

From a PUSH to a Nudge: How a bit of handholding can help more PUSH universities transition to open data policies

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Introduction

In our modern information economy, the decisions universities make regarding how they manage their large stock of research findings and data can have far reaching consequences for the global economy and for public welfare more broadly. The outputs of academic research have immense value as inputs for innovation and economic development and directly support many of the activities most directly linked to people's capacity to live long and healthy lives.¹

Unfortunately, much of the potential value of this information is locked up under tight intellectual property (IP) policies or rendered inaccessible by poor data management practices.² According to a 2018 report by McKinsey, making this data open access could help unlock \$3.2-5.4 trillion in economic value annually across just seven domains in the US alone (Figure 1).³

The opportunity costs of universities' policies surrounding the products of academic research is especially high for developing countries. As Yochai Benkler explains in *The Wealth of Networks*, "Economic growth [is] centrally driven by innovation. This is particularly true of latecomers, who can improve their own condition most rapidly by adopting best practices and advanced technology developed elsewhere, and then adapting to local conditions and adding their own from the new technological platform achieved in this way."⁴ He goes on to observe that, "To the extent that the United States and Europe are creating a global innovation system that relies on patents and market incentives as its primary driver of

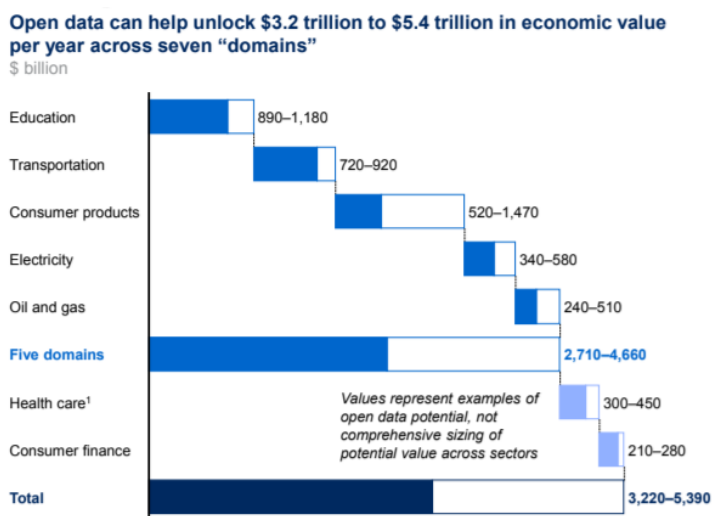


Figure 2. Potential value of open data across 7 economic domains

¹ Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, New Haven and London: Yale University Press, 2006.

, p. 310.

² "Patenting is Concentrated in Cities and Near Universities, (Graph), The Hamilton Project, Brookings Institution, https://www.hamiltonproject.org/charts/patenting_is_concentrated_in_cities_and_near_universities.

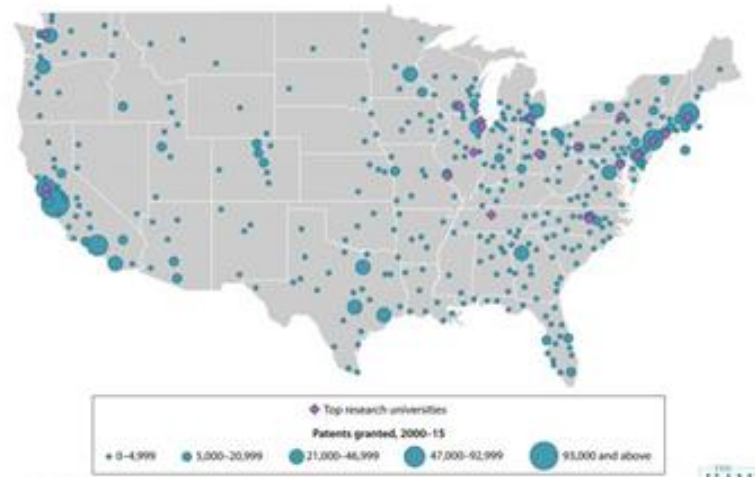
³ "Open data: Unlocking innovation and performance with liquid information," McKinsey Global Institute, October 2013.

