

Local Innovation Systems Project

Industrial Performance Center
Massachusetts Institute of Technology

First International Conference on Local Innovation Systems:
UNIVERSITIES, INNOVATION & LOCAL ECONOMIES

05

December 13, 2005 | Royal Sonesta Hotel

Dear Colleagues:

Welcome to *Universities, Innovation, and Local Economies*, the First International Conference on Local Innovation Systems!

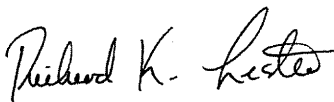
This Conference grows out of a multi-year research project that has brought together scholars in engineering, management, and the social sciences from universities in five countries. The Local Innovation Systems (LIS) Project, based at the Industrial Performance Center at MIT, is about—and itself exemplifies—a phenomenon neatly captured by one of our MIT colleagues: knowledge is global, but learning is local.

Universities, long accustomed to this contradiction when managing their own affairs, now find themselves on the front lines of a larger struggle to square the circle, as economic activity becomes both increasingly globalized and increasingly knowledge-based. As local communities throughout the world worry about economic survival in the rapidly changing and increasingly open world economy, their attention naturally turns to local universities, sources of the two most valuable assets in this economy: educated, skilled people, and new ideas. How should universities respond to these new challenges? What should we expect of them? What should they expect of themselves?

These are the questions we'll be discussing at today's Conference. We, the members of the LIS Project team, are eager to share our findings with you, and also to hear from a group of distinguished and knowledgeable practitioners in this field. We are equally eager to hear your thoughts and reactions to what you will hear.

Thank you for your participation. We are honored that you have chosen to join us, and we hope that out of this Conference will come both new ideas and continuing conversation about innovation, economic growth, and the prosperity of our communities.

Best wishes,



Richard K. Lester
Director, MIT Industrial Performance Center

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December 13, 2005

- 9:15 Welcome**
Susan Hockfield *President, Massachusetts Institute of Technology*
- 9:25 LIS Project—Phase I Findings: Overview and Discussion**
Richard Lester *Director, MIT Industrial Performance Center*
- 10:30 Innovation Benchmarking Survey**
New Findings on University-Industry Relations
Alan Hughes *Director, Center for Business Research, University of Cambridge*
- 11:00 COFFEE**
- 11:15 Keynote Session 1: Creating and Nurturing New Industries**
Growing the Life Sciences Industry in the Boston Area
Lita Nelsen *Director, Technology Licensing Office, MIT*
- 12:15 LUNCH**
- 13:30 Keynote Session 2: Transplanting Industries**
The ICAR Project: Embedding the Automotive Industry in South Carolina
Chris Przirembel *Vice President for Research and Economic Development,
Clemson University*
- 14:30 Keynote Session 3: Diversification/Upgrading of Mature Industries**
Lehigh University and the Transformation of the Industries of the Lehigh Valley
Gregory Farrington *President, Lehigh University*
- 15:30 TEA**
- 16:00 Keynote Session 4: Industrial Transformation: The Case of Finland**
Esko Aho *President of SITRA, the Finnish National Fund for Research and Development*
- 17:00 General Forum: Issues and Actions**
All Participants
- 17:40 Wrap-up**
- 17:50 Cocktails**
- 19:00 End**

**SUSAN HOCKFIELD***President**Massachusetts Institute of Technology*

Susan Hockfield has been President of the Massachusetts Institute of Technology since December 2004. A noted neuroscientist whose research has focused on the development of the brain, she was previously Provost at Yale University, where she had taught since 1985. Dr. Hockfield graduated from the University of Rochester and earned her Ph.D. from the Georgetown University School of Medicine, carrying out her dissertation research at the National Institutes of Health (NIH). Before joining the Yale faculty, she was an NIH postdoctoral fellow at the University of California at San Francisco and a member of the scientific staff at the Cold Spring Harbor Laboratory in New York.

