

A Post Doc and Scholarly Research: Now and the Future

STM Annual Spring Conference 2011
April 27th, 2011

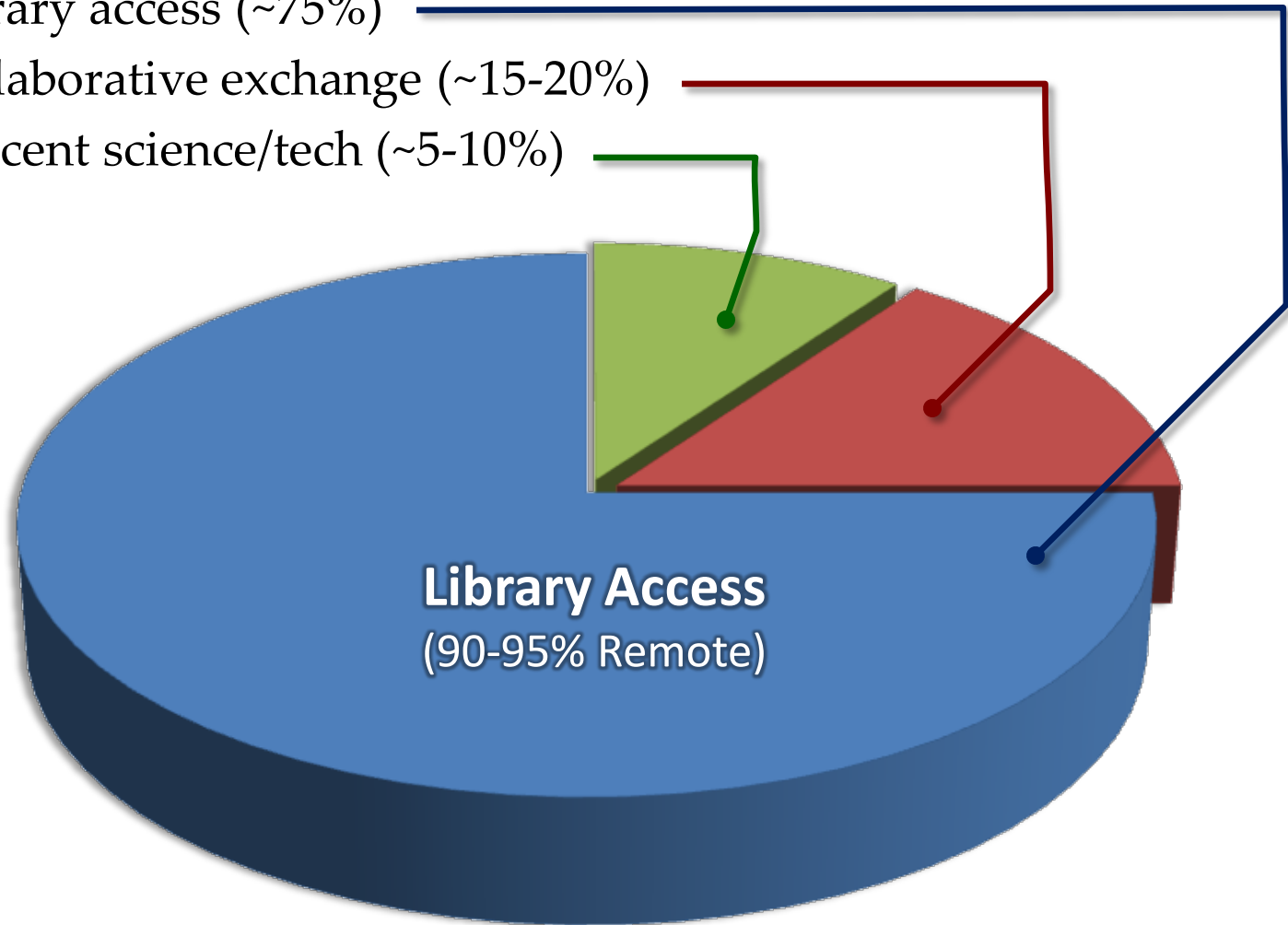
Frank L. Hammond III, Ph.D.
Harvard School of Engineering and Applied Sciences

- About Me
 - Postdoctoral research fellow in the Harvard Biorobotics and Microrobotics Laboratories
 - Focus on humanoid robots (manipulation) and medical devices
 - Authored several publications (EE, ME, BME)
- Key Contributors
 - Colleagues in the Harvard Biorobotics and Microrobotics Labs
 - Colleagues at CERLab at Carnegie Mellon University
 - Harvard University Library staff
 - Carnegie Mellon University Library staff
 - University of Pennsylvania Library staff

