

ISSP

INSTITUT DE RECHERCHE SUR LA SCIENCE,
LA SOCIÉTÉ ET LA POLITIQUE PUBLIQUE
INSTITUTE FOR SCIENCE, SOCIETY AND POLICY

Annual Report

2012-2013

Annual Report 2012-2013

Building on Strong Foundations



uOttawa

issp.uottawa.ca

About the Institute for Science Society and Policy

The Institute for Science, Society and Policy (ISSP) offers a unique, holistic and non-partisan approach to understanding the social implications of science and technology. The Institute informs science and technology policy through various channels and points of view.

Centered at the University of Ottawa, the ISSP carries out research, teaching, and public engagement on the relationship between society and science, innovation and technology, and fosters networks of people and organizations interested in this relationship.

The objective of the Institute is to improve the governance of science, technology and innovation. It does this by integrating research, education and public engagement at every stage of innovation – from developing science policy and improving how science and technology are regulated to understanding their social implications.

The ISSP's long-term goal is to develop highly skilled people and produce top quality research that will inform and improve decision-making about science and technology, both at home and internationally.

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I. Note from the Director

Dear Reader,

We were able to use our third year to further expand the ISSP Network, to create the foundation for our planned graduate program and to further develop our most successful projects (the Bromley Event, the "Innovation Decalogue", and our work on technology governance).

You will see that our activities are broad and many. Our aim is to build a network of sufficient breadth and depth that we can deliver on our key mission: capacity building through university programs, outreach activities, and research.

I hope you will enjoy this Annual Report.

Marc Saner
Director, ISSP

II. Capacity: Building on Strength

What does it take to build an institute? A tough question, to be sure, with answers that are largely context-relative. But we at the ISSP believe there is one key element that holds true for all organizations: people, whether they contribute to institute projects or are part of the broader community that the organization serves.

The ISSP is proud to have talented people at our institute and significant communication channels to engage various publics. During 2012-2013, the Institute built upon capacity developed over the previous two years, both in terms of its team and communication reach. The ISSP remains an institute with considerable human capital, spanning disciplines and sectors, with the means to get its message out to stakeholders through various communication channels.

The Power of People

People form the foundation of the ISSP. They contribute to, manage and direct ISSP activities, develop the ISSP's network, and serve as ambassadors of the Institute. They are essential to the ISSP's success.

During 2012-2013, the Institute made key additions to each of its membership categories – Advisory Committee, Core Group, Affiliates and Fellows. It also welcomed its four inaugural Associate Directors (who are all Core Group members), was fortunate to have a team of dedicated staff and welcomed its first student intern.

Advisory Committee

Denise Amyot, Advisory Committee Chair, took over from Tom Brzustowski, whose two-year term as Interim Chair ended in September. Ms. Amyot is President and CEO of the Association of Canadian Community Colleges.

Robert Slater is Executive Director of the Regulatory Governance Initiative at Carleton University and Adjunct Professor in Carleton's School of Public Policy and Administration.

Core Members

Patrick Fafard is Associate Professor in the University of Ottawa's Graduate School of Public and International Affairs. His research deals mainly with Canadian politics and public policy and builds on a career in government both federally and provincially. His work relates to the politics of public health, broadly defined, and the role of science and evidence in public policy. He also has a longstanding interest in Canadian federalism and intergovernmental relations and has published a wide range of research in this area.

Brenda Wilson is a Professor in the Department of Epidemiology and Community Medicine at the University of Ottawa. Her research interests lie in public health genetics and health services and policy research. She is involved in a range of projects, including assessing the utility of family history as a tool for chronic disease prevention, developing and evaluating interventions in genetics education and knowledge translation, public engagement in genomics health policy development, using outcome measures in genetics health services, family communication and disclosure of shared risks, and integrating ethical, legal and social issues into technology assessment.

Affiliates

Jeremy de Beer is Associate Professor in the Faculty of Law at the University of Ottawa, working on technological innovation, intellectual property and international trade and development. Many of his refereed publications on intellectual property issues relating to innovation and creativity appear in top-ranked journals recognized across the disciplines of law, business, communications and political science. He is also a practicing lawyer and consultant to technology companies.

Nathan Young is Associate Professor in the Department of Geography at the University of Ottawa. His research interests are environmental sociology, the sociology of science and knowledge, economic sociology, and natural resources.

Fellows

Jeff Kinder is Manager, S&T Strategy, at Natural Resources Canada. His research and teaching focuses on S&T policy, government laboratories, innovation systems and the integration of science and policy. He is the co-author (with Bruce Doern) of *Strategic Science in the Public Interest: Canada's Government Laboratories and Science-Based Agencies* (University of Toronto Press, 2007) and is working on a history of the Science Council of Canada.

Heather Douglas is Waterloo Chair in Science and Society and Associate Professor in the Department of Philosophy at the University of Waterloo. Her work on science policy began in graduate school and her research concerns the moral responsibilities of scientists, the place of science in democratic societies, the nature of scientific objectivity and integrity, methods for weighing complex evidence, and the roles for values in scientific reasoning.

Margaret McCuaig-Johnston, who became the ISSP's first Senior Fellow, most recently was Executive Vice-President at NSERC where she was responsible for strategic operations, including research policy and international relations. She was also a member for seven years of the Steering Committee for the Canada-China Science and Technology (S&T) Initiative. In addition to her position as Senior Fellow at the ISSP, Margaret is working with the University of Ottawa's Office of International Research on the University's partnership with China, as well as writing on S&T in China.

Associate Directors

Jackie Dawson, Associate Director of Arctic Development, is Canada Research Chair in Environment, Society and Policy and Assistant Professor in the University of Ottawa's Department of Geography. Her research interests include arctic economic development, the human dimensions of environmental change, vulnerability and adaptation, and social-ecological systems.

Scott Findlay, Associate Director of Graduate Studies, is Associate Professor in the University of Ottawa's Department of Biology. His current research program has five components and includes developing and testing predictive models of ecosystem response to anthropogenic stress; developing and testing mathematical models of the

evolution of resistance in cancer; developing and applying methods for assessing scientific weight of evidence in environmental and biomedical sciences, operationalizing general decision principles (e.g. the precautionary principle) for decision-making under high scientific uncertainty; and integrating traditional and scientific knowledge systems in environmental and human health risk assessment.

Jonathan Linton, Associate Director of Technology Innovation, is Power Corporation Professor in the Management of Technological Enterprises at the University of Ottawa's Telfer School of Management. His research focuses on managing emerging technologies and on closed-loop supply chains. Linton's recent and current work with emerging technologies has focused on areas such as opportunity recognition, forecasting, valuation for decision support, recognition and assessment of technical competencies and managerial capabilities, process technologies and advanced materials (such as MEMS and nanotechnologies).

Daniel Paré, Associate Director of Academic Outreach, is Associate Professor in the University of Ottawa's Department of Communication. His research and policy-related work focus on social, economic, political and technical issues arising from innovations in information and communication technologies (ICTs) in developing and industrialized countries. Areas of specialization include ICTs and international development (ICT4D), e-commerce, Internet governance, information and communication policy, e-government, and knowledge networks.

