Making inclusive innovation a reality:

Integrating the human dimension in Canada’s innovation agenda

Submission from the Federation for the Humanities and Social Sciences

September 13, 2016
Executive summary

The Federation for the Humanities and Social Sciences (hereafter ‘the Federation’) welcomes the opportunity to contribute to creating a society and culture of inclusive innovation.

The Federation represents a community of 91,000 researchers and graduate students at universities across the country. Together, they are developing “smart ideas for a better tomorrow” – exploring and answering fundamental questions about Canada and its future in critical areas such as how to advance reconciliation with Indigenous peoples, how best to develop education and skills for Canada’s young people, ways to enhance productivity and innovation, and how our diverse and multicultural country can strengthen inclusion, citizenship and integration. All of these challenges require innovative solutions, fuelled by the humanities and social sciences (HSS).

Social scientists and humanists bring creativity and critical perspectives to today’s challenges. With the support of the federal government, here are three ways humanities and social sciences researchers can make Canada more innovative:¹

Recommendations

1. **Build creativity, knowledge and skills for innovation through experiential learning.**

   More than half of Canada’s university students are enrolled in HSS disciplines. They gain critical thinking, creativity and innovation skills through their studies. Already, many benefit from putting their skills into practice in the workplace through experiential learning. We recommend that the Government of Canada enhance the educational experience of all students by expanding access to experiential learning opportunities. Specifically, we recommend that the Post-Secondary Industry Partnership and Cooperative Placement Initiative be expanded to include students in all disciplines, including HSS. This will help all students gain the skills needed to work in integrated teams in an innovative labour force.

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¹ The Federation thanks the following for their contributions to the ideas and inspiration in this submission, while noting the recommendations are those of the Federation.

- Dan Breznitz, Professor and Munk Chair of Innovation Studies, Co-Director of the Innovation Policy Lab, Munk School of Global Affairs, University of Toronto
- Richard Hawkins, Professor, Science, Technology and Society Program, University of Calgary; Senior Fellow, The Centre for Innovation Studies (THECIS); and Fellow, the Institute for Science, Society and Policy, University of Ottawa
- Catherine Middleton, Professor, Ted Rogers School of Management, Ryerson University; Canada Research Chair in Communications Technologies in the Information Society
- Alan Shepard, President and Vice-Chancellor, Concordia University, Montréal, Québec
2. **Spur new ideas and critical perspectives through fundamental research into human thought, behaviour and experiences.**

New ideas and knowledge in fields such as design, psychology, ethics, political science or gender studies can build the foundation for innovation in a multitude of areas. The humanities and social sciences provide education and research relevant to key areas such as creative industries, social policy, advanced literary and critical thinking, and cultural policies – fostering the development of a more inclusive, resilient society. Increased funding for the fundamental research that supports HSS should be a central component of Canada’s inclusive innovation plan. The Federation recommends the Government of Canada set out a dedicated plan to increase HSS research funding to at least 20 percent of Canada’s federal research portfolio within the next 10 years.

3. **Strengthen connections and knowledge flow among HSS researchers and partners**

Leaders in governments, civil society, academia and business all have important roles to play to help Canada find innovative solutions to pressing complex social challenges, such as economic inequality, climate change and reconciliation. Partnerships and collaboration take many forms, and can connect academics to many partners – community groups, not-for-profit agencies, governments at all levels, schools, charitable organizations, health centres and the private sector. The Federation recommends significant federal support for expanding and creating diverse collaborative platforms. Building better pathways to link the ideas, knowledge and perspectives developed in universities to leaders in non-academic sectors will fuel innovation. Within government, the new Chief Science Officer should play an important role in bringing together evidence from all research areas to inform the public policy process. Working in collaboration will leverage Canada’s strengths as a diverse, bilingual, multicultural, inclusive and prosperous democracy.
Introduction – Canada needs an expansive understanding of innovation

Navdeep Bains, Minister of Innovation, Science and Economic Development, wrote in the Toronto Star in May 2016 that innovation reflects an innate desire to improve our quality of life – a desire that not only drives jobs and growth, but is an essential part of what makes us human. This idea – that innovation is a value closely associated with the human experience – is a good starting point for a national discussion about innovation.

