

Here is my input to the RFI on Public Access to Peer-Reviewed Scholarly Publications Resulting From Federally Funded Research.

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Executive Summary

In the past few years, we have seen a perfect storm mixing the growth of two phenomena, a data deluge stemming from access to cheap sensing and computational equipment and the growth of scholarly publications. At the same time, there has been a near constant supply of reviewers. Open access to government funded work is the only short- and long-term policy decision that quickly enables a larger pool of quality reviewing capability aside from imposing reproducible research standards. In the end, it enables a more robust scientific process.

Introduction

With the advent of cheap high throughput equipment, we are seeing the emergence of what one would call "the curse of dimensionality", .i.e. the ability to produce cheaply large amount of data and the somewhat still limited ability to makes sense of them. This data deluge is, in turn, the primary reason behind the growth of the number of scholarly journals and journal articles over the recent few years. Unfortunately, the pool of potential reviewers has remained about the same and has not caught up to the level needed to deal with these two growth factors. One can certainly wonder how this is having an impact on how Science is performed (i.e. judged). In particular, the growth of the number of journals has eventually yielded a reliance on a lower number of potential high quality reviewers per journals. More insidiously, the growth in data production and/or computational experiments has removed from most time-constrained reviewers the physical ability to take on real reviews.

Peer-Review

In light of this situation, the current response by non-profit and commercial publishing entities has been to exacerbate the problem by opening the gate for newer journals and conference venues instead of developing innovative processes to do the one function that is generally thought to be their value added to the process of scientific discovery: The management of the peer-review process. An item of considerable interest is the current lukewarm ability by publishers (commercial or non-profit) to deal pro-actively and fairly with retraction. In particular, there is currently no system in place for publications to address the fact that they may have referenced a recently retracted publication for instance.

Under a regime of government funded open access of publications, new or older players could change the way peer review is performed by enabling systems like a **post**-peer review capability. This is just an example but innovation has to enter this market in order for the different stakeholders to continue on producing high quality work, at the lowest price to the government.

Conclusions

The interest of the US Government to have open access of government funded work can be clearly delineated into the following reasons:

- Open access opens the ability of non-time constrained post peer-review processes by a larger pool of reviewers, thereby enabling a more robust scientific discovery process.
- Open access provides the ability for innovation in the marketplace by enabling new (commercial or non-profit) actors in the peer review process. The new players may provide the ability to create new opportunities that are currently seldom explored by the current landscape.
- Open access potentially reduces some large cost to the government in its ability to deal effectively with past flawed work and attendant retractions. Some of these retracted works may have had broad policy implications.
- Open access comforts the United States leadership in manners related to Science and Technology development.