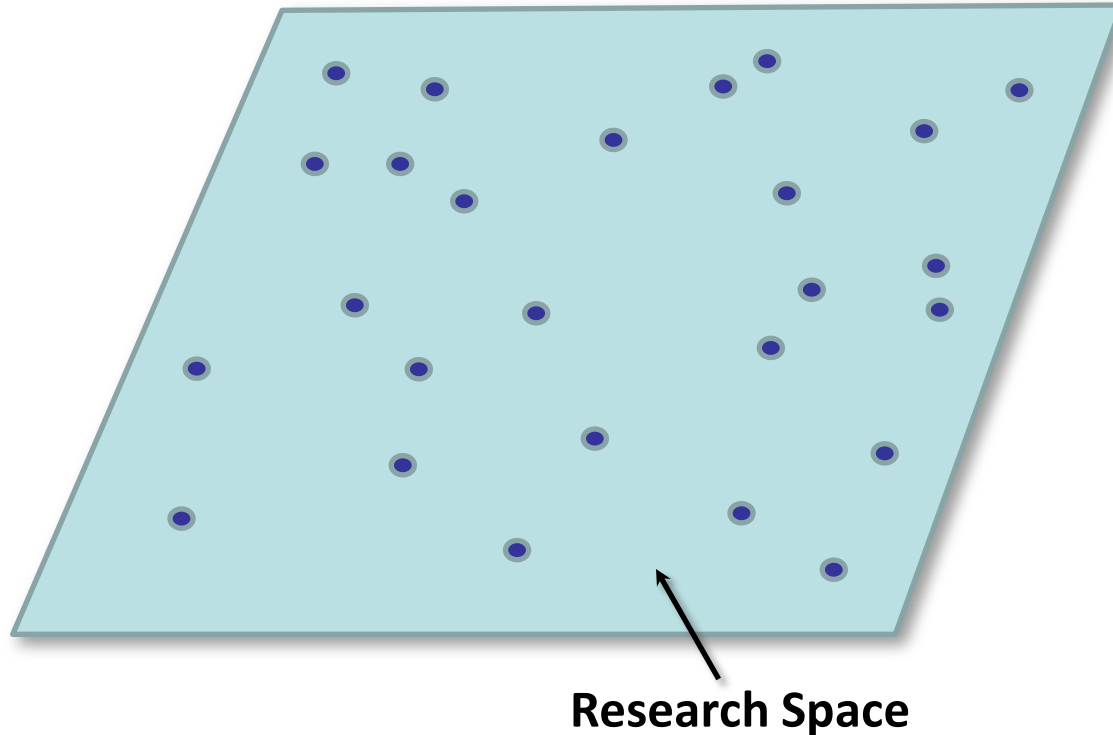
- How Scholars Access Information
 - Libraries Essential to Academic Research
 - Common Modes of Access
 - Illustrative Research Project Example
- Coping with Limited Access
 - Roadblocks to acquisition
 - The “Middle Man”
 - Workarounds
 - Evolution in the Publication Paradigm
- How Scholars See Libraries of the Future
 - Simplicity, Smart Databases, Interactive Media
 - Open/Easy Access, but High Quality Publications

- Scholarly publications are “currency” for the academy
 - Serves as indication of research productivity and aptitude
 - Comprises individual, department, and institutional notoriety
 - Basis of qualification for government and private funding
 - **“Publish or Perish”**
- Commercial publishing facilitates “currency exchange”
 - Standardization of data format, access methods
 - Peer-reviewed articles, editorial rigor improves quality
 - Greater research visibility

