

## A Conversation with Maryann Martone on May 30, 2013

### Participants

- Maryann Martone – Executive Director, Force11
- Alexander Berger – Senior Research Analyst, GiveWell

**Note:** This set of notes was compiled by GiveWell and gives an overview of the major points made by Maryann Martone.

### Summary

Maryann Martone is the Executive Director of Force11, an organization dedicated to improving scientific and scholarly communication using modern information technology.

GiveWell spoke with Dr. Martone about the current situation in academic publishing and issues around scholarly communication and access to data. She discussed Force11's goals and some ideas for improved scholarly communication in the future.

### The problems

Force11 believes that the process and dissemination of research is currently based around the methods and rewards of the print era, and is failing to appropriately use the internet and other modern technology. This issue is evident in a number of ways.

First, gaining access to existing research is often difficult. Publishers restrict access to their material, meaning that it is time-consuming and costly to make agreements with a variety of publishers in order to find relevant material across a field. This is typically difficult but doable for scholars who have official (paid) access through their institutions, but prohibitively expensive for members of the public. Furthermore, the use of a variety of formats means much of the research is often not machine-searchable, making it difficult to discover important information.

Dr. Martone hopes to raise awareness in the scholarly community about the "costs" of our current mode of scholarly communication, e.g., the variety of formats used by different organizations and publications. The current process of producing papers results in a product that is not suited for machine-based access and also imposes a huge burden on the author who must conform to a variety of formatting styles as a paper wends its way through the publication process. The priority given to correct formatting, combined with the wide number of formats required, has created a "tyranny of formats." Time currently spent formatting papers is time wasted, as no one gains or learns anything from an activity like reformatting references. Agreeing on a more machine-friendly format across academia or assigning less importance to formatting could free up huge amounts of researchers' time.

The difficulty in accessing existing research is further compounded by the fact that academia currently only rewards peer-reviewed research articles. This is a poor format for

communication on the Web, and also produces little incentive for individuals to publish research that could be relevant to others but is not suitable for a research article, such as data sets. Researchers get credit for articles, so if research cannot be made into an article there is often no reason to make the data publicly available.

Finally, a lack of central organization and a deficiency in communication means that scholars often aren't aware of available tools. It also means that redundant tools are created (for example, there are a dozen different PDF crackers), wasting resources that could go towards improving existing tools. Take-up of useful existing tools is often slow because changing routines is difficult. However, if it were easier for people to see others using a tool to gain an advantage, they may be more eager to use it themselves. Thus, improved communication is important.

### **Potential improvements**

One existing tool is the ORCID identifier, a unique ID assigned to authors. If people could be encouraged to use their ORCID ID consistently, in a variety of mediums (articles, data sets, blog posts), it would be possible to easily collect a list of their public contributions in one place, giving more value to content that isn't published in an article format. One hurdle is that some fields aren't aware of ORCID or don't think ORCID would work for them, but Dr. Martone believes that it would have wide applicability.

Training people to integrate better practices into their workflow is another important step. For example, researchers ought to create their data sets in ways that make the data easy to read and search. A tool that allowed a data set to be published in a format that looked similar to that of an article could help bridge the gap between the public benefits of shared data and the current private incentive to only publish articles.

Agreement on a single format could solve many of the problems associated with competing formats. Broad agreement is what is important to focus on here, not the creation of new tools or formats – for-profit companies would be very happy to create the necessary tool if everyone agreed on what they were looking for. It is important to recognize that commercial firms have a role to play, and by bringing the market to them by showing what people really want they can help produce relevant and helpful tools.

Force11 does not have an organizational position on open access, as it is meant to be an umbrella organization for a diverse stakeholder group, although universal access to scholarly content will be required to realize the goals of FORCE11. While Dr. Martone believes that there should be a mechanism for free public access to research, there's a possibility for publishers to make money by facilitating easier data access or the ability to manipulate it (that is, charging for tools to improve the experience of viewing or working with data). Alternatively, publications could be kept private and sold for a short period of time, as is current practice, but become freely available after a little while.

