all use means to limit the effects of gaming and self-promotion.

**What about negative tweets/citations?** They're not a big of a problem as you might assume. Research has shown that only [a minority of tweets \(0.9%\)](#) and [citations \(5-14%\)](#) are negative. It's more common for a Twitter user to share an article's link alongside a relevant hashtag, and citations are more often "perfunctory" in nature than they are negative.

**Aren't altmetrics just social media counts?** Social media makes up only a small part of altmetrics. Citations to research in policy documents, post-publication peer reviews, and expert recommendations in Faculty of 1000 Prime are also types of altmetrics.

**How can you possibly measure impact on clinical practice?** This can be done by understanding how practitioners put research into practice. Proxy data for understanding that include: readership on PubMed Central (where many practitioners access research) and citations to research in public health policy documents, manuals, and more (where recommendations for health interventions, protocols, and so on are often made).

**What about impact on public policy?** That's possible to track via citations to research that appear in public policy documents. [Altmetric tracks these sorts of citations](#) from a number of government and NGO policy bodies.

**What about impact on education?** [Citations to research in syllabi](#) is just one type of altmetric that can inform research's influence upon education. Altmetric recently started tracking mentions in syllabi via an integration with the Open Syllabus Project; [learn more here](#).

**When will there be standards for altmetrics?** The National Information Standards Organization (NISO) is currently working on a set of standards and best practices for altmetrics. For more information and for an up-to-date timeline on when these standards will be released, [visit their website](#).

**You can't quantify scientific quality; many great papers are not highly cited.** We agree that quality is best judged by reading scholarship and making a personal judgment call. But there are a number of well-respected expert peer review sites (including Faculty of 1000 Prime, Pubpeer, and Publons) that crowdsource such judgments. Those sites can be mined for altmetrics.

**What are tenure and promotion committees doing about altmetrics?** A small but growing number of universities and departments are beginning to include altmetrics in their tenure & promotion dossier preparation guidelines as one example of the many types of data that researchers can use to document their influence. And even at universities that do not explicitly mention altmetrics in their guidelines, [researchers are successfully documenting their influence using altmetrics](#).

**Do you have any good examples of altmetrics making a difference?** Yup! Check out this [researcher-focused Altmetric blog post](#) for some great examples of how data-savvy researchers have used the data to monitor and showcase the conversations around their research.

## Chapter Summary

- Building grassroots support via outreach to fellow librarians and faculty is a crucial component to getting buy-in for altmetrics-related programming and services on your campus.
- Faculty, students, and librarians are three distinct communities; your outreach tactics should be specially tailored to each for maximum success.
- Building campus-specific reference resources like LibGuides can help you connect with those on your campus interested in altmetrics. The best reference resources include a number of specific points. There are a number of pre-existing resources that are licensed in such a way that you can freely reuse that content, saving you time and effort.
- There are often common concerns that those new to altmetrics have. Practicing talking points and your answers to frequently asked questions will help you be prepared for most one-on-one discussions you'll have regarding altmetrics.



# Planning Altmetrics Workshops

In this chapter, we'll share some general tips for planning great altmetrics workshops, including content you can repurpose so you're not starting from scratch.

In the last few years, we've organized dozens of researcher-oriented workshops on altmetrics.

Beyond that, we've talked to hundreds of researchers and librarians who have organized their own successful altmetrics outreach events.

The common theme from everyone's experience?

**Running a workshop is hard. Getting people to come to a workshop is harder. But both are totally doable.**

In this chapter, we're going to share some tricks and resources that can help you plan your own perfect workshop on altmetrics. By following these tips, you'll get more attendees, save yourself time, and earn increased recognition as an altmetrics expert on your campus.

## Tip 1: Learn the rules for creating engaging presentations

Until very recently, we had assumed two things: that some people were just inherently good at designing slides, and that some people were born with the ability to captivate a room during presentations. We were wrong on both points!

Powerpoint design is something that can definitely be learned. There are [a number of resources available](#) to help you learn the basic rules.

Short on time? A nice, quick hack we've learned is to find a "visual precedent." (This is a polite way of saying, "biting someone's style.") Some of our favorite visual precedents tend to come from librarian [Brianna Marshall's](#) presentations. We flip through her

slide decks and decide what we like about them, then sometimes use those design elements in our own presentations.

For example, we love Brianna’s use of bold images and very little text:

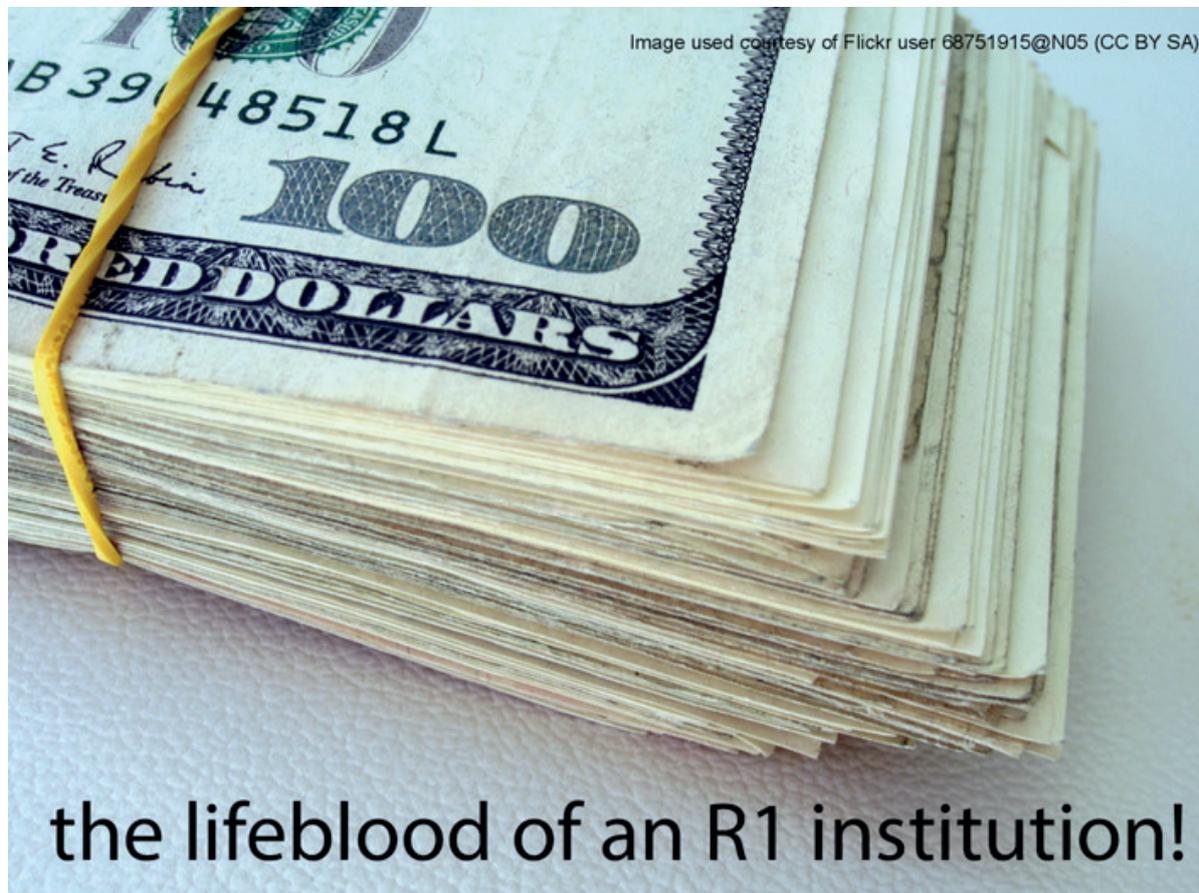


Figure 1. A slide from one of Brianna Marshall’s presentations

We've adapted those elements into one of our own presentations:



**Figure 2. A slide from Stacy Konkiel's presentation that borrows from Brianna's "visual precedent"**

If you've ever seen a colleague's presentation and thought, "Oooh, shiny!", then you may wish to use their slides as your own visual precedent.

Creating a slick slide deck is only half the battle, however. You also need to work on your speaking skills, so the presentations you give will keep your audience hanging on your every word.

Sound hyperbolic? Well, we give presentations on research impact metrics for a living and-while we're by no means the best speakers on Earth-we've been told that we make following a dry topic very enjoyable for the listener.

Public speaking is [a set of skills that can be learned like any other](#), and there's actually a science to creating a presentation that will hold your audience's interest. Check out [this surprisingly thorough infographic "cheat sheet" created by LondonSpeakersBureau.com](#) for loads of tips, including how to build a compelling story into your talk.

Resources:

- [Unsplash](#) - high-resolution images to use in your next presentation
- [Flickr Creative Commons search](#) - more presentation-ready images
- [The Charisma Myth](#) - a great book on connecting with others, including audiences
- [Public Speaking for Normal People](#) - if you've only got 5 minutes to spend improving your speaking skill set, read these rules

## Tip 2: Think “what’s in it for me?”

Want your audience to care about what you say? Put yourself in their shoes for a moment and think about what’s most important to them. Then—and only then—should you start crafting your workshop talk.

For example, we can guarantee that the average researcher probably obsesses over at least one of the following topics:

- How to get a job (especially if they’re a student or early career researcher)
- How to get tenure
- How to get grant funding (especially if they are a scientist)
- How to find collaboration opportunities with other researchers
- What other people are saying about their research

You’ll notice a theme: the first four points are all about career advancement, and the last point relates to the basic human instinct of vanity.

Find ways to build your presentation around just one of those points. It’s too much ground to cover otherwise!

When you’ve decided upon your central theme, start collecting altmetrics resources and examples that relate to that theme. You’ll want to craft a compelling story related to what each researcher’s most concerned about. Here are some to get you started:

- **Job applications:** Find job announcements in the discipline(s) that you are targeting for your workshop, then mockup what an altmetrics-boosted cover letter or CV would look like. You might also feature a quote from a department chair at your university about the importance of showcasing diverse impacts in a job application.
- **Tenure:** A bunch of examples of the use of altmetrics in promotion and tenure dossiers can be found on [this LibGuide from Duke](#). Use these examples as starting points to create a story. (“This is Ahmed. Here’s how he used altmetrics in his tenure package to prove that he’s developed influential research software.”)
- **Grant funding:** Similarly, you can create stories based on examples like [C. Titus Brown](#) and other researchers who have used altmetrics to secure grant funding. Be sure to also speak to the specific requirements of funders like the Wellcome Trust, NIH and NSF, who all have “broader impact” mandates. [Altmetrics are great for discovering broader impacts](#).
- **Collaboration opportunities:** Some researchers use [altmetrics for “serendipity”](#)—finding other researchers who discuss their work and its implications on social media, then reaching out to explore joint research projects, grantmaking, and more. Here are some examples of discussions that could result in collaboration opportunities from [astronomy](#), [virology](#), and [climate change studies](#).

- **What other people are saying:** Ask attendees to name a popular research article or book that they've recently read, find it online, then look up altmetrics for it using the [Altmetric bookmarklet](#) or [Impactstory](#). Then, allow attendees time to experiment using those altmetrics tools to look up conversations around their own articles and books.

One more bit of advice: don't treat your researchers as if they're all the same. Senior faculty will have different career concerns from early career researchers; humanities scholars will see things a bit different from their colleagues in the sciences. Try to tailor your workshops based upon those differences—it will make the information you share much more useful for your attendees.

### Tip 3: Leverage other people's awesomeness

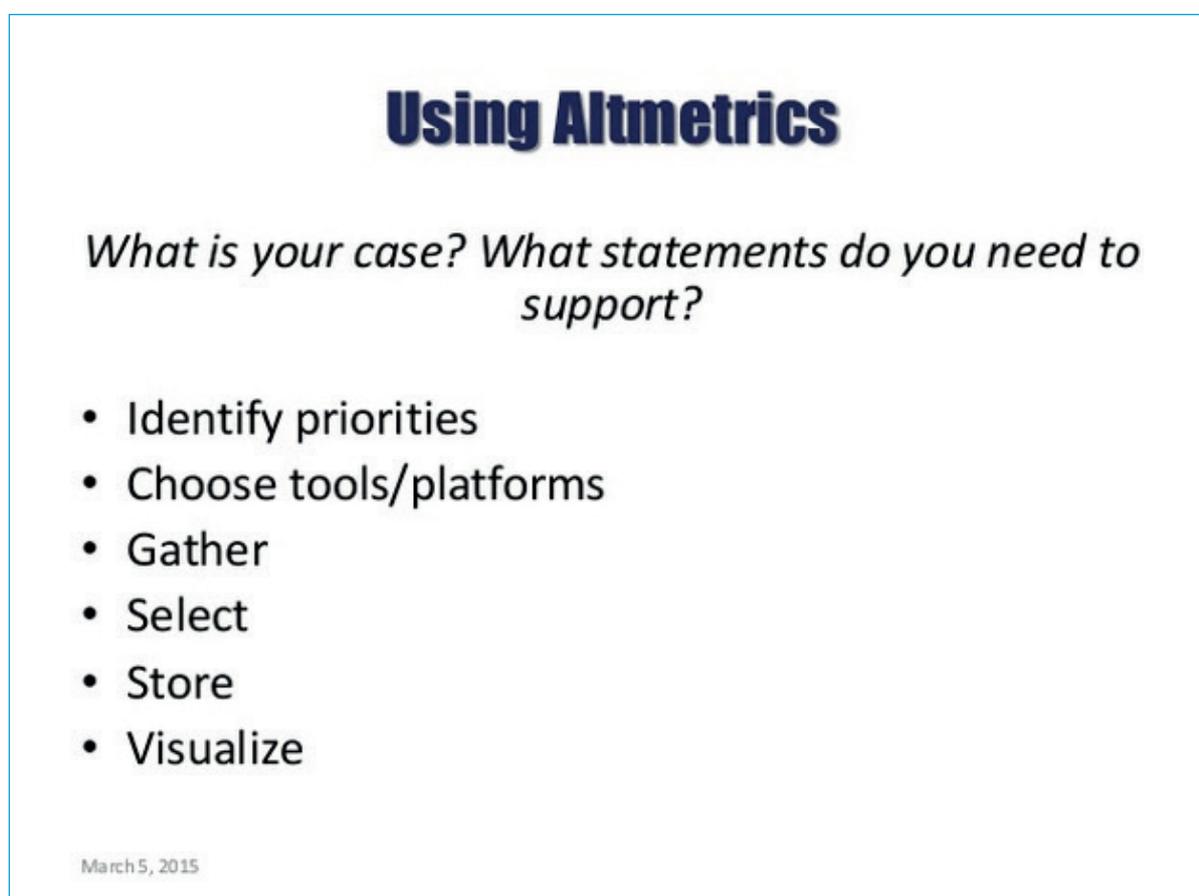


Figure 3. A slide from “[Altmetrics for Team Science](#)” by Coates & Miller (2015)

There are loads of great altmetrics presentations floating around on [Slideshare](#) and [Figshare](#). Why reinvent the wheel when you can borrow from them? (Giving full credit, of course!)

Here are some presentations on altmetrics that are chock-full of useful information:

- “[Altmetrics](#)” by Micah Vandegrift (FSU): An informative look at how altmetrics and citation metrics are complementary and showcase different kinds of influence.
- “[Altmetrics for Team Science](#)” by Heather Coates & Willie Miller (IUPUI): A solid description of how large research teams can better approximate their value using a variety of metrics.
- “[Social Media in Science and Altmetrics – New Ways of Measuring Research Impact](#)” by Christoph Lutz: A science-focused examination of how evolving modes of scholarly communication are changing the way we understand impact and measure attention.

Librarian Heather Coates (IUPUI) [recently shared her thoughts](#) on themes to emphasize in altmetrics presentations. The themes include:

- The research cycle doesn't end with publication
- Your scholarship is more than just publications
- You are the product (i.e. “Demonstrating the impact of your work is mostly useful in communicating that you are a high-quality, productive scholar contributing to the missions of your institution, school, and department.”)
- Have a plan – strategically plan how you will disseminate your work
- Execute the plan – treat the work of disseminating, sharing, and tracking evaluation of your scholarly products as a project
- Review and thoughtfully select the evidence supporting your argument – demonstrate that you are a productive scholar/teacher/practitioner worth keeping around

Want other ideas on how to frame your discussion? Check out the altmetrics talking points in the “Outreach on altmetrics: a complete guide” chapter.

## Tip 4: Know your stuff

Researchers are a notoriously skeptical bunch. (After all, a big part of the peer review process lies in picking apart others' arguments!) If you don't speak with confidence about altmetrics, your audience will tune you out and—by association—will start tuning out altmetrics discussions elsewhere, as well.