**RICHARD K. LESTER***Director, Industrial Performance Center**Massachusetts Institute of Technology*

Richard Lester is the Director of the Industrial Performance Center and a professor of nuclear science and engineering at M.I.T. His research focuses on industrial innovation and the management of technology, with emphasis on the energy and environmental sectors. He has led several major studies of national and regional productivity, competitiveness and innovation performance. His recent books include *Innovation—The Missing Dimension* (Harvard University Press, 2004), co-authored with Michael J. Piore; *Making Technology Work: Applications in Energy and the Environment* (Cambridge University Press, 2003), co-authored with John M. Deutch; and *Global Taiwan* (M.E. Sharpe, 2005), co-edited with Suzanne Berger. He currently serves as director of the Local Innovation Systems Project.

**ALAN HUGHES***Director, Center for Business Research**University of Cambridge*

Professor Alan Hughes is Director of the Centre for Business Research (CBR) at the University of Cambridge. He is also Margaret Thatcher Professor of Enterprise Studies at the Judge Institute of Management, and a Fellow of Sidney Sussex College, University of Cambridge. From 2000 to 2003 he served as Director of the National Competitiveness Network of the Cambridge-MIT Institute. He has published extensively on growth, innovation, the performance of small and medium-sized enterprises, and corporate governance. He has served as advisor and consultant to numerous government and international organizations. In 2004 he was appointed by Prime Minister Tony Blair to the Council for Science and Technology, the UK's senior advisory body in this area.

LITA L. NELSEN

*Director, Technology Licensing Office
Massachusetts Institute of Technology*

Lita Nelsen is the Director of the Technology Licensing Office at the Massachusetts Institute of Technology. In 2004 this office managed over 500 invention disclosures from M.I.T., the Whitehead Institute, and Lincoln Laboratory, negotiated nearly 100 licenses, and helped to start up 20 new companies. Prior to joining the M.I.T. Technology Licensing Office, Ms. Nelsen spent 20 years in industry. She currently serves on the boards of several organizations, including the Mount Auburn Hospital and the Scientific Advisory Board of the Children's Hospital Oakland Research Foundation. She is also serving as the intellectual property advisor to the International AIDS Vaccine Initiative. Ms. Nelsen is widely published in the field of technology transfer and university/industry collaborations. She was the 1992 President of the Association of University Technology Managers.

CHRISTIAN E. G. PRZIREMBEL

*Vice President for Research and Economic Development
Clemson University*

Chris Przirembel is Vice President for Research and Economic Development at Clemson University. In this role, Dr. Przirembel has primary responsibility for the University's research programs and for coordinating the university's involvement in regional and state economic development efforts. At Clemson he previously served as head of the Department of Mechanical Engineering and associate dean for Research and Graduate Studies. Dr. Przirembel has also held positions as a faculty member and administrator at Rutgers University, where he received his Ph.D. in mechanical and aerospace engineering. He has been elected a Fellow of the American Society of Mechanical Engineers, the American Society for Engineering Education, and the American Association for the Advancement of Science.

 **GREGORY C. FARRINGTON**

President

Lehigh University

Gregory C. Farrington has been President of Lehigh University since 1998. He previously served as dean of the School of Engineering and Applied Science at the University of Pennsylvania. At Lehigh, Dr. Farrington has championed breaking down disciplinary walls and experimenting with new technologies to improve student learning. He has been an advocate of partnering with the city of Bethlehem, the state and federal government, industry and others to make the city and region a better place to live, work and learn while strengthening the university and spurring economic development. Dr. Farrington serves on the boards of several national and local organizations, including the Business-Higher Education Forum, the Association of Independent Colleges and Universities, the Lehigh Valley Partnership and the Lehigh Valley Economic Development Corporation. He received his Ph.D. in chemistry from Harvard University in 1972.

