



**Submission to the Senate Standing Committee on
Social Affairs, Science and Technology**

Regarding Mobilizing Science and Technology to Canada's Advantage

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Summary of Points

The social sciences and humanities can and do contribute in direct and meaningful ways to the achievement of the priorities of the government, and to the public good. The Federation believes that this contribution should be clearly recognized and supported in the science and technology strategy.

Research does have a material dimension, but equally it has human, environmental and social dimensions, all of which contribute to the prosperity and well-being of Canadians. Investment in the social sciences and humanities, and not only in the health sciences and new technologies, must be supported as one of the most fundamental and essential public goods a country can provide to its citizens.

Given the important role the social sciences and humanities can play in helping the government achieve its goals, the Federation believes that policy and decision-makers should have access to the most balanced recommendations possible. This can be achieved through greater representation from the social sciences and humanities disciplines on the Science, Technology and Innovation Council, as well as on other advisory boards, councils, and in submissions to Senate and House of Commons committees.

The federal government should take advantage of the excellent opportunity presented by researchers in the humanities and social sciences to contribute to the innovation economy.

Humanities and social sciences have a place in the innovation system, and the business sector must be encouraged to more fully embrace partnerships with the humanities and social sciences that benefit both the economy and the public.

Research of national interest from the point of view of social, economic, health and environmental benefits isn't the exclusive province of science and technology. In fact, many of the issues identified in the strategy require a close consideration of the human and social component to ensure the greatest benefit to Canadian society.

An educated, innovative mind, fostered in a culture of creativity, is a potent stimulant. Innovative, creative solutions come from the development of human competence and imagination. However, competitive advantage and leadership on the world stage come from a broad and deep understanding of the world and the people that inhabit it.

I. Introduction

The Canadian Federation for the Humanities and Social Sciences welcomes the release of the federal government's science and technology strategy, *Mobilizing Science and Technology to Canada's Advantage*. Investment in and support for research and innovation is necessary to ensure that Canada can succeed in an increasingly competitive international arena.

The strategy focuses almost exclusively on two areas: promoting private sector research and development, and the commercialization of academic research. While the government indicates that it will continue to support basic research, it intends to adopt a more strategic approach of setting research priorities and a more focused research agenda. The main thrust of the strategy is clear. If knowledge can be used to support an entrepreneurial advantage, if research can result in a marketable product, then it will be supported by federal investment.

The social sciences and humanities can and do contribute in direct and meaningful ways to the achievement of the priorities of the government. The Federation believes that this contribution should be clearly recognized and supported in the science and technology strategy.

It is not necessarily a direct line from invention to industry to an increase in the quality of life of Canadians. **Although research does have a material dimension, equally it has human, environmental and social dimensions, all of which contribute to the prosperity and well-being of Canadians. Investment in the social sciences and humanities, and not only in the health sciences and new technologies, must be supported as one of the most fundamental and essential public goods a country can provide to its citizens.** The end game is as much about a better Canada as it is about a more economically competitive Canada.

1. Defining Science

There has been a growing acceptance among scholarly associations and councils that a narrow definition of science in the policy-making process is no longer desirable or feasible. Science has come to be defined in much broader terms, as knowledge across a range of subjects and methodologies. Indeed, both the Association of Universities and Colleges of Canada and the Council of Canadian Academies, in their submissions to the government in the consultation process for the Science and Technology Strategy, point out that considerations of science and its impact for Canada

should include the social sciences and humanities; that governmental priorities in the realm of science and technology should be defined as broadly as possible; and that the social sciences and humanities should be active partners in the priority-setting process from the earliest stages of the strategy (Committee, 1 and AUCC, i).

Despite such advice, current policies and governmental strategies tend to favour support for technology and the “hard” sciences over the humanities and social sciences. For example, the government recently eliminated the three existing external advisory bodies in favour of a 17-member *Science, Technology and Innovation Council*, with members appointed by the federal government. The council, which reports directly to the Minister of Industry, is tasked with providing the Minister “with evidence-based policy advice on science and technology issues and will produce regular national reports that measure Canada’s ... performance against international standards of excellence” (Canada, 15). The current membership of this council, on which the Minister is depending for policy advice, is heavily weighted with representatives from the natural and health, or “hard” sciences. **Given the important role the social sciences and humanities can play in helping the government achieve its goals, the Federation believes that policy and decision-makers should have access to the most balanced recommendations possible. This can be achieved through greater representation from the social sciences and humanities disciplines on the Science, Technology and Innovation Council, as well as on other advisory boards, councils, and in submissions to Senate and House of Commons committees.**

While the science and technology strategy does acknowledge that the humanities and social sciences can play a role in our innovation system, it does not recognize the magnitude of this role. While it is tempting to regard science, engineering and technology as the drivers of rising standards of living and consequential social benefits, the humanities and social sciences allow us to understand the consequences of moving to a knowledge-based economy, to assess issues touching the lives of ordinary Canadians, and to understand the impact of human behaviour on the world around us.

