

2006 Blue Sky II

What Indicators for Science, Technology and
Innovation Policies in the 21st Century?



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2006 Blue Sky II

What Indicators for Science, Technology and Innovation Policies in the 21st Century?

On September 25-27, 2006, the Blue Sky II 2006 Forum will examine new areas for indicator development and set a broad agenda for future work on science, technology and innovation (STI) indicators. Emphasis will be placed on indicators of outcomes and impacts in order to support monitoring, benchmarking, foresight activity, and evaluation, applied to policies and programs, and their economic and social impacts. The Forum is expected to provide ideas and guidance for indicators work in both OECD and non OECD countries, as well as in international organizations. The Forum will include plenary sessions featuring invited guest speakers who are leading authorities in their fields. Break-out sessions will discuss papers on specific themes selected through a call for papers.

Blue Sky is a synonym for thinking creatively, without limiting horizons, about developing new indicators to respond to changing policy and user needs in the STI area. The first Blue Sky Forum was organised by the OECD and held in Paris in 1996. It helped set the agenda for developing

STI indicators over the past decade. The intent of Blue Sky II is to review progress made while looking towards development of policy-relevant STI indicators in today's global economy. Statistics Canada, the OECD, the U.S. National Science Foundation and Industry Canada have partnered to host this landmark conference.

The Forum will bring public policy researchers, economists, social scientists and statisticians, together with policy makers, government officials and other stakeholders with an interest in science, technology and innovation indicators.

The Forum covers four broad topics:

- New uses of existing science, technology and innovation indicators;
- New uses of existing non STI indicators for the purpose of STI policy making;
- Completely new science, technology and innovation indicators and,
- A synthesis of findings leading to an agenda for the next decade of work on STI indicators.

2006 Blue Sky II

What Indicators for Science, Technology and Innovation Policies in the 21st Century?

Overview

Date: September 25 - 27, 2006

Location: The Westin Ottawa
11 Colonel By Drive
Ottawa, Ontario, Canada

Telephone: +1 613 560-7000

Facsimile: +1 613 234-5396

Organizers: The Organisation for Economic Co-operation and Development (OECD), The U.S. National Science Foundation (NSF), Industry Canada and Statistics Canada.

Secretariat: Forum Secretariat
Statistics Canada
Blue Sky II
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Web site: <http://www.statcan.ca/english/conferences/sciencetech2005/index.htm>

Language: Simultaneous interpretation will be provided in English and French for all sessions. All workshops will be conducted in either English or French, which will be noted on the conference materials.

Steering Committee:

Mr. Fred Gault, Canada
Mr. Giorgio Sirilli, Italy
Ms. Leanne Harvey, Australia
Mr. Ki-Wan Kim, Korea
Mr. Ward Ziarko, Belgium
Ms. Alessandra Colecchia, OECD
Mr. Michael Bordt, Canada
Ms. Lynda Carlson, United States of America
Mr. August Goetzfried, European Commission

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Monday, September 25, 2006

Program

- 07:45** **Registration and continental breakfast** *Foyer Provinces*
- 09:00** **Welcome and opening remarks** *Provinces Ballroom*
- Fred Gault**
 Chair
 National Experts on Science and Technology Indicators (NESTI / OECD)
- Carole Swan**
 Senior Associate Deputy Minister
 Industry Canada
- Enrico Giovannini**
 Chief Statistician,
 Organisation for Economic Co-operation and Development (OECD)
- Lynda Carlson**
 Director, Science Resource Statistics Division,
 U.S. National Science Foundation (NSF)
- 09:45** **Keynote address**
- Speaker: Dr. John H. Marburger, III**
 Director, Office of Science and Technology Policy
 Executive Office of the President of the United States of America
- 10:30** **Break** (15 minutes)
- 10:45** **Plenary session — New uses of existing S&T indicators in a global context**
- Chair: Fred Gault**
 NESTI / OECD
- Discussant: Reinhilde Veugelers**
 European Commission (BEPA), K. U. Leuven and
 CEPR Katholieke Universiteit Leuven, Faculty of Economics and Applied Economics
- Presentations**
- Dominique Foray**
 École Polytechnique fédérale de Lausanne
 Enriching the indicator base for the economics of knowledge
- Anthony Arundel**
 Maastricht Economic Research Institute on Innovation and Technology (UNU-MERIT)
 Innovation indicators: Any progress since 1996?
- 12:00** **Summary of plenary session**
- Chair: Fred Gault**
 NESTI / OECD
- 12:10** **Lunch** *Confederation Ballroom*



Monday, September 25, 2006

Concurrent workshops

13:30– Concurrent workshops:
17:00 Session A1
Quebec Room

Non technological innovation

Chair: August Goetzfried
European Commission

Discussant: Mark Knell
Norwegian Social Science Research
Institute (NIFU STEP)
Centre of Innovation Research, Norway