ISSP Staff

The ISSP has always engaged outside expertise to assist on Institute projects, and 2012-2013 was no different. Its Director, Dr. Marc Saner, and its full-time Project and Public Affairs Manager Dr. Jeremy Geelen were fortunate to have the following talented people contribute to Institute projects:

Carin Christou conducted research on science policy integration, the science and technology landscape and assisted on various ISSP projects. She also helped with grant applications and is co-author of the ISSP publication *Governance of Emerging Technologies: Scan of International Institutions*.

Matthew Gaudreau worked on a series of policy briefs dealing with current issues in science-policy integration. The policy briefs were a key component of a SSHRC Public Outreach Grant awarded to Marc Saner for the 2012-2013 year, and covered topics such as knowledge integration, the evaluation and communication of uncertainty, and collaboration between scientists and policy makers. He also provided assistance in organizing *Science and Society 2013: Emerging Agendas for Citizens and the Sciences*.

Valerie Harbour provided support on various ISSP projects including *Science and Society 2013: Emerging Agendas for Citizens and the Sciences*.

Monica Harvey assisted in organizing *Science and Society 2013: Emerging Agendas for Citizens and the Sciences* and provided communication and research support on various ISSP projects, including the Innovation Decalogue website and co-authoring *The Future is Here*, a 'Policy Insight' document for Policy Horizons Canada.

Sasha Kebo worked on various ISSP projects including policy briefs and the Internal Education Workshop.

The ISSP also welcomed **Michael Bordt**, who began his PhD studies in Geography under the supervision of Marc Saner at the University of Ottawa in September and provides advice on various ISSP projects. Michael is former Assistant Director of Statistics Canada's Environment Accounts and Statistics Division.

Volunteer **Alin Charrière** assisted in developing the ISSP's Canadian Science Councils Archive.

The ISSP also welcomed **Justine Lallement** as its first intern. Justine is a student at Agrocampus ouest in Rennes, France. She worked on the history of synthetic biology during her time at the Institute.

A dedicated team of work study students also contributed a great deal to the Institute – **Sonia Pavez, Erika Decock and Anne Gauthier**.

Communications: Heightened Presence, Wider Reach

The ISSP strives to be constantly in dialogue with the academic, NGO and public policy communities as well as the general public about its activities and issues related to science, technology and innovation policy. (See Section 5 for information on the ISSP's engagement activities.)

During 2012-2013, the Institute continued to build its communications capacity, which included further development of the ISSP website, the creation of several project-specific websites and regular publication and development of *SSP News*.

The following websites were created in 2012-2013.

- www.decalogue.ca: This website contains information on the Innovation Decalogue project, previous versions of the paper and initial endorsers. Upon the official release of the Innovation Decalogue Endorsement Edition in fall 2013, the site will be made public and visitors will be able to endorse the document.
- www.sciencecouncils.ca: This site archives reports from the Science Council of Canada (1966-1992) and the Council of Science and Technology Advisors (1996-2007), as well as containing additional information about the Councils. The site will be made public in fall 2013.
- SSP News Archive: This site archives previous issues of the *SSP News* (see below for information about this e-newsletter). Formerly hosted on Posterous, the content had to be migrated to the present site upon Posterous's closure.
- www.scienceandsociety2013.ca: This website (currently in development) will host information about the upcoming international symposium, Science and Society

2013: Emerging Agendas for Citizens and the Sciences. It will be the 'go to' point for participants and the general public to access information about the event.

- D Allan Bromley Event (<http://artsites.uottawa.ca/bromley/>): This website provides information about D. Allan Bromley, past events (including video and photos) and alumni.

The ISSP's Newsletter, *SSP News*, continued regular publication and subscriptions to the newsletter continue to grow. Since May 2012, the publication welcomed 265 new (opt-in) subscribers to reach a total of 678 subscribers. The newsletter's open rate is routinely double the industry average.

Other Accomplishments

In addition to the accomplishments mentioned above, the ISSP's statutes were adopted by the Core Group of the ISSP and the Executive Committee of the Faculty of Arts.

The Institute was also honoured to receive generous financial support from uOttawa's Vice-President Research Office to support Institute activities.

In August, the ISSP moved into its new offices in the Desmarais building. The Institute now holds 10 workstations in 6 offices.

III. Education: Forging Ahead

The ISSP is first and foremost to be an educational institution. The Institute's education mandate runs through all of its activities – whether research, network building or public engagement – in the sense that they aim to raise awareness of, inform about and foster dialogue around issues at the interface of science, technology and society.

During 2012-2013, the Institute continued to develop its role as an educator by making great strides towards the creation of its graduate program, offering various highly successful courses, and engaging in initiatives to enrich the educational experience of University of Ottawa students.

A Program in the Making

The ISSP continued to lay the foundations of its education program in 2012-2013, primarily through engaging external and internal stakeholders, conducting market research and developing Letters of Intent for the creation of collaborative masters and diploma programs, as well as welcoming one adjunct and two cross-appointed professors to the Institute.

ISSP Education Workshop – External Consultation

On June 19, 2012, the ISSP held a workshop to consult with the professional science and technology community. The fourteen external participants attending the workshop included senior members of the public sector (federal government and federal agencies), the private sector, and the academic sector (represented by the ISSP Education Working Group). The majority of the group identified themselves as coming from a science background, but all were involved in policy development and decision-making.

Participants were asked to address the following questions:

1. Based on needs and vision, what skills, knowledge, capacities and attitudes should be fostered through the Institute's core courses?
2. What program admission requirements and program governance structures would be most desirable?
3. By what ways and means would external institutions be effectively engaged with and contribute to program content?

The results were summarized in the report, *Expert Consultation on the Emerging ISSP Program*.

ISSP Education Workshop – Internal Consultation

On October 24, 2012, the ISSP held a workshop to consult with the ISSP Core Group and Affiliates. Eight participants attended the workshop (two additional participants were subsequently consulted and polled online).

Participants were asked to address the following questions:

1. Based on needs and vision, what skills, knowledge, capacities, attitudes should be fostered through the Institute's core courses?
2. What program admission requirements and program governance structures would be most desirable?

The results were summarized in the report, *Internal Consultation on the Emerging ISSP Program*.

Student Survey

In order to complete the External and Internal consultation, students were polled through a SurveyMonkey questionnaire. The results (based on 275 responses) have been written up in a report and suggest that science students have a strong interest in the planned ISSP program. Issues of particular interest are evidence-based decision-making and science communication.

Development Towards Submission of Letter of Intent

Scott Findlay (Associate Director, Graduate Studies) is currently developing two Letters of Intent – one for a collaborative masters program and one for a diploma. He is supported by Research Assitant Rachel So. The collaborative masters will allow students enrolled in a masters degree program at the University of Ottawa to obtain a second designation for “Science, Society and Policy”. The diploma is geared to people who have completed their degree or who wish to obtain additional university training while on the job.