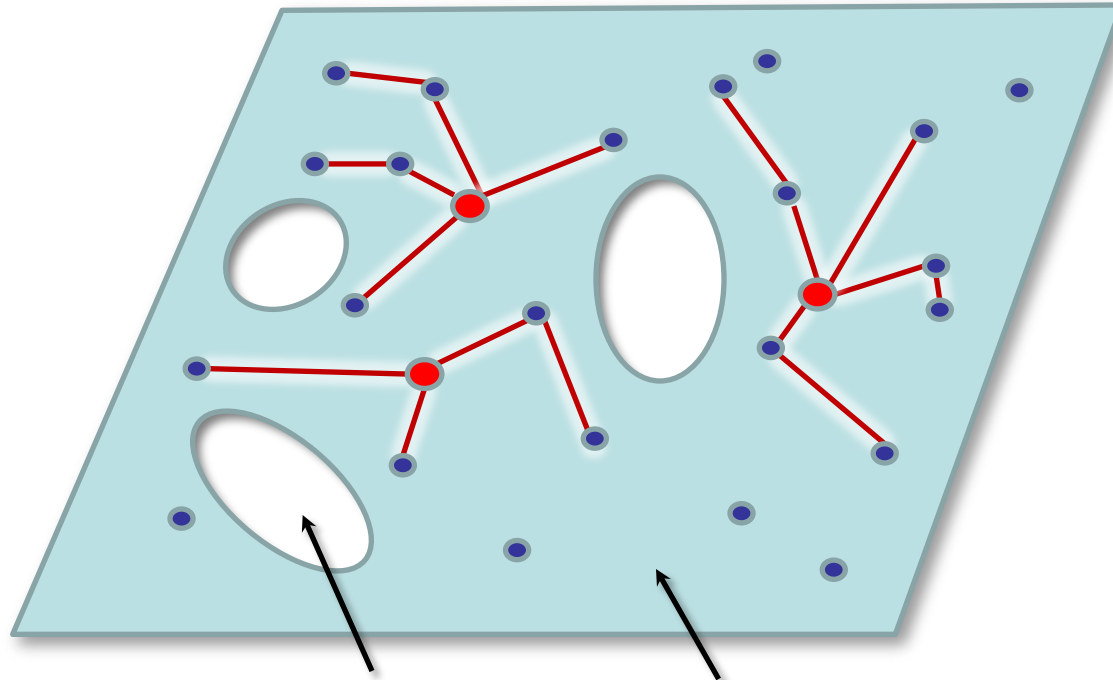
- Most common information resources
 - Library access (~75%)
 - Collaborative exchange (~15-20%)
 - Nascent science/tech (~5-10%)



- Library use is a compulsory element of research
 - Literature surveys, reviews (25-100 papers)
 - Technical references (~10-30 papers)
 - Generation of new information (~1-3 papers)



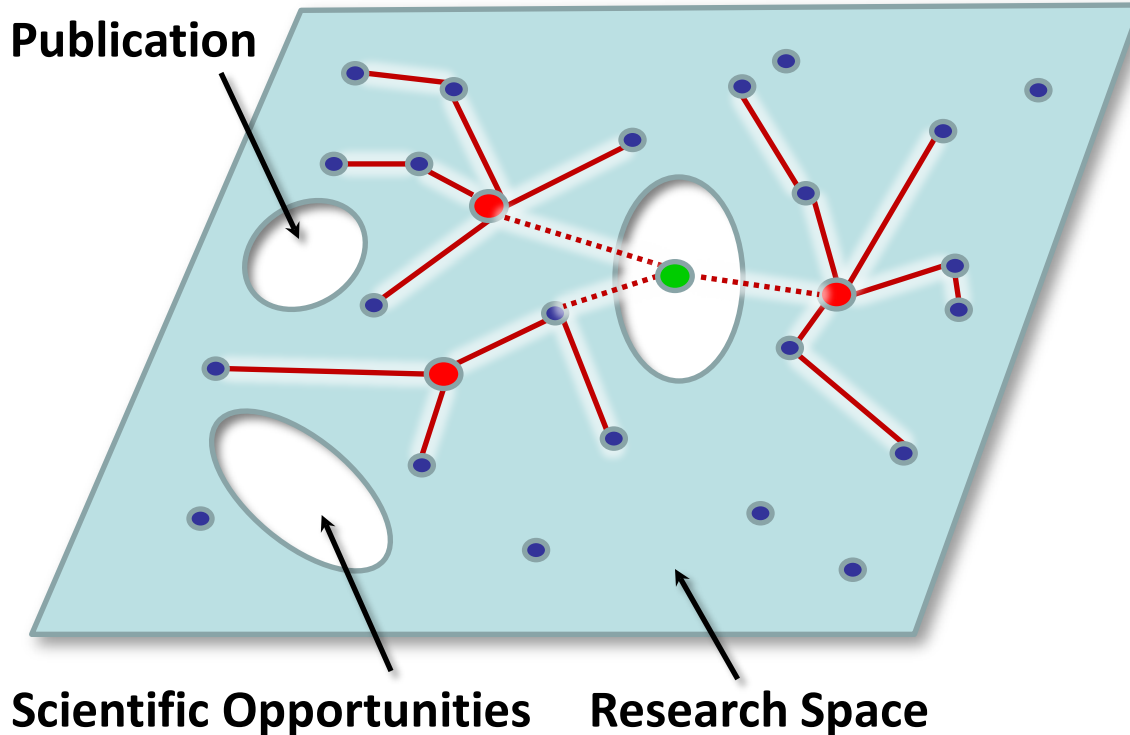
- Library use is a compulsory element of research
 - Literature surveys, reviews (25-100 papers)
 - Technical references (~10-30 papers)
 - Generation of new information (~1-3 papers)