A The determinants and effects of non-technological innovations —

Tobias Schmidt and Christian Rammer,
Center for European Economic
Research (ZEW) in Germany.
Germany

B Just how innovative are New Zealand firms? Quantifying and relating organisational and marketing innovation to traditional STI indicators —

Richard Fabling, New Zealand
Ministry of Economic Development.
New Zealand

C Design as source and enabler of innovation – New and improved indicators —

Ray Lambert, UK Department of
Trade and Industry, Office of Science
and Innovation. *United Kingdom*

D Better by design? Capturing the role of design in innovation —

Meric S. Gertler and Tara Vinodrai,
University of Toronto. *Canada*

E Industrial reflexivity: An institutional approach to measure innovativeness of organisations —

Manfred F. Moldaschl, Chemnitz
University of Technology; The
Institute for Human Resource
Management, Chemnitz, and Center
for Innovation Research, Munich.
Germany

13:30– Concurrent workshops:
17:00 Session A2
Provinces Ballroom

Multidisciplinary science, technology and innovation

Chair: Andrew Wyckoff
OECD

Discussant: Irvin Feller
American Association for the
Advancement of Science

A A framework to measure the impact of investments in health research —

Alan Bernstein, Canadian Institutes
of Health Research. *Canada*

B Towards a nanotechnology statistical framework —

Kevin Fitzgibbons, Office of the
National Science Advisor, and
Chuck McNiven, Statistics Canada.
Canada

C Indicators for benchmarking biotechnology innovation policies —

Thomas Reiss and
Iciar Dominguez-Lacasa,
Department emerging technologies
at Fraunhofer ISI. *Germany*

D Biotechnology impact indicators: From measures of activities, linkages and outcomes to impact indicators —

Antoine Rose, Canadian
Biotechnology Strategy and
Chuck McNiven, Statistics Canada.
Canada

13:30– Concurrent workshops:
17:00 Session A3
Les Saisons

Global knowledge flows — Human resources and S&T

Chair: Evelyn Obele
German Federal Ministry of Education
and Research

Discussant: Mario Cervantes
OECD

A International mobility of doctorate holders: First results and methodology advances —

Laudeline Auriol, Organisation
for Economic Co-operation and
Development (OECD). *OECD*

B Developing indicators for the effective utilisation of HRST: The case of South Korea —

Ki-Wan Kim, Korea Institute of
Science and Technology Evaluation
and Planning (KISTEP). *Korea*

C Mobility of the higher skilled in the Swedish Innovation System: An indicator for knowledge flows —

Patrik Sandgren and Eugenia Perez,
VINNOVA. *Sweden*

D Linking human resources in science and technology and scientific performance: The use of existing data to develop new indicators to analyze the scientific base of high and medium high technology manufacturing industries —

Wendy Hansen, Maastricht Economic
Research Institute on Innovation
and Technology (UNU-MERIT).
UNU-MERIT

E Indicators on researchers' career and mobility in Europe: A modelling approach —

Philippe Mogueurou,
Olivier Da Costa,
Maria Paola di Pietrogiamomo
and Patrice Laget IPTS, European
Commission. *IPTS / EU*

Monday, September 25, 2006

Afternoon

- 15:00** **Break** (15 minutes)
- 15:15** **Concurrent workshops** (continued)
- 17:00** **Summary of parallel sessions and goals for day 2**
Provinces Ballroom
- Speakers:**
- August Goetzfried**
European Commission (Eurostat)
- Andrew Wyckoff**
OECD
- Evelyn Obele**
German Federal Ministry of Education and Research
- Fred Gault**
NESTI / OECD
- 17:45** **Adjourn**
- 19:00** **The Blue Sky II Steering Committee invites
all delegates to an evening of networking
with fellow Blue Sky II delegates at the:**

**Métropolitain Brasserie Restaurant,
700 Sussex Drive, Ottawa, Ontario.**

Tuesday, September 26, 2006

Program

07:45 **Networking continental breakfast** *Foyer Provinces*

09:00 **Welcome and opening remarks** *Provinces Ballroom*

Lynda Carlson

Director, Science Resource Statistics Division,
U.S. National Science Foundation (NSF)

Keynote address

Luc Soete

Joint Director of the United Nations University Institute for New Technologies (UNU-INTECH)
Maastricht Economic Research Institute on Innovation and Technology (MERIT)

09:30 **Plenary session — New S&T uses of non S&T indicators**

Chair: Lynda Carlson

NSF

Discussant: Dominique Foray

École Polytechnique fédérale de Lausanne

Presentations

Eric von Hippel

Innovation and Entrepreneurship Group at MIT Sloan School of Management

Indicator development required for science, technology and innovation policies in an era of democratizing innovation