Stephen Toope, President of the Federation for the Humanities and Social Sciences and Director of the Munk School of Global Affairs at the University of Toronto, argues in a July 2016 article in the Hill Times that to address the economic, social and policy challenges facing Canada, we need to think expansively about innovation. “We need a more complete understanding of innovation that includes research and insight from all disciplines,” Toope writes. “To meet the challenges ahead, we’ll need help from a broad range of non-technological innovators, including designers, economists, business managers, political scientists, humanities researchers, psychologists, legal experts and artists.”

Thinking expansively about innovation begins with a definition. Defined simply, innovation is the process of creating value from change. The definition, drawn from University of Calgary innovation expert Richard Hawkins, means that innovation takes many forms. Sometimes innovation is an ambitious “moonshot” effort, but other times it is incremental improvements that slowly change fundamental processes through a steady stream of new ideas. For instance, addressing climate change will require a broad range of innovation in not just our technology, but also our institutions, our behaviours and our relationships with each other and with our environment. The kinds of society-spanning innovations required will not be strictly technological, and they will not be achieved quickly. And yet they are profoundly important.

Innovation, as Hawkins adds, cannot rest on the mere occurrence of change or disruption. “Leveraging change to advance human welfare requires systematic and coordinated effort on a whole host of fronts,” he writes. In other words, governments need to pay attention to “upstream innovation” such as new inventions or technologies (the usual focus), but just as surely to “midstream” such as subsidizing new commercial ventures, and, particularly (the harder part) to “downstream”, helping ensure people assess and benefit from the impacts of new products, policies, processes and ideas.
The role of the humanities and social sciences in supporting innovation

HSS researchers bring creativity and imagination to bear on complex problems. Their critical perspectives give us insight. They generate new knowledge about human thought, behaviour and experiences, which is fundamentally important, for instance, in understanding how people adapt to and adopt new technologies. They preserve essential knowledge in archives, libraries and online databases, helping us make sense of the future by understanding the past.

They also bring valuable perspectives to public discourse, pushing back against conventional wisdom, challenging orthodox thinking and articulating the perspectives of disadvantaged groups. They play a key role in helping young Canadians – future leaders – develop the critical thinking, information processing and collaborative skills they will need to thrive in times of rapid change. They also employ unique approaches of analyzing, interrogating and understanding the world that will be key to developing innovative solutions to complex social problems. Specifically, they help us ask not just what can we do, but what should we do, as well as how can we build the consensus and culture to really do it.

The Federation for the Humanities and Social Sciences represents a community of 91,000 researchers and graduate students at universities across the country. The Federation supports the Government of Canada’s objectives to help build a more prosperous, fair and inclusive society through innovation. We recommend three key areas of action to help realize this vision.

1. Build creativity, knowledge and skills for innovation through experiential learning.

   Can a company built on creativity, imagination and story-telling succeed? Canada’s BioWare demonstrates the value of skills derived from the humanities and social sciences to innovation. Focusing on “rich stories, unforgettable characters and vast worlds”, BioWare’s computer games number among the most successful in the world. With titles like Star Wars, Dragon Age and Mass Effect, this game developer headquartered in Edmonton, Alberta, draws on a range of diverse talent including literature, history, computer science and fine arts graduates to develop the imaginative worlds and characters that spur sales of their games. The company’s creative gaming concepts have drawn on academic knowledge from HSS about LGBTQ+ issues to create the first transgender characters and honest portrayals of gay and lesbian relationship choices in video games.

As we work to create a new innovation plan for Canada, it is critical to acknowledge that we do so in the context of a rapidly changing economy. Our economy is increasingly connected to those of other countries, increasingly knowledge-driven and increasingly service-oriented. Achieving inclusive innovation in this environment will depend on the adaptability, creativity and collaborative skills of Canada’s growing ranks of knowledge- and service-oriented workers.