The first step to “knowing your stuff” is to become deeply acquainted with the culture at your institution and within its various departments. Talk to your colleagues within other departments and, if possible, to department chairs to understand: Are researchers encouraged to do outreach via social media? Is Open Access publishing a priority? How are researchers evaluated for tenure and promotion, or during their annual reviews?

Answers to all of these questions will help you understand how seriously researchers will take altmetrics, and that can help you tailor your workshop message.

We'd also recommend including research-backed insights from a variety of unbiased sources to back up your claims that [Mendeley readers correlate with later citations](#) or that [humanities research is better covered by altmetrics databases than citation databases](#). Other studies to point to include Heather Piwowar et al's theory of “[flavors of impact](#)” and [this study that shows that Open Access research articles get more downloads, citations, and attention on social media](#). More altmetrics research can be found in [this “bibliography”](#).

Finally, you should be prepared for some hard questions. Senior faculty and librarians can be especially skeptical of altmetrics, and they may grill you during the workshop Q&A session.

Practice your answers to these questions to be one step ahead of the Doubting Thomases:

- **Why do you want to replace citations with tweets?** You don't! Instead, you recognize how powerful these complementary metrics are.
- **Won't altmetrics just incentivize sensationalism in science?** Not at all! The beauty of altmetrics is that they can capture important non-scholarly value like influence upon policy, technology commercialization, and education. Altmetrics are NOT just about “buzz”—that's a big misconception that many people have!
- **Does one have to be active on social media for altmetrics to work? Because I think Twitter/Facebook/XYZ is a waste of time:** Luckily not! Whether or not you believe in the power of social media, other people do—and they're using it to discuss, debate, recommend, and save references to research every day.

## Tip 5: Know your audience



Figure 4. Image used under CC-BY license–Apps for Europe / Flickr

Here are some tips for reaching specific demographics for your workshop:

- **Use (well-designed) posters:** Given email overload, many librarians are resorting to the tactic of advertising their events using good old-fashioned print posters, hung in faculty and graduate student lounges. It's easy to delete an email; it's more difficult to ignore a well-designed poster hung over the faculty lounge microwave as you wait for your food to cook.
- **Offer food:** It's a fact that graduate student-oriented events are 1500% more successful if food is provided. And who among us—student or not—could ever turn down a nice hot cuppa and snacks offered during a useful event that doubles as a respite from grading student work? Food is a nice way to get people in the door. Be sure to advertise your planned refreshments prominently.
- **Schedule with your audience in mind:** Trying to reach post-docs in the life sciences? Take care not to schedule your event when a department-wide meeting about budget cuts is happening. Trying to reach any tenured faculty from any discipline? Don't schedule during the summer months, when they're likely to be in Barbados on holiday doing field work. You get the idea.
- **Don't be sad if faculty don't show up:** It's an unfortunate fact that there simply aren't enough hours in the day for the average faculty member to attend all the events that interest them. Most have too much on their plate to make time for anything that's non-essential. Offer to record your session and share it with registrants after the fact—that way, faculty can tune-in when convenient for them, and you'll still be able to share your message with an interested party.

Moreover, consider how research done at your institution (or in your country) may differ from other research that's often discussed in the context of altmetrics. For example, [Serbian librarians Milica Ševkušić and Zorica Janković ran a workshop for fellow librarians](#), where they covered not only the basics of altmetrics, but also examined data specifically for research Serbian-authored articles (uncovering the fact that it does not receive as much attention as research from other countries, due to a variety of factors). Researchers in the UK, on the other hand, would be very interested to know how altmetrics might be used in gathering evidence for the REF 2020. Context is important and will have an effect upon faculty's receptiveness to altmetrics.

## Tip 6: Make taking action an irresistible idea

We probably should have led with this prompt, because you'll want to plan workshop with an actionable outcome in mind. What do you want your researchers to do after they leave your event?

If you want researchers to use metrics appropriately in their next annual review, give them handouts or send them a link to a pre-created LibGuide that helps them do just that. Your guide should be specific to the annual review process and systems at your institution: describe precisely where metrics should go and point your researchers to altmetrics tools like [Impactstory](#) profiles, [the Altmetric bookmarklet](#), or [Scopus item records](#)—all are good places to begin hunting for relevant influence and attention metrics.

If documenting value in a grant application using metrics is your aim, create a handout with examples, tips, and tools, or simply point your researchers in the direction of the Altmetric "[23 diverse metrics to use in your next grant application](#)" blog post.

If all you want is for researchers to figure out what altmetrics might mean to them and contact you if they need help, arm them with a handout or LibGuide described above, and also give them your business card with a simple call to action printed clearly upon it: "Get in touch for a metrics consultation". They'll likely hang onto your business card and, when they get around to exploring altmetrics, use it to contact you for help.

## Chapter summary

- Key to planning a great workshop are messages that resonate with your audience and a generous use of eye-catching visuals.
- Preparation in the form of knowing altmetrics research and anticipating some commonly asked questions can go a long way towards making your workshop a success.
- At the conclusion of your workshop, you should always include a "call to action" that will inspire attendees to learn how to use and apply altmetrics.



# A Beginner's Guide to Using Altmetrics for Promotion and Tenure

As a librarian, you may be called upon to support researchers in assembling public engagement evidence to be included in their promotion and tenure (P&T) applications. An emerging source of such evidence are altmetrics.

When contacted by researchers for help, it is essential for librarians to offer advice and support to help researchers access and contextualise altmetrics data to add relevant public engagement evidence to their applications.

This chapter discusses how to collect and report altmetrics data in promotion and tenure dossiers for both researchers and librarians.

A key point to note up front: academia is still in the early stages of using altmetrics in promotion and tenure applications. This chapter adapts expert recommendations borrowed from the bibliometrics world and includes known examples of how some researchers have included altmetrics in their own promotion and tenure dossiers. We also include advice from librarians who are at the forefront of advocating for altmetrics in the P&T process at their own institutions.

## Introduction to the Promotion & Tenure process

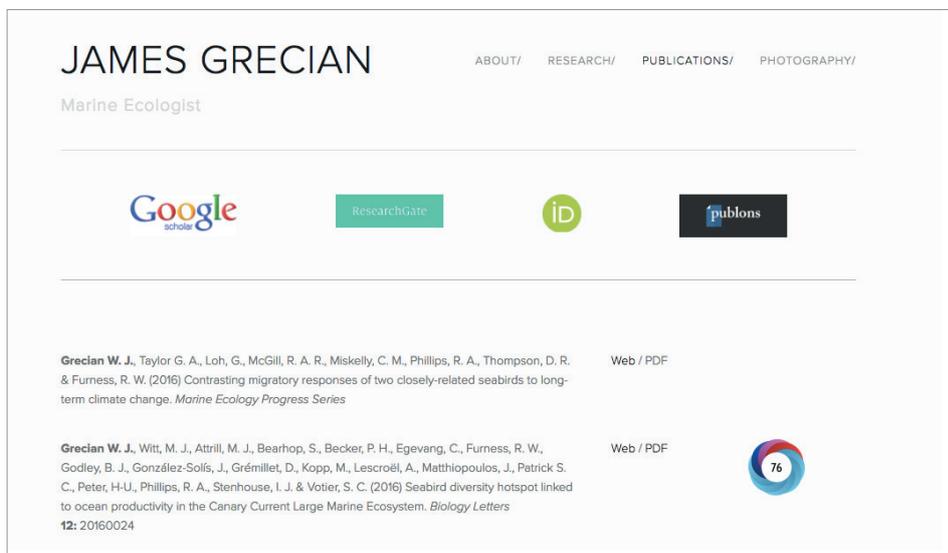
While [promotion and tenure requirements vary by university and often even by department](#), the following items are likely to be required in any P&T dossier. We've highlighted in bold the dossier sections best suited for the inclusion of altmetrics data:

- 1. CV**
- 2. Personal Statement**
3. Student education and evaluations
- 4. Scholarship Evaluation**
5. Teaching Portfolio
6. Academic leadership
7. Letters of reference
8. Service Portfolio
- 9. Grants**

Altmetrics can be useful for documenting impact and engagement in P&T dossiers, but using altmetrics requires more than just adding raw numbers next to a list of papers. Context, meaningful metrics, and specific, full-text examples of influence are often necessary in such dossiers. We describe altmetrics' application within the highlighted dossier sections, below.

### Curriculum Vitae

As we can see above, an up-to-date Curriculum Vitae will be included in any P&T dossier. One way to provide a snapshot of attention for individual articles, datasets, and other outputs is to encourage researchers to add a static version of the Altmetric "donut" badge or the Plum Print next to each line item in their CV (which we explain how to do below). By using a simple, static version of these visualizations and metrics, you are ensuring that the altmetrics visualisations work across different formats and don't require the reviewer to follow a hyperlink.



**Figure 5.** A screenshot of the use of an Altmetric badge on James Grecian's online CV. The badge could similarly be included in a print P&T dossier CV.

Another way that researchers can include altmetrics in their CV is to simply copy and paste the data into their dossier. This offers the advantage of integrating the data into the existing look and feel of the CV, and also “allows” researchers to retain context for their metrics (an important concept that we explain in more detail below). For example, Dr. Trevor Branch, a researcher from the University of Washington, [copied and pasted altmetrics data into his CV](#) to highlight the reach of his publications in the media (Figure 6).

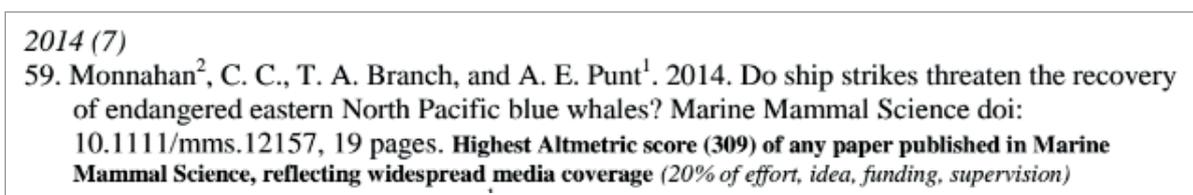


Figure 6. A screenshot from Dr. Trevor Branch’s tenure dossier CV, which includes contextualized Altmetric data

### Personal Statement (aka the Tenure Narrative)

A promotion and tenure dossier often contains a [personal statement or tenure narrative](#), which allows your researcher to outline of their important academic contributions and their service to the university. The Personal Statement provides an opportunity to dig down into qualitative altmetrics data for research. For example, facts like as “*My research was cited in a World Bank report on Malaria*” can be discovered using altmetrics tools and included in this dossier section.

### Scholarship Evaluation

Scholarship evaluation is often a required section in promotion and tenure dossiers; essentially, this is the presentation and evaluation of your researcher’s most important work. It is your researcher’s opportunity to show they have mastered their research area and are leaders in their field. This section offers a great opportunity to draw attention to the most compelling altmetrics data for your researcher’s work—specifically, the attention data that they believe characterises them as leaders in the field. This is also another good place for your researcher to include qualitative evidence, rather than metrics. For example, “*My research has been consistently cited in mainstream media with broad international readership such as the BBC and has had positive Publons reviews*” is more compelling than “*My current Altmetric Attention Scores are 241, 118, and 17*”.

### Grants

Promotion and tenure dossiers tend to contain information about grants, both funded and unfunded. In the grants section, your researchers can use altmetrics to show the attention associated with materials that were published following the grant. Previously, a researcher might have been asked to provide the Journal Impact Factor for the journal that published materials funded by the grant. Researchers may now choose to include the altmetrics for the output itself, allowing the work’s altmetrics to complement its citation data. Further, if software or any other non-traditional output is generated during the funded work, the researcher can highlight any altmetrics that those outputs generate.

## Outreach and Engagement

Outreach and engagement is still a relatively rare requirement for promotion & tenure, but the list of universities who do require it is quickly growing. Dr. Branch, whose use of altmetrics we saw above, works at an institution with such a requirement.

Universities such as Virginia Tech have also begun including a “[multimedia](#)” section in the “outreach and public engagement” section of their dossier. In this section, they encourage researchers to participate in non-traditional public engagement strategies like guest blog posts. [The influence of these blog post themselves can be understood using altmetrics.](#)

In discussing the use of altmetrics in a promotion and tenure dossier, Dr. Ernesto Priego from City University London reflected that, “If academic departments value public engagement and the production of scholarship that is being discussed by individuals online, I do believe that they could be used to complement and provide further context to an academic portfolio.” Dr. Priego is the editor-in-chief of the Open Access journal *Comics Grid*. In this capacity, Dr. Priego himself has [deposited non-traditional research materials in Figshare](#) and done outreach upon them.

Some professional societies, such as The American Sociological Association, are recommending that Outreach and Engagement be formally recognized in promotion and tenure requirements. In a [report published in August 2016](#), The American Sociological Association discusses the importance of the practice, and even uses certain types of altmetrics and usage statistics as a means of illustrating the importance of engagement.

## How to responsibly use altmetrics data for promotion and tenure

Before we get into the nitty-gritty of where to find altmetrics to include in a dossier, let’s talk about some principles for using metrics responsibly.

While a “high” Altmetric Attention Score (or any other type of altmetrics) can provide a useful indicator of attention to research, the underlying conversations and qualitative examples of research are what provide context and value to most metrics. Metrics, without context, are meaningless to reviewers. Librarians can therefore help equip researchers with the tools and skills to uncover and contextualise altmetrics data: supporting them in telling a story about successful impact activities in a way that goes beyond a single number.

There are [three rules](#) one should abide by when using altmetrics (or any metrics) in a promotion and tenure dossier:

- **Provide context:** A number in isolation doesn't mean much in a CV. It's difficult for a reviewer to understand if that number is good or bad without another number to compare it to. For example, how does attention for a journal article compare to that for other articles published in the same journal and in the same year? Context is often applied in two ways: through the application of percentiles and through the use of qualitative data, which often explains the specific context in which research has had an influence. We'll share some examples of both momentarily.
- **Use appropriate metrics:** What is the real-world outcome of the researcher's work and what evidence do they have to back up those claims? If your researcher is asserting that their research has made a significant contribution to their discipline and has been a subject of thoughtful discussion, they must be capable of proving that with data. Consider the impact of the project they're documenting in their dossier, and seek out data that bolsters those claims. For example, if your researchers are claiming impact upon policy, then you can help them find where they've been cited in public policy documents.
- **Choose longform evidence:** This is compelling information about who's saying what about your research and how they are using it. We refer to this type of data as "qualitative data" throughout this ebook.

These rules are adapted from the [Leiden Manifesto's](#) recommendations, and also themes that bibliometrics experts have been advocating for many years. The [Leiden Manifesto's](#) 10 principles can guide your own understanding of the responsible use of altmetrics.

## Examples of researchers including altmetrics in promotion and tenure

Dr. Ahmed Moustafa, an Associate Professor of Bioinformatics and Systems Biology at the American University in Cairo, used altmetrics from his [Impactstory profile](#) in his [P&T dossier](#) to showcase the attention associated with his scholarly outputs. In addition to these altmetrics, Ahmed highlighted a few interesting media mentions. For example, his [2008 paper in \*Proceedings of the National Academy of Sciences\*](#) was featured in popular media sources, such as Wired.

### Total Impact

Below (Figure 5) is a snapshot of the “impact profile” for a subset of my publications provided by “ImpactStory”. Not only the number of citations, evaluates the “impact” of each publication, but also recommendation of scholars via, for example, F1000, bookmarking on Mendeley or CiteULike, discussions on social networks such as Facebook and Twitter. The detailed impact profile for my publications (research articles, datasets, and software) is available at <http://impactstory.org/AhmedMoustafa>.