⁴ *The Wealth of Networks*, p. 310

research and innovation, these wealthy democracies are, of necessity, choosing to neglect diseases that disproportionately affect the poor.”⁵ (Other examples, of course, abound.)

Universities stand in an especially opportune position to realize the public value of open data. Universities hold vastly disproportionate numbers of patent filings relative to other sectors (Figure 2). Unlike private companies that may rely on IP protections to recuperate the cost of research and development,

much of the research conducted by universities is funded by federal dollars. Neither are such protections usually necessary to incentivize innovation. As Yochai Benkler notes in *The Wealth of Networks*, “universities are not profit-seeking enterprises, and university scientists are not primarily driven by a profit motive.”⁶ Despite these numerous incentives, however, only a small portion of universities have adopted open data policies.



Contributing Factors

If universities don’t need the revenues generated by royalties and licensing of patents, and if their most important donors would prefer them to adopt more open data policies, then why have so few of them done it? According to a 2018 study by the Hunger Solutions Institute at Auburn University, one reason that universities fail to adopt open access and open data policies is that doing so would require a number of other substantial changes to their data management practices, which are necessary for such things as ensuring data security and the privacy of research subjects, as well concerns regarding stolen work and misuse of data. These changes can be complex and especially burdensome for universities in which staff and financial resources are already limited. In other cases, these changes are forestalled by lack of understanding regarding licensing options and ownership of data.⁷

Overcoming these obstacles is not something that can be achieved by a single decision, but rather a process requiring prolonged attention and commitment and the coordination of many different parts of the university system. People have a natural preference for the way things currently are and experience any change from that condition as a net loss. This phenomenon, known as the status quo bias, acts as a natural inhibitor of large-scale, drastic change. When this

⁵ *Ibid.*

⁶ *Ibid.*, p. 339.

⁷ “Open data: Unlocking innovation and performance with liquid information,” McKinsey Global Institute, October 2013, 5.

effect is multiplied across many independent actors who must coordinate their efforts to be effective, even relatively small changes can become enormously difficult to execute. Add to this scenario the fact that the necessary action is not one that must be made just once, but repeatedly over a period of months or years, and the challenge begins to feel insurmountable.

Review of Past Interventions

Over the past two decades, various policies have been pursued to extract the greatest value out of the research and development activities of American universities. In this section, I consider two that have taken diverging approaches to achieving this goal and provide a brief analysis of their respective successes and shortcomings. Afterward, I present an alternative intervention that leverages insights from behavioral economic to nudge universities toward more open data policies.

Intervention 1: Bayh-Dole Act

The Bayh–Dole Act of 1980 gave rights to universities to own inventions and research obtained through federal funding. (Prior to this point, contracts funded with federal dollars assigned ownership of these inventions to the federal government.) As a result of the new policy, universities in the US have become increasingly motivated to protect academic research and other intellectual property as a potential source of income, especially for those projects that may yield big profits through patents and royalties.⁸

Despite these additional incentives, however, the vast majority of universities do not fiscally depend in any significant way on patent revenues, even as the number of university-owned patents is increasing.⁹ Meanwhile, a growing number of public research funders (e.g., NSF, NIH, and USAID) as well as private donors (e.g., Gates Foundation) have started requiring public universities to develop data management plans to allow for more open access and data sharing.¹⁰

To the extent that the Bayh-Dole Act was able to increase the number of university-owned patents and focus researchers' attention on the highest value projects, it could be interpreted as a success. However, insofar as these outcomes haven't necessarily translated to significant increases in universities' revenues and have arguably led universities farther away from their orientation to the public good, they may equally be interpreted as a failure.

One particular concern with the Bayh-Dole Act is that, by introducing financial incentives, the policy might crowd out intrinsic and altruistic sources of motivation that may have previously motivated academic production, such as the passion for knowledge or the desire to improve people's lives. As Benkler observes, "Technology transfer offices that have been set

⁸ Adrian, Anne Mims. "Challenges in creating open data policies for universities." Open Access Government. November 23, 2018. <https://www.openaccessgovernment.org/challenges-in-creating-open-data-policies-for-universities/54922/>.