Scientific Opportunities **Research Space**



- Library use is a compulsory element of research
 - Literature surveys, reviews (25-100 papers)
 - Technical references (~10-30 papers)
 - Generation of new information (~1-3 papers)



- How Scholars Access Information
 - Libraries Essential to Academic Research
 - Common Modes of Access
 - Illustrative Research Project Example
- Coping with Limited Access
 - Roadblocks to acquisition
 - The “Middle Man”
 - Workarounds
 - Evolution in the Publication Paradigm
- How Scholars See Libraries of the Future
 - Simplicity, Smart Databases, Interactive Media
 - Open/Easy Access, but High Quality Publications

- Limited access to library-based resources
 - Lack of journal subscriptions often prevents access to relevant literature (~10-15%)
- 42 research papers searched for robot hand project
 - 36 accessible at Harvard Univ.
 - 38 accessible at Carnegie Mellon Univ.
 - 36 accessible at Univ. of Pennsylvania

- Libraries must acquire subscriptions AND satisfy the need of faculty and students with limited budget
 - Escalating subscription prices for journals/proceedings
 - Researchers complain about access
 - Cannot 'simply' switch to open-access (contracts)
 - Less popular fields of research lose visibility

- Working around access limitation 😊
 - Decreased use of certain commercial publishers
 - “Direct-from-author” or second hand acquisition
 - Webpage links to manuscripts

- Changing our publication paradigm
 - Focus publishing in peer-reviewed, visible, open-access forums, or in non-for-profit professional societies
 - Reduction in commercial article citation
 - Not penalizing authors for lack of ‘expensive’ citations
 - Working with libraries to ID most important resources, reducing need for subscription to under-utilized journals
 - Changing our perspective on “impact factor” and visibility

- How Scholars Access Information
 - Libraries Essential to Academic Research
 - Common Modes of Access
 - Illustrative Research Project Example
- Coping with Limited Access
 - Roadblocks to acquisition
 - The “Middle Man”
 - Workarounds
 - Evolution in the Publication Paradigm
- How Scholars See Libraries of the Future
 - Simplicity, Smart Databases, Interactive Media
 - Open/Easy Access, but High Quality Publications

- Most researchers prefer no-hassle, simple library access
 - Advanced, fancy interfaces not appealing
 - Database ‘searchability’ paramount
- Interactive media adds to information value
 - Research videos linked to online manuscripts
 - CAD drawings, source code
 - 3D-enabled files (3D PDFs)

- Commercial publications driven by research volume...
 - In part, but also by research community standards
 - Open access, circulation, and public dissemination (scalability) vs. publication quality and prestige through scarcity
- Open access \neq reduction in publication standards
 - Open peer-review (for open access or commercial journals)
 - Self-policing, less research redundancy
 - Pay-to-submit and publish, but free (low-cost) access

- Library access is essential to academic research
 - Easy access to information, circulates knowledge efficiently
 - Streamlines publication process, improves quality and visibility
- Access limitations are our biggest concern
 - Lack of subscriptions impedes research progress, 'forces' research to seek alternatives methods of acquisition
 - Unfairly penalizes students/institutions with limited budget
 - Catalyzing the move toward open-access publications
- Scholars generally happy with current system
 - Content, methods of access are adequate (very good)
 - Fancy interfaces/apps not necessary
 - Broader range of media (videos, code, drawings, formulas)
 - Rigorous review leads to higher quality research, prestige

- Harvard BioRobotics and Microrobotics Labs
- CERLab at Carnegie Mellon University
- Harvard University Library staff
- Carnegie Mellon University Library staff
- University of Pennsylvania Library staff

Thank You