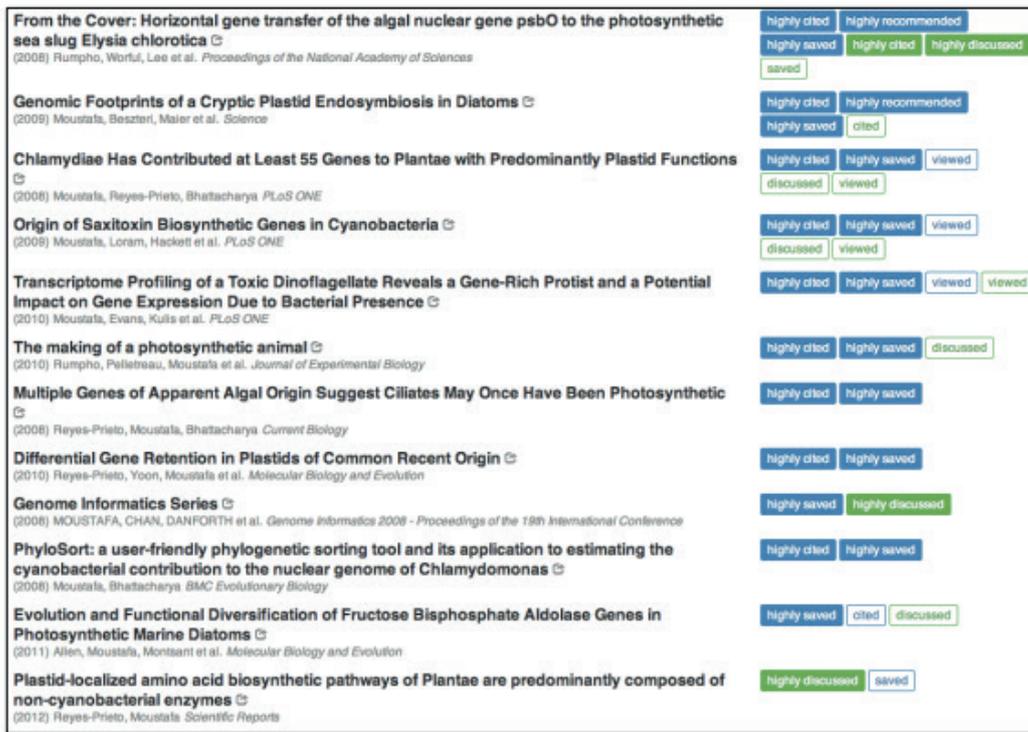


Figure 5 - ImpactStory (<http://impactstory.org/AhmedMoustafa>)

Figure 7. Screenshot from Dr. Ahmed Moustafa's [Promotion and Tenure dossier](#)

Dr. Steven Roberts, Associate Professor in the School of Aquatic and Fishery Sciences at the University of Washington, used altmetrics in his [P&T dossier](#) to showcase the attention associated with his scholarly outputs and engagement activities. In the chart below, you can see how many times Dr. Roberts’ datasets and documents have been viewed through his [Figshare profile](#). This attention is bolstered by his own public engagement activities that include blogging, tweeting, and depositing his work in an Open Access repository.

Platform	Purpose	URL	Metrics
Website	Primary Lab Website	faculty.washington.edu/sr320	2 months - 216 unique visitors
Wiki	Share online lab notebooks and protocols, lab communication	genefish.wikispaces.com	2012 - 20k views
Blog	Lab Tumblr	genefish.tumblr.com	12 months - 6137 visits
Facebook	Shares Lab Tumblr posts	goo.gl/pOitK	47 likes; 11k Friends of Fans
Blog	Blog specifically documenting our Ocean Acidification Research	safsoa.wordpress.com	2012 - 1645 views
Twitter	Automatic lab feed - notebook entries, posts, events	twitter.com/genefish	17,330 tweets
Twitter	Personal twitter account	twitter.com/sr320	1491 tweets
Flickr	Sharing research images	goo.gl/yzwE7	2726 photos
Youtube	Primarily host instructional videos	youtube.com/user/sriab	7351 views
Scribd	Share documents, primarily undergrad student papers	scribd.com/sr320	9908 reads
Figshare	Sharing datasets and documents	goo.gl/umGFg	4947 views
Slideshare	Sharing presentations	slideshare.net/sr320	49 slideshares

Figure 8. Screenshot from Dr. Steven Roberts’ website, included in his tenure dossier

## How to include evidence in your researcher’s dossier

### Traditional metrics

The core of any promotion and dossier for many disciplines are journal articles, books, and book chapters, and those related outputs’ number of citations. Departments might also want to know in which journals researchers have published and, at some institutions, the Journal Impact Factor of said journals.

Often, researchers will have that information readily available on their CV. But in some cases, they may need your help to update their CV with their current list of publications, as well as the Impact Factors for the journals in which they’ve published.

There are a variety of helpful guides to finding exporting traditional citation data, so we won’t reinvent the wheel here. For help to finding journal impact factors, check out [this guide](#) by Yale University. To look up a current list your researchers’ publications in Scopus, learn from this [City University Hong Kong tutorial](#); a similar guide for searching Web of Science is available from the [University of Michigan Libraries](#).

### Qualitative Data

A solid source of evidence that will help your researcher craft a compelling “impact story” (to borrow a useful phrase) can be found in qualitative data: who’s saying what about your researcher’s work.

Dr. Trevor Brand used qualitative data to [document the value of his science outreach efforts](#) in his tenure dossier, in particular to showcase examples of online engagement he had with high-profile authors like Joyce Carol Oates and data visualization experts like Edward Tufte.

If he were making an argument about the worldwide influence his engagement efforts have had, Dr. Brand could have gone one step further by adding Twitter or Mendeley maps to his dossier, or highlighting the fact that his work has received a lot of interest from other scientists worldwide. These types of data are available on Altmetric details pages (under the Summary tab), and freely accessible using [the Altmetric Bookmarklet](#).

If Dr. Branch wanted to include specific examples of policy impacts or mainstream press coverage his work has received, he could have also used the Altmetric Bookmarklet to easily find links to those types of attention, and he could have copied and pasted mentions directly from Altmetrics details pages for his work.

Qualitative evidence can be found in other altmetrics services, as well. PlumX Dashboards and Impactstory also both include some types of qualitative data on researchers' profiles.

### **Evidence of impact beyond authorship**

Altmetrics provide an opportunity for researchers to get credit for their work, beyond what they've happened to write a journal article about: creating and curating data, presenting at national and international conferences, coding widely-used software, and so on. Highlighting these "non-traditional" outputs can help researchers present a more holistic view of the value of their work.

However, to get altmetrics, research has to be discoverable by others. That means putting the stuff that's normally kept private on one's Dropbox account up onto the public Web. Visualisations, datasets, videos, and all other research outputs can be deposited in institutional repositories or in open access repositories like Figshare, and—once they're "live"—can start accumulating altmetrics attention. Try to educate researchers on the value of this practice well before the point of preparing for promotion & tenure, so they have as much time as possible to capture attention data for their work.

### **Contextualized Raw Metrics in a CV**

When looking to include raw metrics to your researcher's CV, it is important to add context. The best ways to do so are through the use of **badges** and **percentiles**.

## Badges

Impactstory is a free researcher profile platform that gathers and displays altmetrics for a researcher’s entire body of work, at a glance.

Impactstory provides context using “Achievement badges”. The badges summarize a researcher’s influence within four categories:

1. Buzz–How much is your research being talked about?
2. Engagement–Who is engaging with your research?
3. Openness–How easy is it to access and understand the materials?
4. Fun–Amusing, not serious, perspectives on influence and “impact”!

To find Achievement badges for your researcher, first create an Impactstory profile for them. The profile must be linked to an [ORCID ID](#), which are free to make. Impactstory displays all the published outputs that have been included in an ORCID profile and then collates attention associated with them.

Once your researcher’s profile has been created, you can find any relevant badges in the “Achievements” tab on main landing page for the profile. You can choose to view all the achievements or sort by one of the four dimensions described above.

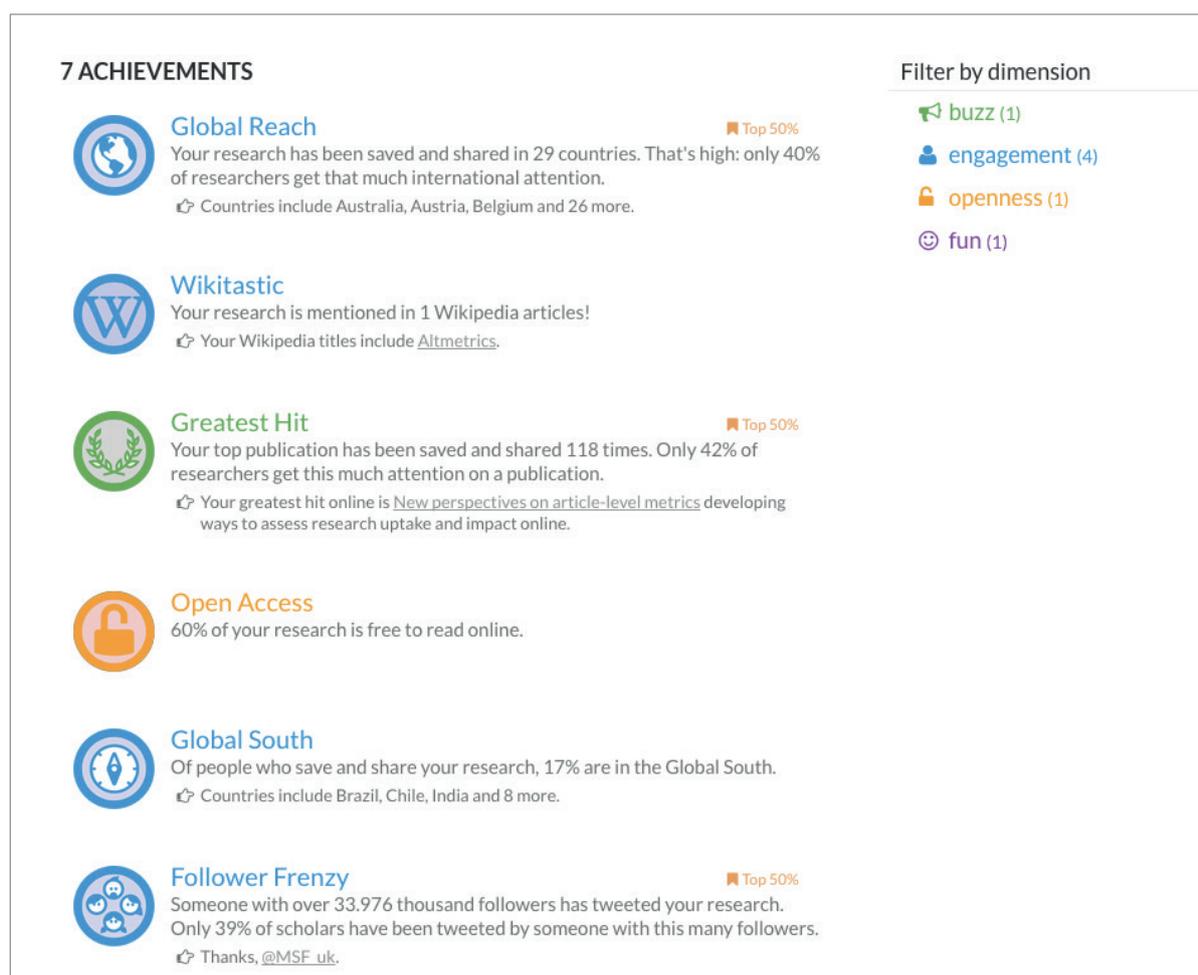


Figure 9. A Screenshot of different achievement badges from Impactstory

## Percentiles

The Impactstory achievement badges contain percentile information: how attention for the researcher’s work compares to attention received by all research that Impactstory indexes.

Percentiles are a good way to offer a frame of reference for metrics. They can help reviewers interpret the relative influence of research by comparing attention data for your researcher’s work with average metrics for other outputs that were published in the same year or the same journal.

Altmetric provides a “score in context” for most of the research it indexes. Using the bookmarklet, as described below, a badge will drop down from your toolbar in the top right hand side of the window. You can “Click for more details”, which will bring you to a details page as seen below.

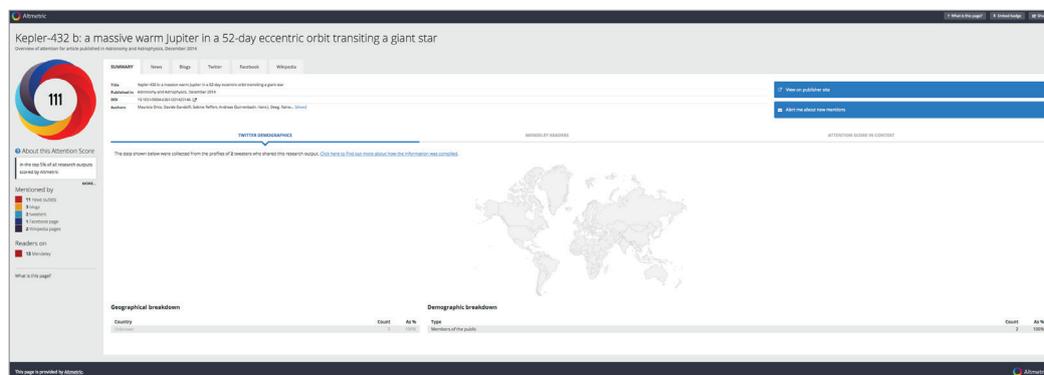


Figure 10. A Screenshot of the Altmetrics Details Page for this Article

From the Summary tab of an Altmetric details page, click on “Attention Score In Context”, which will bring up the Altmetric Attention score in various contexts: how that article’s Attention Score compares to other articles published in the same journal, within the time period (that is, within six weeks of the article’s publication date), and compared to scores across the entire Altmetric database. This context is essential to an accurate understanding of an output’s attention and relative influence.

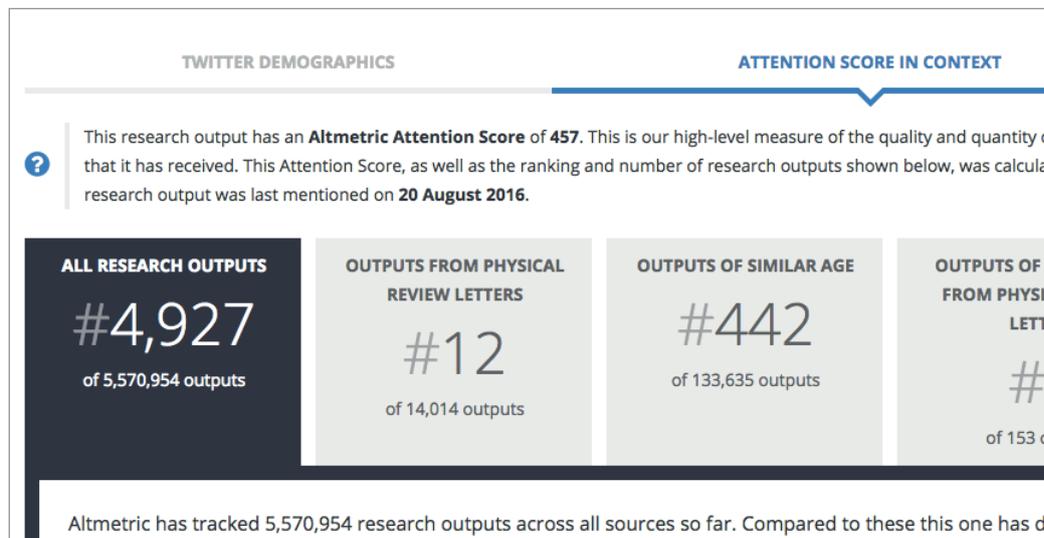


Figure 11. A Screenshot of the Altmetric Attention Score in Context

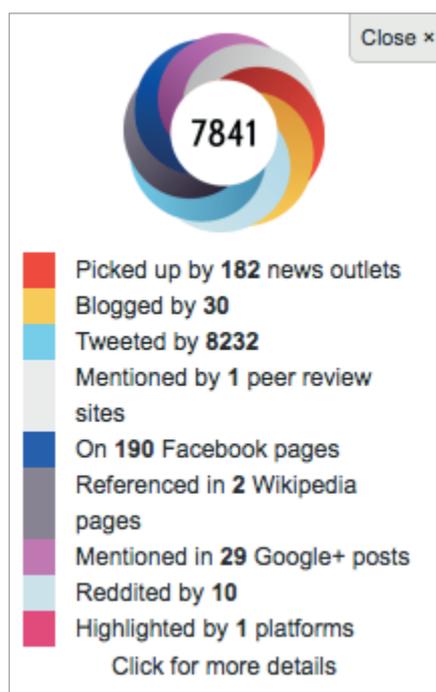


Figure 11. The Altmetric Bookmarklet pop-up image

## Where to Find Altmetrics Data

The “[Altmetric It!](#)” [Bookmarklet](#) is a free tool for researchers to use to find altmetrics for specific outputs. Here’s how to use it.

Download the bookmarklet from Altmetric’s website by dragging the button onto your browser’s toolbar. Then, once you are on the landing page for a journal article, you can highlight the DOI with your cursor and then click the “Altmetric It” button. A popup, seen at left, will appear with a snapshot of attention associated with that output.

