



The Future of Taxpayer Funded Research: Who Will Control Access to It

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NIH Public-Access Policy: Keep, Extend or Reverse It?

- Went from voluntary to mandatory in 2008
- Requires grantees to give NIH non-exclusive license and deposit peer-reviewed manuscript accepted for publication into PubMed Central-make public no later than 12 months after publication
- Costs \$4 million annually to operate
- NIH research grants lead to 90,000 articles/year
- Other taxpayer-funded extramural research grants-- \$30 billion? Number of articles?
- FRPAA- would extend policy
- Research Works Act –now withdrawn-would reverse it by requiring publisher approval to make manuscripts freely available
- Focused on access to manuscript, not sub-parts. Does not increase rights to use what is accessible

Four Recent Papers Examine the Impact of Increased Openness

- Climbing Atop the Shoulders of Giants: The Impact of Institutions on Cumulative Research
- Of Mice and Academics: Examining the Effects of Openness on Innovation
- Intellectual Property Rights and Innovation: Evidence from the Human Genome
- Scientific Problem Solving through Broadcast Search: InnoCentive.com

Climbing atop the Shoulders of Giants

- By Jeffrey L. Furman and Scott Stern
- Compares citations in follow-on research using materials from open Biological Resource Centers vs closed archives
- Articles based on BRC materials got 220 percent more citations
- Citation rates increased by 50-125 percent for materials transferred to open archives
- 3 to 10 times more cost effective to increase funding of BRCs than funding new research

[Of Mice and Academics]

- By Fiona Murray, Phillippe Aghion, Mathias Dewatripont, Julian Kolev and Scott Stern
- Compares citations in follow-on research to research on “open” vs “IP-protected” mice
- “may increase the overall flow of research output”
- “closely associated with the...exploration of entirely new research lines.” IP reduces the “diversity of experimentation that follows from a single idea” –important as progress in science is not “linear”
- Citations more likely to be found in applied as opposed to basic research journals

Intellectual Property Rights and Innovation

- By Heidi Williams
- Compares publications and commercial developments resulting from Celera's IP protected sequencing vs Human Genome Project's findings
- IP reduces the “diversity of scientific experimentation”.
- Reductions on the order of 30% in subsequent gene-level scientific research and product development (gene-based diagnostic tests)
- Celera's short-term IP appears to have had persistent negative effects on subsequent research and product development compared with HGP data that was always in the public domain

Scientific Problem Solving Through Broadcast Search

- By Karim Lakhani
- InnoCentive “broadcast” problems to 80K self-selected “solvers” and paid them for best solutions
- Many winning solvers came from outside the problem’s field. “Local search” limited solution set; alternative approaches ignored—or not perceived

The Impact of Increased Openness

- Leads to increased citations in follow-on research
- Promotes diversity in follow-on research and pursuit of new research pathways
- Encourages “intensity of research” and movement toward applied research
- Speeds commercialization of research results
- Demonstrates value of “unforeseen contributors”—who don’t have good access
- ***Together these papers show that increased openness has clear and demonstrable benefits***

[More Impacts]

- Speeds progress in science
- Stimulates economic growth
- Heightens return on public investment; stops taxpayer paying twice
- Reduces duplicative/dead-end research
- Facilitates oversight/accountability of research funding and focus on priorities
- No persuasive evidence of harm to for-profit publishers—number of journals and price of subscriptions increased since 2008
- Copyright, piracy, what should government fund, foreign access arguments

[Other Issues]

- Length of embargo, if any
- One size fits all—what do YOU think?
- What can be done with what is accessible: data and text mining, copy, duplication, display, linking, translation
- Focus on the article or extend to sub-parts particularly data and tools
- Re-use and mash-ups
- Attribution, author's rights
- Integrity, privacy, security--particularly with data

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