

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. 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.

The center continues 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 25 locations, including both 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 also 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. This year a major synthesis report was prepared for TEKES, the Finnish funding agency for technology and innovation. Team members were also invited to present their findings to academic conferences and to national and regional policymaking bodies in Belgium, Ireland, Japan, Denmark, and the United Kingdom and in several cities across the United States. As part of this research, Professor Lester and doctoral student Wei Gao are studying the effects of international flows of knowledge and technology on innovation performance in the North Sea oil-producing centers of Stavanger, Norway, and Aberdeen, Scotland.

The center continues its studies of globalization. The term globalization refers 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 Akintunde Ibitayo Akinwande (Electrical Engineering and Computer Science [EECS]), Don Lessard (Sloan School of Management), Richard Lester (Nuclear Engineering), Charles Sodini (EECS), Edward Steinfeld (Political Science), IPC senior research affiliate Timothy Sturgeon, and several doctoral students as well as researchers from the United Kingdom, Germany, Japan, and Taiwan.

In related work, Professor Steinfeld continues his studies of industrial upgrading and competitiveness in developing countries. A major focus of his research is the political economy of reform in China. Dr. Sturgeon, a cofounder of the Global Value Chain Initiative, continues his research on modular production networks. This year he also completed an assessment, carried out with the assistance of a group of scholars drawn from several US universities, on the data collection system used by the United States government to track the offshoring of service work.

Professor Frank 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. Working with professor Peter Temin (Economics), Professor Levy also published a widely noted review of the causes of widening income inequality in the United States since 1980.

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 the introduction of clean coal technologies in China. This research has been closely coordinated with MIT's project on the future of coal, based at the Laboratory for Energy and the Environment. This year, professors Steinfeld and Lester and doctoral student Edward Cunningham also launched a national survey of the investment, operational, and environmental strategies of Chinese power plant owners and operators.

The center continues to play an active role in the Sloan Foundation–sponsored industry studies network and organized and hosted the Sloan Industry Studies Annual Conference held in Cambridge in April 2007.

People

Professor Michael Piore (Economics and Political Science) is serving as president of the Society for the Advancement of Socio-Economics.

Professor Suzanne Berger was awarded the Prix Rossi of the Academie des Sciences Morales et Politiques for the French translation of her book *How We Compete*, which synthesizes the findings of the IPC's globalization study. Professor Berger's book has now been translated into seven languages. Professor Berger was also named Class of 1960 Fellow for 2006–2008 in recognition of her innovative contributions to international education at MIT.

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; Professor Smita Srinivas of Columbia University; and Professor Taft Broome of Howard University, Martin Luther King Visiting Professor at MIT.

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/>.