II. The Science and Technology Strategy

The science and technology strategy states that it aims to build three advantages:

1. **An entrepreneurial advantage:** translating knowledge into commercial applications.
2. **A knowledge advantage:** positioning Canada at the leading edge of important developments that generate health, environmental, societal and economic benefits.

3. **A people advantage:** growing the best-educated, most skilled and most flexible workforce in the world.

There are many ways the social sciences and humanities can and do contribute to the national economy and the well-being of Canadians. **The Federation's position is that the federal government should take advantage of the excellent opportunity presented to it by the humanities and social sciences to contribute to the innovation economy.**

1. The Entrepreneurial Advantage

The first advantage – **the entrepreneurial advantage** – emphasizes the conversion of knowledge gained through first-class research into commercial applications. More specifically, the strategy encourages the private sector to increase its financial support to research in science and technology.

The Federation's position is that the humanities and social sciences have a place in the innovation system and that the business sector must be encouraged to more fully embrace partnerships that benefit both the economy and the public.

Little data exists on private sector support of research in the humanities and social sciences, but a reading of press materials provided by universities across Canada regarding financial support to academe strongly suggests that partnerships between business and the social sciences and humanities have traditionally taken the form of bursaries, scholarships and prizes, rather than investment in specific research projects with the expectation of a commercial application.

An example is the new \$20,000 graduate scholarship in Technology and Society at the University of Ottawa created in March 2007, to be awarded to a graduate student who is studying the impact and relevance of technology on public policy, democratic processes, international development or society (http://www.media.uottawa.ca/mediaroom/news-details_1106.html).

New partnerships similar to the ones envisioned in the strategy are developing as members of the businesses and the academic community recognize the practical benefits of humanities and social sciences research to the economy and to society. For example:

- In February 2007, York University announced the creation of The Consortium on New Media, Creative and Entertainment Research and Development in the Toronto Region (CONCERT), a partnership of multinational, mid-sized and small companies in the entertainment, screen-based and other creative industries with academia, government and industry. CONCERT will

grow the region's entertainment, screen-based and other innovation-driven creative industries into a globally competitive cluster, to allow the Greater Toronto Area to capture a larger share of the lucrative worldwide entertainment market (<http://www.yorku.ca/yife/2007/03-March/03-12/concert-031207.htm>).

Businesses are beginning to realize that partnering with researchers in the humanities and social sciences also provides important opportunities to assess future markets, and to understand user behaviours and needs. For example:

- The TAPoR initiative, a partnership between IBM Canada, the University of Toronto and McMaster University, allows researchers to conduct lexical research such as text analysis that would have been impossible to do manually. In return, IBM has gained useful insights into how a major part of its future market – colleges and universities – uses computers and into how text-analysis applications now dominate the web itself (<http://www.news.utoronto.ca/bin6/071010-3438.asp>).

The government is more likely to achieve the objectives it has laid out in the science and technology strategy if it recognizes the mutually beneficial partnership of humanities and social sciences and business and if it does more to promote this kind of partnership. An entrepreneurial advantage is created when the private sector successfully partners with the humanities and social sciences in “finding new solutions and new processes to business models and operational challenges rather than waiting for the serendipitous benefits of laboratory science to trickle down, or out, to the real world” (Cunningham, 4).

2. The Knowledge Advantage

The second advantage – **the knowledge advantage** – proposes positioning Canada at the leading edge of important developments that generate health, environmental, societal and economic benefits. The strategy identifies four main areas of research:

- environmental science and technology;
- natural resources and energy;
- health and related life sciences and technologies; and
- information and communication technologies.

The Federation's position is that research of national interest from the point of view of social, economic, health and environmental benefits isn't the exclusive province of science and technology. In fact, many of the issues identified in the strategy require a

close consideration of the human and social component to ensure the greatest benefit to Canadian society.

Current research projects provide excellent examples of the contribution the social sciences and humanities are already making to these fields. For example:

- Current research in science and technology acknowledges the necessity of studying the impact of the ethical, economic, environmental, legal and social implications of new technologies. This research, variously known as EEELS or ELSI research, directly addresses issues of national importance, such as the improvement of Canadians' quality of life, public safety, and global influence. Genome Canada, for example, has dedicated a portion of its budgets to EEELS research, all of which falls squarely in the realm of the social sciences and humanities
(<http://www.genomecanada.ca/xresearchers/researchPrograms/projects/index.asp?o=d&d=6&l=e>).
- David Castle, who has a PhD in philosophy and is the Canadian Research Chair in Science and Society at the University of Ottawa, is conducting research into societal resistance to technological advances, and developing analytical frameworks for use in innovation assessment and recommendations for governance
(http://www.chairs.gc.ca/web/chairholders/viewprofile_e.asp?id=2154).
- In December 2007, James Ford, a post-doctoral fellow in the Department of Geography at McGill University, received one of three Networks of Centres of Excellence (NCE) Young Innovator Awards for his work on climate change and his efforts to share the results of that work with a wider audience. Ford's research focuses on the vulnerability of Inuit populations to climate change. He has published 11 peer-reviewed papers, collaborated with Inuit communities and institutions, advised northern governments and agencies on policy development, and contributed to media debates on climate change. In addition, through his work with the NCE's ArcticNet project, he has helped communities and industry reduce the economic impact of climate change (<http://www.mcgill.ca/newsroom/news/?ItemID=28135>).
- The Canadian Institute for Advanced Research (CIFAR) is currently conducting economics research into measuring the well-being of a society. In addition to challenging broad economic ideas, their research will bring revolutionary new ideas on the economics of gender, politics, and cultural minorities. New insights and explanations "will impact on public policy at every level, from local to international"
(<http://www.cifar.ca/web/home.nsf/pages/socialinter>).

Research in the humanities and social sciences is integral to the success of any science and technology strategy, and Canadian research is well-placed to lead the way. Indeed, the original report from which the government drew its recommendations, generated by the Council of Canadian Academies, identified areas in the social sciences and humanities in which Canada is strong and growing: media, multimedia, animation and gaming, visual and creative arts, as well as emerging interdisciplinary fields such as Aboriginal health, aging and gender and health (Committee, 5-10).

Research into language acquisition and cultural identity at the University of Ottawa, research at the Université du Québec en Outaouais into how early childhood education may shape the talent of Nobel laureates, and research into the management of coastal resources at Memorial University are all examples of how the humanities and social sciences contribute to the knowledge economy by creating a knowledge advantage. While it is unlikely that any one of these research projects will deliver a commercially marketable product or result in a patent, their contribution to the economy and to the public good cannot be disputed.

3. The People Advantage

The third and final advantage outlined in the science and technology strategy – **the people advantage** – centres on enhancing opportunities for science and technology graduates, increasing the supply of highly qualified and globally connected science and technology graduates to businesses and organizations, and increasing the enthusiasm for science and technology among Canadians.

The Federation's position is that an educated, innovative mind, fostered in a culture of creativity, is a potent stimulant. Innovative, creative solutions come from the development of human competence and imagination. However, competitive advantage and leadership on the world stage come from a broad and deep understanding of the world and the people that inhabit it.

The Federation believes it is short-sighted to be overly focused on the acquisition of technical skills, which can quickly become obsolete. In addition to technical skills and knowledge, future Canadian workers will also need skills that can be gained effectively through the humanities and social sciences. For example, workers will need to be able to:

- communicate effectively, and in more than one language;
- understand human behaviour and apply that understanding to their research;
- understand differences among cultures and be able to negotiate those differences;
- understand market forces and fluctuations; and

- understand the impact of new and innovative products and services on the environment, the economy and society in general.

We need problem-solvers as much as we need inventions. Jim Balsillie, co-chief executive officer of Research in Motion, said, "To be world players, we need to understand the world" (B2). He recently created the Canadian International Council, which has initiated a fellowship program designed to attract both eminent, established researchers as well as Canada's most promising young minds and provide them the opportunity to help guide Canada on pressing foreign policy problems. CIC Fellows will devote 6 to 12 months of their time to work on a research project focused on a particular foreign policy issue. The goal of each project is to produce a viable set of policy recommendations (<http://www.canadianinternationalcouncil.org/fellowships.php>). He has also endowed both the Centre of International Governance Innovation (CIGI) and the Balsillie School of International Affairs – both at the University of Waterloo – which will bring the best minds from around the world to collaborate, find solutions and educate the next generation of international policy makers.

At McMaster University, Chancellor Lynton Wilson recently gave \$10 million to the university's liberal arts programs, saying. "These disciplines are important in the development of the next generation of entrepreneurs, policy makers, innovators and politicians, who, in turn, will make us competitive and compassionate on a global scale" (<http://www.mcmaster.ca/opr/html/opr/media/main/NewsReleases/2007/Wilsongiftannouncement.html>).

4. Investing in the Humanities and Social Sciences

A recent Statistics Canada report shows that residents of cities with university degrees are key drivers of a city's employment growth, and that attracting scientists and engineers to cities contributes most to that growth (Beckstead, Brown and Gellatly, 7). Importantly, the study includes social and related scientists in its definition of scientists and engineers, meaning economists, political scientists, psychologists, sociologists, anthropologists, and others. The study found that if a city had a higher proportion of university-educated employees, in particular graduates of the programs described above, the annual average growth was 2 percent, compared to cities with lower concentrations of university-educated workers, which grew at an annual average rate of 1.6 percent.