Force11 has discussed carrot vs. stick approaches to these problems, and one alternative to the above ideas and tools is a “stick” method. This would require strong central regulation – some scientists Dr. Martone has spoken to claim that they are unlikely to change their practices unless the National Institute of Health (NIH) tells them to.

A project Force11 is thinking about (although may not host themselves) is an incubator for research tools. The aim would be to assist the development of specialized tools that will be able to support themselves once they are fully functional but need help to get there. One particular benefit would be the opportunity for the developers to receive honest critiques and feedback.

Another useful development would be a large-scale prototype of a system for the kind of online scholarship that Force11 advocates, with the hope that once researchers see such a system in action they would want to contribute themselves. This type of large scale demonstration could be very important to getting the broad agreement required to solve many of the problems discussed, and might be accomplished through organizing a “Year of Next Gen Publishing.” Other groups, e.g., the Mozilla Foundation, are thinking along similar lines and it may be possible for FORCE11 to join with these groups for a large-scale effort. Funding people to participate in such a demonstration could help it succeed.

It is also important to define a community contribution model, so that every scientist or researcher can get credit when they add their contribution to a central system. In Dr. Martone's experience, many people really do want to make contributions and don't only care about being the first or second author on a paper. Even if someone isn't the “star” of a project, their contribution should still be valued, and it should be easy for everyone to put their contributions into the public domain.

## **Force11**

Force11 is a community that has arisen in response to these issues with the intention of facilitating the change toward improved knowledge creation and sharing. The group currently has 372 members, with funding of approximately \$200,000 from the Alfred P. Sloan Foundation. This goes towards paying for their website, organizing conferences, and to Dr. Martone as the executive director to support travel and outreach. They are hoping to create a community-driven tool registry to increase awareness of the useful tools already available and to prevent the creation of redundant ones.

## **Room for funding**

There is a funding hole for tools, as the preference for funding research means money for the creation of tools is inadequate. Funders tend to prefer providing money for novel ideas, and useful tools tend not to be novel. That being said, if there is a clear demand for a specific tool, for-profit firms can often provide it if they expect users will pay for it.

Force11's incubator idea is a project that could benefit from funding, helping to take useful ideas and tools and develop them all the way through with critical feedback along the way.

### Other people for GiveWell to talk to:

- Force11's Executive Committee
  - <http://www.force11.org/about>
- Kaveh Bazargan (of River Valley, which does academic text processing)
  - <http://river-valley.com/kaveh-bazargan/>
- Phillip Lord (of Knowledge Blog, has ideas about lowering cost of entry to scholars)
  - <http://knowledgeblog.org/>
- Martin Fenner (of PLOS)
  - <http://blogs.plos.org/mfenner/about/>
- Stefan Tanaka (UC-San Diego Historian)
  - <http://communication.ucsd.edu/people/faculty/stefan-tanaka.html>
- Kathleen Fitzpatrick and Carol Tenopir (keynote speakers at Force11's Beyond the PDF 2 conference)
  - <http://www.plannedobsolescence.net/kathleen-fitzpatrick/>
  - <http://scholar.cci.utk.edu/carol-tenopir/home>

### Regarding "research objects": nano-publications/micro-publications

- Carole Goble (Computer Science Professor at the University of Manchester)
  - <http://www.cs.man.ac.uk/~carole/>
- David De Roure (Professor of e-Research at the University of Oxford)
  - <http://www.oerc.ox.ac.uk/people/dder>
- Todd Carpenter (Executive Director of NISO)
  - <http://www.niso.org/about/directory/staff/>
- Barend Mons (Scientific Director, Netherlands Bioinformatics Center)
  - <http://www.biosemantics.org/index.php?page=barend-mons>
- Paul Groth (Assistant Professor at the VU University Amsterdam, also on Force11's executive committee)
  - <http://www.few.vu.nl/~pgroth/Site/Welcome.html>