

## Industrial Performance Center

The Industrial Performance Center (IPC) is an interdisciplinary community of researchers dedicated to studying productivity, innovation, and industrial development in the United States and around the world. The 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. The 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 three major themes: systems and strategies for innovation, globalization and its implications for industry and society, and technology and the changing workplace.

This year, the Center continued its research program on local innovation systems. An international team of researchers led by Professor Richard Lester is studying the conditions of innovation in selected industries in more than 20 locations, including high-technology agglomerations and less-favored regions in the United States, Finland, Japan, the United Kingdom, Taiwan, Ireland, Israel, and Norway. A particular focus is the role of research universities as contributors to innovation and economic growth in these regions. The IPC-based team includes researchers from the University of Tampere and Helsinki University of Technology in Finland, the University of Cambridge in the United Kingdom, and Rogaland Research Institute in Norway. The program is sponsored by an international consortium of governments and foundations. In December 2005, the Center hosted the First International Conference on Local Innovation Systems, "Universities, Innovation, and the Competitiveness of Local Economies," where the results of the first phase of research were presented. This year, team members were also invited to present their findings to academic conferences and to national and regional policymaking bodies in Norway, Finland, Japan, the United Kingdom, and the United States.

The Center continues its studies of globalization, a term referring to the changes in the international economy that are tending toward the creation of a single world market for capital, goods, and services. In each of these dimensions, globalization raises new challenges for sustaining innovation, growth, societal well-being, and broad political legitimacy in the nations it encompasses. The IPC globalization study focuses on one aspect of these developments: the fragmentation of the production systems of firms in the advanced economies and the relocation of parts of these enterprises to other

societies. Research on this topic is under way in the United States, Europe, and Asia. Interviews have been carried out at about 600 firms, roughly half in China and the Chinese-speaking economies. The IPC globalization study team is led by Professor Suzanne Berger (Political Science) and includes Professors Ibitayo Akinwande (Electrical Engineering and Computer Science [EECS]), Donald Lessard (Sloan School of Management), Richard Lester (Nuclear Engineering), Charles Sodini (EECS), Edward Steinfeld (Political Science), IPC senior research affiliate Tim Sturgeon, and several doctoral students as well as researchers from the United Kingdom, Germany, Japan, and Taiwan. A major milestone was achieved this year with the publication of *How We Compete*, by Professor Berger. This book, which summarizes the results of the globalization study, has been widely reviewed and translations into several languages are in progress. In conjunction with this publication, Professors Berger, Lester, and Sodini organized a special symposium in May on “MIT and the Changing Economy,” which featured speakers from the IPC globalization study as well as representatives of international education and research programs from across the Institute.

In related work, Professor Edward Steinfeld continues his studies of industrial upgrading and competitiveness in developing countries. A major focus of Professor Steinfeld’s research is the political economy of reform in China. Dr. Tim Sturgeon, a cofounder of the Global Value Chain Initiative, continues his research on modular production networks and, with Professor Frank Levy (Urban Studies and Planning), is leading a group of scholars from several US universities in examining the measurement issues associated with offshoring of service work.

Professor Levy and his students continue their studies of technological change in the workplace and its implications for education and the organization of work. Their work has focused on the evolution of medical imaging technology and its implications for the radiology profession and the offshoring of radiology services.

Work continued this year on the IPC’s China Energy Program, which analyzes technological and institutional innovations in China’s energy sector. Led by Professors Edward Steinfeld and Richard Lester and with support from the Energy Foundation and Shell, the research group initially focused on the prospects for introducing clean coal technologies in China. This research is closely coordinated with MIT’s project on the future of coal, based at the Laboratory for Energy and the Environment. This year, the research group launched a new study of China’s capabilities in nuclear energy technology.

The Center continues to play a key role in the Sloan Foundation–sponsored Industry Studies network and organized and hosted the Sloan Industry Studies Annual Conference, held in Cambridge in December 2005.

## People

Professor Michael Piore (economics and political science) has been elected as the next president of the Society for the Advancement of Socio-Economics.

IPC doctoral fellows Ari Goelman and Dan Breznitz were awarded first and second prizes, respectively, in the Sloan Industry Studies Best Doctoral Dissertation Competition for 2005.

Visitors to the Center this year included Professor Arnaldo Camuffo of the University of Padua, Professor Markku Sotarauta of the University of Tampere, Professor Alan Hughes and Dr. Andy Cosh of the Center for Business Research at Cambridge University, and Professor Taft Broome (Howard University), Martin Luther King Visiting Professor at MIT for 2005–2006.

**Richard K. Lester**

**Director**

**Professor of Nuclear Science and Engineering**

*More information about the Industrial Performance Center can be found at <http://web.mit.edu/ipc/www/>.*