

# Movement toward Open Access: Why New Models of Research Communication Are Inevitable

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# Open access emerged from concerns for availability of science research results.

- Goals are
  - Improved dissemination of the results of scientific research
    - At no cost to the reader
    - With permissions for subsequent use consistent with community-defined standards
  - Greater visibility for researchers
  - Lower costs for institutions and their libraries

Open access is reinforced by disruptive information/computing technologies.

- In the lab
- In collaboration
- In research results
- In building the record
- In sustaining the record
- In productivity

# The current debate is intense and narrowly focused on publishing.

- Current publishing business models or new business models?
- Self-archiving or institutional archiving?
- Peer review before or after posting?
- Revise copyright agreements or use Creative Commons?
- Revise promotion and tenure process or rely on disciplines to sort out?

# The discussion about open access is at the wrong level.

- Continuing 19<sup>th</sup> century patterns of research and scholarly communication
- Maintaining 20<sup>th</sup> century business models
- Supporting stand-alone chimneys of disciplinary focus
- Retaining control of a discipline through the literature

# There are good reasons to want to control the literature of a discipline

- Quality assurance (editorial and production)
- Legitimize and support subdisciplines
- Build junior careers
- Reward senior achievements
- Educate the next generation
- Cross subsidize worthy activities
- Cover overhead expenses

# Control can lead to unintended consequences.

- Unrealistic dependence on revenue streams
- Monopolistic attitude re authors, payers
- Mission yields to business considerations
- Social contracts fray
- Costs of licensing and enforcement
- Spiral of rising prices & shrinking market

Universities (and governments) have many valid reasons to support an open access model.

- Fundamental nature of research-based education
- Current costs of education and non-profit research
- Significant investments in value chain
- Concern for the viability and availability of the record of advances in science



# The open access movement encompasses far more than traditional publishing.

- Science has always required open and cooperative access to information
  - Teaching and Research
- In the sciences, data are developed by scientists themselves
- Scientists collaborate across time and space
  - 75% of science articles are authored by university scientists\*
  - 75% of science readings are by non-university scientists\*

\* King and Tenopir

# Open access work has greater research impact.

- Perception
  - Readership/citation impact/speed
- Research findings\*
  - Philosophy +45%
  - Political Sci +86%
  - E&E Eng +51%
  - Mathematics +91%

\*Antelman, C&RL 9/04

Done right, open access addresses costs as well as terms & conditions.

- Respects the role of societies
- Respects the critical value peer review
- Reflects the changing nature of research and education
- Recognizes the inability of higher education to support every discipline's appetite
- Reinforces the value of openness in higher education

A number of disciplines are experimenting with open access.

- Economics
- Physics
- Biology
- Medicine
- Computer Science

# External trends all point to the inevitability of open access.

- Collaborations are international
- Collaborations are interdisciplinary
- Collaborations are inter-institutional
- Data and data mining
- National/regional competitive strategies
- Researcher productivity

# Source material is moving onto the web.

- Science frontiers are the drivers
  - National competitiveness runs on university-based research
  - Governments seek a return on funding
- Nations intend to build an interactive cyberinfrastructure
  - Shared instruments
  - Shared data

Converging streams of activity reinforce changes in scholarly practice.

- Grids
- EScience: global and interdisciplinary
- New collaborations
  - Faculty/Libraries/IT Orgs./Funding agencies
- Science-driven pilot projects
- Open source middleware development
  - “Trust fabric”

# The properties of the new research infrastructure are different than print.

- Equipment is expensive, the depreciation curve is rapid
- Sharing of information is expected
- Reuse of information is required
  - Conclusions link to data
- Partnerships with the willing (e.g. Google)
- “If it’s not on web, it doesn’t exist”



“If it’s not on the web, it doesn’t exist.”

- Google Scholar
- Rip, mix, burn
- Desktop management tools
- Citation rates of open vs controlled work
- Educational technology
  - Virtual seminars, course management systems
- Institutional repositories

What research results sharing model will best serve scientists and research institutions now and in the future?

- Closed commercial?
- Open access?
- Hybrid?
- Other?