

# Measuring the Results of Research Investments

To further inform the regional, national and international debate on how to measure the results of research investments, the Committee on Institutional Cooperation, the Ohio State University, and the American Institutes for Research are hosting a research workshop to bring together Vice Presidents for Research of CIC Institutions and academic researchers who have been developing data, models, and tools in the academic arena. The goal is to develop a more scientific basis for decision-making by developing open and transparent measures and methods to quantify scientific, economic, and social impact that can be used and trusted by policymakers.

Date: March 29, 2013

Location: Gleacher Center, University of Chicago

Room 408

Organizers: Barbara McFadden Allen; CIC, Bruce Weinberg, OSU; and Julia Lane, AIR

## Agenda

### [CIC - Star Metrics Handout](#)

- 1) Work in Progress ([Mairesse & Stephan](#), [Feldman](#))
- 2) Results of Science ([OwenSmith & Levenstein](#), [Weinberg](#), [Husbands Fealing](#))
- 3) [Keynote Speaker \(Freeman\)](#)
- 4) Research Support ([Tomkins](#), [Morphew](#))
- 5) Data Advances ([Evans & Foster](#), [Giles](#), [Torvik](#))
- 6) Who Does Science ([Contractor](#), [Cook](#), [Li](#))
- 7) Closing and Next Steps ([Parnes](#))

## Summary of Sessions

### Impacts of Research

*Margaret Levenstein and Jason Owen Smith (Michigan); Kaye Husbands Fealing (Minnesota); Bruce Weinberg (Ohio State)*

Gone are the days when the advancement of knowledge per se served to justify science spending. Today, policy makers view science as an investment and expect it to be justified by its impacts such as “job creation.” These researchers discuss cutting-edge methods to study a wide range of impacts of science. Husbands Fealing focuses on flows of students from research projects to employers. Owen Smith and Levenstein analyze a wide range of impacts, from student flows to research impacts. Both rely on unique opportunities available at their home institutions, the Universities of Minnesota and Michigan. Meeting co-organizer, Weinberg discusses ways to quantify the economic impacts of science of research at a range of levels, from individual research units within universities to the scientific enterprise as a whole.

### Engaging Internal Stakeholders: Scientists

*Ian Foster (Chicago)*

In order to optimize the scientific enterprise, it is essential to understand how scientists operate and to develop that understanding, it is critical to have data on scientists and their activities. A leading proponent of distributed computing, Foster discusses how to profiling and collaboration tools can be designed to draw in scientists drawing on lessons from social media. The results will enhance our understanding of institutions’ research portfolios, the links between internal research communities, and potential collaborators.

### Research Support: Understanding and Communicating

## Participating Researchers

[Noshir Contractor](#), Northwestern University

[Lisa Cook](#), Michigan State University

[James Evans](#), University of Chicago

[Ian Foster](#), University of Chicago

[Lee Giles](#), Pennsylvania State University

[Kaye Husbands Fealing](#), University of Minnesota

[Ron Lai](#), IDEAS

[Julia Lane](#), American Institutes for Research

[Margaret Levenstein](#), University of Michigan

[Danielle Li](#), Northwestern University

[Christopher Morphew](#), University of Iowa

[Jason Owen-Smith](#), University of Michigan

[Lisa Pytlik Zillig](#), University of Nebraska

[Alan Tomkins](#), University of Nebraska

[Vetle Torvik](#), University of Illinois Urbana

[Brian Uzzi](#), Northwestern University

[Bruce Weinberg](#), Ohio State University

## University Representatives

[Richard Buckius](#), Vice President for Research, Purdue University

[Marietta Harrison](#), Associate Vice President for Research, Purdue University

Julie Jarvis, Director of Government Costing, OBFS Grants and Contracts

[Frances Lawrenz](#), Associate Vice President for Research, University of Minnesota

[Melanie Loots](#), Executive Associate Vice Chancellor for Research, University of Illinois Urbana

[Andrew Ludington](#), Associate Director of Electronic Research Administration, Northwestern University

[Estelle McGroarty](#), Assistant Vice President, VP Research and Graduate Studies, Michigan State University

