FEDERATION FOR THE HUMANITIES AND SOCIAL SCIENCES

FÉDÉRATION DES SCIENCES HUMAINES

Grasping the complexity of things: Building a federal research system to serve all Canadians

Federation for the Humanities and Social Sciences submission to the Fundamental Science Review

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Executive Summary

"The complexity of things – the things within things – just seems to be endless. I mean nothing is easy, nothing is simple."

– Alice Munro, 2013 Nobel Laureate for literature, in The New Yorker, February 19, 2001

The Canadian research community plays a vital role in supporting a just, innovative, inclusive and prosperous Canada. The Fundamental Science Review is an important opportunity to examine how we can perform our crucial social function at our best. While Canada has, in many ways, an enviable research support structure, we can see clear signs of strain, notably from underfunding. New realities are putting pressure on old systems, challenging the relevance of certain longstanding programs and raising demands for new kinds of supports to make people-centered inquiry a cornerstone of Canadian research. The entire Canadian research ecosystem must attend to these issues if we are to meet the demanding research challenges and opportunities ahead, and the community of scholars in the humanities and social sciences (HSS) is eager to contribute.

The Federation for the Humanities and Social Sciences represents a community of 91,000 researchers and graduate students at universities across the country in the HSS disciplines. HSS scholars play an invaluable role in Canada's research system, employing creativity, imagination and critical perspectives to help us understand one another better, design more effective and equitable policies and institutions, and develop and appreciate our cultures.

Throughout the summer of 2016, the Federation conducted consultations with its members to inform this submission to the Fundamental Science Review's Advisory Panel. (See the appendix following this report for details.) The Federation's consultations have helped identify core challenges facing the Canadian research system and recommendations for how these challenges can be addressed. This brief presents proposals for how to improve the Canadian research system as a whole, with a particular focus on how to strengthen research in the humanities and social sciences. Recommendations are made in each of the three main areas identified in the mandate of the Advisory Panel.

Our vision for the Canadian research system is a fearless and fulsome exploration of our world that produces the knowledge, understanding and innovation required in all aspects of research to advance the well-being of all Canadians. We present the following recommendations in hopes of advancing that vision for the benefit of Canadians today and far into the future. By embracing an inclusive, dynamic and people-centered research ecosystem, we believe that Canada can begin a new era of impactful, world-leading research.

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Summary of Recommendations

1 Funding of fundamental research

- Retain Canada's overall research architecture, avoiding such measures as merging councils or adding new organizational layers.

1.1 Address the imbalance of funding for HSS research

- Increase the Social Sciences and Humanities Research Council's (SSHRC) share of total research funding to a minimum of 20 percent within 10 years.
  - } Commit to a timeline to achieve this funding target and make significant investments to kick-start that process in the next federal budget.

1.2 Strengthen mandates for inter-agency collaboration and multidisciplinary research

- Provide clear and consequential directives to each of the three granting councils and the Canada Foundation for Innovation (CFI) to ensure regular inter-agency communication and collaboration on overlapping challenges.
  - } Ensure programs are in place to help researchers who are pursuing multidisciplinary research projects succeed.
  - } Make inter-agency coordination and support for multidisciplinary programs subject to regular performance measurement.
  - } Task the Chief Science Officer to monitor the performance of inter-agency and multidisciplinary programming.
- Create a new Multidisciplinary Challenges Fund, mandated to support multidisciplinary teams addressing complex challenges.
  - } The fund should be designed to also promote and support international research collaboration.
  - } The fund should be led and administered by SSHRC.
  - } CFI should be resourced to support the infrastructure demands of research supported by the fund.

1.3 Enhance good governance to ensure strategic, arms-length and accountable granting agencies

- Review options to strengthen the role of the tri-councils' governing councils in providing effective advice and oversight, and increasing representation from leaders of the research community.

1.4 Increase support for Indigenous research and researchers

- Support dedicated funding and development programs for Indigenous researchers in each of the funding agencies.
- Introduce new first-time grants and other capacity building supports to support long term retention and success of Indigenous scholars.
- Increase financial and programmatic support for Indigenous graduate students and post-doctoral researchers.
- Review and boost funding to the programs supporting post-secondary education for Indigenous students, such as the Post-Secondary Student Support Program.
- Ensure dedicated funding for research by and with Indigenous Peoples to enable SSHRC to respond to Call for Action #65 of the Truth and Reconciliation Commission report.
- Ensure that Indigenous health research is maintained as one of the Canadian Institutes of Health Research's (CIHR) four strategic priorities, supported by significant, dedicated funding and establishing mechanisms for increased inclusion and consultation with Indigenous people in CIHR governance and program structures.

1.5 Ensure support for researchers at different career stages

- Maintain a funding environment that supports a full career of scholarship, from student experiences through the early, middle and late stages of the research career, and monitor system-wide trends in application and funding rates for researchers at different experience levels, as well as trends at the level of individual programs.