Cross-Appointments and Adjunct Professor (ISSP Teaching)

In November, Associate Professor in Communication Daniel Paré and Power Corporation Professor in the Management of Technological Enterprises Jonathan Linton were cross-appointed with the ISSP. In February, ISSP Fellow Paul Dufour was made an Adjunct Professor at the Institute.

Courses: Challenging Curious Minds

Though the ISSP does not yet have courses of its own in the strict sense of the term – until the education program is launched, courses must be offered through the auspices of University of Ottawa departments – ISSP Director Marc Saner and Adjunct Professor Paul Dufour offered courses similar to what students will find in the ISSP education program. The courses were well attended and well received.

Marc Saner

GEG 5105: Decision-making at the Interface of Science and Policy (Fall 2012)

This interactive seminar concerned the integration of evidence and judgment, facts and values, and science and policy in decision-making. Students looked at the broad spectrum of related topics: How scientific are risk assessments? Are evidence-based policy decisions really based on policy? Are we not rather sometimes dealing with “policy-based evidence making”? How is ethics integrated in decision-making? How are issues that have an important science component communicated to the public? How is public and citizen science included in decision-making? How do scientists and policymakers work together?

GEG 3301B: Science, Technology, Innovation and Society (Winter 2013)

This course explored the interaction between technology, environmental studies and geography – technology shapes the planet and the features of the planet shape access to technology, and technology is both a tool used in geography and a subject of investigation. The course investigated in particular the issue of technological acceleration. The effect of technology on wealth creation and on the environment is hard to exaggerate. Technology is simultaneously a key threat to and a key hope for environmental sustainability. Technological acceleration results in “a future that’s already in the past” – e.g., robotic warfare, “mind reading” machines, cell-phones acting as credit cards, or self-driving cars. Technology has even lead to a new “place” – the virtual world that grows and changes in leaps and bounds.

Paul Dufour

BPS 4103: A Primer on Science Policy (Winter 2013)

This course provided students with an overview of the nature of science policy (policy for science and science in policy), including its impact on the public policy process. Students learned that science policy is a key dimension of virtually all decision-making within the public sphere and they explored the various aspects of science policy in an interactive series of seminars and special guest lectures. Each class began with a general discussion of key events that engage science with and in policy. Students developed a short annotated outline of a policy brief for the mid-term and the final exam involved the development of a succinct document articulating the impact of a science policy issue aimed at a Parliamentary Committee hearing.

Enriching the Student Experience Across Campus

The ISSP understands that education extends beyond the classroom. It pursues and supports initiatives across campus that allow students to hone and develop their skills, learn about science policy and reflect on their future careers. Each of the following projects was open to students from all faculties at the University of Ottawa.

Student Science Journalism Competition

In its first annual Student Science Journalism Competition, the ISSP collaborated with the University of Ottawa's Office of the Vice President Research and invited students to report on a recent University of Ottawa discovery, invention or breakthrough in a magazine-style article. First prize (\$1000) went to John-Paul Michalski for his submission, *Seeking a Treatment with More Muscle*, and second prize (\$500) went to Alessandra Pasut for her submission, *A New Gene to Get You Back into Your Old Jeans*. The contest was judged by seasoned journalists Anne McIlroy, Monique Roy-Sole and Peter Calamai, who also served as Jury Chair.

Bromley Lecture and Event 2013

Held from May 1st to 3rd, this year's Bromley Memorial Lecture and Event brought 21 students and faculty from 9 different countries to Washington, D.C. to attend the AAAS science policy forum. The Canadian group also met the Honourable Gary Goodyear (Minister of State for Science and Technology), visited the MIT Washington Office and the Semiconductor Industry Association, enjoyed a tour of the Capitol Building and saw the Senate in session. One student described Bromley 2013 as "an incredible time, I think life-altering," adding that it "was a phenomenal experience."

Financial Support for "The Role of Science in Government"

Held on June 4 and June 20, and organized by the University of Ottawa Biology Graduate Students' and Chemistry Graduate Students Associations, these events had speakers talk to science students about the place of science in public policy and science careers in government. The ISSP financially supported the event and Marc Saner was one of the speakers (June 20). The other speakers were Member of Parliament Ted Hsu and ISSP Fellow and public servant Jeff Kinder (June 4) and public servant Pierre-Yves Caux.

IV. Networks: Growing at Home and Abroad

ISSP networks bring together talented people from various backgrounds to discuss current developments and address challenges at the intersection of science, society and policy.

During 2012-2013, the ISSP significantly expanded its network both locally and internationally. These networks bring together talented people from varying backgrounds to raise awareness, address challenges, and discuss current developments within the framework of science, society and policy.

Local

The ISSP continues to grow as a hub at the University of Ottawa and in Ottawa generally for people interested in science and technology policy. This includes fostering relations with the uOttawa *SSP Network* and holding the first meetings of two new groups.

Science, Society and Policy Group

The Institute's Science, Society and Policy Group, which is made up of students and public servants, met for the first time in May to discuss potential future activities. This group brings together likeminded individuals in the Ottawa area to participate in various events on science and policy themes. Members also had the opportunity to contribute to the development of the ISSP's emerging graduate and continuing education programs.

Science Policy Reading Group

Drawing from members of the Science, Society and Policy Group and adding many new faces, the ISSP created the Science Policy Reading Group in July. Made up of uOttawa students, academics and practitioners, this group meets to discuss recent research and publications as well as current trends in the fields of science, technology and public policy.

International

In a globalized world, science, technology and innovation policy extends beyond national borders. With this in mind, the ISSP continues to build its international connections and strengthen its formal network at the international level, the Ingenuity Network.

Ingenuity Network

Jonathan Linton (ISSP Associate Director of Technology Innovation) strengthened relations with the Ingenuity Network in 2012-2013, with members participating at Bromley 2013 in Washington. The ISSP is planning to re-energize the Network for Bromley 2014 in Ottawa. Consult Appendix II for Network members and annual report 2011-2012 for information on the formation of the Ingenuity Network.

V. Interdisciplinary Research: Pursuing Excellence

The public policy challenges at the interface of science, society and policy require an interdisciplinary perspective. That's why the ISSP routinely assembles multidisciplinary teams on its research projects.

The ISSP's research output for 2012-2013 was considerable. The Institute set the stage to significantly increase its research capacity, and Institute staff, members and affiliates published papers and reports for academic audiences and on contract with the Government of Canada.

Research Capacity

The ISSP maintained and strengthened ties among its research network of academics, independent researchers, practitioners and students. It made gains in increasing its research capacity by being selected to host a Fulbright Research Chair in 2014. In addition, the Director of the ISSP served as a co-applicant in a successful Letter of Intent on a SSHRC Partnership Grant.

Fulbright Visiting Research Chair in Science and Society

The ISSP was selected to host a Fulbright Visiting Research Chair in Society and Society during the fall 2014 term. The Institute solicited names of potential candidates as well as names of institutions that could be contacted to suggest potential candidates, and it is planned that a candidate will be chosen in fall 2013.