Overall, Canada’s service sector now accounts for more than 70 percent of its GDP and three out of four jobs, which fall in such knowledge-intensive sectors as finance and insurance, health care, education,
tourism and management. Sectors that depend on skills gained through the humanities and social sciences are growing in importance. Take, for example, the impact of Canada’s cultural industries. The cultural sector contributes $40 billion to Canada’s GDP and directly employs close to 600,000 Canadians.

In today’s environment, employers are increasingly looking for workers with broad, flexible skill sets. The Business Council of Canada reported earlier this year on the results of a survey of major Canadian employers. The study found a strong demand for workers with a broad set of flexible cognitive and social skills, particularly problem-solving, analysis, communication and collaboration.

The skills and knowledge gained by Canadian university graduates are critical to ensuring workers can meet evolving labour market needs. To a large extent, this means supporting students in the humanities and social sciences. Just over half of all post-secondary students in Canada are enrolled in HSS programs, studying in fields such as history, languages, literature, economics, business, psychology, gender studies, education, philosophy and law. Thousands of students across the country decide each year that such programs will provide the knowledge and skills they need. And compelling evidence from the labour market shows that they are making sound choices.

The latest research by the University of Ottawa’s Education Policy Research Initiative compares income tax data of 340,000 Canadian students who graduated from eight universities and six colleges between 2005 and 2013. It found that after graduating from university degree programs, the salaries of HSS graduates rose quickly – a fact the researchers attribute to the critical thinking and problem-solving skills these graduates gained. In fact, eight years after they graduate, social science grads earned on average $61,900, while humanities graduates brought home an average of $57,000. Their earnings had grown by 70.5 percent and 73.8 percent, respectively, in those eight years.

These results should not come as a surprise. In its 2011 publication, “Skills for Innovation and Research,” the OECD identifies a number of skills that are pivotal to innovation, including basic skills such as reading and writing, problem-solving, entrepreneurial skills, multicultural openness, technological skills, teamwork and collaboration, and leadership. The report finds that: “Innovation depends on people who are able to generate and apply knowledge and ideas in the workplace and in society at large.” The Council of Canadian Academies echoes this finding in its 2015 report “Some Assembly Required,” which concludes that STEM skills are necessary but not sufficient ingredients to foster innovation, emphasizing the need for broad skill sets that include leadership, teamwork, entrepreneurship, design and communication.

And we can see that students with HSS degrees go on to assume leadership positions in large numbers. A 2015 study by the British Council found that among 1,700 leaders surveyed across 30 countries, 55 percent had undergraduate degrees in HSS disciplines (or 63 percent for a group of countries including just Canada the US and the UK). “In the modern workplace,” the study states, “innate qualities or technical skills are no longer sufficient to lead in an increasingly complex and inter-connected world. HSS.

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skills such as multicultural awareness, critical thinking and the ability to express complex ideas clearly are equally necessary.”

Ultimately, Canada’s strength in the humanities and social sciences can become a competitive advantage. Having these disciplines as an integrated part of the innovation chain clearly adds value, stimulates new ideas and different ways of thinking in the Canadian workforce and citizenry.

Enhancing skill development through experiential learning

We can do more to ensure that all students gain the type of learning experiences that Canada needs in order to develop highly-skilled workers with a creative and ambitious mindset. High quality work-integrated learning experiences – including co-ops, paid internships, practica within governments, schools, health care centres and not-for-profit agencies, research projects and mentorship programs – will help university graduates in all disciplines to develop innovation skills.

Experiential learning is a broadly supported approach to ensuring timely, relevant skill development. The Business Council of Canada, through its Business/Higher Education Roundtable, earlier this year called for access to work-integrated learning for 100 percent of Canadian post-secondary students. The Canadian Chamber of Commerce has also called on the government to make investments in work-integrated learning a budget priority.

Universities are already responding by creating such opportunities. According to Universities Canada, 55 percent of Canadian undergraduate university students – including those in the HSS – currently participate in focused work-integrated experiences. But the Government of Canada can do more to ensure that additional students benefit from these experiences.