1.6 Address needs for more timely access to small-scale funding

- Increase funding to the granting councils to augment the capacity of universities to support researchers engaged in relatively low-cost and/or short-timeline activities (through mechanisms such as SSHRC's Institutional Grants), particularly those that will enable participation in international research collaborations that occur outside the granting councils' funding schedules.

1.7 Research programs in need of review

- Review the CERC and NCE programs to determine how they can be better aligned to national research objectives, or whether new programs are needed in their place.
  - At a minimum, the Science, Technology and Innovation Council (STIC) list of objectives – which has driven the selection processes in these programs – should be replaced by one more inclusive and representative of a knowledge society and an economy dominated by the service sector.

2 Funding of facilities and equipment

2.1 Enhance CFI's structure, roles and relationships with other research organizations

- Recognizing CFI's strong performance, any future changes to the organization's overall structure should aim to preserve its ability to act independently in pursuit of its mandate.
- Mandate CFI to take on a leadership role in assessing "big science" infrastructure projects.
  - Provide additional funding to CFI to cover the costs of conducting the assessments and – if deemed scientifically sound – the Canadian contribution to major international science projects.
- Provide greater flexibility in CFI's 40:60 joint-funding requirements to help CFI support more novel and ambitious forms of research that have until now failed to attract support from the provinces, including HSS projects and those that fulfill national or international objectives.
- Enhance the ability of CFI to collaborate with the granting councils on multidisciplinary projects, by providing CFI with a clear role in the new Multidisciplinary Challenges Fund (proposed in Section 1.2) to support the infrastructure needs of selected projects.

2.2 Increase funding to CFI and to the Research Support Fund for post-secondary institutions

- Provide CFI with sustained and predictable funding to enable more effective long-term planning and to provide the certainty needed by universities and researchers to develop more diverse infrastructure proposals, including proposals for more HSS-focused and multidisciplinary projects.
- Enhance CFI funding for operations and maintenance (O&M) expenses of CFI-supported infrastructure.
- To better support the indirect costs of research borne by post-secondary institutions, increase the Research Support Fund to a minimum of 40 percent of the value of total research grants.

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3 Review Canada's digital architecture support needs

3.1 Review Canada's digital architecture support needs

- Review Canada's overall digital support needs to determine what structures would best serve those needs.
  - } This review should include an assessment of the mandates of Canada's digital support agencies (CANARIE, Compute Canada, Research Data Canada and regional computing services) to address gaps or overlaps and to remove uncertainty for researchers and unnecessary competition for resources among agencies.
  - } The Fundamental Science Review committee should undertake this review and provide guidelines to the Minister of Science. If such a review is beyond the mandate of the committee, a new committee representing the Canadian research community should be created for this purpose.

3.2 Address challenges in the evaluation and funding of digital research

- Invest in improving SSHRC's ability to evaluate research that involves innovative applications or the development of digital tools or methods. This will require increasing the pool of technical experts able to serve on the review panels for such projects.

Introduction

Fundamental research plays a crucial role in supporting the quality of life of all Canadians, and the Government of Canada's Fundamental Science Review provides an important opportunity to examine the health of our federal research funding system.

The Federation for the Humanities and Social Sciences represents a community of 91,000 researchers and graduate students at universities across the country in the disciplines that constitute the humanities and social sciences (HSS). HSS scholars are integral to Canada's research system, and their contributions will be critical to supporting a world-leading research system capable of helping Canada address the complex challenges facing our society. HSS researchers bring creativity, historical context, inquiry and critical perspectives to bear on complex problems. They generate new knowledge about human thought, behaviour, experiences and expression, helping us to understand one another better, to design more effective and equitable policies and institutions, and to develop, understand and appreciate our cultures.

This submission proposes key improvements required to ensure that Canada remains internationally competitive in research, effectively supports the work of diverse researchers, advances research through strategic and effective means, and produces the knowledge, understanding and innovation required to advance the social, cultural and economic well-being of all Canadians. Recommendations are made in each of the three main areas identified in the mandate of the Advisory Panel.

Canada has a long history of research excellence. However, in order to maintain and enhance the quality of Canadian research, the system must adjust to new realities: the rising importance of multidisciplinary research, the growing needs for infrastructure to support research utilizing advanced digital techniques and the increasing diversity of researchers and research areas – just to name a few. These are all good challenges to have. They are the result of committed researchers addressing pressing social, economic and cultural challenges using exciting new research methods – and the results will surely be remarkable. It falls to those of us who support researchers – funders, governments, institutional administrators and civil-society groups – to enable this exciting work by ensuring that researchers have effective structures and supports.

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1. Funding of fundamental research

The current structure of federally supported research agencies and programs works well overall, but the system is suffering from a general lack of funding. Overall federal funding for research should aim to ultimately return Canada to its historic third-place ranking among OECD nations in spending on higher-education R&D as a proportion of GDP.