You can also generate badges to include in your researcher’s CV. Generating an altmetrics badge, whether the Altmetric Donut or the Plum Print, is very straightforward!

1. Select a unique identifier, for example a DOI
2. Go to the [Plum Print webpage](#) or the [Altmetric Donut page](#)
3. Input the DOI in the Badge Builder
4. Copy and paste the code into your webpage’s source code, or take a screenshot of the Altmetric badge or Plum Print to add to your CV

As mentioned above, [Impactstory](#) is a free service that allows researchers to build an online profile. The profile must be linked to an [ORCID ID](#), which are free to make. Impactstory displays all the published outputs that have been included in an ORCID profile and then collates attention associated with them. Impactstory’s achievement badges are a great way to find unexpected “flavours of impact” and useful percentiles to include in your researcher’s dossier.

To save time finding altmetrics for your researchers, you might consider using subscription altmetrics databases like Altmetric Explorer for Institutions or PlumX Dashboards.

[Altmetric Explorer for Institutions](#) is a tool that collects altmetrics for your entire institution’s research. It’s searchable by author name, in addition to reporting at the department and institution-levels, making it easy to search for and find altmetrics for your researcher’s works. You can also use Explorer for Institutions to compare attention data for your researcher’s work to that of more than 5 million other works we’ve seen mentioned online—a useful way to create ever-important context.

[PlumX Dashboards](#) is another product that allows you to quickly find altmetrics for all of your researchers’ work. A bonus of that platform is that they include metrics beyond what Impactstory and Altmetric report upon, especially for research outputs like software and data. However, the platform does not include percentiles for the metrics it reports.

## Publishing as a librarian

At some institutions—particularly in the United States—tenure isn't just for researchers. Librarians may also want to use altmetrics to demonstrate the influence of their work, and in fact altmetrics may better serve librarians than traditional faculty.

Here's why: many of your outputs as a librarian are likely to be non-traditional and outside of the scope of “peer-reviewed journal article”. Posters, conferences, and white papers are just some of the ways you might be contributing to the academic ecosystem. They should be acknowledged in your promotion and tenure dossier. For example, you can [archive the tweets](#) about a conference presentation you give, share positive discussions of your white paper on research blogs or in a magazine like *Library Journal*, or explain how widely viewed a conference poster has been since you've archived it online.

Depositing in an open repository, such as Figshare or an institutional repository, can help with some of these issues. Open repositories will mint their own identifiers after you've deposited the output. For example, Figshare assigns DOIs to all items that are deposited within their repository. Some examples of data held within Figshare are [3D visualisations](#), [data samples](#), and [posters](#). Anything that can be deposited is given an identifier. Adding an identifier to a non-traditional output allows those materials to be shared, garner altmetrics, and allow you to get credit for all of your work, not just the stuff you publish about.

## Advocating For the Use of Altmetrics in Promotion and Tenure

Librarians have an important role to play beyond helping researchers find and contextualize metrics to include in their dossiers. We are trusted campus information experts, and can play a role in advocating for the formal inclusion of altmetrics in promotion and tenure preparation and evaluation guidelines.

Advocating for the inclusion of altmetrics in promotion and tenure preparation and evaluation guidelines is easier than you might think.

You can approach the university administrator who is in charge of setting standards for the university-wide promotion and tenure process at your institution (often called the “vice provost” or “vice chancellor of faculty affairs”), or the individual(s) who set similar standards at the college or department-level. Share with them examples of world-class universities and scholarly societies (hint: there are a bunch in this chapter!) who find value in both public engagement and altmetrics to document the influence thereof. Offer to help serve on or consult for committees established to revise P&T preparation and evaluation guidelines in the future, with the aim of getting altmetrics documented and on researchers' and reviewers' radars.

Alternatively, you can take a grassroots approach. Get on the agendas for campus-wide faculty union meetings and as many departmental meetings as possible, and talk frankly about the need to recognize the important work of public engagement.

Describe how altmetrics can help in evaluating one's engagement success in the P&T process, and offer to help incorporate them appropriately into P&T guidelines.

Even if neither administrators nor faculty immediately warm to the idea of altmetrics, you've planted the seed. As altmetrics and their value in the P&T process become more widely known, those same skeptics may request your help in a year's time!

When advocating for the use of altmetrics in P&T, not only should metrics be mentioned. Remind reviewers and department heads of the importance of evaluating qualitative data—that's where the interesting public engagement stories lie. Attention is not inherently positive and it is important to consider what is being said and not just how often research is being discussed.

In the previously mentioned American Sociological Association's [report](#) on public communication in promotion and tenure, the authors acknowledge the amount of time required for engaging in public outreach. Dr. Ernesto Priego, at City University London, also draws attention to the need to acknowledge and value the time that researchers are putting into public engagement. *"Advocating for the consideration of altmetrics for promotion and tenure means we as a sector recognise that building engagement around scholarly outputs is time consuming and laborious."*

When advocating for the inclusion of altmetrics in promotion and tenure, you are giving your researchers the chance to be credited for the work they are likely already doing. As a librarian who's now well-versed in the tools needed to use altmetrics appropriately in the promotion and tenure process, you can help further equip researchers to get that recognition.

## Chapter Summary

- The use of altmetrics is a useful complementary source of information when helping researchers build Promotion & Tenure portfolios.
- Any altmetrics should always be viewed and presented in context (e.g field, publication type, etc), as well as having been collected in a responsible way.
- Tailor your advice! Consider the researcher, the department, and the P&T process, and adapt your process to meet their needs.
- Altmetrics are especially useful to librarians who are likely to publish more "non-traditional" outputs.
- Librarians can champion the use of altmetrics in the P&T process within their own institution.

## Further Reading

1. Coates, H. (2015). ["Advice from a Librarian: How to Do Successful Altmetrics Outreach."](#) Altmetric Blog. 09 June 2015
2. Priego, E. (2014). ["On Metrics and Research Assessment."](#) Ernesto Priego's Blog. 23 June 2014.
3. Burnham, Joy J., PhD, Lisa M. Hooper, and Vivian H. Wright. (2012). ["Top 10 Strategies for Preparing the Annual Tenure and Promotion Dossier."](#) Faculty Focus Higher Ed Teaching Learning [website]. 25 Apr 2012.

# Special Issues in Librarianship & Altmetrics





# Using Traditional Metrics and Altmetrics for Collection Development

According to [a recent survey](#), 74% of academic librarians in the US have regular collection development responsibilities. Altmetrics are just one of many types of data that they use to make decisions regarding purchasing and deselection. Each data type provides special insights into the use of materials within an institution.

In this chapter, we'll discuss the relative merits of each approach, paying special attention to altmetrics and their applicability to the selection of journals, books, and emerging scholarly communication tools.

## Traditional approaches to using metrics for collection development

The same survey referenced above [found](#) that usage statistics are the most often used metric consulted when making collection development decisions, followed by the journal impact factor and citation counts.

### **Journal Impact Factor and related metrics**

**What it is:** The Journal Impact Factor is often used as a quick way to understand the influence of a journal, based upon the average number of citations any article it publishes can expect to receive. It's a proprietary metric that calculates the average number of citations that research articles published in a particular journal have received in a two-year window.

**Limitations:** The Journal Impact Factor can be a quick and easy way for a non-specialist to understand which are the most *influential* journals in a particular discipline, but it [should not be used to understand the quality of a journal](#), contrary to popular belief.

Be sure to use the Impact Factor in combination with other metrics, to get a more complete understanding of the usefulness of the title.

The Journal Impact Factor is more often used to evaluate journals in the sciences, and has been criticized for [inferior coverage for non-English language journals](#) (due to its reliance on Web of Science citation data). Because it is based upon citation counts, the Impact Factor shares many of citation counts' limitations (see below).

**Where to access:** Impact Factors for thousands of journals are available through a subscription to Thomson Reuters Journal Citation Reports. Free alternatives to the JCR include the Scimago Journal Rank and Google Scholar journal rankings. Both alternatives are based on citation data that often differs from Web of Science citation data, and thus can differ from the JIF.

### Citation counts

**What they are:** Citation counts are article, book, or dataset-level metrics sourced from scholarly literature, whereby references to related studies are counted and aggregated. Generally, citation counts are interpreted to mean that a relatively highly-cited article is of high quality or influence.

**Limitations:** Citations take months or years to accumulate, making them a poor choice for understanding the academic impact of recently published work. It is usually easier to find citations to journal articles (especially when using databases like Web of Science) than it is to find citations to books, datasets, and other “non-traditional” scholarly outputs. Citations can only highlight the scholarly influence of research; it is not possible to understand the “real world” influence of research using citations alone. For these reasons, it is generally recommended that citation counts be supplemented with other metrics when attempting to gauge the importance of research beyond academia, or the scholarly influence of recently published research.

Research has shown that the [motivations behind citations are many](#) (negative citations account for [5-14% of the literature](#)), so high citation counts should not always be taken at face value.

**Where to access:** Citation counts are available for articles, books, and datasets through subscriptions to:

- Web of Science
- Scopus
- Book Citation Index
- Data Citation Index

Citation counts are also freely available via Google Scholar (and the related desktop tool Publish or Perish). However, Google Scholar indexes content that is not always peer-reviewed, [calling into question](#) the quality or usefulness of the citations in understanding disciplinary impact.

## Usage statistics

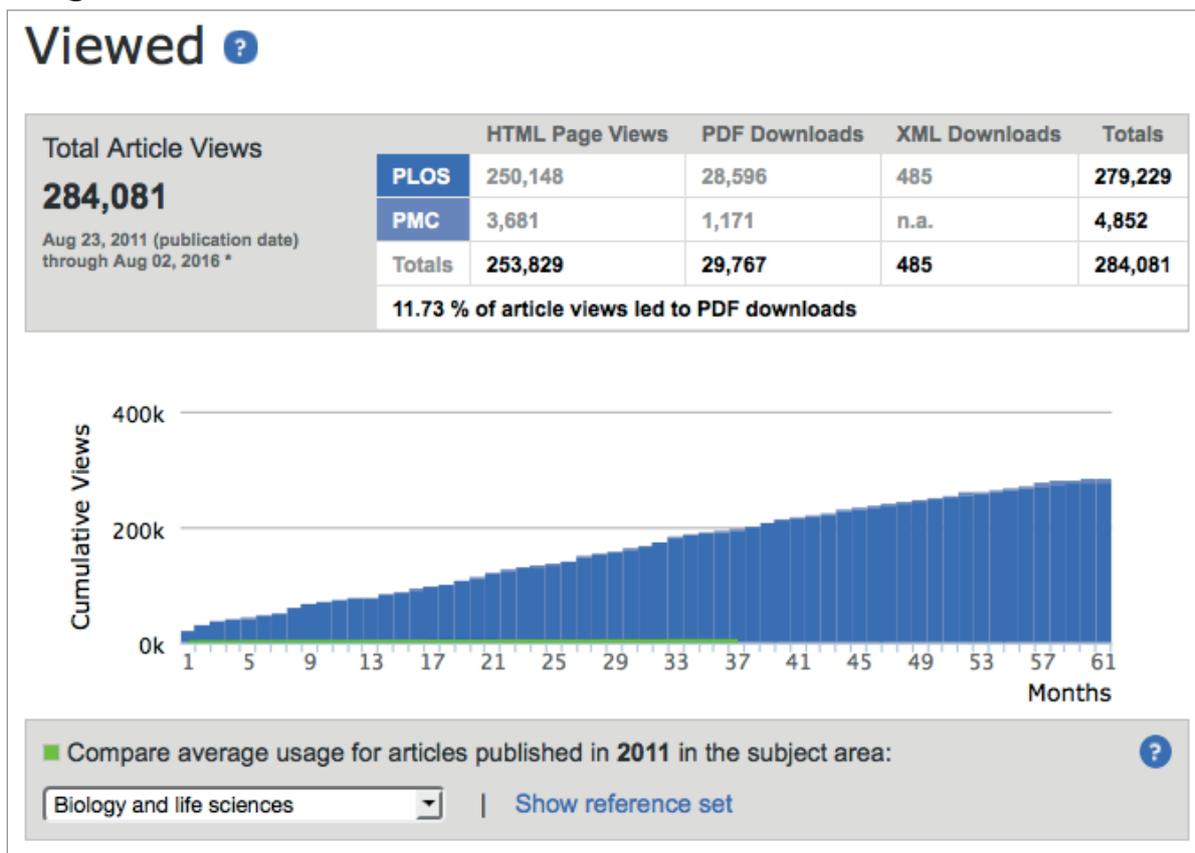


Figure 13. Article-level usage statistics, reported by PLOS

**What they are:** Usage statistics are metrics that are generally interpreted to measure readership of or interest in journals, articles, and other scholarly outputs. The most commonly reported usage statistics are page views and downloads, but other metrics (e.g., abstract views, search terms, location) are also collected and reported upon under the usage statistics label, depending upon the source. Usage statistics are either reported immediately or are updated at regular intervals (i.e. monthly), depending upon the source.

**Limitations:** Usage statistics are especially susceptible to manipulation and gaming. This fact necessitated the creation of Project COUNTER, an initiative that sets standards for recording, cleaning, and reporting usage statistics, but that is not itself without limitations. Not all publishers are COUNTER-compliant. Most COUNTER-compliant reporting standards report on usage at the journal-level, rather than the article-level.

Though they are commonly interpreted to directly measure readership, usage statistics actually only measure clicks and views and instead serve as an *indicator* for readership.

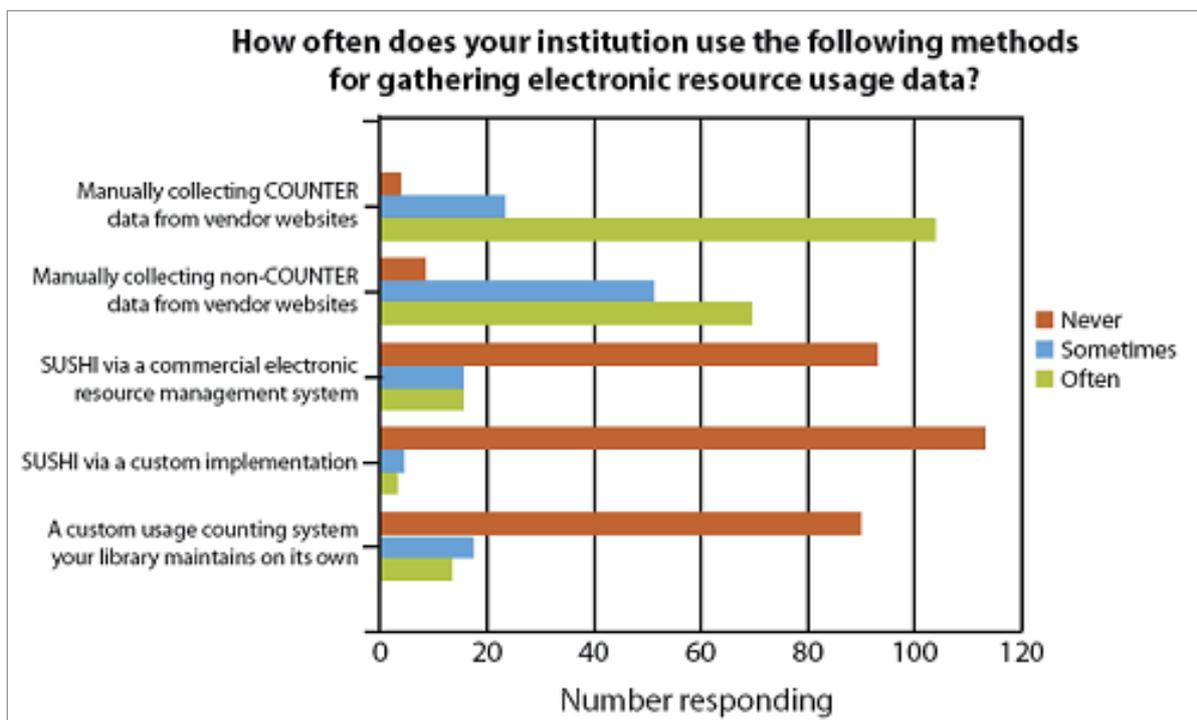


Figure 14. COUNTER data collection survey results from Welker, 2012

**Where to access:** According to a 2012 survey, a majority of librarians collect usage statistics manually from vendor websites. Technologies like SUSHI, created to help automate the data collection process, are unfortunately rarely used.

Reporting services do exist for COUNTER-compliant usage statistics: ProQuest’s 360 COUNTER and similar commercial tools aggregate much of this data for its subscribers, and in the UK the [Journal Usage Statistics Portal \(JUSP\)](#) offers similar features.

