



2018 MSI CONSULTATION SUMMARY REPORT AND ACTION PLAN

August 2018

What is the Canada Foundation for Innovation?

The Canada Foundation for Innovation (CFI) makes financial contributions to Canada's universities, colleges, research hospitals and non-profit research organizations to increase their capability to carry out high-quality research.

Research supported by the CFI is helping build communities across Canada. That's because the CFI gives researchers the tools they need to think big and innovate. And a robust innovation system translates into jobs and new enterprises, better health, cleaner environments and, ultimately, vibrant communities. By investing in state-of-the-art facilities and equipment in Canada's universities, colleges, research hospitals and non-profit research institutions, the CFI also helps to attract and retain the world's top talent, to train the next generation of researchers and to support world-class research that strengthens the economy and improves the quality of life for all Canadians.

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THIS TARGETED
CONSULTATION
HIGHLIGHTED
THE ONGOING
COMMITMENT AND
CONTINUED INTEREST
BY FUNDED FACILITIES
AND THEIR HOST
INSTITUTIONS.

THE PROCESS

In May 2018, after the federal budget announcement – one of the most promising and forward-looking announcements in our history – we initiated a targeted consultation in which we solicited suggestions for both short-term and long-term improvements to the Canada Foundation for Innovation’s (CFI) Major Science Initiatives (MSI) Fund. The 2018 federal budget announced “ongoing, stable funding to the Canada Foundation for Innovation” with “permanent funding at an ongoing level of \$462 million per year by 2023–24” which will provide CFI and institutions a long-term perspective to plan for the future. As part of the allocation over the next five years, a top up of \$160 million will be directed for “increased support to Canada’s nationally important research facilities through the Major Science Initiatives Fund.”

This targeted consultation highlighted the ongoing commitment and continued interest by funded facilities and their host institutions to ensure the MSI Fund:

- Remains relevant to Canada’s research communities;
- Enables Canadian researchers to undertake world-class research and technology development;
- Enables funded facilities to operate at an optimal level and ensure a full exploitation of their scientific and technical capabilities.

It also provided us with an opportunity to seek input on key strategic issues of importance to the future of national research facilities supported under the MSI Fund and the critical role they play in the Canadian research system.

THE CONSULTATION

This consultation was designed to identify ways to strengthen the effectiveness and enhance the operations, management and governance of facilities during their entire life cycle. There may be both short-term improvements to be considered under the current 2017–22 period and longer-term improvements we could consider for future periods.

The overarching objective of the MSI Fund is to support national research facilities so that they have the capacity to operate at an optimal, internationally competitive level, through an appropriate suite of operational, management and governance activities, ensuring that their scientific and technical capabilities are fully exploited. As such, the consultation was centered on (but not limited to) two key questions (refer to the full set of questions in [Appendix 1](#)):

- Are there elements of the MSI Fund that are limiting the impact and effectiveness of the facility’s operations, management and governance? If so, what improvements or enhancements should the CFI consider to the existing MSI Fund and to a future MSI Fund competition?
- How can MSI-funded facilities further enhance and strengthen their international competitiveness and collaboration with international counterparts?

We thank all the facilities and their institutions for providing invaluable feedback and input that will enable the CFI to continue to design and deliver funding mechanisms that are well-aligned and responsive to the needs and priorities of the Canadian research community.

THE CONSULTATION OUTCOME

The diversity of ideas, suggestions and advice received from the 17 national facilities was reflective of the differences in nature, size and complexity of all facilities. For the purposes of this consultation summary, we will report on the common challenges faced by all the facilities, and related to CFI oversight activities and the sharing of good practices. Other interesting suggestions and ideas that are not captured below include providing greater clarity on cost eligibility, examining ways to broaden our definitions and facilitating international collaboration. We will follow up with each facility individually to discuss its specific challenges and consider options on how CFI can help. The CFI will act on many of these suggestions; others go beyond our remit, or the limits of our funding agreement with the Government of Canada, but where we can, we will share them with the relevant granting agencies and CFI stakeholders for their consideration.

Common challenges faced by national research facilities supported under the MSI Fund

MSI Funding Model

The importance of sustaining the long-term operations of national research facilities was frequently expressed.