Canadians can take pride in the historically strong performance of the three granting agencies – SSHRC, NSERC and CIHR – and the support for infrastructure provided through the Canada Foundation for Innovation (CFI). The Federation does not recommend any major reworking of this architecture, such as mergers or additional layers. The latter would risk weighing down decision making and inhibiting responsiveness, while a merger risks larger, more expensive projects skewing agendas with the likely effect of marginalizing important research in the humanities and social sciences.

Based on feedback from the Federation's membership, SSHRC in particular is well-structured to support high-quality HSS research. The agency has demonstrated a strong willingness and ability to consult with the researchers it serves, which has helped it to remain relevant and effective – even through times of ambitious and far-reaching restructuring. SSHRC's research-evaluation processes are generally regarded as rigorous and fair, due largely to the use of in-person peer-review meetings. The Federation welcomes recent commitments by CIHR to resume this assessment practice.

However, while the general architecture of Canada's research system serves researchers well and enables high-quality research, there are some important areas for improvement to enable better functioning of the three agencies and CFI. The Federation submits recommendations to address the following pressing issues facing Canada's granting councils:

1.1 Maximizing the potential contributions of Canadian HSS research

Canada is undergoing significant social and economic transformations that are changing the demands for research in fundamental ways. The Canadian economy is becoming increasingly service- and knowledge-oriented, with the service sector now accounting for 70 percent of GDP and three out of four jobs. The innovations that will drive future economic growth will increasingly be related to services, communications and new cultural products. Thriving in this economy will require a profound and widespread understanding of human needs, aptitudes and deficits, as well as critical skills in creativity, design, reflection and interrogation.

Canada is also facing highly complex social, political, cultural and environmental challenges. Multidisciplinary approaches including the humanities and the physical, health and social sciences will be vital to address such grand challenges as climate change, reconciliation, inequality, public security (both physical and digital), gender- and race-based violence, the disengagement of youth and other key populations from the democratic process, etc.

Grasping all this complexity will require insight into human relations, behaviour, culture and experience. Fortunately, the Canadian research system counts among it a strong, globally competitive community of humanities and social science researchers. A 2012 study on the state of science and technology by the Council of Canadian Academies[1] found that Canadian researchers excelled in six subject areas, half of which are in HSS disciplines.

However, the state of Canada's research funding system is not aligned to these changing realities, and the capacity of the HSS research community to respond is severely restricted with SSHRC receiving just 15 percent of total federal research grant funding. At this level of funding, Canada risks missing opportunities to innovate in our increasingly vital service industries, to make timely policy decisions needed to address complex challenges, and to drive the cultural changes needed to achieve social inclusion for many groups of people.

The current misalignment of research funding in Canada means that a significant proportion of HSS researchers find themselves without the support needed to conduct research. As well as we can currently estimate, SSHRC funding was only able to provide support to 25 percent of HSS researchers in 2015-16 (or 14 percent counting only primary investigators), a level of coverage that has remained this low over the past 10 years. And these figures almost certainly overestimate SSHRC's funding coverage. First, the estimate for the size of the HSS community is drawn from Statistics Canada's University and College Academic Staff System survey[2], which ended in 2011. We expect the research community has grown since then. Secondly, the survey only counts full-time faculty, neglecting a large pool of non-full-time faculty who performs valuable research and teaching activities.

1 Council of Canadian Academies (2012), The State of Science and Technology in Canada, 2012, http://www.scienceadvice.ca/en/assessments/completed/science-tech.aspx

2 As illustrated in this example, the absence of more data severely limits our collective ability to evaluate the state of the academic community. The Federation congratulates the government for reinstating the UCASS survey and urges improvements to include non-full-time faculty.

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Underfunding for SSHRC is particularly damaging to Canadian research because it represents the predominant source of funding for HSS researchers. In the natural and health sciences, for example, there is significant provincial and even non-governmental research funding available in addition to that provided by the federal granting councils.

Meanwhile, the costs of HSS research continue to increase as research challenges and methods evolve. HSS researchers today are more likely to be engaged in multidisciplinary projects, to collaborate with international peers, to include student researchers, to work within networks, and to use big data sets and advanced computing techniques. The old presumption that research in the HSS disciplines "doesn't cost much" is becoming increasingly inaccurate. Some big data analysis in political science or multi-party digital humanities programs of research, for example, cost every bit as much as some work in engineering or public health.

To truly reflect the human-centred needs of Canada, the Federation recommends that the federal government increase SSHRC's share of total research funding to a minimum of 20 percent, and to do so within the next 10 years. This should not be a zero-sum game, however, reflecting reduced support to the other granting councils. Rather, as total research funding rises, the proportion granted to SSHRC should grow steadily over time. The federal government should commit to a plan to achieve this funding target and make significant investments to kick-start that process in the next budget. One simple approach the Federation recommends is to commit to equal annual funding increases across the three councils until such time as the funding target is met[3]. This form of equal, three-part funding has already proven effective for such programs as the Banting Postdoctoral Fellowships and the Vanier Canada Graduate Scholarships.