## Using altmetrics for collection development

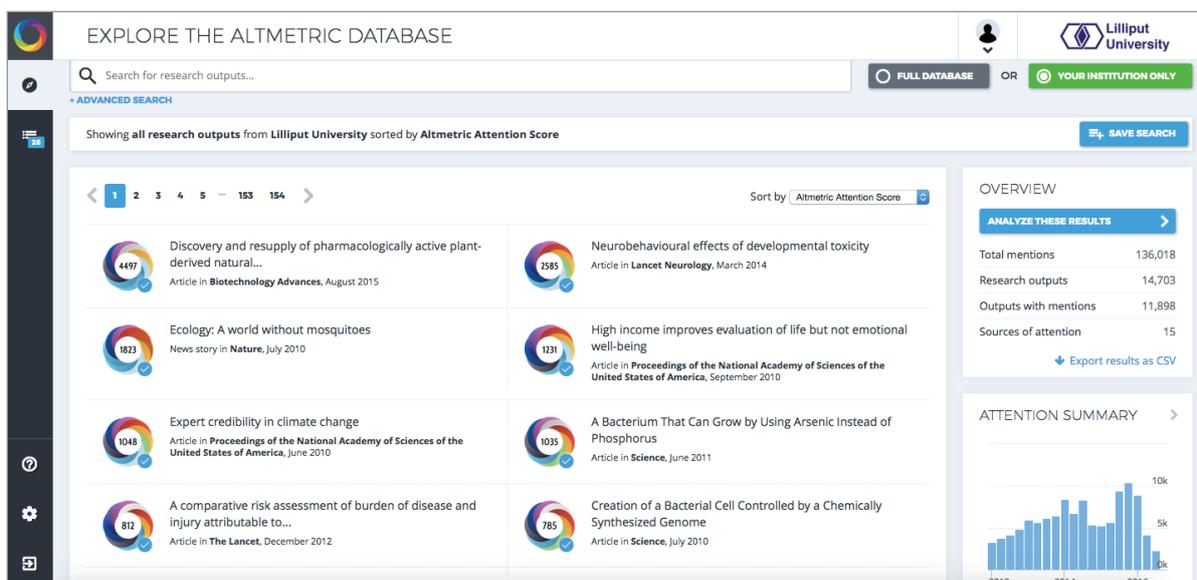


Figure 15. Altmetric Attention Scores for multiple research objects displayed in Altmetric Explorer

**What they are:** Altmetrics are attention data from the social web that can help librarians understand which articles, journals, books, datasets, or other scholarly outputs are being discussed, shared, recommended, saved, or otherwise used online. They can be reported at the item-, journal-, or author-level. Altmetrics can shed light on non-traditional scholarly uses of research (e.g., when students have bookmarked an article that they find useful due to an excellent Methods section) but also on the use of research by the public, practitioners, and other stakeholder groups. These insights can be useful for librarians making collection management decisions for “applied” disciplines or professional degree-granting programs.

**Limitations:** Altmetrics are a relatively young class of indicator, and as such not much is known about the meanings behind altmetrics. Therefore, quantitative altmetrics data (the metrics themselves) should only be interpreted to understand the volume of attention being paid to research. Manual work is needed to assess the underlying qualitative data that makes up the metrics (who is saying what about research). While altmetrics are good at identifying “trending” research, they have not yet been proven to be a good indicator for lasting, long-term impact. Librarians seeking to evaluate non-English-language materials will find that altmetrics coverage is currently limited for these outputs, no matter the altmetrics service used.

**Where to access:** Currently, the only altmetrics aggregator that allows librarians to search by topic, journal, etc and also among an institution’s scholarship is [Altmetric Explorer for Institutions](#). Limited analysis can also be done using the [Altmetric Explorer for Librarians](#) tool. Altmetrics for individual articles and books can be found using the [Altmetric bookmarklet](#), and also (in the case of journal articles and select books) collected from many publishers’ websites.

### Example: Evaluating Journals

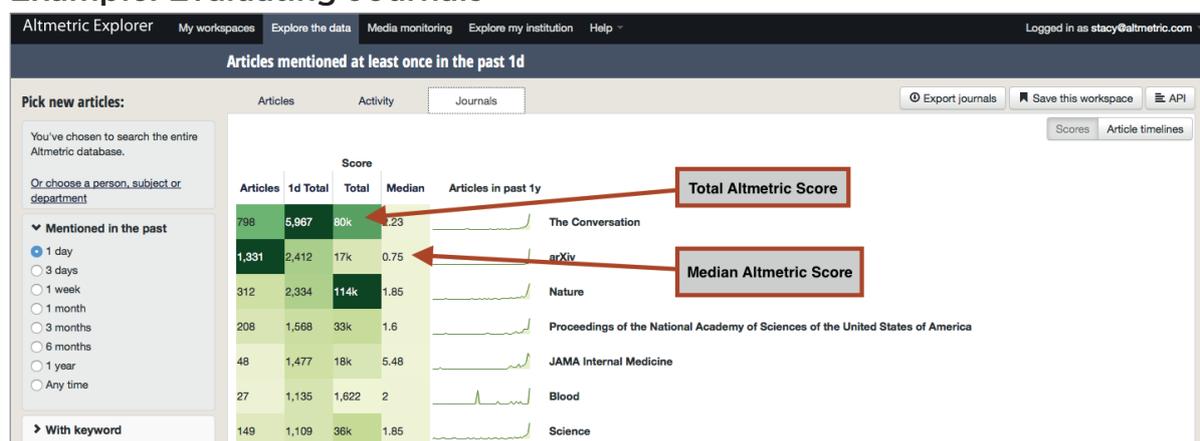


Figure 16. Journal-level Altmetric Attention Scores displayed in Altmetric Explorer for Librarians

Though altmetrics tend to be reported at the article-level (a phenomenon you’ve likely seen if you’ve ever encountered an Altmetric badge on a journal article’s webpage), it is possible to find journal-level altmetrics using the Altmetric Explorer database.

At ER&L 2016, librarians from the Mt. Sinai Icahn School of Medicine [explained](#) how they use Altmetric Explorer data for collection development.

Journal-level usage statistics (usually provided by COUNTER-compliant publishers) and cost-per-use (a metric generated in-house, using Icahn School of Medicine purchasing data) are examined alongside aggregated, journal-level Altmetric scores (seen in the illustration above) to understand how different types of resources garner different types of attention, and thus may each have differing values to an organization like a medical school.

Elsa Anderson (Deputy Director, Collections, Icahn School of Medicine at Mount Sinai) described the median Altmetric score as perhaps the most useful indicator for comparing journals with different levels of yearly publication volumes (because can you really compare raw, aggregated usage stats for a journal that only publishes 200 articles a year to one that publishes 2,000 articles a year?)

Moving forward, the team is very interested in combining disparate data types into a single, weighted indicator that allows them to accurately evaluate different types of publications (for example, the *Pediatric Care Newsletter* and the *American Journal of Pediatric Care*) at a glance.

### **Example: Evaluating Books**

Let's say there are a handful of ebooks in a package that you're renegotiating with a vendor, and you're not sure how useful they are to your community and beyond.

Publisher-supplied ebook usage statistics are a solid real-time indicator for campus interest in these titles. These tell you whether or not the books are being accessed by your patrons (an indicator for recent readership).

Beyond your campus, WorldCat-reported library holdings (i.e. whether or not these titles are owned by peer institutions can help you understand if these titles are popular elsewhere—perhaps an indicator for future interest in these titles.

To find WorldCat library holdings, simply search for your title from the WorldCat homepage, then find it in the list of search results. On the item page, you can see the total number of libraries that own that book under the "Find a Copy in the Library" section.

Alternatively, you might look up GoodReads ratings for the titles, or book reviews submitted to Amazon.com.

On a side note, if you're evaluating a book that's been authored by *someone from your own institution*, PlumX Dashboards can aggregate the above book metrics for you.

When combined with other data points (book reviews, faculty requests, etc), these metrics can make useful yardstick by which to make decisions about which books and packages to purchase.

Beyond making purchasing decisions for books and journals, there are many other ways you can use altmetrics to inform your collection management decisions.

On the following page, we've created an at-a-glance chart for the proper applications

of each metric type covered in this chapter. It offers general best practices for metric use, but keep in mind that there’s always exceptions to the rule. For example, citation counts may be useful for evaluating science articles in general, but not great at evaluating mathematics articles, due to disciplinary citation practices. You may wish to print the chart out and refer to it when making future data-backed decisions regarding your collections.

## Chapter summary

- The Journal Impact Factor is a popular metric for making journal-related selection decisions, especially in the sciences. It should not be used to evaluate the value of individual articles.
- Usage statistics (pageviews and downloads) are the most-used metric for making collections decisions, particularly for journals. They can be used to evaluate journals, articles, and many other types of research outputs.
- Altmetrics are used by a small but growing number of librarians to make collection management decisions. They apply equally well to journals, articles, books, data, and other research outputs.

## Best metrics for collection development, at a glance

The darker the shade of the intersecting cell, the more appropriate that metric type is for the specified use case.

	Journal Impact Factor	Citation counts	Usage statistics	Altmetrics
Usefulness, by discipline				
Sciences	████████	██████	██████	██████
Social sciences	██████	██████	██████	██████
Arts & Humanities	██████	██████	██████	██████
Usefulness, by output type				
Books	██████	██████	██████	██████
Journals	████████	██████	██████	██████
Articles	██████	████████	██████	██████
Data	██████	██████	██████	██████
Software	██████	██████	██████	██████
Recently published work	██████	██████	████████	██████
Usefulness for understanding various influence types				
Long-term disciplinary influence	██████	████████	██████	██████
“Real world” impact	██████	██████	██████	██████
“Buzz” or popularity	██████	██████	██████	████████

### Legend

Not at all useful	██████	██████	██████	████████	Extremely useful
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# A Practical Guide to Altmetrics for Scholarly Communications Librarians

You're a scholarly communications librarian. Your job is to support researchers at your institution to successfully navigate the scholarly ecosystem of open access, research data management, digital publishing, research impact and metrics, copyright — and probably lots more.

How do you make sure you are offering useful and tangible altmetrics support within your suite of scholarly communications services?

This chapter focuses on examples and ideas for altmetrics services run by scholarly communications teams in academic libraries. We'll cover the special role for Scholarly Communications Librarians in promoting altmetrics, specifically: embedding altmetrics services alongside open access support, integrating altmetrics into institutional repositories, and educating researchers on research data metrics.

## Why you're in the perfect position to advocate for altmetrics

As a Scholarly Communications Librarian, you're probably already in an ideal position to promote altmetrics and share best practices across your institution. You're already out there talking to researchers, advising on open access policies, providing institutional repository services and infrastructures. You're in all the right meetings and have plenty of key contacts.

The question is: how do you provide sound advice and promote altmetrics at the right point in the research lifecycle, as part of a robust, library-based scholarly communication service?

Let's think about promotion. In [her recent blog post](#) on the [Altmetric blog](#), Heather Coates (Digital Scholarship & Data Management Librarian at [IUPUI](#)), talks about the importance of being a change agent:

*One advocacy tactic is to help researchers step back to see the value of all their scholarly products in new ways. One easy way to get them to think outside the box is to have them list all of the products resulting from one specific research project. This usually includes presentations, posters, white papers, policy reports. Sometimes faculty list code, models, data, and teaching materials, depending on their focus. With these specific products in mind, describe a couple of scenarios for how altmetrics provide data for individual items. This really helps them to understand the power of altmetrics.*

Is there anyone better suited to be a “change agent” than Scholarly Communication Librarians? I don't think so!

## Start small

You could begin by embedding altmetrics advice during your existing training sessions. If you're running a session on registering for an [ORCID](#) identifier and Scopus author disambiguation, why not also provide an introduction to altmetrics and demo searching in [Explorer for Institutions](#) by ORCID identifier, or signing up for an [Impactstory](#) profile using ORCID?

## Connect alt to open

Scholarly Communications Librarians are experts in broadening access to research, particularly through their support for open access publishing. Lucky for you, altmetrics can help you promote open access—they serve as a nice incentive for “opening up” research, as open access research has been shown to receive more attention online than toll-access articles.

This [blog post](#) by Euan Adie compares the attention to open access vs. paywalled articles in a single journal. He found: “*Open access articles, at least those in [Nature Communications](#), do seem to generate significantly more tweets – including tweets from people who tweet research semi-regularly – and attract more Mendeley readers than articles that are reader pays.*” Furthermore, [a recent study found an open access advantage](#) for a set of articles also published in *Nature Communications* in terms of citation, article usage and citations.

Clearly, it pays for faculty to participate in so-called “Gold Open Access” publishing, where articles are made freely available immediately upon publication.

How do you encourage researchers to “go green” by depositing open access versions of their research in your institutional research information management system or repository (aka Green Open Access)?

## Altmetrics in IRs

One option is to [embed Altmetric's free badges for institutional repositories](#) within academic institutions. Adding additional metrics to your institutional repository [helps increase the visibility of altmetrics and enhance the data in your repository records](#), according to Lucy Ayre from the London School of Economics (who embedded the Altmetric badge alongside repository download stats). William Nixon at the University of Glasgow in his presentation, [Altmetrics in practice: How are institutional repositories using altmetrics today?](#), describes the opportunities for adding value to existing services and empowering academic colleagues with Altmetric badge embeds. His presentation also includes examples of embedding Altmetric data alongside download statistics and funder metadata.

Integrating Altmetric badges is relatively simple: all it requires is a [single line of code](#) or installing a plugin (depending upon the repository platform software you run). If you run an EPrints repository, take a look at this [Bazaar Package](#) for the Altmetric badges. Indiana University Bloomington added Altmetric badges to DSpace item records and even changed their item deposit workflow to allow researchers to opt-in to making badges visible; details for how they did that can be found on the [IU Libraries wiki](#) and [in this presentation](#). BePress Digital Commons software offers the ability to integrate Altmetric badges for all customers.

Another way to get altmetrics for your repository content is to install PlumX Metrics “Plum Prints”, which are available for PlumX subscribers. It includes similar functionality to the Altmetric badge, but highlights slightly different metrics than those Altmetric reports. Like Altmetric badges, they can also report metrics for both the publisher version of articles and preprint versions. “Plum Prints” can be added in any instance where the free Altmetric badges are suggested above—check out [the Plum Analytics website](#) for more information.

Altmetrics in IRs aren't just good for researchers, they're also good for libraries for all of the reasons below:

- Encouraging researchers to deposit open access versions of their research
- More enhanced statistics help demonstrate the value and use of your IR content
- Provide more detailed evidence for [collection development](#)

Check out [New Opportunities for Repositories in the Age of Altmetrics](#) by Stacy Konkiel and Dave Scherer for further insight into leveraging altmetrics to leverage your IR.

Here are some examples of embedded badges on institutional repositories:

The screenshot shows the University of Zurich's Institutional Repository (ZORA) page for a research article. The article title is "Selection for niche differentiation in plant communities increases biodiversity effects." The altmetric badges displayed are:

- Citations:** 22 citations in Web of Science®, 26 citations in Scopus®, and Google Scholar™.
- Altmetric:** A circular badge showing 128 mentions.
- Social Media:** Tweeted by 66, Blogged by 1, Picked up by 10 news outlets, and On 3 Facebook pages.
- Readers:** 282 readers on Mendeley, 0 readers on Connotea, and 0 readers on CiteULike.

Figure 17. Altmetric badges in University of Zurich's IR

The screenshot shows the University of Reading's CentAUR page for a research article. The article title is "Intensification of winter transatlantic aviation turbulence in response to climate change." The altmetric badge displayed is:

- Altmetric:** A badge showing 555 mentions.

The page also includes a navigation menu on the left, a search bar, and a list of related items under "See also".

Figure 18. Altmetric badges in University of Reading's IR

Embedding the badge helps leverage your repository and extend your existing service in useful ways for your researchers, and encourage open access repository deposit. Win-win.

If your library hosts journals on behalf of your institution, you can embed altmetrics in [Open Journals Systems](#) either using the Altmetric [badge embed code](#) or the Plum Analytics OJS plugin—available from the University of Pittsburgh [here](#). PKP are also developing an altmetrics plugin for OJS based on [Lagotto](#), currently in [beta development](#).

## Show me the data metrics!

As a Scholarly Communication Librarian, you might also be running a research data management support service. This might include providing advice, training, technical infrastructure, data management plan guidance and policy support to researchers to help make their data well described, citable with persistent identifiers such as [DOIs](#), preserved, reusable, reproducible and openly available wherever possible.