The CFI was created by the Government of Canada in 1997 under a shared contribution funding model that has been used widely for Canada's federal research funding mechanisms. While this model has proven remarkably effective in marshalling resources for funding research infrastructure, it does have limitations, especially under the MSI Fund. In particular, there are obvious limitations in the 40:60 contribution model in relation to national research facilities; for example it is sometimes challenging to secure provincial co-investment for national research facilities located in other provinces, as well as for some distributed facilities that span multiple jurisdictions. This continues to be a significant challenge for operational funding, especially for large-scale national research facilities.

The uncertain operational funding environment results in operational challenges that tend to translate to short-term trade-offs and decision making, to address the most pressing needs (e.g. balancing user support, the delivery of research projects, and deferred maintenance). For some facilities, especially large-scale ones that cannot rely on user fee cost

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THE IMPORTANCE OF SUSTAINING THE LONG-TERM OPERATIONS OF NATIONAL RESEARCH FACILITIES WAS FREQUENTLY EXPRESSED.

recovery models, the challenge of the current 40:60 funding model has placed significant pressure on their ability to operate optimally and fully exploit technical and scientific capabilities over the long term. The 2018 federal budget provided some good news on that front, providing an additional \$160 million for “increased support to Canada’s nationally important research facilities” through the MSI Fund. This allocation aligns very closely with recommendation 6.10 of the Fundamental Science Review (FSR) report. Specifically, the report recommended that the government provide funding to enable the CFI to enhance its support (moving from a 40 percent to a 60 percent share) for a subset of “truly national-scale” research facilities currently funded under the Major Science Initiatives Fund.

OUR RESPONSE: We will continue to discuss these ongoing operational challenges and concerns with the government and examine all options offered to us to address this ongoing challenge. We will carefully consider all relevant messages and suggestions made to the CFI and we hope to be able to provide some clarity on a way forward in the coming few months.

MSI-FUNDED FACILITIES ARE ONLY AS CAPABLE AS THE PEOPLE WHO ARE THE HEART OF THE NATIONAL RESEARCH FACILITY. SO ATTRACTING AND RETAINING THE BEST SCIENTIFIC AND TECHNICAL SKILLS IS OF UTMOST IMPORTANCE.

Human resources needs

MSI-funded facilities are only as capable as the people who are the heart of the national research facility. So attracting and retaining the best scientific and technical skills is of utmost importance. This long-term strategic objective focuses on those aspects of recruitment, skill enhancement, leadership, and management of human capital that serve as the foundation for effective support of their staff and mission. All facilities have used support from the MSI Fund to increase or stabilize staffing levels as a way to evolve their capacity to operate at an optimal level and improve services to their users. It was mentioned that the long-term financial perspective offered to CFI through federal budget 2018 will further enable MSI-funded facilities to secure the highly specialized skills required for cutting-edge research services, to improve researchers’ access to the facilities and to enable operating efficiencies.

OUR RESPONSE: We recognize that the skills needed to carry out the work at MSI-funded facilities are constantly changing, and as a result, ongoing training is necessary for the functions needed today and in the future. As an eligible cost under the MSI Fund, the CFI will continue to support and invest in the national and international professional development activities of highly specialized staff in the facilities to ensure that they have the necessary training and skills to provide the best service and support to users.

Research infrastructure needs

Consistent with a lifecycle approach, the CFI was encouraged to consider both the capital and operating funding needs for MSI-funded facilities in a more holistic way. Doing so would put these facilities in a better position to develop long-term plans for the renewal and augmentation of their pool of research infrastructure. It is believed that the funding predictability for the CFI proposed in budget 2018 will allow facilities to give more consideration to their long-term sustainability, namely through better preventive infrastructure maintenance and through the design of a multiyear investment horizon that supports the effective operation of national facilities.

OUR RESPONSE: In the short term, MSI-funded facilities and their host institution will continue to work through the CFI's Innovation Fund (dates to be confirmed following the signature of a contribution agreement with the Government of Canada) to submit proposals for new and/or the renewal of research infrastructure.