1.2 Strengthening mandates for inter-agency collaboration and multidisciplinary research

One of the most important developments in the international research landscape today is a growing recognition that multidisciplinary research is required to address a growing host of grand challenges. A distinguishing feature of these grand challenges is their complexity, frequently involving interconnected questions relating to natural science, health science, social systems and culture. Examples include the challenge of transitioning to a low-carbon society, achieving reconciliation between Indigenous and non-Indigenous people, the need to successfully settle refugees and other immigrants, and how to address inequality in an era of low economic growth. The Government of Canada has itself recognized many of these major challenges as public policy priorities as can be seen from the directives laid out to Ministers in their mandate letters.

3 By the Federation's calculations this approach would enable reaching the target within 10 years assuming inflation-adjusted funding increases to the total tri-council system of 3.5 percent.

While Canada's research system is generally well served by its three granting councils, their discipline focus in some cases and the rigidity of program design in others, has created barriers to multidisciplinary and multi-agency research, causing repercussions across Canada's research ecosystem. For instance, sensing that the councils are struggling to support multidisciplinary research projects, universities are discouraged from supporting such funding applications. Barriers to multidisciplinary funding must be addressed if researchers are to effectively help tackle complex challenges that either fall between or bridge the mandates of the granting councils.

Research relating to socially oriented health issues provides a clear example of how the granting agencies' siloed approach is inhibiting valuable research. There is a growing international understanding that underlying social conditions have a significant effect on population health outcomes. However, Canadian researchers wishing to use HSS research methods for health-related project have struggled to find funding support commensurate with the importance of their work. Their projects are deemed to fall outside the mandate of SSHRC; however, CIHR lacks the expertise to effectively evaluate their research methods. As a result, projects are too often either orphaned or distorted to meet unsuitable application criteria. In order to effectively support important research into the social dimensions of health and wellness, CIHR must improve its ability to evaluate HSS methodologies, and increased collaboration and learning from SSHRC could be highly effective in this regard.

In order to support multidisciplinary research, the Canadian research system must address the discipline-and methodology-focused nature of its granting councils. However, changes to promote multidisciplinary research must not diminish the valuable discipline-specific expertise each council provides, nor their ability to make independent decisions on research priorities in their respective fields.

CANADIAN MULTIDISCIPLINARY RESEARCH CHALLENGES

Addressing Climate Change

Climate change will remain one of the most pressing challenges facing Canada for the foreseeable future. Responding to this challenge will require changes in how we live, work, travel and consume, as well as how we understand ourselves and our relationships to each other and to our world.

Consider, for instance, the intersection between climate change and public health. The Canadian Medical Association's 2016 General Council meeting featured a keynote address by the renowned Canadian public health scholar and humanitarian Dr. James Orbinski, who stated, "There is no question that climate change is the biggest health threat of our time."

The reality of climate change remains one of the most daunting and urgent questions facing the natural sciences, including tracking and understanding changes in Canada's lands, waters, and atmosphere. However, responding to it will require the support of all other fields of inquiry. As Dr. Orbinsky noted, our health system will need to respond. So will our physical systems, our social structures and our public institutions.

Accomplishing such a society-wide transformation will require changes to our culture: how we perceive ourselves and our role in our environment. The changes needed will require engineers, economists, social leaders and humanists, such as those examining the social and cultural implications of oil and energy use at the Petrocultures Research Cluster at the University of Alberta. Climate change is ultimately too big and too important a problem to examine with any one lens alone.

Canadian researchers will also need to work closely with international colleagues given the interconnected global causes of, and solutions to, climate change. Canada needs to step up and play its part in the search for inclusive future pathways.

The Federation therefore recommends that clear and consequential directives be given to each of the three councils to ensure regular inter-agency communication and collaboration on overlapping challenges and to help researchers who are pursuing multidisciplinary research projects succeed. Currently, with leadership from SSHRC, the agencies have an informal mechanism known as the Tri-Councils Plus (TC3+) to facilitate cooperation, which is a good start, but its informal and ad hoc nature makes it an inadequate mechanism to ensure collaboration. The panel should recommend strengthening the requirement to coordinate and collaborate and to support multidisciplinary research. Each agency's governing council should be responsible for ensuring that appropriate programs and supports are in place, including making it an element of performance measurement. The effectiveness of measures taken would also be monitored by the Chief Science Officer (CSO), and the CSO's advisory council.

To facilitate funding for multidisciplinary research projects, the Federation recommends the creation of a new Multidisciplinary Challenges Fund, mandated to support multidisciplinary teams addressing complex challenges through a variety of research approaches of diverse scale and scope. It will be vital to ensure that funding through this program remain accessible to researchers in all disciplines. The fund should address pressing public issues, perhaps determined to a large extent by Government, but broadly defined, while leaving room for topic areas proposed by researchers.

Such areas might include mitigation of and adaptation to climate change, reconciliation with Indigenous peoples, economic and social inequality, challenges associated with an aging population and innovation. In each case, the fund should focus on approaches that bring together the perspectives of multiple disciplines, including insight into human thought, behaviour, experience and expression provided by HSS scholars. Individual research projects or programs supported by the fund should be selected by independent, multidisciplinary peer-review panels.