⁹ *The Wealth of Networks*, 347.

¹⁰ "Open Access and Open Data Policies," 5.

up to facilitate this practice are [often] measured by the number of patent applications, grants, and dollars they bring into the university. These metrics...tend to make them function, and understand their role, in a way that is parallel to exclusive-rights-dependent market actors instead of as public sector, publicly funded, and publicly minded institutions.” To counter these effects, he argues that universities should “redefine the role of technology transfer offices in terms of lives saved, quality of life measures improved, or similar substantive measures that reflect the mission of university research rather than the present methods borrow from the very different world of patent-dependent market production.”¹¹ In this way, universities can reconnect researchers to the intrinsic and altruistic sources of motivation that previously fueled their efforts.

Intervention 2: Open Access & Open Data at PUSH Universities

In 2018, an exploratory study was conducted by the Hunger Solutions Institute at Auburn University on behalf of the Presidents United to Solve Hunger (PUSH) in partnership with the Global Open Data for Agriculture and Nutrition (GODAN) in order to measure the progress of the 99 PUSH universities in developing, using, and promoting open access and open data policies and practices. The study found that “only 15 of the 99 PUSH university websites provided open access for content, articles, [and] presentations,” and, “of the nine universities participating in the interviews, no single university model emerged as a comprehensive approach or best practice for data management policy, infrastructure and administrative support.”¹²

Those universities that had not yet adopted such practices cited a variety of difficulties, ranging from insufficient staff and financial resources, lack of technical capacity related to data security, privacy, and data ownership and licensing, and a culture of protectionism surrounding data resources.¹³ Nonetheless, the authors report that interviewees did express general agreement with the Open Data Institute’s standards for top quality, highest utility open data, indicating that they are otherwise favorably disposed to adopting open data policies.¹⁴

The situation of universities in the PUSH network roughly parallels a study by Bettinger et al. (2012), which found that by providing students with just 10 additional minutes of personalized assistance in completing the FAFSA, they were able to increase the likelihood of these students filing the FAFSA by 16 percentage points, and their likelihood of attending college by 8 percentage points.¹⁵ The major takeaway of this cases for our present purposes is that a little handholding—even in increments of just a few minutes per week—can go a long way in encouraging people to complete complex or burdensome tasks. The intervention developed in the following section aims to leverage this insight to help universities navigate the transition toward more open data policies.

¹¹ *The Wealth of Networks*, p. 348.

¹² “Open Access and Open Data Policies,” 4-5.

¹³ *The Wealth of Networks*, 348-349.

¹⁴ “Open Access and Open Data Policies,” 9.

¹⁵ Lecture slides for Behavioral Economics and Public Policy, fall 2019 semester, Oct. 7, 2019.

Intervention Design

The proposed intervention pairs the relevant staff person from each of a randomly selected sample of the 84 PUSH universities to have not yet implemented open data policies with an appropriate counterpart from their nearest state or local government. Relative to most public universities, governments have a high technical capacity in the area of open data and have well-established protocols and best practices that, with minimal additional effort, could be adapted to the context of the university system. The university staff person will meet twice a week with their government “open data mentor” for brief (30 minutes-1 hour) sessions for personalized assistance with developing an open-data-ready data management plan. A small stipend will be provided to cover any costs related to transportation to the meeting site, and all time devoted to these sessions will be compensated at the regular rate. The program will run for 6 months before the first review, at which point progress will be evaluated by a separate auditing team composed of both government and university officials. If the progress is judged to be adequate to justify the investment of resources, it will be continued for an additional 6 months until either the plan is fully developed and implemented or else discontinued, up to a maximum of 2 years.

The intervention will be implemented as a randomized controlled trial (RCT) aimed at addressing the following causal question: *What is the effect of receiving the personalized assistance from the government open data mentor relative to receiving no such assistance on the level of development / implementation of each of the 84 PUSH universities' open data policies?* Progress will be measured using the aforementioned Open Data Institute criteria, or other appropriate standard.