In Budget 2016, the Government of Canada announced the launch of the Post-Secondary Industry Partnership and Co-operative Placement Initiative, to create new co-op placements and work-integrated opportunities for students in science, technology, engineering, mathematics and business. The Budget added that further development of support for co-op placements “will be integrated in the government’s commitment to advance an Innovation Agenda to spur economic growth”.

Recommendation 1

There is a pressing need to enhance the skills and knowledge development Canadians will need in an increasingly knowledge- and service-oriented economy. The Federation recommends that the Government of Canada expand its support for work-integrated learning experiences for all of Canada’s students, beginning by expanding the Post-Secondary Industry Partnership and Cooperative Placement Initiative to be inclusive of students in all disciplines, including HSS. This will help all students gain the skills needed to work in integrated teams in an innovative labour force.
2. Spur new ideas and critical perspectives through fundamental research into human thought, behaviour and experiences.

A case in point: Knowing ourselves. In 1975, Trent University’s founding President and Canadian Studies Professor Tom Symons published “To Know Ourselves”, a groundbreaking work that transformed how Canadian history, literature and culture is taught in our schools and universities. Learning what makes us Canadian continues to be an important research focus. At Mount Allison University, for example, faculty wrapped up the 21st Atlantic Canada Studies Conference in May. Multidisciplinary scholars looked at issues such as the path to economic recovery in the Atlantic; perspectives on Maritime culture and history; and Indigenous education beyond the classroom. Together, their research is helping Atlantic Canadians know themselves, their culture and their future better and more completely.

Fundamental research plays a crucial role in supplying knowledge, understanding and ideas to the national innovation ecosystem. The Federation welcomes the government’s focus on Canada’s fundamental research infrastructure. The Federation is providing detailed recommendations on how to strengthen Canada’s research system as a part of the Fundamental Science Review being led by Science Minister Kirsty Duncan.

As the Innovation Agenda committee considers the role of the fundamental research system, it will be important to recognize the important contributions HSS research makes to improving the lives of Canadians. Examples of important research projects funded by the Government of Canada, particularly through the Social Sciences and Humanities Research Council (SSHRC), are presented on the following page.

HSS research in Canada spans the innovation continuum. Just as important as the economically-oriented contributions are the imaginative, aesthetic, theoretical and creative works that fuel the imagination and build our knowledge base. It is critical that Canada remain an “open space” for HSS research, in English and French, which is a fundamental characteristic of Canada, and a strength.

There is a wide range of research in HSS that meets the standard of true innovation: creating value from change. The research is helping to shape our future, make our communities more resilient, and our country more inclusive. Canada benefits from world-class expertise in HSS research. A 2012 study on the
state of science and technology by the Council of Canadian Academies found that Canadian researchers excelled in six subject areas, half of which are in HSS disciplines.

Indeed, the very study of innovation policy, in which Canadian scholars are world leaders, is itself a social science. Governments rely on HSS researchers to develop new ways to kick-start innovation and to evaluate and revise innovation policies.

Current research funding patterns in Canada are not well aligned with the needs of a changing economy. HSS faculty make up about half of the full-time university faculty across the country, and more than half of all post-secondary students are enrolled in HSS programs. However, HSS disciplines receive only 15 percent of federal research grant dollars, a funding pattern that is at odds with a fast-changing Canadian economy that is becoming increasingly service- and knowledge-oriented.

A more balanced approach to research funding should acknowledge the important role of HSS in our current social and economic environment. It should also recognize that the nature of HSS research continues to develop in exciting new ways that currently lack support.

More and more, innovation in the future will flow from collaboration and multi-sector networks. Today’s HSS researchers are more likely to be engaged in multidisciplinary projects, to collaborate with international peers, to work within complex networks of researchers, community groups and private sector partners, and to use “big data” and data analytics to gain insights.

HSS researchers are increasingly relying on data to conduct their research – from a Brock University professor who worked with his students to create a War of 1812 iPhone app for tourists to the Niagara region, to researchers at the University of British
Columbia who have created a “Head Tax database” to gather and analyze the stories, origins and experiences of 97,000 Chinese immigrants who came to Canada between 1885 and 1949. The data allows their descendants to search for them, and helps policymakers to better understand their impact on Canada.