CANADIAN MULTIDISCIPLINARY RESEARCH CHALLENGES

Reconciliation with Indigenous Peoples

As the Truth and Reconciliation Commission concluded in its ground-breaking 2015 call to action: "Reconciliation is not an Aboriginal problem; it is a Canadian one. Virtually all aspects of Canadian society may need to be reconsidered."

Reconciliation is a multifaceted endeavour that requires support from multidisciplinary research including from Indigenous scholars. Consider the broad range of interconnected issues at play: socio-economic issues such as addressing poverty, employment, and fractured families; cultural issues such as the preservation of languages and the role of traditional knowledge as well as contemporary representations; and physical challenges such as infrastructure development and the need to align resource development to traditional values concerning care for the land.

All of these issues play out in unique cultural contexts – contexts Canada has a long history of ignoring or, at worst, actively suppressing. This means that even practical-seeming projects, such as building a new school or water system, require a level of cultural understanding, respect for traditional knowledge and acknowledgement of a colonialist and racist history. Important lessons can be gleaned not only from Canadian experiences but also from research into the struggles and approaches of Indigenous peoples abroad.

Reconciliation requires more than just new approaches from engineers, administrators, nurses and teachers. It also requires the contributions of historians, scholars of culture, philosophers, artists and storytellers who can not only share vital cultural knowledge, but also help open and connect hearts and minds to give reconciliation meaning.

The fund should also be designed to promote and support international research collaboration, reflecting a growing understanding that many of the grand challenges facing societies are global in nature. Canadian researchers have the opportunity to gain enormous insight from – and make significant contributions to – international research efforts.

The Federation recommends that this new Multidisciplinary Challenges Fund be led and administered by SSHRC, which has experience supporting multidisciplinary work and assessing research on grand challenges, as demonstrated by that agency's ongoing Imagining Canada's Future project, their leadership in the multi-agency TC3+ group, and their recognized and growing credibility in supporting research by and with Indigenous peoples while respecting and reinforcing Indigenous knowledge.

The fund should have its own budget and new and unique terms of reference outside the normal SSHRC programming parameters. SSHRC should collaborate closely with the other agencies in developing the design of the fund and be informed by international funders' experiences. CFI should also be funded to support the infrastructure demands of multidisciplinary research supported by the new fund, as discussed below.

1.3 Enhancing good governance to ensure strategic, arms-length and accountable granting councils

While the tri-council system serves the research community well overall, there are important steps that should be taken to strengthen their governance to ensure they will encourage the kind of ambitious, responsive and strategic research Canada will need in years to come. The importance of building strong and effective oversight of the agencies from their governing councils has been underscored by recent problematic experiences of researchers with CIHR, related to an overly top-down and flawed reform process and poor operationalization of major strategic research priorities such as Aboriginal health and population health.

The agencies' governing councils are perceived as relatively weak advisory structures, with often poor representation of the research community itself. Stronger, more effective governing councils would also help guard against the potential development of a risk-averse culture, which can result from agency leadership becoming too sensitive to the priorities of Ministers and Cabinet. While it is important for publicly funded agencies to respect government priorities, this can also impede the development of an innovative culture that more closely reflects emerging research realities.

The Federation recommends a review of options to strengthen the role of the tri-councils' governing councils and increase representation from leaders of the research community in the diverse disciplines that pertain to each agency. The Federation welcomes recently announced changes to the appointment process of all federal governors in council to improve the transparency of the appointment process and the diversity of councils.

CFI is a good example of effective governance. CFI's strategic priorities are set, to a large degree, by its Board (with six of 13 directors appointed by the Government) in a way that strikes the right balance between autonomy and accountability. The result is that CFI demonstrates a strong ability to respond to changing research priorities, while meeting its public mandate.

While the Federation believes that stronger governing councils will help the agencies develop a more innovative culture, the federal government can and should still play an important role in funding research programs that have a clear public-policy mandate. (See for instance the Multidisciplinary Challenges Fund proposed in Section 1.2.) However, future governments should avoid the temptation of earmarking research funds too narrowly and, as a result, balkanizing the research ecosystem with boutique funds.

The Federation also notes that the creation of an eventual advisory council to support the incoming Chief Science Officer (CSO), would also produce a body that could provide advice to the CSO and Ministers on how well each agency is fulfilling its mandate.[4]

1.4 Increasing support for Indigenous research and researchers

The Canadian research landscape suffers from a lack of Indigenous researchers, depriving our national knowledge production system of valuable skills, knowledge, experiences and perspectives. Everyone in the higher education and research sectors has roles to play in supporting the development of Indigenous researchers and to create welcome spaces for traditional knowledge. SSHRC is already a recognized leader nationally and internationally in this area. The Canadian government should capitalize on this strength and help scale up efforts at a national level.
All federally supported research programs should include an objective to increase the amount of Indigenous scholarship and the number of Indigenous scholars. Dedicated funding and development programs should be supported in each of the funding agencies to drive the demand and supply of Indigenous faculty positions at Canadian universities and to set these scholars up for success.