Many [institutions](#) and [funders](#) now require research data assets to be made openly available according to policy requirements. A number of publishers also have data availability requirements: PLOS journals, for example, [require authors to make all data underlying the findings described in their manuscript fully available without restriction, with rare exception](#). Helping academics to meet these requirements is a key element of an RDM service.

How do you as a Scholarly Communications Librarian encourage participation in good data stewardship *and* help researchers get credit for the attention paid to their data?

That's where altmetrics come in.

First of all—a brief summary of metrics for research data. Traditional metrics such as citations are available for research data and citation counts can be accessed via services such as the [Data Citation Index](#). Citation metrics can help researchers get credit for academic engagement with their data. Altmetrics complement citations by helping researchers, institutions and funders track online activity, engagement and re-use of research data outputs, beyond traditional academic attention.

The [Making Data Count](#) project investigated metrics for data, including surveying 247 researchers and 73 data managers — finding that citations and downloads remain useful metrics to researchers and should be made available as broadly as possible. This is likely to develop in the future with the availability of a broader range of alternative metrics for data becoming more and more important to researchers and universities.

As Stacy Konkiel discusses in her blog post on [Tracking the impacts of data – beyond citations](#), there are three types of altmetrics for research data: “*repository usage, repository-sourced metrics (which often measure not only researchers’ impacts, but also repositories’ and curators’ impacts), and social web metrics (which more often measure other scholars’ and the public’s use and other interactions with data).*” We’re

going to focus on the social web metrics—or altmetrics—and look at how you can embed data metrics in your RDM service.

Examples of altmetrics for data might include:

- Tweets sharing your open data sets (see [example](#))
- News coverage of your data set and findings (see [example](#))
- Facebook mentions of your data sets (see [example](#))
- Wikipedia references to your data (see [example](#))
- Blog coverage of your data sets (see [example](#))

Altmetrics services are great at aggregating this type of information for you, in one place. The [Altmetric Details Page](#) below for a [Figshare](#) data of 3D PDF dinosaur images includes Twitter, blogs, Facebook and news attention, including international coverage in the [Los Angeles Times](#):

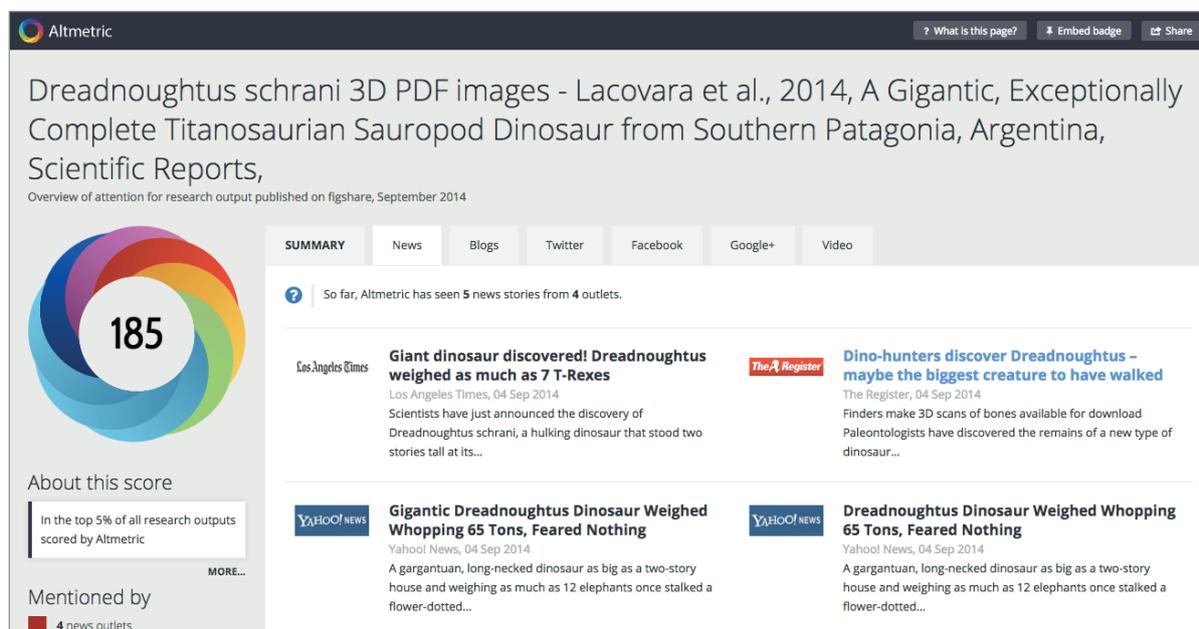


Figure 19. An Altmetric details page for a popular, Figshare-hosted data set

Your job as a Scholarly Communication Librarian is to educate researchers that altmetrics are available for data—most likely they do not know that they exist! You can promote altmetrics for data in a number of ways:

If you have a data repository at your university, you could embed the Altmetric badges in each record to empower your researchers to track attention to their data. Take a look at this example on [Cranfield University's data repository](#) and the [University of Reading's RDM FAQs](#) on monitoring data mentions using altmetrics.

You could also provide access to more powerful reporting services such as [Explorer for Institutions](#), PlumX Dashboards or a researcher profile like [Impactstory](#), which provides altmetrics for data sets and other types of research outputs. (Impactstory's sister service, [Depsy](#), also helps researchers get credit for software.)

Finally, if you're running RDM-related presentations—maybe on the advantages of data sharing or introducing your new data repository—make sure you talk about altmetrics for data!

## Chapter summary

- Scholarly Communications Librarians are in an ideal position to promote altmetrics and share best practices across an institution.
- Start small by embedding altmetrics promotion during your existing training sessions.
- Altmetrics can help you promote open access—they serve as a nice incentive for green OA IR deposit.
- Embedding altmetrics in institutional repositories help enhance and strategically position your service.
- Data metrics help you encourage participation in good research data management and help researchers get credit for the attention paid to their data outputs.

## Further reading

- Kratz, J. & Strasser, C. (2015). “Making data count.” *Sci. Data* 2:150039 doi: 10.1038/sdata.2015.39 <http://www.nature.com/articles/sdata201539>
- Altmetrics in Practice: A Case Study: <https://www.altmetric.com/blog/altmetrics-in-practice-case-study/>
- NISO Altmetrics Initiative: [http://www.niso.org/topics/tl/altmetrics\\_initiative/](http://www.niso.org/topics/tl/altmetrics_initiative/)
- Piwowar HA, Vision TJ. (2013). “Data reuse and the open data citation advantage.” *PeerJ* 1:e175 doi: [10.7717/peerj.175](https://doi.org/10.7717/peerj.175)
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- Costas, R., Meijer, I., Zahedi, Z., & Wouters, P. (2013). “The Value of research data: Metrics for datasets from a cultural and technical point of view” [report]. Copenhagen, Denmark: Knowledge Exchange. [www.knowledge-exchange.info/datametrics](http://www.knowledge-exchange.info/datametrics)



# Using Altmetrics in Digital Libraries

Digital libraries are invaluable scholarly resources. Millions of dollars per year are poured into building digital library technology, digitizing content, and creating the open source infrastructure that supports countless researchers. But surprisingly, not much is known about how digital library collections are actually being used!

In this chapter, we describe the current state-of-the-art for assessing the use and influence of digital library collections. Building upon current practices, we also recommend practical strategies for expanding digital library assessment practices using altmetrics and other data. By the end of this chapter, you'll be well equipped to leverage usage statistics and altmetrics to measure the value of your digital collections, a natural first step to making it easier to win more resources, grants, and administrative support for your library.

## Measuring value in digital libraries: how it's currently done

As information experts, librarians are increasingly being named as on-campus resources for researchers and administrators interested in learning using research metrics. And yet we rarely use research metrics ourselves to understand the value of our collections and services, even for digital library content, whose value might be easily quantified.

In this section, we outline how digital libraries currently measure value, libraries' reasons for assessing their digital collections, and discuss various metrics' strengths and limitations.

## What do we measure?

For digital special collections, we often track metrics for both **digitized objects** and **descriptive information related to those objects**, including:

- Compressed and uncompressed versions of images, videos, and audio files;
- Text files (available in XML, PDF, and HTML formats);
- Descriptive information about the object captured in a variety of metadata standards; and
- Contextual information about an object or a collection described in accompanying essays, timelines, and visualizations.

It would come as no surprise to anyone who has worked with digital collections to say that digital library content is heterogeneous and, in many cases, complicated to measure.

## Why do we measure?

### Demonstrate value

Often, we measure our collections to **prove their value to stakeholders**, including donors, faculty, and library and university administration. With the tightening of belts across academic divisions, libraries also use metrics to document the “ROI” of staff hours and collections dollars (Mays, Tenopir, & Kaufman, 2010; Dinkins & Kirkland, 2006).

At an institutional level, attention metrics (tweets, Facebook shares, mainstream media mentions, etc.) can be appreciated in terms of **public relations**, especially for land grant institutions with a community engagement mandate. It may be difficult for library administrators to see the value in attention metrics beyond marketing, but one should keep in mind that scholarly exchanges are increasingly taking place via online networks, including on social media platforms (Lavoie et al., 2014). As such, attention metrics may evidence scholarly engagement with digital library collections.

Digital special collections can have **value to the public**, beyond their use for research and scholarship. Many collections are reused by the casual reader in ways that can leave traces on the Web, like unexpected references to collections in the form of memes, fan websites, and other pop culture formats.

### Make decisions

Metrics are used every day by libraries to determine how collection development budgets are administered, whether new staff are hired to support particular areas of study, and which monographs are worth keeping versus deaccessioning. Our dependence on metrics to make important decisions naturally extends to digital library administration.

Metrics are often used to **monitor user experience** and **improve the functionality of library web sites** for digital library content (Dalmau & Hardesty, 2008). Metrics can also help **plan for future digitization projects** (Digital Library Federation Forum Working Group Session Notes, 2013).

## Who are we measuring value for?

Tracking, collecting, and analyzing metrics become more meaningful once we understand the stakeholders that may use these metrics.

Below, we provide examples of various stakeholder groups and the metrics they might use. Note that your institution's stakeholders may differ based on your library's mission, mandates, and the content that you publish.

### Librarians & Archivists

Librarians and archivists might use metrics to help make decisions on which digital library content to deaccession or invest in. Metrics can guide library outreach and promotion efforts, helping to market digital library content to the public, scholars, and even donors. Metrics can also be useful when building a case to library or university administration for increased resources. Patterns of use may indicate ways to capitalize on public engagement for projects like crowdsourcing metadata or transcription.

### Library Administrators

Similarly, administrators may use metrics to make decisions on how to allocate resources, particularly to justify costs of building and sustaining a digital library. Metrics can also be a handy way to demonstrate value to funders, whose grants often enable libraries to digitize collections and build critical digital library infrastructure.

### Funders

Funders may use metrics to determine the value of digitization projects they fund. [Funders from other sectors are already using research metrics in this manner.](#)

### Scholars

Scholars may use metrics to evaluate digital library content, when deciding whether or not to download, cite an item, or otherwise reuse it.

### Educators

Educators might use metrics to teach information literacy concepts, when teaching students how to identify and evaluate potentially high-quality digital library content.

### Students

Library and information science students who have contributed to digital collections as interns or hourly workers could benefit from metrics that can demonstrate the value of the metadata, markup, and scanning they have done.

## How are we measuring value?

Digital libraries currently tend to use a mix of quantitative and qualitative data to understand the influence of their collections. There are no standard practices, making assessment strategies at many institutions locally relevant to campus priorities and often ad hoc in nature.

## Quantitative metrics

Usage statistics and content-related metrics were historically the core metrics tracked by digital libraries. It's worth noting that at many institutions, such tracking is not systematic nor transparent.

## Usage statistics



Figure 20. Usage statistics displayed on a [University of Southampton repository](#) item record

Usage statistics include, but are not limited to, page views, downloads, search queries and other data related to users' access of digital library content. Usage statistics were once the sole domain of system administrators, pulled from server logs and often only accessible to librarians from the command line. However, more digital collections are beginning to publicly report download and pageview statistics by default (an example can be seen in Figure 20).

Usage statistics are commonly sourced from web logs and Google Analytics data. We often use these systems to patch together unique reports on our collections and cyberinfrastructure. Some examples of useful metrics that can be sourced from web logs and Google Analytics include:

- Operating systems and devices used to access content;
- Time-based metrics (i.e., times of day that digital libraries see the most traffic; used internally to optimize server maintenance times);
- Landing pages for most popular content; and
- Collection-level usage statistics.

## Content-related statistics

Content-related metrics report on the amount of files in a digital library and their characteristics (file size, format, color profile, etc.).

Digital special collections content statistics are often focused on the "repository"

or “workflows,” including the total number of objects in a collection, file types, characteristics of metadata, benchmarking, and so on.

It’s unclear whether or not these metrics are useful for assessing the *influence* of content; instead, these metrics are mostly useful for preservation, maintenance, and collection development tasks.

### **Qualitative data**

Most qualitative data collected on the use of digital library content are based on interviews and ethnographic usability studies about patrons’ use of these systems (Jeng, 2005; Cunningham, Reeves & Britland, 2003).

Quotes from users and general themes to user feedback are also often collected in an ad hoc manner, usually when users contact collection administrators to request reuse permission for digital content.

Whether or not content appears in syllabi (and if those syllabi are from courses offered at the same institution as the digital library that hosts the content) is also sometimes used to demonstrate the educational value of digital library content.

## **Limitations of our current metrics**

### **Lack of context**

Currently, digital library-collected metrics are not able to capture the context surrounding consumption and reuse. For the most part, we do not know who is using our content, nor for what purposes—though at least one study has shown that it is possible to create narratives based on server log and usage data (Angelo, 2014).

This lack of context means that librarians cannot easily gauge the varied types of significance that collections may have. “Hits” alone do not always convey value; we need to enhance our current use of metrics—and perhaps find new metrics—that can help us better pinpoint the value of digital library content. One way to do so would be to find metrics or qualitative data that help us understand the unique ways that scholars and the public use and benefit from our content, similar to the manner that researchers have been able to find “flavors of impact” for STM literature by measuring the correlations of particular types of metrics (Priem, Piwowar & Hemminger, 2012).

### **Gaming**

How can digital libraries record meaningful statistics if we are unable to better detect and prevent the “gaming” of usage statistics?

Gaming is the artificial inflation of metrics. It can be achieved by both manual (repeated human-initiated requests) and automated means (repeated computer-initiated requests, often achieved with the help of “bots”). Intentional gaming is currently less of concern to digital libraries, which tend to worry more about the effective filtering of robots that are deployed to index digital library content (more on this below).

Ways to correct “gamed” metrics include:

- Banning the IPs of potential gamers and bots,
- Using altmetrics reporting services like Altmetric that account for self-tweeting and other types of self-promotion (Adie, 2013), and
- Making available the underlying, qualitative data, so users can see exactly who is tweeting, blogging, citing, and bookmarking digital library content.

### **Filtering out the noise**

Digital libraries face the challenge of filtering out hits and queries for content initiated by “spiders” and institutional testers. Crawlers can be identified, but mass downloaders are harder to identify, as they change IPs frequently. Browser caching and dynamically assigned IPs can also make counts inaccurate and make it harder to profile and track our users. Multiple http requests for a single page (where separate “hits” occur for web page graphics, css, external javascript files, etc) sometimes can inflate metrics for digital collections.

### **Associating multiple versions of an item & means of access**

An additional challenge to creating reliable metrics for digital libraries is that multiple versions of content often exist. For example, for a single image within a digital collection, there are often separate files in the form of an image’s thumbnails, low-resolution copies, high-resolution copies, and preservation-ready “master” files. How can you accurately measure the value for a single item, given all the versions of that item that exist and have associated metrics?

### **Institutional culture & other influencers of attention**

Marketing and outreach have an important effect on the attention that digital library collections receive, yet each institution’s ability to perform marketing, outreach, and SEO optimization on collections differs. This makes cross-institutional comparisons difficult.

Institutional cultures of assessment are important to consider. Many institutions do not have assessment practices beyond ad hoc ones, or have not adopted existing best practices. Creating longitudinal sets of metrics for a long-term view into the value of a collection is crucial, but not practiced consistently.

## **Recommendations**

In this section, we propose important metrics to capture, methods for collecting these metrics, and guidelines for how to apply metrics when reporting value. In addition, we provide some related resources that can provide further guidance on the integration of such metrics into digital library assessment and reporting practices.