Major developments are taking place across HSS disciplines. In the humanities, for instance, we are seeing the development of integrative humanities, cross-disciplinary collaborations between humanists and experts in non-humanities fields such as environmental science. For example, the Petrocultures Research Cluster at the University of Alberta, made up mainly of humanities scholars, is examining the social and cultural implications of oil and energy use, as well as how our energy use shapes our ideas and values as well as our infrastructure. Their work underscores how changing our energy system will require changing how we think about ourselves and how we live to support social and cultural change alongside technological change.

Taken together, these developing HSS research approaches have the potential to create exciting new knowledge, understanding, ideas and techniques that will fuel innovations for years to come. In order to fully support Canada’s innovation ecosystem, our national research funding must adapt to these changing realities.

**Recommendation 2**

Canada’s research system plays a vital role in supporting innovation, and this system must adapt to changing research needs. Federal research funding be rebalanced to ensure more equitable support for research into human thought, behaviour and experiences through SSHRC. The Federation recommends the Government of Canada set out a dedicated plan to increase HSS research funding to at least 20 percent of Canada’s federal research portfolio within the next 10 years.

**3. Strengthen connections and knowledge flow among HSS researchers and partners**

*Knowledge flow at work for innovation.* From poetry at lunchtime to conversations about urban design, from lectures on affordable housing to exploring tensions in the Middle East, Simon Fraser University’s Public Square has it all. SFU’s Public Square serves as a convening space on issues of public concern in downtown Vancouver. Aimed at promoting “inclusive, intelligent and inspiring dialogue” with a range of partners, SFU Public Square holds annual Community Summits to explore and develop practical solutions to issues such as isolation in the urban environment and the power of citizens in city-building. This fall, the Public Square is launching a conversation to help the Government of Canada build its innovation agenda, with a public dialogue inviting all – students, employers, educators, entrepreneurs, employees and change makers – to contribute ideas and their vision to making progress on innovation.
A consensus is growing among researchers and policy makers around the world that more multidisciplinary and cross-sectoral approaches are needed to address increasingly urgent complex social challenges that defy straightforward technical solutions. In innovative solutions are needed to address issues such as: ensuring inclusive growth in the face of rising inequalities; addressing climate change and shifting to a low-carbon economy; achieving reconciliation with Indigenous peoples; ensuring the health of immigration systems in a world of evolving security challenges; responding to the needs of an aging population; finding environmentally and socially responsible ways to develop infrastructure; and improving equity and inclusion across society.

Achieving breakthrough innovations to address these kinds of complex problems will require collaboration across research subjects and sectors, one vital component of which will be HSS researchers’ knowledge of human thought, behaviour and experience. But significant barriers impede this kind of collaboration, and new form of networks are required to allow researchers, governments, the private sector and civil-society groups to achieve the kind of cross-boundary innovation we need.

Fortunately, such platforms are already developing on campuses across the country. Take, for example, OCAD University’s Imagination Catalyst, an entrepreneurship and commercialization hub that brings together students, faculty and alumni as well as creative entrepreneurs from across the Greater Toronto area to “create, build, design, tinker, modify, hack, invent or simply make innovative objects which address a market need or opportunity.” Or District 3 at Montréal’s Concordia University, an innovation and entrepreneurship zone at the heart of Concordia, which calls itself a “blossoming ecosystem of individuals, ideas, ambitions and dreams.” Or Ryerson University’s Digital Media Zone (DMZ), ranked #1 university business incubator in North America according to UBI Global last year. The DMZ has spun off Ryerson’s approach to zone learning, which now brings together entrepreneurs and students – anyone with an idea for a new business, product, design or innovative solution – into areas such as fashion, urban energy, legal innovation and social ventures.

Across the country, HSS researchers are deeply engaged with a wide range of partners. The work being done by HSS researchers in collaboration with their partners is helping Canadians to re-imagine their communities, culture, economy and society.