4 The Federation has submitted a separate brief 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

New first-time grants should be introduced with longer timelines to recognize the additional community and service work that Indigenous scholars typically take on, and other capacity-building supports should be thought through to support long-term retention and success of Indigenous scholars.

Increased financial and programmatic support for Indigenous graduate students and post-doctoral scholars is also critical to enable the development of scholars to meet the demand for Indigenous faculty. This imperative is distinct from the urgent need to review and boost funding to the programs supporting post-secondary education for Indigenous students, such as the Post-Secondary Student Support Program, as noted in the Federation's submission to consultations for Budget 2017.[5]

SSHRC has a particularly important role to play in supporting the development of scholarship by and with Indigenous peoples in relation to the Truth and Reconciliation Commission's Call for Action #65. Consultation on this has already begun, and the Federation is eager to join other organizations to provide support and input as required.

Finally, the Federation would like to underscore the importance of continued dialogue and reforms at CIHR to support that agency's commitment to ensure Indigenous health research as one of four strategic priorities. This includes the need for a dedication of significant funds to this priority and establishing mechanisms for increased inclusion and consultation with Indigenous people in CIHR governance and program structures. HSS researchers, including Indigenous researchers, play a vital role in helping to understand the pathways to health and well-being of Indigenous peoples in Canada, and to reconciliation for all Canadians. The Federation commends recent dialogue between CIHR, its governing council and the research community, but much work remains to rebuild relations of trust and credibility in this area.

1.5 Ensuring support for researchers at different career stages

Researchers experience different challenges at various stages in their career. Providing effective support along this career path is critical to foster the development of highly productive established researchers. In recent years, the granting councils have made a commendable effort to address challenges faced by early-career researchers, though this is still a concern at CIHR. However, attention on this part of the career path should not distract funders from challenges faced in other parts. Available SSHRC data on funding application success rates does not currently indicate a particular challenge for early-career HSS researchers.

The priority of the research councils should be to maintain a funding environment that supports a full career of scholarship, through its early, middle and late stages. This will require attention to broad, system-wide trends in application and funding rates for researchers at different experience levels, as well as trends at the level of individual programs, which may have barriers not visible at the system level. Additionally, the experience of researchers at all levels can be improved by continued efforts to simplify funding application and reporting requirements.

Actions should also be taken throughout the higher-learning system to support the research experience of students, starting at the undergraduate level. Funding agencies, post-secondary institutions and faculty have an obligation to help all students in the post-secondary system experience meaningful research roles and gain highly valuable research skills for a knowledge society.

5 The Federation for the Humanities and Social Sciences' Budget 2017 consultation submission: http://www.ideas-idees.ca/sites/default/files/sites/default/uploads/policy/2017/2017_pre-budget_submission_-_federation_for_the_humanities_and social_sciences.pdf

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1.6 Addressing needs for more timely access to small-scale funding

There is a gap in SSHRC's programs for researchers who require relatively small amounts of money – particularly in short timeframes – for routine research-related activities, such as hiring student research assistants, accessing archives, and collaborating on international projects and conferences. This lack of funding flexibility severely limits the ability of researchers to take advantage of time-sensitive research opportunities. This is especially relevant in cases where Canadian researchers are invited to join or develop international partnerships. Opportunities to contribute are too often lost because requests fall outside the funding timelines of the relevant granting council's programs.

The councils should be supported to increase funding to universities (through mechanisms such as SSHRC's Institutional Grants) to support researchers engaged in these necessary activities. Universities are well placed to respond to such incidental faculty needs and distribute modest funds in a timely manner. More flexible funding options capable of covering relatively small costs in short timelines will help more Canadian researchers respond to a range of time-sensitive research opportunities – especially those involving international partners who do not follow Canadian granting councils' funding schedules.

1.7 Research programs in need of review

The Canadian research support system includes several programs designed to promote collaboration between granting councils. Unfortunately, certain of these programs have not been successful in incorporating research from all disciplines, in particular failing to provide effective entry points for researchers in HSS disciplines. The Networks of Centres of Excellence (NCE) program and the Canada Excellence Research Chairs (CERC) program require comprehensive reviews to determine whether they still meet national research objectives.

Out of the more than 40 projects funded by the NCE program, only six have featured HSS research, and the resulting funding imbalance extends throughout the university system. The NCE programs requires significant investments from hosting universities, adding pressure on universities to devote resources to those disciplines best served by the NCE program, disadvantaging those disciplines, such as HSS, that do not feature strongly in NCE projects.

The CERC program has also demonstrated an inability to represent the full spectrum of research in Canada. Out of the 26 chairs currently funded by the program, just one represents an HSS discipline.

Both the NCE and CERC programs appear to skew Canadian research efforts. The resources allocated by these programs do not align with the proportion of federal funding allocated to support HSS research at the granting council level (which, as discussed in Section 1.1, is itself too low). Both programs should be reviewed to determine how they can be better aligned to national research objectives, or whether new programs are needed in their place.

