

Industrial Performance Center

The [Industrial Performance Center](#) (IPC) is an interdisciplinary community of researchers dedicated to the study of productivity, innovation, and industrial development in the United States and around the world. IPC carries out field-based, often large-scale research projects bringing together scientists and engineers with scholars from the social sciences and management disciplines. Our research teams observe strategic, technological, and organizational developments in industry and analyze the implications for firms, their employees, and the societies in which they operate. Through this research we seek to help leaders in business, government, and education better understand global industrial developments and develop practical new approaches for strengthening public policies, business strategies, technical practices, and educational programs. IPC serves as a focus at MIT for interdisciplinary research on the rapidly changing global economy, monitoring and analyzing patterns of organizational and technological practice in different countries, interpreting them for our partners and sponsors, and feeding our observations and insights back into the core disciplines and educational curricula of the Institute.

Research Highlights

The center's research is organized around five major themes: innovation in the energy industries, new concepts and frameworks for managing innovation, regional innovation systems, globalization and global value chains, and, more recently, production in the innovation economy. The following sections offer research highlights from the 2010–2011 year.

Energy Innovation

Research continued on the US energy innovation system under a major grant from the Doris Duke Charitable Foundation. The goal of the Energy Innovation Project is to carry out a comprehensive assessment of the strengths and weaknesses of the energy technology innovation systems in the United States, considering the entire complex of incentives, regulations, markets, and public and private institutions within which the development, demonstration, adoption, and diffusion of new energy technologies take place. Work this year focused on finalizing several of the working papers that will inform the final book (to be published in the fall of 2011), including papers on venture capital investments in the clean energy industry and comparative work on the innovation policies and practices in other industries. IPC hosted a roundtable discussion in Washington, DC, in April with industry, academic, and policy experts from around the country to discuss the preliminary findings of the project and a draft policy white paper. The research will eventually lead to recommendations for improvements to federal and state research, development and demonstration policies, and mechanisms for early adoption and large-scale deployment of supply- and demand-side innovations. Faculty and graduate students from eight different MIT departments are participating in this project.

Regional Innovation

In an effort to focus on the important role regions can play in developing the clean energy industry, IPC convened approximately 50 industry leaders from throughout New England to discuss how to grow this emerging industry in the region. The meeting

was convened under the auspices of MIT president Susan Hockfield's Advisory Council on Regional Engagement (ACRE). The specific topic for the day was the challenge of financing the postdemonstration/first commercial scale deployment of new energy technologies. However, the discussion was wide ranging and covered a number of important issues related to creating a clean energy innovation system in the region, including innovation in small and large companies, early adoption and building new markets, manufacturing, and public policy.

Production in the Innovation Economy

IPC is part of a new MIT initiative, Production in the Innovation Economy (PIE) (<http://mit.edu/pie/>), that seeks to analyze the state of production in the United States and to propose new routes from innovation through manufacturing to jobs and growth. PIE is an Institute-wide effort modeled on the successful Made in America project of 20 years ago, which led to the creation of IPC. The project brings together MIT faculty from a variety of disciplines—economics, engineering, political science, management, biology, and others—to look at US industry through a comparative perspective. IPC will focus on the various stages of the scaling up of production, from prototypes to large-scale commercial production, to understand what factors influence firms' production decisions with respect to how and where they manufacture. Professor Suzanne Berger, an IPC affiliate, is cochairing the initiative.

Publications and Awards

- Edward S. Steinfeld, *Playing Our Game* (Oxford University Press, July 2010)
- Michael Harvey, *Architecting the Consumer Side of the Grid for Energy Efficiency* (IPC Working Paper 11-002)
- Elisabeth B. Reynolds, *The Changing Geography of Biomanufacturing* (IPC Working Paper 11-001)
- Shikhar Ghosh and Ramana Nanda, *Venture Capital Investment in the Clean Energy Sector* (IPC Working Paper 10-004)
- Rebecca Henderson and Richard G. Newell, *Accelerating Energy Innovation: Insights from Multiple Sectors* (in conjunction with the National Bureau of Economic Research [NBER]; NBER Working Paper 16529)

Elisabeth Reynolds' PhD dissertation won first place in the Industry Studies Association dissertation awards. Her thesis was titled *Institutions, Public Policy and the Product Life Cycle: The Globalization of the Biomanufacturing Industry and Implications for Massachusetts*.

Seminars

During the spring semester, IPC sponsors a seminar series that serves as a thesis workshop for center-affiliated students and also attracts students from elsewhere at MIT who are engaged in research on topics related to the center's research themes. The students present and discuss their work in progress, discuss and compare research methodologies, and evaluate recent research contributions in the field. Doctoral and master's students participating in the seminar this semester were drawn from many

departments, including the Department of Economics, the Engineering Systems Division, the Department of Nuclear Science and Engineering, and the Sloan School of Management. In the spring of 2011, the seminar series hosted the following presenters:

- Gustavo Setrini, PhD candidate, Department of Political Science, “Clientelism in the Age of Globalization: From Patron-Client to Supplier-Client Relations in Paraguay’s Sugar Industry”
- Phech Colatat, PhD candidate, Sloan School of Management, “The Role of Communities in Scientific and Technological Innovation: Some Early Findings from Study of DARPA”
- Ashley Finan, PhD candidate, Department of Nuclear Science and Engineering, “U.S. Nuclear Energy Innovation Policy: Lessons from the Past”
- Florian Metzler, master’s candidate, Technology and Policy Program, “Nuclear Energy Industry in China”
- Rachna Pande, master’s candidate, Technology and Policy Program, “Factors Influencing the Globalization of Biomanufacturing”

People

In the fall of 2010, Dr. Elisabeth Reynolds became IPC’s executive director, a new position for the center. Dr. Reynolds received her PhD from MIT’s Department of Urban Studies and Planning, and her research and work have focused on the geography of innovation and regional economy development. Professors Richard Lester and Michael Piore became co-faculty directors of the center. An advisory board of faculty members drawn from departments across the Institute was created and includes the following:

- Suzanne Berger, Political Science
- Charlie Cooney, Chemical Engineering
- Amy Glasmeier, Urban Studies and Planning
- Richard Lester, Nuclear Science and Engineering (cochair)
- Rick Locke, Political Science
- Fiona Murray (2012), Sloan
- Michael Piore, Economics/Political Science (cochair)
- Charlie Sodini, Electrical Engineering
- Ed Steinfeld, Political Science
- Scott Stern, Sloan

In addition, Carol Sardo was hired as a program assistant in December 2010.

Elisabeth Reynolds
Executive Director