 **ESKO AHO**

President

SITRA, the Finnish National Fund for Research and Development

Esko Aho served as Prime Minister of Finland between 1991 and 1995. He was first elected as a Member of the Finnish Parliament in 1983 and continued as an MP until 2002. Mr. Aho served as leader of the Centre Party between 1990 and 2002. In Finnish political history, Mr. Aho is remembered as a strong prime minister who led the country through the deepest recession in the postwar period and through many changes in its external relations, including its entry into the European Union. During 2000-2001 Mr. Aho spent a year at Harvard University as a fellow and adjunct lecturer. In 2004 he became President of the Finnish National Fund for Research and Development, SITRA.

partnership • economy • global • innovation •

Massachusetts Institute of Technology
University of Tampere
Helsinki University of Technology
University of Cambridge
Rogaland Research Institute

The Local Innovation Systems Project an international research partnership based at the **Industrial Performance Center (IPC)** at MIT, is addressing a central issue now confronting industrial practitioners, economic policymakers, and ordinary citizens throughout the world: How can local economic communities survive and prosper in the rapidly changing global economy?

Our particular focus is on the role of innovation—in products, services, and processes—in promoting productivity growth and competitive advantage at the local and regional levels. National and local governments around the world, as well as others with an interest in economic growth and development, are greatly interested in creating and sustaining local environments that are attractive for innovation. Firms, too, recognize that their innovation performance is affected by their location.

The policy debate has been dominated by a few outstandingly successful centers of technological entrepreneurship, notably including Silicon Valley and the Boston area in the United States, and the Cambridge region in the U.K. But most locales do not have clusters of high-technology ventures of such scale, nor are they home to research and educational institutions with world-class strengths across a broad range of disciplines.

Many locales, on the other hand, do have distinctive industrial capabilities and vibrant higher educational institutions, and some have been quite successful in harnessing new technology to revitalize their economies or to reinvent themselves as centers of innovation and competitive advantage.

The Local Innovation Systems Project is investigating cases of actual and attempted industrial transformation in more than 20 locales in the United States, Europe, and Asia. Our research is aimed at developing new insights into how regional capabilities can spur innovation and economic growth. We seek ultimately to develop new models of innovation-led industrial development.



about lis

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entrepreneurship • research • local • universities

We are currently engaged in the first phase of a projected multi-year study. In this phase, we are investigating the roles of universities and other public research institutions as creators, receptors, and interpreters of innovation and ideas; as sources of human capital and entrepreneurship; and as key components of social infrastructure and social capital. Later phases of our research will explore the process of enterprise growth and the ability of different locations to attract and retain innovating firms. We are also investigating different approaches to individual and institutional leadership in locally-based systems of innovation.

The research partners of the Local Innovation Systems Project consist of an inter-disciplinary team of faculty, graduate students and research staff at the Industrial Performance Center at the **Massachusetts Institute of Technology**, together with their counterparts at the **University of Tampere** and the **Helsinki University of Technology** in Finland, the **University of Cambridge** in England, and the **Rogaland Research Institute** in Stavanger, Norway. A team of researchers at the University of Tokyo also made valuable contributions in the early stages of this project.

The outreach activities of the Local Innovation Systems Project include the preparation of discussion papers and books, executive briefings and informal workshops, international conferences, and executive education and training programs for policymakers, research managers, and industry executives.

Current sponsors of the Local Innovation Systems Project include Tekes (the National Technology Agency of Finland), the Cambridge-MIT Institute, the Research Council of Norway, and, in the United States, the Alfred P. Sloan Foundation and the National Science Foundation.

For further information, please contact the Project Director:
Professor Richard Lester at 617-253-7522, rklester@mit.edu

<http://web.mit.edu/lis/>

research sites

LIS research sites have included 23 locations in the United States, Finland, Japan, Taiwan, the United Kingdom, and Norway. Additional research has been carried out in Ireland, India, and Israel. At each location, teams of researchers from the partner institutions are studying innovation trajectories and developing comparative case studies of growth and transformation in specific industries, mature as well as new.