[Marvin Parnes](#), Associate Vice President for Research and Executive Director of Research Administration, University of Michigan

[Prem Paul](#), Vice Chancellor for Research and Economic Development, University of Nebraska, Lincoln

[Cheryl Reardon](#), Assistant VP for Research, University of Iowa

Dave Richardson, Associate Vice Chancellor for Research and Director of Sponsored Programs

[Mark Sweet](#), Director of Electronic Research

*Christopher Morphey (Iowa); Lisa PytlikZillig and Alan Tomkins (Nebraska)*  
Research universities engage in a wide array of activities beyond research from teaching to service and even athletics. Research is frequently supported by large and often implicit transfers, the value of research is not always fully appreciated and, especially at public institutions, policy makers may not appreciate the value of research. An expert on state higher education policy and higher education marketing and communication, Morphey builds on ongoing research to study the transfers that arise within research universities to assist research offices understand where research support originates. PytlikZillig and Tomkins draw on their work to address the critical issue of how to effectively communicate the impacts of research to state policy makers.

### **Data Advances**

*Vetle Torvik (Illinois); Ian Foster and Ian Foster (Chicago); Lee Giles (PSU)*  
A myriad of advances in our ability to harvest, combine, and mine vast quantities of data as well as draw in data from scientists themselves are surely the single most important driver behind the development of the science of science and innovation. An emerging researcher, Torvik discusses his work to accurately and consistently identify authors of publications and patentees and match authors of publications to patentees. A leading proponent of distributed computing, Foster discusses how to profiling and collaboration tools can be designed to draw in scientists drawing on lessons from social media. Giles's CiteSeerX suite of tools is an automated platform to identify and collect scientific outputs. It is currently the one the most comprehensive and widely-used online public resources for the computer and information science and is rapidly expanding into other fields. The results will provide the underlying data to understand institutions' research portfolios and identify the links between internal research communities, and potential collaborators.

### **Who Does Science and How?**

*Noshir Contractor and Brian Uzzi (Northwestern); Danielle Li (Northwestern); Lisa Cook (Michigan State)*  
What are the benefits of scientific collaboration and how have collaborations changed over time? How do gender and race affect scientific contributions and their commercialization? How do scientists respond to rapid advancements in their fields? To make the most of their researchers, universities and funding agencies must thoroughly understand how scientists from a wide range of backgrounds work and how they respond to changes in their fields. Contractor and Uzzi build on their extensive work on collaboration networks and team science. Emerging scholar, Danielle Li uses the development of high-throughput gene sequencing technology to shed light on how researchers respond to radical technological change in their fields. Cook looks at the critical question of racial and gender differences in the production and commercialization of knowledge.

## **Description of Proposed Research Projects**

[Michigan State University Project](#)

[Northwestern University \(Li\) Project](#)

[Northwestern University \(Uzzi & Contractor\) Project](#)

[Pennsylvania State University Project](#)

Administration, University of Wisconsin  
Madison

[Josh Trapani](#), Senior Policy Analyst, Association  
of American Universities

[Jay Walsh](#), Vice President for Research,  
Northwestern University

[Roy Weiss](#), Deputy Provost for Research,  
University of Chicago

[Caroline Whitacre](#), Vice President for Research,  
Research Administration, The Ohio State  
University

## **For More Information**

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## **About the CIC**

Headquartered in the Midwest, the [Committee on Institutional Cooperation](#) (CIC) is a consortium of the Big Ten member universities plus the University of Chicago. For more than half a century, these world-class research institutions have advanced their academic missions, generated unique opportunities for students and faculty, and served the common good by sharing expertise, leveraging campus resources, and collaborating on innovative programs. Governed and funded by the Provosts of the member universities, CIC mandates are coordinated by a staff from its Champaign, Illinois headquarters.

[The Ohio State University Project](#)

[University of Chicago Project](#)

[University of Illinois Project](#)

[University of Iowa Project](#)

[University of Michigan Project](#)

[University of Minnesota Project](#)

[University of Nebraska Project](#)

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