While such platforms are generating promising early results, there remains significant unmet need for cross-sector and cross-disciplinary collaboration, and for a supportive national framework for such collaborations to enable scaling up of local innovations. In a June 2016 roundtable hosted by the Public Policy Forum and Social Innovation Generation, participants asked, “how can integrated innovation advance well-being and inclusive growth?” Many of the answers pointed to new ways to bring academic thinking to bear on challenges faced by charities, not-for-profits and community groups. The group concluded that better connections are needed between the “plethora of actors that support and fund innovation,” including national councils, governments, intermediaries, grant making not-for-profits, universities and colleges, and philanthropic organizations. They also recommended creating a “centre

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3 See, for instance, “Creating value across boundaries” (2010), published by NESTA, the UK’s leading innovation think tank; and “Connecting ideas: Collaborative ideas for a complex world” (2010), published by the Australian Institute for Social Research.
for social evidence,” which would consistently capture, mobilize and synthesize data, insights and evidence from across Canada so that policy-makers and practitioners could better access and use it.

Similar programs are already under way in other countries. The United Kingdom, for example has established the “What works?” network, an initiative to embed evidence at the heart of local and national policy-making, linking academics and decision-makers in areas such as crime prevention, education, local economic growth strategies and health. It is not just public servants who use the network’s evidence base, but also doctors, teachers, police and local community leaders.

Recommendation 3

There is a pressing need to address complex social challenges through multi-disciplinary and cross-sectoral collaboration. The Federation recommends significant federal support for platforms that bring researchers from different disciplines together with leaders in all levels of government, the private sector and civil society. Given the nature of Canada, these platforms will take different shape and focus across the country, while benefiting from a national framework to enable scaling up for broader impacts.

Significant federal funding should be devoted to the creation and expansion of university-based innovation and cross-disciplinary hubs to address the broad range of social and economic complex challenges facing Canadians. For example, the government should enhance support for multi-disciplinary knowledge-mobilization networks, such as the ResearchImpact Network (www.researchimpact.ca), to scale up existing services that connect the public, private, not-for-profit and higher education sectors. Promising Canadian programs such as Mitacs’ Canadian Science Policy Fellowship Program should be expanded and made available to scholars in all research disciplines. Finally, within government, the new Chief Science Officer should play an important role in bringing together evidence from all research areas to inform the public policy process4 – informed by international programs such as the UK’s What Works? program.

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4 For more details, refer to the Federation’s 2016 proposals to the Minister of Science on the creation of the Chief Science Officer position: [http://www.ideas-idees.ca/sites/default/files/fhss-submission-chief-science-officer-march-1-final.pdf](http://www.ideas-idees.ca/sites/default/files/fhss-submission-chief-science-officer-march-1-final.pdf)
Conclusion

In announcing its innovation consultations, the Government of Canada gave an important signal to all Canadians. “The need to act,” it said, “is urgent.” Canada must be on the leading edge of change. The Federation for the Humanities and Social Sciences agrees that urgent action is needed to create a truly inclusive approach to innovation.

In a rapidly changing world, Canada faces many complex challenges that demand innovative solutions. Addressing these challenges will require innovation in its most expansive sense – creating value from change. And the innovations that will matter most in future years will be those whose value come from addressing the core needs of Canadians.

The recommendations in this report reflect this expansive vision of innovation, focused on meeting human needs. Investments in skill development, knowledge production and collaborative networks will help Canada build a rich and diverse innovation ecosystem capable of supporting economic growth, and inclusive social development. Funding for these recommendations can be provided in part through a rebalancing of Canada’s current R&D support programs, which – as argued in “Innovation Canada: A Call to Action” (Jenkins, 2011) – is currently weighted too far in favour of indirect R&D support to businesses.

Canadians are nimble, creative and adaptable. They are open to economic opportunities and welcome positive social change. Fully integrating the humanities and social sciences into Canada’s vision for inclusive innovation will fulfill the government’s vision: building Canada as a global centre for innovation of all kinds, and positioning every sector of our society to lead.