The Statistics Canada study adds to a larger body of research linking the importance of human capital to the growth of cities; research that shows that our ability to perform economically depends on our

ability to innovate and create, and that our ability to innovate and create depends on a well-educated, skilled, networked and imaginative workforce (Florida, 743-755).

There is evidence as well that investing in the social sciences and humanities is one of the keys to Canada's survival and success in the global economy. Statistical analysis shows that in a global economy, in which creative thinking, teaching and managerial skills are valued, social sciences and humanities graduates may have an advantage over contemporaries in other fields. Cost-benefit analysis shows the rate of return to society on investment in the social sciences (9%) and education (10.2%) outstrips the rate of return for engineering (7.9%) as well as the rate of return for math and the physical sciences (7.4%) (Allen, 39).

The same study shows the rate of return to society on investment in the humanities (7.8%) is on a par with that of engineering and slightly higher than the rate of return for math and the physical sciences. As well, a background in social sciences and humanities appears to have a major impact on earning power. From their twenties to their fifties, those who graduate in humanities see their incomes rise, on average, by 78%. Graduates in social sciences see their incomes rise 106% over the same period (Allen, 41, 27).

Graduates in the social sciences and humanities therefore contribute in an important way to the economy. They are integral to innovation, progress and social well-being.

5. The Federation's Role

Federal government support to post-secondary research is achieved through: budgetary allocations to the three granting councils, the Canadian Institutes for Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC); investments in government programs such as the Graduate Scholarship Program and the Indirect Costs Program; transfers to the provinces and territories for post-secondary education; and through policy directions that govern these financial disbursements. Recent fiscal strategy emphasizes accountability, visibility and value for money of federal investments. **The Canadian Federation for the Humanities and Social Sciences assists in highlighting the federal government's investments in post-secondary education and research through two of its main programs:**

- The Congress of the Humanities and Social Sciences (formerly known as the Learned's) is the largest annual academic gathering in Canada; its multidisciplinary character marks it as unique in the world. Congress is an intellectual festival; an important meeting place where

new and established academics and researchers can share their groundbreaking ideas and debate the most important questions of the day. Congress highlights in a very national forum the research in the social sciences and humanities that is made possible through federal grants and Canada Research Chairs. Through community outreach efforts, the Federation engages local community members – cultural, business, aboriginal, alumni and others -- and brings them to Congress. Media coverage of Congress reflects the enormous local, regional and national interest in the social sciences and humanities. At Congress 2007, hosted by the University of Saskatchewan, an estimated 212 newspaper articles, television, radio and online pieces appeared.

- The Federation hosts the Breakfast on the Hill seminar series 6 times a year, which brings ground-breaking researchers in the humanities and social sciences to the Hill to engage MPs, Senators and their staffs, government officials and policy-makers, NGOs and the media on the critical issues of the day. This non-partisan forum features a variety of disciplines and viewpoints on subjects such as Canada's combat role in Afghanistan, racial profiling, immigration, the exchange rate, and the changing Canadian family. In the 2007-08 Parliamentary year, 549 people came to gain insight on various policy matters through outstanding, topical and federally-funded Canadian research.

6. Conclusion

The federal government has quite rightly placed a strong emphasis on science and technology, recognizing the advantages that can be created by innovation. Scholars in the humanities and social sciences encourage this investment, and the Federation will continue to advise Parliamentarians on the budgetary decisions that support research

(<http://www.fedcan.ca/english/pdf/publications/FinanceBrief2008.pdf>).

However, Canada's economic and social future relies as much on its human sciences as it does on its natural, engineering and health sciences. Success involves human potential and human excellence.

The Federation believes that the social sciences and humanities can and do contribute in meaningful ways to our ability to compete internationally and contribute to the global society and the public good.

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The Canadian Federation for the Humanities and the Social Sciences

The Canadian Federation for the Humanities and Social Sciences promotes research, scholarship, teaching and sharing of knowledge in the humanities and social sciences. It is a membership-based organization made up of 67 scholarly associations and 72 universities and colleges, and comprising more than 50,000 scholars, students and practitioners across Canada.

The Federation:

- acts as representative and convenor of the largest research community in Canada;
- annually organizes The Congress, the largest multidisciplinary gathering of scholars in North America;
- administers a program that supports the publication of 185 scholarly books per year;
- awards scholarly book prizes each year;

- runs a series of lectures on Parliament Hill to bring humanities and social science research to policy-makers;
- addresses professional matters, including research ethics;
- undertakes research projects to help advance Canada's humanities and social science fields.

The Federation is a non-profit, charitable organization, governed by an Executive Committee and Board of Directors made up of scholars from its member groups with a permanent secretariat based in Ottawa.