



# Recent Research on the Impact of Increased Openness and How to Benefit from It

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# Four Recent Papers Examine the Impact of Increased Openness

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

# [ 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,” key as progress in science is not “linear”
- Citations more likely to be found in applied research journals

# Climbing atop the Shoulders of Giants

- By Jeffrey L. Furman and Scott Stern
- Compares citations in follow-on research to research using materials from 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

# 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
- ***Together these papers show that increased openness has clear and demonstrable benefits***

# Some Thoughts on Adding Value

- Intellectual property protection and openness/sharing offer mirror images
- IP theory: incentives for innovation come from ability to monetize which requires control over the creation
- Sharing based on the ability of anyone to add value. The broadest possible distribution increases the likelihood of gains: “With enough eyes all bugs are shallow.”
- Sharing is not incompatible with someone in control e.g. Linux



# How To Compete If Access is Free: Some Lessons From IT

- Get your technology in the open standard because you know the technology better than anyone else
- Make your money by innovating on top of the new standard
- What is freely accessible is always changing; help customers keep up and maximize their benefit
- Provide new and improved tools to increase the value that they can gain from what is accessible
- Focus on what it is that your customers do best; do for them what you can do better.

# COMING SOON AT AN INTERNET NEAR YOU!

- An analysis of the impact of the NIH public access policy
- The arguments for and against the policy and its extension to other federal funding agencies

# [ Contact Information ]

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