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Program design matters and can better reflect and support excellence across the full spectrum of the research ecosystem. For example, the Vanier and Banting Scholarship programs and the Canada Research Chairs (CRC) program include dedicated levels of support for HSS research. (We note, however, that the CRC program is not perfect and requires improvements, in particular, to better reflect Canada's diversity). At a minimum, the Science, Technology and Innovation Council (STIC) list of objectives – which has driven the selection process for CERC – should be replaced by one more inclusive and representative of a knowledge society and an economy dominated by the service sector.

2. Funding of facilities and equipment

Recent attention on the state of Canada's research infrastructure is welcome. This infrastructure plays a key role in supporting exciting new forms of research, preserving knowledge for future generations and attracting research talent. However, ensuring the effectiveness of research infrastructure programs remains a constant challenge due to ever-changing technology and research priorities. This section outlines key aspects of Canada's research infrastructure that require improvement in order to meet the demands of 21st-century research. These include increased collaboration between the Canada Foundation for Innovation (CFI) and the granting councils, changes to enhance the predictability and stability of CFI funding and funding to institutions for the indirect costs of research.

2.1 CFI's structure, roles and relationships with other research organizations

CFI plays an important role in enabling investments in vital research infrastructure. The organization has carried out its mandate effectively, thanks in large part to a governing structure that has enabled strong leadership and effective consultation with the research community. Any future changes to CFI's overall structure should aim to preserve its ability to act independently in pursuit of its mandate to serve the evolving infrastructure needs of Canadian institutions and researchers.

In fact, CFI is well placed to take on a greater leadership role in major "big science" infrastructure projects. There is an ongoing concern over the rigour and independence of the assessments used for such proposals. CFI has the capability to better assess such projects due to its multidisciplinary perspective, high credibility in the research community, independent governance structure, expertise on research infrastructure, and capacity to conduct multidisciplinary peer reviews. CFI should receive additional funding to cover the costs of conducting the assessments and – if deemed scientifically sound – the Canadian contribution to major international science projects.

However, despite the generally strong performance of CFI, the 40:60 funding model requiring support from various sources can be challenging for projects when provinces do not match the CFI contribution, which is particularly the case for projects that meet broad national or international objectives. While CFI's leveraging mechanism has generally proven effective for research equipment and single institution research facilities, it is sometimes difficult for provinces to justify contributing to facilities that are located outside of their jurisdictions.

Furthermore, the current research priorities of some provinces do not include the humanities and social sciences, which has also created high barriers to HSS-focused infrastructure proposals. Greater flexibility in the shared funding requirements for CFI projects is needed to ensure that the organisation can better serve projects with broad applicability – including those in HSS – that are disadvantaged when provinces do not match CFI funding.

CFI's programs also require improvements to enable greater collaboration with the granting agencies. Too often, research projects that straddle the research mandates of the granting agencies and the infrastructure mandate of CFI face difficulties attracting the funding they need. This is especially likely in cases where the pursuit of a research question is closely aligned with technology development ¬and virtual infrastructure – for instance when new software and database mining are designed to address a specific line of inquiry. Such novel research approaches should not be discouraged because of poorly aligned agency mandates.

The ability of CFI to support multidisciplinary research projects is limited, in part, by challenges at the granting council level. As discussed in Section 1.3, Canada's granting councils have not been as effective as they should in supporting multidisciplinary research projects or programs. This creates barriers for some kinds of research, since CFI's expert review process takes success at the granting councils into account to establish the excellence of research activities associated with infrastructure proposals. This underscores the importance of CFI being an active partner in the new Multidisciplinary Challenges Fund proposed in this brief.

2.2 Funding and granting changes for CFI and for post-secondary institutions

Perhaps the greatest challenge facing CFI is uncertainty over its core funding. This uncertainty limits the ability of CFI and the institutions that make use of CFI programs to make investment decisions on projects that will span more than five years. It also significantly limits the directions that the universities and their researchers can take in developing research programs, and as a result, the diversity of proposals put forward by universities is reduced.

The Federation recommends CFI be allocated sustained and predictable funding to enable more effective long-term planning. A more secure funding base will help serve Canada's long-term infrastructure needs by ensuring institutions, their researchers and other research and funding partners (notably the provinces) are able to do effective forward planning, develop strategic initiatives and seize emerging – and often multidisciplinary – opportunities in Canada and globally. This will provide CFI with increased opportunities to support often novel infrastructure projects involving HSS researchers or those that are HSS focused. With predictable funding and increased ability to support multidisciplinary infrastructure proposals, CFI merit review panels will be better equipped to support more diverse projects with the potential for greater payoffs for Canada.

To further enhance CFI's ability to support long-term infrastructure planning decisions, funding for operations and maintenance (O&M) expenses should be enhanced. Additional O&M support, complementing the existing Infrastructure Operating Fund, will help reduce the burden on institutions associated with the indirect costs of research.