Letter of Intent, *Sciences, Technologies and Publics*

In collaboration with Principal Investigator Bernard Lightman (York University), the ISSP is part of a team of thirty-five co-applicants and thirteen partner organizations which won a Letter of Intent for a Social Sciences and Humanities Research Council (SSHRC) Partnership Grant. Entitled *Sciences, Technologies, and Publics*, the project aims to investigate various issues at the science-society interface with the goal of enriching public discourse in Canada and affecting how policy makers, the media and politicians think about the roles of science and technology in society, as well as filling gaps in current scholarship.

ISSP Research

In 2012-2013, the ISSP engaged in multiple research projects, including charting the development of cutting edge technologies, making contributions towards preserving and better understanding the history of Canadian science policy, and embarking on a major initiative to support innovation policy making in Canada.

Synthetic Biology and Nanotechnology Timelines

The ISSP's synthetic biology and nanotechnology timelines are living documents that are constantly updated. The Institute is planning on posting them on the internet, possibly in collaboration with a partner institution in the United States.

Canadian Science Councils Archive

The ISSP developed the Canadian Science Councils Archive (www.sciencecouncils.ca), which virtually houses publications from the Science Council of Canada (1966-1992) and the Council of Science and Technology Advisors (1996-2007). The website is intended not only to serve an educational and historical purpose but also to inform current debate on science policy in Canada – where Canadian science policy has been and where it is going.

In addition to the reports, the website contains a brief overview of each organization and suggestions for further reading. The website will also feature interviews with former Science Council employees, which the ISSP recorded during its Science Council meeting in May (see below). The ISSP plans to continually expand the site.

ISSP Publications

Richard Hawkins, Fred Gault, Paul Dufour, Jeremy Geelen and Marc Saner. *Canada's Future as an Innovative Society: A Decalogue of Policy Criteria*.

Encouraged by Richard Hawkins' ISSP Paper *Looking at Innovation from a Uniquely Canadian Perspective: The Case for a New Alliance of Practice, Policy and Scholarship*, Dr. Hawkins and the ISSP brought together a team to create what would eventually become the Innovation Decalogue. This document, created from a review of evidence spanning over 60 years, sets out specific criteria for making policy decisions in any and every portfolio. As such, it provides Canada's institutions of governance with a framework to support a coordinated, evidence-based approach to innovation policy development and assessment.

The Decalogue team met with parliamentarians, ministerial staff and senior public servants in the early stages of the project (June 2012) to discuss the document and gauge whether senior decision makers would find it useful. Encouraged by the positive response, the team set out writing the document over the summer. A crowdsourcing version was reviewed by a select group of experts and practitioners, distributed at the Canadian Science Policy Conference in November 2012 and posted to a collaborative webpage. Based on the comments and reviews received, the document was condensed to its current form – the Endorsement Edition, to be released in autumn 2013.

Paul Dufour. *Advancing Knowledge at the Frontier: The AAAS and the Saga of Science Societies in Canada*

This paper discusses the debates regarding Canada's inability to maintain a sustainable, viable professional organization for the advancement of science and technology. It contextualizes the efforts that have been made in the past to create such an organization and examines the meetings of the AAAS in Canada that sparked debates regarding the inherent difficulties in creating and maintaining such national associations. The paper argues that many of these difficulties in the Canadian context are related to the inability of the scientific community in English Canada to define a value proposition that would make a national association self-sustaining.

Contracted Research for the Government of Canada

In addition its own research projects, the ISSP also conducted research for the Government of Canada.

Policy Horizons Canada

The ISSP wrote the following 'Policy Insight' documents for Policy Horizons Canada, the Government of Canada's foresight organization, for publication on their website and e-newsletter:

- Jeremy Geelen. *The Emerging Neurotechnologies: Recent Developments and Policy Implications.*

Thought-controlled prosthetics, as well as deep-brain stimulation and 'mind reading' technologies, are among the most exciting recent advances in neurotechnology. This document discusses current developments in neurotechnology as well as potential public policy issues these developments may bring.

- Jeremy Geelen and Monica Harvey. *The Future is History.*

Technologies that only a few years ago were fodder for futurists are now a reality. They hold the promise of profound advancements in medicine, economic development and environmental stewardship. But they may also bring significant policy challenges. This brief highlights 10 of today's most cutting-edge technological advancements and outlines potential policy implications.

- Daniel Paré and Jeremy Geelen. *Technology: Governing the Ungovernable?*

Can technology be governed? This brief discusses some considerations policymakers should keep in mind when approaching matters of technology and its governance. It first examines the nature of technology and then the issue of technology governance.

- Daniel Paré and Jeremy Geelen. *Benefits and Challenges of Information and Communication Technologies for Citizens.*

Innovations in information and communication technologies (ICTs) enable a myriad of cultural, economic, political and social changes that offer both benefits and challenges to diverse interests. Policymakers need to be aware of the paradoxical nature of ICTs. The opportunities they afford can affect genuine change and/or reinforce the status quo. This brief examines how this paradox manifests itself with regard to social media. It then discusses key policy considerations arising from the Janus-faced nature of these technologies.

Health Canada

Health Canada hired the ISSP to research and report on definitions of synthetic biology.

- Marc Saner and Jason Millar. *Analysis and Regulatory Implications of Definitions of “Synthetic Biology”*.

Health Canada is following scientific and technical developments in the field of “synthetic biology” with the aim of regulatory preparedness. A foundational obstacle to the tracking of innovations in the synthetic biology field is the lack of internationally accepted definitions of “synthetic biology”. The internationally intensifying research efforts have led to a proliferation of definitions and government agencies have not yet defined the scope of synthetic biology from a regulatory viewpoint. This paper addresses this issue through (a) an international screen of definitions and conceptions, and (b) an analysis of existing definitions from a regulatory perspective. The analysis culminates in a classification scheme that fosters an understanding of the scope, nature and utility of existing definitions.

ISSP Director, Core and Affiliate Publications (selection)

ISSP Director Marc Saner and the Institute’s Core and Affiliate members published research on various themes at the interface of science, society and policy.

Director Publications

Saner M and Stoklosa, A. (2013) Commercial, Societal and Administrative Benefits from the Analysis and Clarification of Definitions: The Case of Nanomaterials. Jackwell Publishing Ltd. *Creativity and Innovation Management*, 22(1), 26-36. doi: 10.1111/caim.12014

The managerial, policy, technical and ethical decisions centred on emerging technologies are often hampered by a lack of consensus on what falls within the remit of such decisions. A lack of clarity and agreement on definitions is especially the case for

nanotechnology. Given the potential of nano-technology to underpin the next Schumpeterian economic cycle, this limitation on decision-making needs to be taken seriously. Here Saner and Stoklosa add to the literature by providing a pathway for decision makers to understand the nature and value of differing definitions in the important case of nanomaterials. They identify 65 relevant sources, of which 27 provided a definition of the term 'nanomaterial'. Based on the analysis of the content of these 27 definitions, they generate an analytical taxonomy of definitions of 'nanomaterials' from which they constructed seven logical categories. Their analysis provides decision makers with a taxonomy to more precisely understand the diversity of definitions, thereby assisting them in their decision-making processes.