Policy Evaluation

To test whether the policy works, the average level of development/implementation of the treatment group's data policies should be measured and compared to that of the control group to determine if there is a statistically significant difference. Because assignment of the treatments was randomized among the 84 PUSH universities, we should expect no systematic differences between the three groups to confound the results. Internal validity should therefore be strong. However, the choice to limit the experiment to universities within the PUSH network will strongly impair the external validity of our results, since these universities have many features that don't generalize to the larger population of public universities. To address these concerns, the experiment should eventually be repeated across a wider sample of public universities to better evaluate the generalizability of the effect.

Expected Costs and Benefits

If the program were found to be effective, expected benefits include increased levels of in-house capacity surrounding data management and security within PUSH universities, leading to a greater number of these universities adopting open data policies. These outcomes, in turn,

are expected to result in further downstream benefits, including greater recognition for research faculty and the university itself; increased citations; more thorough review, consideration, and critique of university research, leading to an increase in scientific, scholarly, and critical knowledge; enhanced and accelerated research and innovation; increased transparency; and greater compliance with funding requirements.¹⁶

Similarly, the expected costs of the program primarily revolve around those already identified above—namely, increased risks related to data security, privacy, stolen work and misuse of data (especially during the early years of implementation); and a greater burden on university resources while funding mechanisms adjust to the new policy environment. Other potential challenges include cultural backlash from those accustomed to, or otherwise favoring, a more protectionist culture; conflicting attitudes of ownership; and misalignment of expectations and requirements between the universities and certain funders.¹⁷

Feasibility

While the program described above has many built-in complications that might make it difficult to employ across the broader class of public universities, its feasibility for PUSH universities in particular is reasonably high. First, these universities have already demonstrated through their membership in the PUSH network their amenability to adopting open data policies. Having this feature also suggests that these universities may share other qualities that make them especially well-suited for this program, such as access to donors who support their publicly oriented mission. Paired with the fact noted above that, except for a few exceptions, patent revenues have been mostly negligible in university budgets, it is likely also fiscally feasible for these universities to use their patent portfolios to maximize the global social benefit of their research rather than trying to maximize patent revenue.¹⁸

Conclusion

By adopting policies aimed at increasing the openness and accessibility of their research findings and data, universities can help increase the pace of innovation, research breakthroughs, and collaborative problem-solving. The incentives both in terms of the expectations of large public and private donors as well as the public more broadly are stacking up in favor of open data policies, but universities are easily deterred by the complexities of the pre-requisite data management practices. A growing number of government agencies, on the other hand, are well-capacitated in these practices thanks to a well-established tradition of open data policies. The open data mentor program presented here leverages this capacity of state and local governments to assist universities overcome these initial hurdles on their way toward independence.

¹⁶ “Open Access and Open Data Policies,” 5

¹⁷ Ibid.

¹⁸ *The Wealth of Networks*, 339.

Works Cited

- Adrian, Anne Mims. "Challenges in creating open data policies for universities." Open Access Government. November 23, 2018. <https://www.openaccessgovernment.org/challenges-in-creating-open-data-policies-for-universities/54922/>.
- Adrian, Anne Mims, Brytni Emison, Ruthie Musker, and Jessica Hopkinson. "Open Access and Open Data Policies." Presidents United to Solve Hunger (PUSH). June 2018.
- Benkler, Yochai. *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. New Haven and London: Yale University Press, 2006.
- Loewenstein, George. Lecture slides for Behavioral Economics and Public Policy. Fall 2019 semester, Oct. 7, 2019.
- "Open data: Unlocking innovation and performance with liquid information." McKinsey Global Institute. October 2013.
- "Patenting is Concentrated in Cities and Near Universities. (Graph). The Hamilton Project. Brookings Institution. https://www.hamiltonproject.org/charts/patenting_is_concentrated_in_cities_and_near_universities.
- So, Anthony D., Bhaven N. Sampat, Arti K. Rai, Robert Cook-Deegan, Jerome H. Reichman, Robert Weissman, and Amy Kapczynski. "Is Bayh-Dole Good for Developing Countries? Lessons from the US Experience." PLoS Biology, Vol. 6:10. October 2008.