CFI will require increased funding to support these additional O&M responsibilities, which, as described above, should be part of a sustained, predictable funding plan to encourage effective long-term planning.

To help post-secondary institutions make effective long-term research investment decisions, the level of federal support to address all costs related to research should be revisited. There is currently insufficient financial support for post-secondary institutions to provide the many forms of infrastructure and services researchers require. The Federation recommends that funding for the Research Support Fund be increased to a minimum of 40 percent of the value of total research grants. Increased funding for this fund should not come at the expense of funding support for direct costs.

3. Funding of platform technologies

The Canadian research community currently faces a growing demand for systems to support the rising costs associated with an increasingly digital research environment. HSS research in Canada increasingly utilizes and generates large data and text sets, raising the demand for data storage and processing capabilities. This section outlines improvements that must be made to Canada's digital research systems to ensure that digital platform technologies are able to keep pace with developments in digital research.

3.1 Review of digital support agencies needed

An overall review of Canada's digital architecture needs is required to determine what structures would best serve the demands of researchers. There is currently too much confusion in the Canadian research system around which agencies are responsible for providing which technological supports. As discussed in Section 2.1, there is frequently uncertainty over whether technology-dependent research projects should be supported by CFI or the granting councils. This confusion extends to the roles of Canada's digital support agencies (CANARIE, Compute Canada, Research Data Canada and regional computing services) resulting in uncertainty for researchers and unnecessary competition for resources among agencies.

A review of the digital support system is required to ensure that the mandates of these agencies do not significantly overlap or leave major gaps. The Advisory Panel for the Fundamental Science Review should undertake this review and provide guidelines to the Minister of Science. If such a review is beyond the mandate of the panel, a new committee representing the Canadian research community should be created for this purpose. The Federation is an active participant in the Leadership Council for Digital Infrastructure, which provides an important forum for all stakeholders to discuss the issues above. However, a more independent, rigorous and credible review is required to address the digital research infrastructure needs of the academic community across Canada.

Ideas can... | Les idées peuvent...

3.2 Challenges regarding the evaluation and funding of digital research

Researchers in all disciplines are using increasingly large data sets and advanced data-processing techniques, and HSS researchers are no exception. For instance, the digital humanities are an exciting, rapidly developing field of research in Canada. "Digital humanities" describes scholarly activities involving computing and the disciplines of the humanities. It includes a range of activities, from the practical, such as digitizing historical texts, to the philosophical, such as reflection on the nature of representation itself. Digital humanities research is already supporting existing national initiatives such as Canadiana (http://www.canadiana.ca), which aims to preserve Canada's heritage and make it accessible for future generations.

With more sustained and ambitious support, this type of research could also contribute to building national virtual infrastructure projects similar to the Digital Public Library of America (https://dp.la) and support the modernization plans of Library and Archives Canada.

However, research in the digital humanities is currently being held back by a lack of appropriate infrastructure and evaluation expertise at SSHRC. While some researchers have been able to use SSHRC's Connections program to support portions of their work in these areas, this program alone is not adequate to support the full needs of this growing field of research.

In particular, SSHRC is held back by the relatively small pool of digital experts in HSS disciplines in Canada and their close connections to each other. These experts must frequently recuse themselves from peer review over conflict-of-interest concerns. In order to provide the high-quality evaluations required to support the development of digital HSS research, SSHRC must invest in evaluation systems tailored to the realities of digital research and increase the availability of technical experts to serve on the panels reviewing research proposals involving innovative applications or the development of digital tools or methods.

Conclusion

Canadians are currently well served by a strong community of researchers and teachers in diverse fields of inquiry. These researchers produce the knowledge Canada needs to address key challenges facing the nation, maintain the supply of ideas that fuels innovation and creativity, and increase the knowledge and understanding that supports a high quality of life, in economic, social and cultural terms.

The system that supports Canada's community of researchers is, for the most part, effective. However, it requires continual renewal and sustained new investments if it is to keep pace with exciting developments in the kind of problems researchers are tackling, the new ways they are collaborating and the new research techniques they are employing. Canada's research system is showing strain in key areas, such as facilitating multidisciplinary research, increasing the diversity of the research community – especially as concerns Indigenous peoples – and better equipping researchers to pursue international collaboration and ambitious digital research methods. Tackling these challenges will require collaboration within the research support system backed by strategic investments.

The Federation is eager to remain an active partner in the continuing effort to strengthen Canada's research system. Currently, we have reason to be optimistic. The foundations of our research system are strong, and the challenges we face are surmountable. Together we have the ability to ensure a robust, diverse and effective research system that will support the development of a prosperous, innovative and inclusive Canada in the 21st century and beyond.

Appendix

The Federation's consultation process

This submission is informed by the work of three taskforces comprised of Federation members and Board representatives, as well as from comments and feedback from the membership at large during an open comment period in September 2016. The Federation expresses its deep thanks to members for their valuable insights, while noting the Federation alone takes responsibilities for these recommendations.

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