COUNTRY	LOCATION	INDUSTRY/TECHNOLOGY
USA	Rochester, NY	Opto-electronics
USA	Akron, OH,	Advanced polymers
USA	Lehigh Valley, PA	Opto-electronics/steel
USA	Boston, MA	Bioinformatics
USA	New Haven, CT	Biotechnology
USA	Charlotte, NC	Motor sports (NASCAR)
USA	Greenville-Spartanburg, SC	Autos
USA	Alfred, NY	Ceramics
USA	Youngstown, OH	Steel/autos
Finland	Tampere	Industrial machinery
Finland	Turku	Biotechnology
Finland	Seinajoki	Industrial automation
Finland	Pori	Industrial automation
Finland	Helsinki	Wireless
Finland	Oulu	Medical
UK	Central Scotland	Opto-electronics
UK	Aberdeen	Oil and gas
UK	Cambridge	Bioinformatics
Taiwan	Taipei-Hsinchu	Electronics
Taiwan	Taipei-Hsinchu	Software
Japan	Hamamatsu	Opto-electronics
Japan	Kyoto	Electronics
Norway	Stavanger	Oil and gas

partner institutions



about lis

Industrial Performance Center (IPC)
Massachusetts Institute of Technology
Cambridge, USA

Research Unit for Urban and Regional Development Studies (SENTE)
University of Tampere
Tampere, Finland

Helsinki University of Technology
Helsinki, Finland

Center for Business Research
University of Cambridge
Cambridge, England

Rogaland Research Institute
Stavanger, Norway

project team

Since its launch in 2002, the Local Innovation Systems Project has brought together an interdisciplinary team of researchers from partner institutions in four countries (researchers from Japan also participated in the early stages of the project). The researchers are listed below, with current affiliations.

United States

Prof. Richard K. Lester *IPC, LIS Project Director*
Prof. Michael J. Piore *IPC*
Prof. Alok Chakrabarti *New Jersey Institute of Technology*
Prof. Danny Breznitz *Georgia Institute of Technology*
Shiri M. Breznitz *IPC*
Dr. Jean-Jacques Degroof *IPC*
Wei Gao *IPC*
Dr. Sachi Hatakenaka *IPC*
Carlos Martínez-Vela *IPC, LIS Conference Director*
Prof. Sean Safford *University of Chicago*
Dr. Smita Srinivas *Harvard University*

Finland

Prof. Markku Sotarauta *Sente, University of Tampere*
Kimmo Viljamaa *Sente, University of Tampere*
Kati-Jasmin Kosonen *Sente, University of Tampere*
Prof. Eila Järvenpää *Helsinki University of Technology*
Dr. Stina Immonen *Helsinki University of Technology*
Katja Lahenius *Helsinki University of Technology*
Juha Nummi *Helsinki University of Technology*

Norway

Dr. Martin Gjelsvik *Rogaland Research Institute*
Petter Westnes *Rogaland Research Institute*

United Kingdom

Prof. Alan Hughes *Center for Business Research, University of Cambridge*
Dr. Andy Cosh *Center for Business Research, University of Cambridge*
Maria Corte-Real *Center for Business Research, University of Cambridge*
Dr. Celine Druilhe

sponsors



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LIS Project Sponsors[†]

National Technology Agency of Finland (Tekes)

Cambridge-MIT Institute (CMI)

Research Council of Norway

Alfred P. Sloan Foundation

National Science Foundation

We are also grateful to the CMI Program on Regional Innovation and the MIT Office of the Vice President for Research for their generous support of this event.

[†]Additional support was provided by the University of Tokyo in the early stages of the project.

The Industrial Performance Center



The Industrial Performance Center (IPC) at the Massachusetts Institute of Technology is dedicated to the study of industries in the United States and throughout the world. By industry we mean the whole chain of activities from thinking up a new product or service to delivering it to a customer. Our research addresses two basic questions: What skills, what strategies, what technologies and what new forms of organization are most likely to bring success in the globalizing economy? And how do technological changes shape these options? The Center's purpose is to bring together the intellectual resources of MIT in interdisciplinary research collaborations designed to strengthen understanding of these issues and to help leaders in industries, government, and education develop practical responses to them. Faculty and students from all five MIT Schools participate in our research projects, and through these projects the Center serves as a kind of listening post on industries, monitoring patterns of organizational and technological practice, interpreting them for our partners and sponsors, and feeding our observations back into the core disciplines and curricula of the Institute.

<http://web.mit.edu/lis/>



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