Reinhilde Veugelers

European Commission (BEPA), K. U. Leuven and CEPR Katholieke Universiteit Leuven, Faculty of Economics and Applied Economics

Developments in EU statistics on science, technology and innovation: Taking stock and moving forward towards evidence based policy analysis

Heidi Ertl

Statistics Canada

Towards understanding the impacts of science, technology and innovation activities

10:15 **Break** (15 minutes)

12:10 **Summary of plenary session**

Chair: Lynda Carlson

NSF

12:30 **Lunch** *Foyer Provinces*



Tuesday, September 26, 2006

Concurrent workshops

13:30– Concurrent workshops:
17:00 Session B1
Provinces Ballroom

The role of public sector actors in innovation

Chair: Giorgio Sirilli
National Research Council of Italy and NESTI / OECD

Discussant:
Luis Sanz-Menendez
Ministry of Education and Science, Spain

- A University research in an innovation society —**
Richard Hawkins,
Cooper H. Langford and Kiranpal S. Sidhu, University of Calgary. *Canada*
- B Developing internationally comparable indicators for the commercialisation of publicly-funded research —**
Anthony Arundel and Catalina Bordoy, Maastricht Economic Research Institute on Innovation and Technology (UNU-MERIT) UNU-MERIT
- C Micro-level indicators of knowledge production: The AQUAMETH project on European universities —**
Andrea Bonaccorsi, University of Pisa and Member of the High Level Expert Group (HLEG) of the European Commission. Cinzia Daraio, IIT-CNR (Italy) and member of the PRIME working group on Public Sector Research. *Italy*
- D Benefits from R&D investment in the Canadian federal government —**
Pierre Therrien, Industry Canada. *Canada*

13:30– Concurrent workshops:
17:00 Session B2
Quebec Room

Specialised surveys: Developing countries, remote regions, special topics

Chair: Ki-Wan Kim
Korea Institute of Science and Technology Evaluation and Planning (KISTEP)

Discussant:
Ernesto Fernandez Polcuch
UNESCO Institute for Statistics

- A Science, technology and innovation for sustainable development —**
Michael Bordt, Johanne Boivin and Julio Miguel Rosa, Statistics Canada. *Canada*
- B What drives productivity growth in Tanzania: Technology or institutions? —**
Pierre Mohnen, Maastricht University and UNU-MERIT (Maastricht Economic Research on Innovation and Technology); Micheline Goedhuys, University of Antwerp and UNU-MERIT and; Norbert Janz, University of Antwerp and UNU-MERIT. UNU-MERIT
- C Specialised R&D surveys: Design and application —**
Peter S. Mortensen and Carter Bloch, University of Aarhus, *Denmark*
- D Measuring SERVERD: Pie in the sky or substantive activity? —**
Michael Kahn, Human Sciences Research Council (HSRC). *South Africa*

13:30– Concurrent workshops:
17:00 Session B3
Les Saisons

Global knowledge flows: the diffusion and location of knowledge

Chair: John Jankowski, NSF

Discussant: Francisco Moris, NSF

- A Measuring the globalization of knowledge networks —**
Caroline S. Wagner, SRI International Center for Science, Technology, and Economic Development and George Washington University. *United States of America*
- B Norms-based intellectual property systems: The case of French chefs —**
Eric von Hippel, Innovation and Entrepreneurship Group at MIT and Emmanuelle Fauchart from Conservatoire national des arts et métiers. *United States of America*
- C The contribution of firm and invention-specific science linkages to patent quality —**
Bruno Cassiman, IESE Business School and Katholieke Universiteit Leuven, Faculty of Economics and Applied Economics, B-3000 Leuven; Reinhilde Veugelers, European Commission (BEPA), K. U. Leuven and CEPR Katholieke Universiteit Leuven, Faculty of Economics and Applied Economics; and Pluvia Zuniga, Katholieke Universiteit Leuven, Faculty of Economics and Applied Economics, B-3000 Leuven. *Spain/Belgium*
- D A proposal for developing new indicators on the internationalisation of R&D by matching micro-data from national R&D surveys —**
Giulio Perani, Italian National Statistical Institute; member of the Italian delegation to NESTI; and Claudio Cozza; Italian National Statistical Institute. *Italy*
- E Ideas for new indicators on globalisation of R&D —**
Mikael Åkerblom, Statistics Finland. *Finland*



Tuesday, September 26, 2006

Afternoon

15:00 **Break** (15 minutes)

15:15 **Concurrent workshops** (continued)

17:00 **Summary of parallel sessions and goals for day 3**
Provinces Ballroom

Speakers:

Giorgio Sirilli

National Research Council of Italy and NESTI

Ki-Wan Kim

KISTEP

John Jankowski

NSF

Lynda Carlson

NSF

17:45 **Adjourn**



Wednesday, September 27, 2006

Program

07:45 **Networking continental breakfast** *Foyer Provinces*

09:00 **Welcome and opening remarks** *Provinces Ballroom*

John Dryden

Deputy Director, Directorate for Science, Technology and Industry,
OECD

**Plenary session — STI Indicators at the OECD:
Lessons learned**

Chair: John Dryden

OECD

Speakers:

Benoit Godin

INRS Urbanisation, Culture et Société, Canada

Giorgio Sirilli

National Research Council of Italy and NESTI / OECD

Luis Sanz-Menendez

Ministry of Education & Science, Spain

Ward Ziarko

Belgian Science Policy

Andrew Wyckoff

OECD

10:30 **Break** (15 minutes)

Wednesday, September 27, 2006

Concurrent workshops

10:45– Concurrent workshops:
12:45 Session C1
Provinces Ballroom

Understanding the impacts of innovation

Chair: Dirk Pilat
OECD

Discussant: Tobias Schmidt
ZEW, Germany

- A New directions for understanding innovation** —
Frances Anderson, *Susan Schaan*, Statistics Canada and *Ingrid Schenk*, Industry Canada. *Canada*
- B Organisational forms and innovative performance** —
Anthony Arundel, Maastricht Economic Research Institute on Innovation and Technology (UNU-MERIT) and *Edward Lorenz*, University of Nice Sophia-Antipolis, France. *UNU-MERIT and France*
- C What is missing in the analysis of input-output relationships of innovation processes?** —
Svein Olav Nås, NIFU STEP, *Mark Knell* and *Johan Hauknes*, Norwegian Social Science Research Institute NIFU STEP Centre of Innovation Research. *Norway*
- D Where science, technology and innovation indicators hit the road and roadblocks** —
Susan McDaniel, University of Windsor. *Canada*

10:45– Concurrent workshops:
12:45 Session C2
Les Saisons

New indicators for S&T policies

Chair: Michael Kahn
Human Sciences Research Council (HSRC). South Africa

Discussant: Pierre Mohnen
UNU-MERIT

- A Indicator for complex innovation systems: A scale-independent view** —
J. Sylvan Katz, SPRU, University of Sussex. *United Kingdom*
- B Constructing a multi-level Scientometric Indicators System** —
Hiroyuki Tomizawa, National Institute of Science and Technology Policy (NISTEP) and Ministry of Education, Culture, Sports, Science and Technology [MEXT]. *Takayuki Hayashi*, National Institute of Science and Technology Policy [NISTEP], and National Institution for Academic Degrees and University Evaluation [NIAD]. *Japan*
- C Innovation systems' based indicators: Relationships between innovation, human capital, and information and communication technologies** —
Monica Salazar, Simon Fraser University. *Colombia-Canada*

10:45– Concurrent workshops:
12:45 Session C3
Quebec Room

Global knowledge flows – the spatial dimension

Chair: Yoshiaki Tojo
OECD

Discussant: Dominique Guellec
OECD

- A What are policy-relevant indicators to measure the performance of innovation clusters?** —
Charles Davis, Hickling Arthurs Low (HAL) Corporation and Ryerson University; *David Arthurs*, Hickling Arthurs Low (HAL) Corporation; *David Wolfe*, Hickling Arthurs Low (HAL) Corporation and University of Toronto and; *Erin Cassidy*, National Research Council. *Canada*
- B Cross-regional and intra-sectoral analysis of clusters** —
Anne Plunket, University Paris Sud 11. *France*
- C Of triple helixes, classification schemes and knowledge value chains** —
Brian Wixted, CPROST at Simon Fraser University, and *Susan E. Cozzens*, Georgia Institute of Technology. *Canada and United States of America*
- D Innovation at regional level: What we can learn from the CIS4 two-tiered survey in Italy** —
Giorgio Sirilli, National Research Council of Italy and NESTI delegate; *Giulio Perani*, Italian National Statistical Institute; NESTI delegate and *Valeria Mastrostefano*, Italian National Statistical Institute. *Italy*

Wednesday, September 27, 2006

Afternoon

12:45 Lunch *Confederation Ballroom*

13:30 Summary of parallel sessions *Provinces Ballroom*

Speakers:

Dirk Pilat

OECD

Michael Kahn

Human Sciences Research Council (HSRC). South Africa

Yoshiaki Tojo

OECD

14:00 Panel Discussion: What has been learned and what happens next?

Chair: Fred Gault

NESTI / OECD

Speakers:

Luc Soete

UNU-INTECH and MERIT

Enrico Giovannini

OECD

Jan van Steen

Ministry of Education, Culture and Science, Netherlands

16:00 Adjourn — Blue Sky II

The Blue Sky II Steering Committee would like to thank our sponsors for making this Forum a success — see you in ten years!



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Statistics
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Statistique
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