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My name is Brandon Locke and I'm a graduate student in American History at the University of Nebraska-Lincoln. I have written my letter to address the specific questions in the RFI that most directly pertained to me. In short, I believe that it is unfair for private companies to capitalize off of publicly-funded research, forcing taxpayers to pay to fund the research and buy it back for public universities. It is also fundamentally counterproductive to innovation and education, by preventing students, researchers, and entrepreneurs from seeing and using the newest research. It is for these reasons that I believe publicly-funded research should be open to everyone and have no restrictions on use, besides proper attribution.

Question 1:

Agencies can best grow markets by doing everything possible to allow for open access and free use of research publications. Steps to increase access and usability of peer reviewed publications allow for publicly funded research to reach more people and be used in new and innovative ways to create economic growth and improve higher education. Wider and more productive analytical methods mean a much higher return on investment for research publications, lessening the burden on taxpayers, who currently fund both the research and the acquisition of scholarship. Agencies can grow and improve access and analysis markets by instituting rules that require publicly-funded research to be freely available and completely open to use.

By allowing individuals, companies, and organizations to freely access and use scholarship, the publicly funded research can reach a much wider audience and can be used in a wide variety of ways. Restricted access and use of publicly funded content means that public funds are not being used to the best of their abilities, and the return on investment is reduced. Full and open use means that students, entrepreneurs, and businesses can innovate without expensive barriers, making them better prepared to compete in the global marketplace. Full access and use allows readers to be much more productive with the information by using new techniques such as data mining and machine reading, and creating a new infrastructure for research. New pathways and connections can be made with open data and citation mapping. Under the current structures, information is locked into silos and users are not able to foster communication between research. Research is only as good as its reach and availability, and the current system is built to hinder access and use. Research can only be used by teachers and students if they have access and the more research that is available to students and teachers, the better and more up to date the education can be. Open Access also means that research will be available to the general public, increasing accountability for researchers and improving public information structures. Open access also fosters interdisciplinary application and greatly increases the value of established research.

Research publications can best be archived by making them immediately accessible and completely open to use in a centralized repository. Faster commercialization spurs economic growth, creating new jobs and advancing American businesses. Companies can also build upon public data and

improve services analytical and finding structures, like Google Scholar and goPubMed. By allowing entrepreneurs, scholars, and students to access them without restrictions, the entire data base can be used for data mining or derivative works, and can make the sum greater than the parts.

It is essential that research is available to the public immediately upon publication. It would not be conducive to innovation and cutting edge research if students, entrepreneurs, and researchers were forced to depend on old research when newer and better research is available. For taxpayers, immediate access to new research best utilizes public resources, and provides immediate benefits to universities and businesses, Open Access has been proven to increase citations, promote a diversity of sources within research, increase new research pathways, and make research immediately available for use in both application and further research.

In the current economy, graduate students will likely have a period between graduate school and employment, and the development of their research and their ability to keep up to date will be essential in job placement and success in their job. Once students leave school, they are met with expensive barriers that make it impossible for them to keep up with their field. This barrier also hinders entrepreneurs' businesses, leaving them at a disadvantage in the global economy. By making the most recent and advanced publicly funded research available, new graduates and small businesses stand a much better chance to utilize their skills and compete for a job or a share of the market.

Research can also be best utilized through storage and maintenance in a centralized repository, similar to the current NIH model. The benefits of an NIH-style access policy and infrastructure are estimated to be approximately eight times larger than the costs, and can be instituted at a relatively small cost. The NIH spends about \$3.5 – 4.6 million annually to provide access to all public-funded research, which is about 1/100<sup>th</sup> of 1 percent of their overall budget. Because of this policy, research is widely accessed and used by a broad population, with the majority of users outside of education. Full open access is ideal to making all of these ideas come to fruition. Restrictions on use of research also limit the possible value from research investment, and means that less money needs to be spent on duplicate research. It is also important that students be taught the most up-to-date information possible to best prepare them for the job market, and to make them best prepared to compete in the global market.

Question 2:

Publicly funded research can respect the intellectual rights of researchers and allow for the most complete utilization of research by implementing licenses like Creative Commons's CC-BY license.<sup>1</sup> The NIH currently allows articles to be used under "fair use," which protects authors but restricts some of the usefulness of the research. Full use would allow for scholarship to spread around the web and would facilitate open data mining and search methods, allowing researchers to find publications more easily. Full use of research allows taxpayers to get the largest and most complete return on their investment by spurring more innovation. The CC-BY license, like copyright, requires attribution of the work to the

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author, so citations and impact ratings can only be increased in comparison to the current model. To further protect scholars' intellectual property; there could be an embargo period, where fair-use is applied, with the research moving to CC-BY or a similar open license. Again, this is not the best way to get productivity out of the research, but it does provide the author more rights over their work.

#### Question 3:

The federal government should provide permanent stewardship of research in a central database because it ensures that research is permanently preserved, made accessible, and most efficiently usable. By pooling all research together in a centralized location, everything is easily available and searchable in one place, and it's possible to build derivative databases that encourage communication between different publications (and possibly data as well), rather than different collections of research stuck in a number of separate silos, where integration is difficult or impossible. It is essential to the growing semantic web to have the underpinnings of the scientific and intellectual world interacting with the rest of the web. Federal stewardship is also very cost-effective, as stewardship for the NIH is only 1/100<sup>th</sup> of one percent of their budget.

#### Question 6:

Uniform requirements and mandates are necessary for consistent creation of publicly-funded research in universities. Because institutions often have researchers who hold grants from multiple agencies, all agencies should establish the same standards to smoothly implement research and allow institutions to focus on research rather than compliance. Uniformity amongst agencies means lower costs for institutions and an increased rate of compliance. Policies should take advantage of existing protocols to facilitate automatic deposit of manuscripts, and encourage the development of additional tools by interested agencies. Additionally, policies should integrate articles with grants management systems to improve agency accountability and provide information to the public.

Policies to increase tools and other finding methods should work to increase bibliographies and principal investigator profiles to better raise the connectivity of research and raise the profile of those researchers whose works are used and cited the most. These methods would allow universities to better measure research output and impact ratings, and would create better pathways to locate better research and allow universities and libraries to use repositories as teaching tools.

#### Question 7:

Educational materials such as book chapters, class notes, texts, syllabi, and conference proceedings should also be made readily available to the public, but may require different policies than those directed at journal articles. These types of unpublished works, most notably peer-reviewed conference papers and proceedings, represent a large portion of research and teaching materials that are very relevant to other scholars, as well as the public at large. Feedback from these kinds of papers is integral to the research process, and a wider audience can significantly improve research, as well as keep others informed on current trends and burgeoning research.