Saner, M, Heafey, E, and Bowman, D. (2013) Mapping the regulatory environment for nonmaterial in Canada. *Nanotechnology Law and Business*, 9(4), 243 – 368.

This article provides, for the first time, a detailed map of the Canadian regulatory environment for nanomaterials. As the Government of Canada has not yet adopted a regulatory definition for nanomaterials, Saner, Heafey and Bowman developed a method to delineate the potential scope of nanomaterials regulation. They use a step-wise “translation” of the identity of thirteen research materials (taken from the *OECD Sponsorship Programme for the Testing of Manufactured Nanomaterials*) into their prospective uses, sectors and, key federal legislative instruments. The starting point of this method is a test of the merit of the OECD list using the concept of “regulatory attention.” This method is novel and could have utility in other jurisdictions. The identified regulations are mapped onto a matrix that provides a very succinct and convenient overview of the Canadian regulatory environment. Finally, a summary description of these regulations is provided as an entry point for those who wish to use such materials in Canada, sell into the Canadian market, or carry out further academic regulatory research.

Core and Affiliate Research (Selected Publications)

Core Group

Jennifer Chandler

Scassa, T, Chandler, J, Bedard, Y, Gervais, M. Working at the intersection of law and science: Reflections on a fruitful collaboration. Chrisman, N and Wachowicz, M (eds.), *Spatially Enabling Government, Industry and Citizens: Research and Development Perspectives*, 2012.

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Patrick Fafard

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Rees Kassen

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Jonathan Linton

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Daniel Paré

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Affiliates

Steffany Bennett

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Jeremy de Beer

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Elizabeth Judge

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Eda Kranakis

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Rocci Luppicini

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- c. **Luppicini, Rocci** and Backen, Jessica: Teaching Qualitative Research Methods to Students 2.0: A reflexive approach (Chapter 7)
- d. **Luppicini, Rocci** and Barber, Patricia: Inside Student 2.0: Student perspectives on navigating online and offline identities (Chapter 8)

- d. **Luppicini, Rocci** and Lin, Shirley: Student 2.0 Revisited: Student perspectives on anonymity and privacy in the digital world (Chapter 9)
- e. **Luppicini, Rocci**: Education for a Digital World: Current Challenges and Future Possibilities (Chapter 10)

Catherine Mavriplis

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Mavriplis, C., Panel organized and moderated: Design for Inclusion - A Roundtable Discussion, 2013 Canadian Engineering Education Association Conference, June 2013

Mavriplis, C., Croft, E., Leadership Development Programs for Women in Engineering Industry, abstract and presentation at Canadian Engineering Education Association Conference, June 2013

Mavriplis, C. et Davidson, V., Géniales les filles! Un programme de sensibilisation des filles au secondaire et de leurs parents pour l'Ontario, présentation et article à suivre au 81^{ème} congrès de l'ACFAS (Association francophone pour le savoir), mai 2013

Mavriplis, C., appeared on local radio show (Radio-Canada: Le Monde selon Mathieu) on April 26th 2013 to speak about the NSERC / Pratt & Whitney Chair for Women in Science and Engineering.

Mavriplis, C., Workshop organized: FORWARD to Professorship, Looking Back, Looking FORWARD, 1.5 day workshop for FORWARD trainees and stakeholders, Washington, April 2013

Mavriplis, C., Workshop organized: Engineering Your Team, one day workshop on teamwork and communications for industry, government and academic engineers, Ottawa, March 2013

Mavriplis, C., Workshop organized: Take the Final Step / Passez à l'étape finale – bilingual 1.5 day workshop for science and engineering women associate professors of Ontario and Québec, 45 participants, Ottawa, January 2013.

Andrew Pelling

Andrew Pelling presented the work of his lab at a TEDx event at uOttawa this year. He discussed the often surprising ways that cellular behaviours and functions can be manipulated and his lab's interest in finding the limits of normal biological function and pushing beyond them to create something new.

Mitia Rioux-Beaulne

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Nathan Young

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Young, Nathan, Gingras, Isabelle, Nguyen, Vivian M., Cooke, Steven J., and Scott G. Hinch (2013, in press) "Mobilizing New Science into Management Practice: The Challenge of Biotelemetry for Fisheries Management" *Journal of International Wildlife Law & Policy*. [First author, 65%]

Young, Nathan and Aline Coutinho (2013) "Government, Anti-Reflexivity, and the Construction of Public Ignorance About Climate Change: Australia and Canada Compared" *Global Environmental Politics*. 13(2): 89-108. [First author, 85%]

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Cultures, and the Narration of Global Warming” *Canadian Journal of Sociology*. 37(1): 25-54 [First author, 85%]

Gaudet, Joanne, Young, Nathan and Matthias Gross (May 28-June 1, 2012) “Ignorance is Power: A case study of science in practice epistemic mobilization dynamic model” Canadian Sociological Association Annual Meeting, Waterloo, ON Canada. [Second author, 20%]

Young, Nathan and Joanne Gaudet. “Knowledge Mobilization Within and Beyond a Scientific Network” Presentation to the PrP Canada Annual Conference on Prion Diseases, June 25-27, 2012, Toronto ON.

Young, Nathan, Hinch, Scott, and Steve Cooke. “Mo’ Data, Mo’ Problems? Pacific salmon and the promise of telemetry” Presentation to the Ocean Tracking Network, 2012 Annual Meeting, June 4-6, 2012, Halifax NS.

VI. Public Engagement: Deepening the Discussion

S&T policy and governance are among the most important challenges faced by our society and global community – and often the most polarizing. The ISSP believes that it is essential to foster open discussion between opposing views and disparate groups if these challenges are to be met.

In 2012-2013, the ISSP embarked on several initiatives to encourage dialogue, increase awareness, and engage a growing interested public on issues at the interface of science, society and policy.

Events at the Interface of Science, Society and Policy

Despite the prevalence and genuine usefulness of digital communications (something not lost on the ISSP, given its interest in emerging technologies) there is still great value in bringing people physically together – especially when the issues discussed are complex or contentious.

The ISSP organized, participated in and supported various events during 2012-2013.

Science and Society Distinguished Lecture Series

Launched in 2012 and led by ISSP Associate Director for Academic Outreach Daniel Paré, the Science and Society Distinguished Lecture Series brings experts and practitioners within the fields of science, society and policy to uOttawa to share their research and insights. Promoted through various channels including UO Cal, uOttawa media calendar, Gazette, Faculties, SSP News and other ISSP Networks, there were two lectures in this series in 2012-2013:

- Rémi Quirion, Chief Scientist of Québec, presented the lecture, “Changing Times in Québec: Priorities of the Chief Science Officer with an Emphasis on “La Relève” in September 2012.
- Elizabeth Dowdeswell, President and CEO of the Council of Canadian Academies (CCA), gave a talk about the CCA, whose mission is to contribute to the shaping of evidence-based public policy that is in the public interest. This talk took place in January 2013.