### **What should we measure?**

In addition to the commonly used metrics identified above—which can be very valuable for digital library assessment—libraries should consider tracking the most famous

traditional scholarly metric: the **citation**. Citations can uncover scholarly attention, and are an excellent signal for the long-term disciplinary value of digital library materials.

**Altmetrics** are data related to sharing and reuse of scholarly content online. They can shed light on diverse audiences for digital library content (the public, policy makers, educators, etc.). Because they are reported directly from the websites where discussions of research are happening, they can accumulate quickly. They are often combined with citations and usage statistics when reported out through third-party services like Altmetric.com and PlumX.

Beyond raw counts, **contextual information** is often required to understand the value of scholarship. (Who is interested and why? Are they a scholar or a member of the public? Are they using a University Archives photograph or pre-print of a physics paper?) Usually, we must manually review contextual information to understand context.

Context is also important in terms of longitudinal use. While some collections may see a short spike in popularity, others garner incremental interest over the years, and could be said to have greater value in the long term.

Context should be easy for both librarians and end-users to understand, especially if collection and item metrics are made publicly available. Ways of adding context include listing clearly displayed:

- **Percentiles** (“This image has 291 views. That’s more than 97% of other images in this collection, and 76% of all images held by the University Libraries’ Digital Collections”),
- **Demographic information** (“Of the 9,815 views this video has received, 25% are from users in the US, 17% are from users in the UK, and 58% are from elsewhere in the world.”), and
- **Data collection parameters** (“Download and pageview metrics have been collected since the item’s deposit on 17 June 2012. Twitter mentions have been collected since September 30, 2013. Blogpost mentions have been collected since September 30, 2012, and include only posts that occur on the ResearchBlogging network.”)

To summarize: where possible, libraries should display digital library citation metrics and altmetrics alongside important contextual information.

## Types of Assessment Data & Their Uses

Below we present various types of metrics organized by their quantitative and qualitative characteristics. We do not intend to dichotomize these characteristics, but instead encourage a combination of both approaches. Caveats for capturing these metrics exist and are highlighted below.

The list below is not comprehensive, but instead reflects metrics that are commonly used and easily tracked, and which can be used to understand attention paid to digital library content by various audiences.

## Quantitative metrics

Quantitative metrics are arguably easier to capture than other types of data. Though they may not be fully indicative of *how* digital library items are used, they are indicative of *overall volume* of interest in digital library content. Furthermore, by combining traditional web analytics with altmetrics, a fuller picture of end-user consumption can be understood.

**Page views** are commonly tracked in web analytics software, and are often called “impressions”. Transaction logs and Google Analytics are excellent means to track this metric and the related **session length** metric. Note that the duration of time spent on a given page may reveal clues about depth of engagement with content, but should be interpreted with a grain of salt, as this information could be skewed by multitasking, tabbed browsing, and bandwidth issues.

**Visits**, especially returning visits, are session-based metrics that track a user by IP and/or persistent cookies, and can provide some indication of engagement. Dynamic IPs, different people using the same computer, or one person using multiple browsers can impact data collection. Privacy implications of the use of cookies are a possible issue here. Transaction logs and Google Analytics are excellent means to track this metric.

**Referring sites** straddle the quantitative and qualitative realms in that a subset of referring sites serve as some indication of scholarly (i.e., Wikipedia and Google Scholar) or popular relevance (i.e., news outlets and Reddit) that could be further traced for citations and references in context. Google Analytics reports referring sites well.

**Downloads** are another common metric for tracking use of digital library content that convey, at the very least, that items are being successfully exposed across the broader Web. In some ways they are akin to circulation counts, which have historically been regarded as an important metric of use for libraries. Accurately tracking downloads can be problematic for digital special collections that are stored in digital object repositories and are referenced via persistent URLs (PURLs).

Server transaction logs and Google Analytics can track downloads. A common misconception is that Google Analytics cannot be used to track download statistics for content; some have configured the platform to do just that (Knowles, 2012). The [COUNTER guide to implementing auditable download metrics](#) is useful for more information.

**Direct links** are important to track because a significant amount of link sharing happens in emails. It is also possible that links might be typed directly into the browser. (Admittedly, in the age of Google, that behavior is less likely to occur than in previous years.) To a limited extent, direct links may be trackable in Google Analytics.

**Shares** on social media provide a powerful mechanism for circulating content across a vast network of people. The act of sharing can sometimes signal implicit endorsement of the content being shared. Altmetrics aggregators are well-equipped to track shares on social media.

**Saves, Favorites, and Bookmarks** can capture interest in a given item, and in some cases the [intent to use items in future teaching](#). Altmetrics aggregators are well-equipped to track saves, favorites, and bookmarks on social media and in scholarly social bookmarking sites.

**Adaptations** relate to the creation of derivative works: new research or creative works based on existing digital library images, data, research, software, etc. Tracking adaptation is difficult to do, even in systems that provide mechanisms for doing so (i.e. forking in GitHub). That's because while some adaptations may be created in public (for example, a forked, public software repository might be adapted into another public software repository on GitHub), others might download digital library content in order to adapt it privately (on their desktop, or in Dropbox, etc.). For digital library content that requires end users to manually offer attribution (i.e. citing a digital collection in a book chapter), the problem can be more pernicious. Altmetrics aggregators can track some adaptations, as can thoughtfully constructed Google Alert/Mention search queries.

**Requests for hi-resolution digital library content**, submitted via automated means, could be an indicator of later citations or reuse and adaptations. Further study is needed. In digital libraries where the request process is automated (for example, requests are sent in via a "contact" form on a website), Google Analytics and transaction logs may report this information.

However, these requests are usually collected on an ad hoc basis, as they're often submitted via email. Using customer support email systems like Zendesk, Freshdesk, or other ticketing systems to manage these request emails may help librarians more easily track the overall volume of requests over time.

**Citations** help us understand the use of our digital libraries in a scholarly context, particularly when cited in books and journal articles. Citations to digital library content can be difficult to uncover, however, as it's unclear to what extent citation indices like Scopus and Web of Science can create accurate citation reports for digital content that isn't a book, book chapter, or journal article.

**Visitor demographic information** is another metric of interest to libraries. Demographic information like age and user interests can be sourced from third-party services like Facebook or Google (which are sometimes used to allow visitors to login to library websites), from IP addresses that help determine users' location, or even from library-administered surveys. There are obvious privacy implications to tracking visitors' demographic information.

### **Qualitative data**

The use of qualitative data for assessment sometimes require manual collection and review, or personal engagement with a digital library's users.

**Mentions** can be as informal as a "shout-out" or as formal as a citation, though in either case the mention may not be constructed in easily traceable ways (i.e., citing

a canonical URL or persistent identifier). In venues like Twitter and Wikipedia, where mentions are more easily tracked and aggregated, this data can be easily harvested to better understand context: what is being said about a particular item? And who is involved in the discussion?

Mentions have a huge potential for understanding value, but are harder to trace as they can appear on the Web in many forms: course syllabi, blog posts, policy documents, and news articles (just to name a few). Google Alerts and fee-based services like Mention provide ways for gathering information about an item, project or person of interest, using search terms and keywords. Altmetric gathers mentions that occur in policy documents and mainstream media, particularly for items with persistent identifiers.

**Reviews or comments** provide another avenue for determining value. The *volume* of comments often does not matter as much as the nature of the comments. In addition, a commenter's identity can sometimes be equally important when analyzing comment content. To a limited extent, altmetrics aggregators can collect this information in the form of blog posts, blog comments and Twitter mentions.

**Reference inquiries** regarding digital library content should be factored into assessment; they often provide a story of scholarly use and engagement beyond web analytics. They also create opportunities to follow-up with users to learn more about their research interests with respect to the digital library resources. Reference inquiries can be used to justify the allocation of staff time at the launch of collections, when questions from the public are likely to circulate. These are often collected and recorded on an ad hoc basis, being as they're often submitted via email, telephone, or in person. Customer support services like Zendesk are also appropriate for consideration in managing these inquiries, to make it easier to track their volume over time.

## Case study: The Biodiversity Heritage Library

### **About the Biodiversity Heritage Library**

The Biodiversity Heritage Library (BHL) is a consortium of worldwide libraries, headquartered at the Smithsonian Libraries in Washington D.C. Launched in 2007, the BHL online resource site receives over 110,000 unique visitors a month, and currently includes over 49.7 million pages of natural history literature from over 109,000 titles.

The library's mission is to inspire discovery through free access to biodiversity knowledge; anyone in the world, wherever they are, should be able to make use of their content. Access to such information is a particular necessity to biodiversity-related sciences, as historical data and species classification underpins the work that scientists are doing today.

### **Why the interest in altmetrics?**

In 2014 the BHL received an Institute of Museum and Library Services grant to transform BHL into a more social, semantic digital library. As part of this "Mining

Biodiversity” project, they are further integrating the BHL with social media, enhancing site search functionality, and improving their semantic metadata.

“We wanted to see where people were talking online about our content – and help our readers see those conversations too.”

Crucially, Grace Costantino (Outreach and Communication Manager at BHL) and her colleagues are keen to find ways to make it easier for their audience to discover more info about their collections, and share thoughts and knowledge about those collections using social media. The first step they took to encourage this was to add better sharing buttons to BHL, but they also wanted to more easily capture the online conversations surrounding their content and let others see what people had been saying.

### Implementation

Although some of the BHL content is assigned a DOI, this practice is not consistent across all of their content. Grace and her team worked with Altmetric to instead track mentions to their content based on the URI (the unique identifier) of each piece of content.

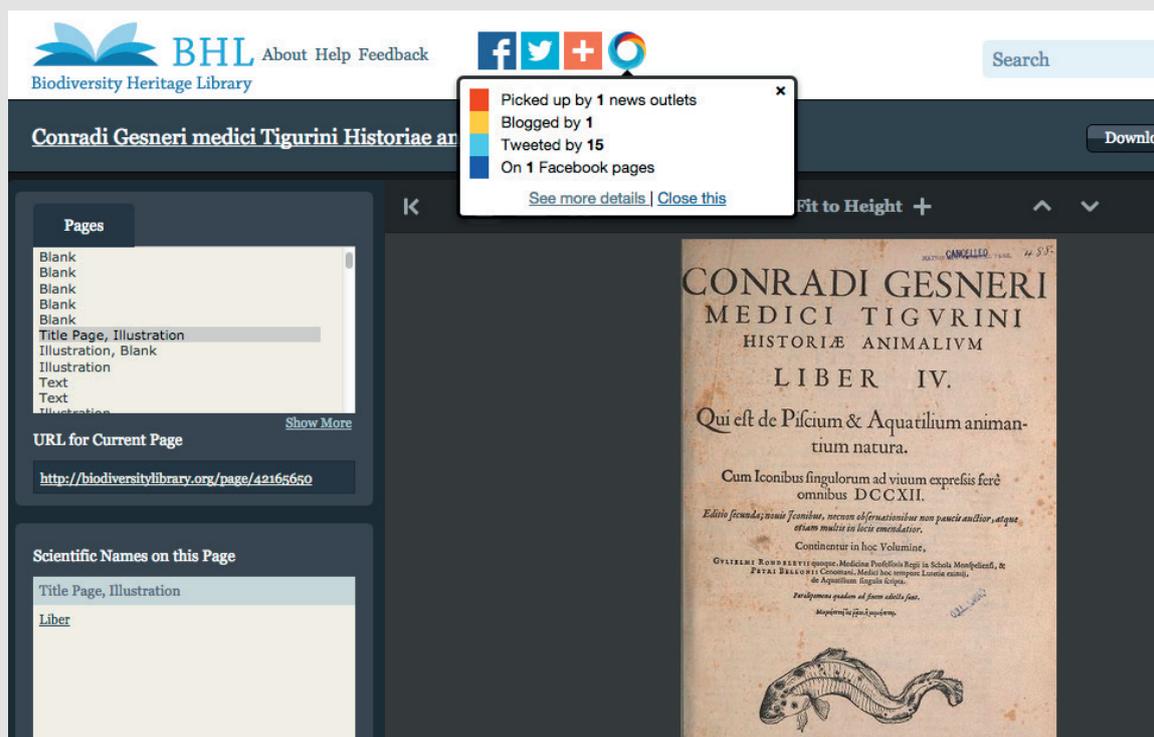


Figure 21. How the Biodiversity Heritage Library have integrated Altmetric badges into their digital library

BHL has now launched the Altmetric badges across their online platform, and are using the Altmetric Explorer internally to monitor and report on the online attention across their collection.

They also added an overview of the Altmetric data and what it offers their readers

to their [Wiki](#), helping users of the platform understand what the data shows and how it can be interpreted.

### **Up and running**

In July 2015, Grace reported that the BHL are finding the Altmetric data really valuable for discovering conversations that they didn't know were happening – particularly as lots of people will share a link to the content they are talking about but don't necessarily mention the BHL, making this activity difficult to track by keyword alone.

To announce the roll-out of the Altmetric badges, Grace and her team put together a program of blog and social media content, and also included announcements in their newsletters and quarterly reports. Already they are using the Altmetric Explorer to identify what types of books are popular with audiences, and making additional efforts to offer similar content.

“Through the Altmetric data we identified that our marine books in particular are really popular. Information like this helps us better tailor our posts and the content we share to ensure maximum engagement.”

With altmetrics providing an up-to-date measure of the success of their ongoing promotional and engagement efforts, in the future the BHL hopes to use altmetrics to help determine ongoing outreach and engagement strategy to ensure the continued awareness and success of their valuable content.

*The content of this case study has been adapted from a July 2015 Altmetric blog post, “[Biodiversity Heritage Library highlight online attention surrounding their books with Altmetric badges](#)”*

## How to collect assessment data

There are two important considerations for devising an assessment strategy: **how often to collect your data** and **which tools to use to collect it**.

### **Timing**

**For institutional use:** It can be useful to collect and analyze metrics at times that coincide with both annual, library-wide internal reviews and external reporting events (like for ARL reports, LibQual statistics, and so on). That way, you can reuse the metrics collected for both purposes.

For end users: Delivery of content for user-facing stats should be immediate. For example, “This item has been downloaded x times” is a metric that's more useful when reported in real time. If manual intervention is required to prepare metrics (such as to parse server logs for relevant information), metrics should be regularly delivered (i.e. weekly or monthly) and transparently reported, so users can understand what they are looking at and can evaluate the usefulness of those metrics accordingly.

## Tools

Following are recommended tools for getting started with data collection. A holistic evaluation framework that librarians might also find useful is [JISC's Toolkit for the Impact of Digitised Scholarly Resources \(TIDSR\)](#).

### Web server logs

- Metrics reported: downloads, referring sites, visits, pageviews, limited demographic information.
- Be sure to export information at regular intervals, as consistent collection is important for longitudinal analysis.
- Web server log data often adhere to certain formats (Apache Custom Log Format, W3C Extended File Log Format, etc.) and can be processed and visualized for human consumption with the help of tools like [Webalizer](#), [AWStats](#), and [Tableau](#).
- [Tableau](#) is especially useful for web server log analysis, grouping, and visualization by creating dashboards, user population assessment, and usage over time.

### Google Analytics

- Metrics reported: downloads, referring sites, visits, pageviews, limited demographic information.
- [Google Analytics](#) has some dashboard functionality that's useful for saving elements you want to review regularly. GA is also useful for longitudinal analysis, showing big trends in traffic and use.
- For digital collections: Szajewski (2013) has written an excellent guide to using the tool to measure the value of digital special collections.

### Citation databases

- Metrics reported: peer-reviewed journals and books that cite digital library resources.
- Citations can be sourced from subscription databases like [Scopus](#) and [Web of Science](#), or from free platforms like [PubMed](#), [Google Scholar](#), [Google Books](#), and [CrossRef](#). Often, specialized searches are required to find citations to digital library content: "cited reference search" can be used in Web of Science, and free-text search for digital library or collections' names can be employed in other databases to find references to digital library content.
- Citations are much easier to track when persistent identifiers like DOIs are used by whomever is citing digital library content.

### Altmetrics aggregators: Altmetric & PlumX

- Metrics reported: Shares, saves/favorites, adaptations, mentions, and some other quantitative and qualitative data sourced from the social web. For full lists of each service's metrics, visit their respective websites.
- These services collect data from across the web related to any scholarly outputs, which can be displayed in embedded badges ([Altmetric](#)) or widgets ([PlumX](#)).

- Altmetric collects altmetrics for any content in a subscriber's digital special collection. Plum Analytics has not yet confirmed whether PlumX is equipped to track digital special collections.
- Both aggregators provide important qualitative data behind the numbers they report, although to varying degrees. For example, in both altmetrics tools, in addition to seeing that items in your digital library have been mentioned 17 times on Wikipedia, you can also see exactly what has been written about them. However, PlumX does report some metrics that do not have the underlying qualitative, auditable data available for review.