Science and Society 2013

The ISSP, in partnership with Situating Science (a SSHRC Strategic Knowledge Cluster), is organizing *Science and Society 2013: Emerging Agendas for Citizens and the Sciences*, an international symposium to take place at the University of Ottawa from October 21 to 23 (during National Science and Technology Week).

The symposium will connect disparate themes and bring together academics, students, policy makers, stakeholders and the general public to address how we can better understand and improve the interface between science, technology and society. The

ISSP aims to publish a results document that summarizes and analyzes responses to this question.

The symposium will feature a Science Policy 101 session and three public events, including a stage reading of excerpts and panel discussion of Michael Frayn's Tony Award-winning play, *Copenhagen*. The Professional Institute of the Public Service of Canada and the Canada Science and Technology Museums Corporation are currently sponsoring the symposium.

Science Council of Canada Meeting

The ISSP brought together former members of the Science Council of Canada (1966-1992) to discuss the ISSP's Science Councils Archive, recent academic research on the Science Council, and the book plans of ISSP Fellow Dr. Jeffrey Kinder.

Sponsorships and Helping Out

The ISSP provided financial support towards the following events:

- *The Role of Science in Government*, University of Ottawa (organized by the Biology Graduate Students' Association and the Chemistry Graduate Student Association)
- *Governance of Emerging Technologies: Law, Policy and Ethics*, Arizona State University
- *Colloque international Leibniz-Diderot*, University of Ottawa

The Institute also facilitated the early planning of *In Defence of Science*, organized by Alternatives Journal and the Institute of the Environment, which took place at the University of Ottawa in September.

Spreading the Word about the ISSP

ISSP Director Marc Saner and Project and Public Affairs Manager Jeremy Geelen spread the word about the ISSP whenever they get the chance.

Marc Saner gave presentations about the ISSP at various meetings:

- To delegates from the Institute of Scientific and Technical Information of China, when they visited the University of Ottawa in October.
- To delegates from the China National Center for Biotechnology Development, when they visited the University of Ottawa in October.
- To the University of Ottawa's Faculty of Arts Executive Committee in October.
- To participants at an Environment Canada Lunch Talk in November.

Jeremy Geelen will be giving a presentation about the ISSP at the *Colloque international Leibniz-Diderot*, taking place at the University of Ottawa in June.

Director Presentations

Marc Saner gave the following presentations:

- “Science For Policy – A Map”, at *The Role of Science in Government*, organized by the Biology Graduate Students’ Association and the Chemistry Graduate Student Association at the University of Ottawa
- “Future Challenges in Risk Science”, a panel discussion at *Risk-Based Decision Making in Public and Population Health*, May 28 to June 1.
- Emerging Risk Governance: Modest Advice for Deputies, at *Public Sector Governance of Emerging Risks workshop*, organized by the International Risk Governance Council, September 17-18.
- “Science for Policy – A Map”, at an Environment Canada *Lunch Talk* in November
- “2nd Order Risk Analysis”, at the *Society for Risk Analysis 2012 General Meeting* in December
- “Human Enhancement: Should We Care and Who is in Charge?” as part of the Science Students Association 2013 Speaker Series, February 27.
- “The Future of Biotechnology from the Perspective of Non-Safety Issues” (with Jason Millar), at *Regulating Biotechnology: At the Interface between Science and Ethics*, organized by a team from Université Laval, April 25.
- “The Case for Adaptation and the Climate Change Model”, at *Governance of Emerging Technologies: Law, Policy and Ethics*, organized by a team at Arizona State University, May 20-21.
- Marc Saner also chaired “Starting the Discussion – Perspectives on Future Directions” at the Canadian Commission for UNESCO’s General Meeting, May 10-12.
- Marc Saner also participated in the iSTS Workshop at York University, October 20.

ISSP in the News

The ISSP and its members have things to say. They often provide analysis in the media, whether providing it on their own initiative or being solicited by the media for their views. As a result, the ISSP and its members had a significant amount of media appearances in 2012-2013.

Coverage about the ISSP

An article about the Bromley event was featured on the Telfer homepage (the 2012 D. Allan Bromley Memorial Lecture: A Huge Success!), and the University of Ottawa Gazette website published an article about the event and the Ingenuity Network (Ottawa Contributes to Cutting-Edge Ideas through the G20+ Ingenuity Network). The Bromley event and the ISSP were also featured in the University of Ottawa's Arts Horizons and an article in the November 17, 2012 issue of Re\$earch Money drew on the Innovation Decalogue (Calgary Hosts 4th Annual Science Policy Conference Highlighting Oil Sands Innovation).

Members in the News

The following ISSP members were either published or interviewed in news media:

Marc Saner (Director)

- Don't Trade off Science Policy for Innovation Policy in The Hill Times, November 2012.
- #ISSP: Looking Forward to 2013, in *SSP News*, January 2013.
- World Governance of Emerging Technologies? Forthcoming in *SSP News*, June 2013.

Andrew Hessel (Fellow)

- Hacking the President's DNA (with Marc Goodman and Steven Kotler) in The Atlantic, November 2012
- 3 Gigabits of Genetic Code in The Huffington Post, January 2013.
- Hacking the Hardest Science, in *SSP News*, October 2012.

Ian Kerr (Core Member)

- Interviewed for "Robot Revolution" by Carolyn Jarvis, Mia Sheldon and Matt Lehner, Global News, August 2013.

Paul Dufour (Fellow)

- Becoming a Northern Minerva: Injecting Science into Canada's Foreign Policies in Science and Diplomacy, June 2012.
- Geeks on the Hill: The Big Bang Theory Meets Yes, Minister in The Hill Times, July 2012.
- Canadians clearly deserve better from their science advisory apparatus in The Hill Times, November 2012.
- Time to readjust Canada's global compass on science, innovation in The Hill Times, February 2013.
- Interviewed for "Canada puts commercialization ahead of blue-sky research" by Brian Owens, nature.com, March 2013.

- Boutique science diplomacy in Research Money, May 2013.
- Interviewed for “Canada losing ground in global science race: report” by Ivan Semeniuk, The Globe and Mail, May 2013.

Rees Kassen (Core Member)

- Who Speaks for Science? Experience from Canada in Physics and Society, January 2013

Scott Findlay (Core Member)

- Policy as Science, in *SSP News*, June 2012.
- Interviewed for “Scientists Rally on Parliament Hill to Mourn ‘Death of Evidence’” by Janet Davison, CBC News, July 2012.
- Interviewed for “Scientists march on Parliament Hill to protest ‘death of evidence’” by Angela Mulholland, CTV News, July 2012.
- (With Diane Orihel) Feds mount systematic, deliberate campaign to reduce role of scientific evidence in decision-making in *The Hill Times*, July 2012.
- Interviewed for “Environmentalists fear Ottawa’s plan will weaken at-risk species act” by Gloria Galloway, *The Globe and Mail*, October 2012.
- Federal government boasts big on science, offers little proof in *The National Post*, April 2013.

Patrick Fafard (Core Member)

- Policy as Values, in *SSP News*, July 2012.

Catherine Mavriplis (Affiliate Member)

- Meeting with Marc Garneau on Women and S&T, in *SSP News*, April 2013.

Political Outreach

The ISSP continued forging political connections. The Institute held meetings with Members of Parliament Ted Hsu, Hélène LeBlanc, Geoff Regan and Kennedy Stewart, Senator Kelvin Ogilvie and Minister Gary Goodyear’s Chief of Staff and Director of Policy to discuss the Innovation Decalogue. Senator Ogilvie also peer reviewed and is among the initial endorsers of the document.

In addition, Member of Parliament Ted Hsu has agreed to participate in *Science and Society 2013* on a panel discussing Michael Frayn’s Tony Award-winning play *Copenhagen*.

Appendix I - ISSP Network

Appendix IA – Advisory Committee Members



Denise Amyot (Chair)
President and CEO
Association of Canadian Community
Colleges (ACCC)



Jason Blackstock
Deputy Head of Department
Department of Science, Technology,
Engineering and Public Policy
University College London (UCL)



David Forrest
Director
Innovation Watch



Michael Geist
Canada Research Chair of Internet
and E-commerce Law
Faculty of Law
University of Ottawa



Yves Gingras
Professor
Université du Québec à Montréal



Ruby Heap
Professor
Faculty of Arts
Associate Vice-President, Research
University of Ottawa



Michèle S. Jean

Quebec's Permanent Representative
to UNESCO
The Canadian Commission for
UNESCO



Avrim Lazar

President and CEO
Forest Products Association of
Canada



Gordon McOuat

Professor of Humanities
University of King's College

Project Director
Situating Science



Errol Mendes

Professor
Faculty of Law
University of Ottawa

Commissioner
Ontario Human Rights Commission



Penny Park

Executive Director
Science Media Centre of Canada



Robert Slater

Professor
Carleton University



Joseph Thornley
Chairman and CEO
Thornley Fallis



David Zussman
Jarislowsky Chair on Management in
the Public Sector
Graduate School of Public and
International Affairs
University of Ottawa

Appendix IB - ISSP Core Group



Marc Saner (Chair) – Director
Institute for Science, Society and Policy

Associate Professor
Department of Geography
Faculty of Arts



Jennifer Chandler
Associate Professor
Common Law Section
Faculty of Law



Jackie Dawson – Associate Director Arctic
Development
Assistant Professor
Department of Geography
Faculty of Arts

Canada Research Chair in Environment, Society and
Policy



Patrick Fafard
Associate Professor
Graduate School of Public
and International Affairs
Faculty of Social Sciences
University of Ottawa



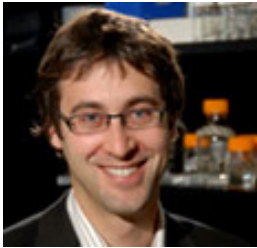
Scott Findlay – Associate Director Graduate Studies
Associate Professor
Department of Biology
Faculty of Science



Ruby Heap
Full Professor
Department of History
Faculty of Arts



Gwynne Jones
Full Professor
Department of Critical Care
Faculty of Medicine



Rees Kassen
Associate Professor
Department of Biology
Faculty of Science

University Research Chair in Experimental Evolution



Ian Kerr
Associate Professor
Common Law Section
Faculty of Law

Canada Research Chair in Ethics, Law, and
Technology



Jonathan Linton – Associate Director Technology
Innovation
Editor-in-Chief Technovation
Full Professor
Telfer School of Management

Power Corporation Professor in Management of
Technological Enterprises



Daniel Paré – Associate Director Academic Outreach
Associate Professor
Department of Communication
Faculty of Arts



Brenda Wilson

Associate Professor
Department of Epidemiology and
Community Medicine
Faculty of Medicine
University of Ottawa

Appendix IC - ISSP Affiliates



Steffany Bennett
Associate Professor
Department of Biochemistry,
Microbiology and Immunology
Faculty of Medicine
University of Ottawa



Jeremy de Beer
Associate Professor
Common Law Section
Faculty of Law
University of Ottawa



Kevin Brand
Associate Professor
Telfer School of Management
University of Ottawa



Elizabeth Judge
Associate Professor
Common Law Section
Faculty of Law
University of Ottawa



Eda Kranakis
Full Professor
Department of History
Faculty of Arts
University of Ottawa



Rocci Luppicini
Associate Professor
Department of Communication
Faculty of Arts
University of Ottawa



Catherine Mavriplis
Associate Professor
Department of Mechanical Engineering
Faculty of Engineering
University of Ottawa



Michael Orsini
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Faculty of Social Sciences
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Andrew Pelling
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Mitia Rioux-Beaulne
Assistant professor
Department of Philosophy
Faculty of Arts
University of Ottawa



Nathan Young
Associate Professor
Department of Sociology
Faculty of Social Sciences
University of Ottawa

Appendix ID - ISSP Fellows



Peter Calamai

Adjunct Research Professor
School of Journalism and Communication
Carleton University



Heather Douglas

Waterloo Chair in Science and Society
Associate Professor, Department of Philosophy
University of Waterloo
Professor, Balsillie School of International Affairs



Paul Dufour

Adjunct Professor, ISSP
Principal
Paulicyworks



Richard W. Hawkins

Canada Research Chair
Science, Technology and Innovation Policy
University of Calgary



Andrew Hessel

Autodesk Distinguished Researcher
Autodesk
Co-chair of Biotechnology and Bioinformatics
Singularity University
Co-founder
Pink Army Cooperative



Jeff Kinder
Manager, S&T Strategy
Natural Resources Canada



Margaret McCuaig-Johnston
(Senior Fellow)
International Relations Executive



Gregor Wolbring
Assistant Professor
Faculty of Medicine
University of Calgary

Appendix II – Ingenuity Network

Canada

Jonathan D. Linton holds the Power Corporation Professor in the Management of Technological Enterprises and is a full professor at the University of Ottawa. His research focuses on managing emerging technologies and on closed-loop supply chains. Linton's recent and current work with emerging technologies has focused on areas such as opportunity recognition, forecasting, valuation for decision support, recognition and assessment of technical competencies and managerial capabilities, process technologies and advanced materials (such as MEMS and nanotechnologies).

He is editor-in-chief of *Technovation* (2010 Impact factor 2.993) and co-author of the book *Principle Concepts of Technology and Innovation Management: Critical Research Models*. Professor Linton is on the Editorial Boards of *Foresight*, *IEEE Transactions on Engineering Management*, *International Journal of Innovation and Technology Management* and the *Journal of Engineering and Technology Management* and the Technical Advisory Board of *Technological Forecasting and Social Change*. His research is supported by the Emerging Technology and Innovation Management Laboratory and has received funding from NSERC, SSHRC, and other granting organizations.