### Altmetrics data via social media APIs

- It is also technically possible for digital libraries to connect with individual social media platforms' APIs to search for mentions of their content. This might be a good option for digital libraries that do not issue permanent identifiers like Handles or DOIs; they could monitor social media sites for mentions of relevant URLs, instead.
- The main drawback to this option is the the developer time required to build customized solutions for each digital library. It could possibly result in much duplicated effort.
- Another possible drawback are the limitations placed on search APIs by platforms themselves; for example, Twitter's search API is typically restricted to fetching data from only the previous week, and the API's rate limits restrict the retrieval of large amounts of data at once (Kinsley, 2014).

### Qualitative data via Google Alerts and Mention

- Track when your content has been shared on the web by setting a [Google Alert](#) or [Mention](#) alert for your:
  - digital library's name
  - digital library's base URL  
(<http://collection1.libraries.psu.edu/cdm/singleitem/collection/amc/id/314/rec/1>),
  - your repository's Handle or DOI shoulder  
(<https://scholarworks.iu.edu/dspace/handle/2022/9564> and <http://hdl.handle.net/2022/9564>; <http://dx.doi.org/10.5061/dryad.pp67h> and <http://datadryad.org/resource/doi:10.5061/dryad.pp67h>), or
  - special URLs created for collections  
(<http://webapp1.dlib.indiana.edu/vwwp/welcome.do>)
- For important collections, you might also want to set alerts for titles or names relevant to those collections (i.e. for Penn State's "Advertising Trade Cards from the Alice Marshall Women's History Collection," they might also set alerts for "Advertising Trade Cards" and "Alice Marshall").
- Google Alerts is free to use; Mention is a subscription service.

## Chapter Summary

- Most digital libraries currently use relatively basic, minimally data-backed assessment strategies.
- Adding altmetrics, citation data, contextual information, and other data to assessment practices could vastly increase libraries' understanding of how their digital collections are being used and by whom.
- A number of free and subscription tools can make it easy to automate the collection of data. Analyzing the resulting data at regular intervals can keep assessment projects manageable.

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# The Future of Altimetrics





# A Short Guide to Keeping Up-To-Date on Altmetrics

The field of altmetrics is fast-changing, with research coming out weekly that gives us new insights as to altmetrics' many meanings, interpretations, and uses.

Plus, altmetrics themselves are ever-changing: new data sources are constantly appearing and often being deprecated.

Keeping up with all these changes can be a bit of a bear. We've compiled a list of resources (social media streams, conferences, journals, and researchers) that can help!

*These resources are current as of August 2016.*

## Journals to read

High-quality altmetrics research is often published in the following journals:

- [JASIS&T](#)
- [Scientometrics](#)
- [Journal of Informetrics](#)
- [PLOS ONE](#) (specifically, the "altmetrics", "bibliometrics", and "social media" subject areas)

[Frontiers in Research Metrics & Analytics](#) is a recently launched journal that will likely include relevant altmetrics research, as well. Open Access altmetrics research is also often shared in the [Digital Libraries section of Arxiv](#) and on many researchers' personal websites.

## Researchers to follow

While many researchers dabble in altmetrics research, some scientometricians regularly publish valuable insights in the field. Here are a few to follow:

- [Lutz Bornmann](#)
- [Timothy D. Bowman](#)
- [Rodrigo Costas](#)
- [Stefanie Haustein](#)
- [Kim Holmberg](#)
- [Isabella Peters](#)
- [Cassidy Sugimoto](#)
- [Mike Thelwall](#)
- [Zoreh Zahedi](#)

The researchers listed above are by no means the only scholars contributing to altmetrics. We encourage you to explore the field further using article recommendation services like [Sparrho](#) and [Google Scholar](#) (and of course via good-old-fashioned expert search skills, which are in no short supply for librarians!)

## Social media spaces to monitor

Twitter is the single best place to stay up-to-date with altmetrics research and industry news. Follow the [#altmetrics](#) and [#altmetria](#) hashtags, the [Altmetric Ambassadors](#) and [Bibliometrics Experts](#) lists, and the below Twitter accounts for the latest information:

- [Ronaldo F. Araújo](#)
- [Isidro F. Aguillo](#)
- [Keita Bando](#)
- [Jason Priem](#)
- [Cassidy Sugimoto](#)
- Organizational accounts from [Altmetric](#), [Impactstory](#), and [Plum Analytics](#)

Relevant research occasionally surfaces on Academia.edu's "[Altmetrics](#)" section, as well.

## Conferences to attend

There are a growing number of conferences devoted solely to altmetrics and the related fields of bibliometrics and webometrics:

- [Altmetrics Conference](#) (also known as the X:AM conference series): This meeting usually occurs in Europe in the autumn and includes a nice mix of librarians, researchers, and scientometricians.
- [AltmetricsXX workshops](#): This one-day workshop is now paired with the Altmetrics Conference and highlights cutting-edge research in altmetrics. It is more research-heavy than the X:AM meeting.
- [SIG METRICS workshop](#) and [ASIS&T Annual Conference](#): The ASIS&T SIG METRICS interest group usually organizes a one-day workshop at the ASIS&T Annual Meeting, where scientometrics research is shared in general. Altmetrics research is often presented here, and to a lesser extent, it is also included in the program of the larger ASIS&T Annual Conference.
- [Science and Technology Indicators Conference](#) and the [International Society for Scientometrics and Informetrics \(ISSI\) Conference](#): These conferences are held throughout the world and often include altmetrics research in addition to bibliometrics and webometrics research.

If you are unable to attend these meetings in person, don't worry: proceedings, recordings, and conference tweets can often be followed from afar. Check out each meeting's website for more information.

## The attitude to maintain

If there's one thing that can help you stay up-to-date on altmetrics, it's understanding that what we know about this data is likely to change a lot over time!

You should always continue to challenge your own opinion of altmetrics, and regularly ask yourself: How has the field changed in the last few months? What research has emerged on the types of impact and altmetrics that are relevant to me? What's changed in the altmetrics industry that's worth knowing about?

## Chapter summary

- The field of altmetrics is relatively young and fast-changing. A number of resources can keep you up-to-date with minimum effort.
- Reading specific journals and following a handful of recommended researchers is the surest way to find the latest, best altmetrics scholarship.
- Twitter is a great social media venue for discovering altmetrics news, and lots of research is also shared on Academia.edu.
- An increasing number of altmetrics conferences worldwide can be attended or followed from afar.



## Where the Field May Be Headed

Though it's hard to predict where altmetrics in libraries may be headed in the next few years, it's possible that the field *in general* may soon develop in the following ways.

### Moving beyond metrics

Many in the altmetrics community have acknowledged that numbers—while useful for helping to discover pockets of attention—usually aren't suitable as impact evidence, by themselves. When making an argument for the influence of one's research, the *amount* of discussion about research (as documented using metrics) tends to be less useful than the *substance* of that discussion (who is talking and what they're saying).

In the near future, we hope to see researchers, administrators, and librarians looking beyond raw metrics to find evidence of meaningful engagement when evaluating research using altmetrics data. Full-text altmetrics data will be used to help scholars craft their own narratives of influence, rather than just a list of numbers to display alongside the Journal Impact Factor on one's CV.

### More context

In the limited cases where metrics themselves may be used as impact evidence, context will be key. This context will likely be provided in at least two ways: through the greater use of percentiles to show the relative performance of research, and through semantic enrichment.

Experts generally recommend the use of percentiles to give context to metrics. So, rather than saying, "This book was mentioned in 5 news articles," one should say, "This book was mentioned in 5 news articles, placing it in the top 5% of all articles published in *The Journal of Lilliputian Economics* in 2014." Percentiles generally make comparisons between research published in the same journal, discipline, or year, and it's also possible to make comparisons at the author-level, using authors' discipline, nationality, [gender](#), or other variables.

Two of the leading altmetrics services, Altmetric and Impactstory, each offer percentiles for their data. Altmetric’s percentiles use the Altmetric Attention Score (a weighted indicator for the volume and nature of attention that a research output has received) to make comparisons along four bases: comparisons to all 5+ million research outputs we’ve recorded as having online attention; comparisons to other outputs published in the same journal; comparisons to other outputs of the same age; and comparison to other outputs of the same age, published in the same journal.

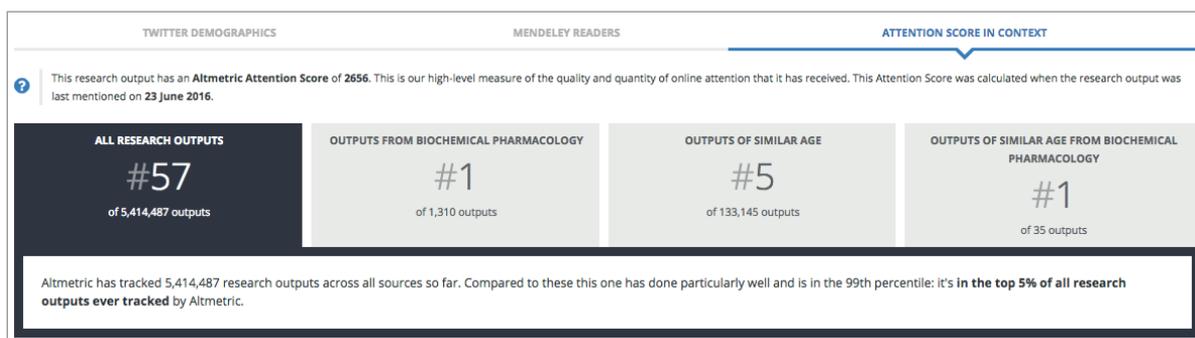


Figure 22. Percentiles can be found on Altmetric details pages, under the Attention Score in Context section of the Summary tab.

Impactstory also offers percentiles, comparing the performance of an entire researcher’s oeuvre against that of all research indexed by Impactstory, regardless of age, discipline, or journal of publication. These percentiles can be found in [Impactstory Achievement badges](#), which highlight notable patterns in readership, bookmarking, open access status, and more.

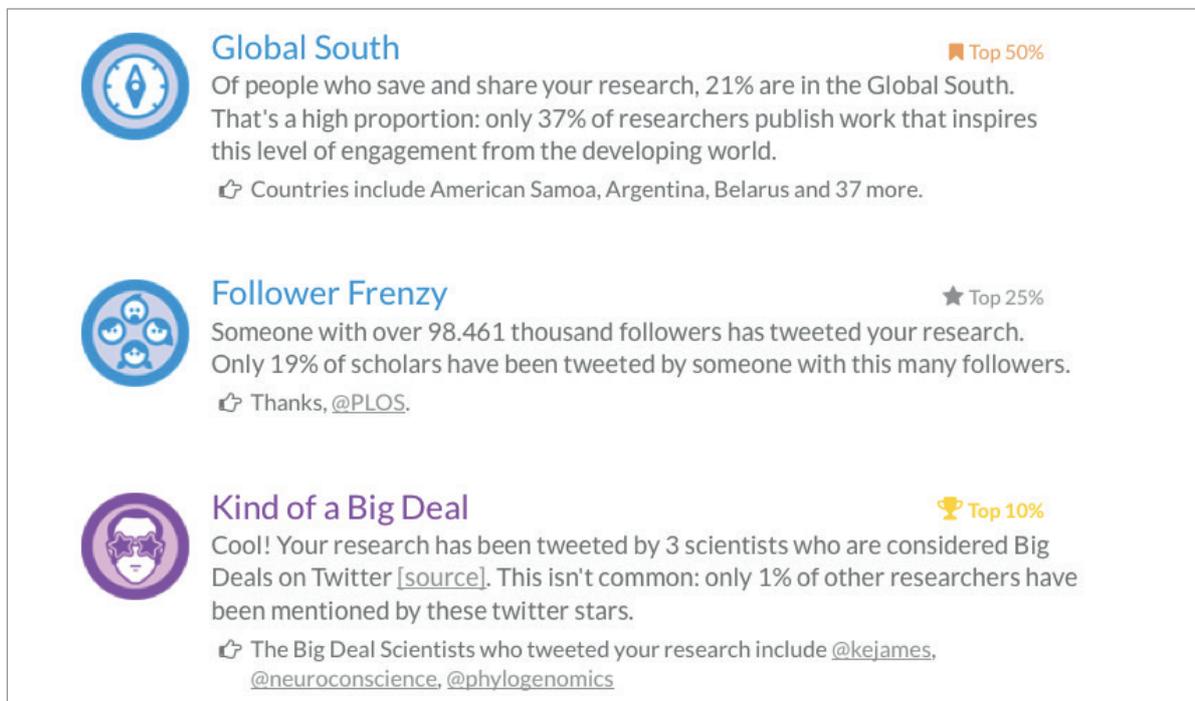


Figure 23. Impactstory Achievement percentiles are found to the right of individual badges on researcher profiles’ Achievements tab. Pictured are some Achievements for Dr. Ethan White.

Altmetrics researchers have also begun calling for greater context to altmetrics data via semantic enrichment of metrics. For example, of the hundreds of Facebook posts about a research article, how many mention that article in a positive light? How many discuss it negatively? Understanding the public reception of research can be greatly improved using semantic enrichment.

[Preliminary research](#) into classifying positive and negative mentions on Twitter found something unexpected: few people express positive or negative sentiments towards research (only 4.3% and 0.9% of tweets did either, respectively) because few people do more than tweet an article's link and title to begin with! Therefore, it's possible that future sentiment analysis techniques may be best applied as a means to understand overall engagement with research (i.e. is someone taking the time to comment upon a paper, or are they just sharing it?).

## Transparent and auditable data

In recent years, there's been an increased demand for transparent and auditable altmetrics data from the larger scholarly community. That's because [research](#) has shown that various providers can report wildly different attention metrics for the same outputs, due to variability in their data collection and curation practices.

In light of these concerns, a US National Information Standards Organization (NISO) working group on altmetrics has [recommended](#) that altmetrics data providers become more forthcoming about how their data is collected, cleaned, and calculated.

[Experts](#) have defined "auditability" thusly: "Auditable data implies completely open and transparent calculation formulas for aggregation, navigable links to original sources and access by anyone without a subscription."

At Altmetric, we apply the principle of auditability by collecting *public mentions only* for research, and integrating only non-auditable or toll-access data that meet rigorous quality standards (Mendeley bookmarks and Faculty of 1000 Prime reviews, for example). We believe that being able to read and review the full-text of mentions is key to preventing gaming of altmetrics data. Based on research and much community consultation, it's our expectation that savvy academics will soon begin to reject data that has not been collected according to those standards, causing all altmetrics providers to amend their data curation practices.

It is not farfetched to assume that we will soon have community standards (based upon NISO recommendations) for collecting and reporting altmetrics data, similar to how COUNTER-compliance for usage statistics help assure the quality of pageviews and downloads for digital content. Who will be accountable for setting and monitoring compliance is unknown at this point.

## Increased use in decision-making in academia

The biggest prediction we have for altmetrics is that we'll soon see an explosion in the use of altmetrics data in academia.

Every day, we hear of new researchers who are using altmetrics data as evidence in the promotion and tenure process, or when filing their annual reports with department and university administration. Funders like the [Wellcome Trust](#) are already using this data to understand the value of the work that they fund, and it's expected that increasing numbers of funders will soon begin doing the same. Moreover, it has been [recommended](#) that metrics be used to supplement the peer review process in evaluation exercises like the REF in the UK.

We'll soon reach a tipping point for altmetrics. Having read this book, you're now your campus's resident altmetrics expert, and are ready to navigate the future!

## Chapter Summary

- In the near future, it's possible that the use of raw metrics to showcase impact will fall out of favor, being replaced by richer narratives and contextualized metrics that are based on altmetrics data.
- Altmetrics are likely to become more transparent and auditable, due to both market demand and expert recommendation.
- Altmetrics may soon be widely used by decision-makers in academia.

# About This Ebook

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Altmetric are a data science company based in London, UK. Supported by Digital Science, Altmetric was founded in 2012 with the aim of helping publishers, authors, funders and institutions more easily track and report on the online activity surrounding their research. Altmetric believe that researchers should get credit for their research no matter what format it's in, and that metrics can provide a useful indicator of the potential broader impacts and influence of scholarly work. Altmetric data is currently used by leading publishers, funders, and institutions large and small, including Springer Nature, Taylor & Francis, Wiley, Michigan Press, the Genetics Society of America, Duke University, Cambridge University, University of South Australia, the Wellcome Trust, and the Templeton Foundation.



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