Marc Saner is the inaugural Director of the Institute for Science, Society and Policy (since July 1, 2010), and an Associate Professor in the University of Ottawa Department of Geography. Prior to this appointment, he served as Executive Director, Regulatory Governance Initiative, School of Public Policy and Administration, at Carleton University, and Director of Assessments and Executive Vice-President of the Council of Canadian Academies. Previously, Dr. Saner was a Director at the Institute on Governance where he built the Ethics and Risk Management Sector and co-managed the Technology and Governance Program.

For the last decade, his primary interest has been multi-disciplinary work at the intersection of science, ethics, and governance. He holds a PhD in applied ecology from the University of Basel, Switzerland (1991) as well as an MA in applied ethics from Carleton University (1999). Dr. Saner publishes in peer-reviewed journals in the areas of technology ethics, bioethics, risk management, biotechnology and ecology and has been invited to speak at seminars, workshops and international conferences around the world. He was also appointed Adjunct Research Professor in Philosophy and in Biology at Carleton.

China

Quanhong Jiang is an associate professor in the School of Foreign Studies of Beihang University (BUAA) of China. His educational training includes a BA (English Language and Literature), and an MA (Economics). He is now working towards his doctoral degree in the School of Economics and Management of Beihang University. His research interest focuses on innovation management, including patenting behaviour and strategic

management in industrial innovation, quality management by experimental design in industrial innovation, and so on. As an academic visitor sponsored by Canada-China

Scholar Exchange Program (CCSEP), he is currently doing some relevant research work under the supervision of Professor Jonathan Linton in the New Emerging Technologies and Innovation Management Laboratory of the University of Ottawa, particularly on modeling and statistical analysis in innovation management with some specific techniques.

Germany

Alexander Cuntz currently works as a Junior Research Fellow at the Berlin-based Federal Expert Commission of Innovation and Research (EFI) established by the German cabinet. Before he was grant holder with a focus on European Research Area policies at the European Commission, Institute of Prospective Technological Studies in Seville, Spain. Alexander holds a PhD in Innovation Economics from Berlin Institute of Technology and a Diploma with honours in International Economics from University in Tuebingen, the Universidade do Porto, Portugal, and the Universidad Nacional de Córdoba, Argentina. His primary research interests lay in the economic, sociological and behavioural aspects of the science, innovation and governance nexus. Alexander also contributed to various OECD working group proceedings, e.g. “Open innovation in global networks”, and has published a number of articles in *Science & Public Policy* as well as *Research Policy*.

Israel

Morris Teubal is Emeritus Professor of Economics at the Hebrew University of Jerusalem, Israel. During the last 10 years Teubal has systematically attempted to apply system evolutionary approaches to innovation policy, including VC policy, policies for the promotion of entrepreneurial systems, and the emerging area of Strategic Innovation Policy, including heading the international panel evaluating Chile’s Innovation Council in 2010. He has and is currently involved in work in these areas both with PhD students, and colleagues abroad, and is keenly interested in further international networking in these areas.

Russia

Dirk Meissner has over 10 years of experience in top level consulting to key decision makers in industry and public policy. He has a strong background in innovation management especially intellectual property and risk management and innovation / technology policy consulting and technology and research strategies. Dirk has worked with and led elite teams on a body of case work that includes market studies and industry analysis, intellectual property management audits, R&D portfolio management, research strategies, R&D in- and outsourcing, market entry strategies innovation and technology policy evaluation and design, innovation campaign design and client coaching. His responsibilities included building and management of teams as well as project management and client interaction. Dirk occasionally represented Switzerland in the OECD Working Party on Technology and Innovation Policy on behalf of the Swiss delegate and current working group chairman. Dirk headed the business unit industry studies and research with T.A. Cook Consultants which he successfully established. Currently Dirk is deputy head and research professor at National Research University -

Higher School of Economics, Institute for Statistical Studies and Economics of Knowledge, Laboratory for Science and Technology Studies in Moscow, Russian Federation.

South Africa

Anastassios Pouris is Director of the Institute for Technological Innovation of the University of Pretoria, South Africa. He specializes in science, technology and innovation policy studies, including assessments and international benchmarking. He has acted as consultant for a number of government departments in South Africa (i.e. National Advisory Council on Innovation, Department of Science and Technology, Department of Trade and Industry and others) and various international organizations (i.e. UNESCO, NEPAD, WIPO and others). His educational background includes an MSc in Engineering from the University of Thessaloniki Greece, an MSc in Economics from the University of Surrey Guildford and PhD from the University of Cape Town, South Africa. He has published more than 60 articles in internationally refereed journals including *Scientometrics*, *Technovation*, *South African Journal of Science*, *South African Journal of Industrial Engineering* and other ISI indexed academic journals

Turkey

Altan Küçükçinar held various science and technology policy related posts until very recently and had the chance to shape and observe the R&D and innovation arena in Turkey, which in the last decade is experiencing a comprehensive transformation in this field. With all the prospects and pitfalls ahead, the policy tools to be developed need careful examination, visionary foresight and dedicated implementation, and not to be sacrificed for myopic political interests. My primary motivation for the attendance is the opportunity to share the Turkish experience, exchange views on what the right instruments are and discuss policy implications with the fellow researchers in other countries.

United Kingdom

James Wilsdon is Professor of Science and Democracy at SPRU (Science & Technology Policy Research) at Sussex University and an Associate Fellow at NESTA, the UK foundation for innovation. From 2008-2011, he was Director of Science Policy at the Royal Society, the UK's national academy of science, where he oversaw major studies on topics such as geoengineering, food security, science diplomacy and the future of the UK science and innovation system. He also led the Royal Society's evidence-gathering and advocacy for investment in research through the 2010 UK General Election and subsequent Spending Round, which contributed to the relatively positive 'flat-cash' settlement which was achieved. Prior to this, he spent seven years as Head of Science and Innovation at the public policy think-tank Demos. He has researched and written widely on science and innovation policy, emerging technologies and the globalization of research, and his publications include *The Scientific Century* (2010), *The Atlas of Ideas* (2007), *China: the next science superpower?* (2007), *The Public Value of Science* (2005) and *See-through Science* (2004). He writes and reviews regularly for the *Financial Times* and *Times Higher Education*.

United States

Nicholas Vonortas is Professor of Economics and International Affairs at the George Washington University in Washington D.C. He is a faculty member of the Department of Economics and the Director of both the Center for International Science and Technology Policy and of the graduate program in International Science and Technology Policy at GW's Elliott School of International Affairs. Professor Vonortas' teaching and research interests are in industrial organization, in the economics of technological change, and in science and technology policy. He specializes on strategic partnerships, innovation networks, technology transfer, technology and competition policy, and the appraisal of the economic returns of R&D programs.

The Institute for Science, Society and Policy

The Institute for Science, Society and Policy offers a unique, holistic and non-partisan approach to understanding the social implications of science and technology. We're interested in how to use these different perspectives to inform science and technology policy.

Centered at the University of Ottawa, the ISSP carries out research, teaching and public outreach on the relationship between society and science, innovation and technology.

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