In the longer term (e.g. 2022–27 MSI Fund cycle), the CFI will endeavor to develop a coordinated MSI Fund proposal (joint capital and O&M request) to allow a concurrent review of both capital and O&M needs. This will enable reviewers to exercise an integrated review as well as a thorough evaluation of the appropriateness and viability of the proposed enhancements. This approach would also address the current competing priorities that arise when institutions allocate their Innovation Fund envelopes, as it would eliminate the need to choose between the research infrastructure requirements of MSI-funded facilities and other institutional demands.

THE CFI WAS ENCOURAGED TO CONSIDER BOTH THE CAPITAL AND OPERATING FUNDING NEEDS FOR MSI-FUNDED FACILITIES IN A MORE HOLISTIC WAY TO PUT FACILITIES IN A BETTER POSITION TO DEVELOP LONG-TERM PLANS FOR THE RENEWAL AND AUGMENTATION OF THEIR POOL OF RESEARCH INFRASTRUCTURE.

Technological and service development needs

MSI-funded facilities need to continuously develop new and improved technologies to ensure they remain at the forefront in providing access to and support for leading-edge research technologies for their users. In this context, the term “technology and service developments” denotes tools, methodologies, protocols and services that underpin the improvement of currently existing technologies, tools and methods that lead to cutting-edge services for researchers. While some facilities already effectively use the MSI Fund for technology and service development activities, our consultation revealed that not all facilities are fully aware of the eligibility of these costs under MSI fund.

These technology and service development activities also include efforts to devise optimal ways of organizing and using research data outputs generated by the facilities. Fast-growing outputs of data by these facilities

MSI-FUNDED FACILITIES NEED TO CONTINUOUSLY DEVELOP NEW AND IMPROVED TECHNOLOGIES TO ENSURE THEY REMAIN AT THE FOREFRONT.

necessitate a well-structured framework and efficient resources. The maintenance and efficient sharing of high-quality data is essential for a widely distributed network of research communities and will allow them to fully exploit the possibilities provided by the facilities.

WE WILL CONTINUE TO ENCOURAGE MSI-FUNDED FACILITIES TO DEVOTE EFFORTS AND RESOURCES TO CREATIVE AND INNOVATIVE WORK THAT SERVES TO OPTIMIZE THE VITALITY OF THEIR FACILITIES.

OUR RESPONSE: We will continue to encourage MSI-funded facilities to devote efforts and resources to creative and innovative work that serves to optimize the vitality of their facilities as it relates to technological and service development needs. In some cases, MSI-funded facilities may require outside expertise from different fields to undertake technology and service development activities, including those related to research data outputs. These represent opportunities for MSI-funded facilities to meet the objective of ensuring that their technical and scientific skills are fully exploited.

CFI oversight activities

Through the MSI Fund, the CFI was entrusted in 2010 by the federal government to enable large-scale national research facilities to operate at an optimal level and fully exploit their scientific and technical capabilities. In addition to supporting their operating and maintenance (O&M) needs, the CFI focused on promoting the adoption of best practices in governance and management, including long-term strategic and operational planning, as reflected in CFI's MSI Fund oversight framework.

Beginning in 2012, the CFI tailored its oversight approach for each of the national research facilities in recognition of their particular context and unique operational challenges, in order to improve their governance, management and operations, commensurate with the facility's lifecycle stage, complexity and nature. While this has on occasion been perceived as resource intensive, CFI award conditions imposed through the merit-review process have driven positive change, most notably in the governance models, management practices, outcome measurement, and user access policies of the facilities.

The 2012 and 2014 MSI Fund cohorts significantly improved their governance and management structures and practices over the award period; all facilities developed forward-looking and actionable strategic plans and implemented risk management frameworks. Many underwent reviews of their governance and management structures that led to the reorganization, or creation, of new committees, or the streamlining of existing ones. The CFI's experience with the 2012 and 2014 MSI-funded

facilities cohorts confirms that MSI funding enabled the facilities to enable and support world-class science, in keeping with the objectives of the MSI Fund. The CFI's oversight role has been a critical element of the success of the MSI Fund to date.

OUR RESPONSE: The "tailored-to-facility" oversight approach remains extremely important in ensuring that funding conditions and other review committee recommendations are embraced and enacted by the facilities. This approach has been applied to the cohort of facilities funded in the current cycle, and will continue to ensure facilities are managed in the best interests of all stakeholders. Oversight challenges reported by some facilities will inform the planning of the midterm review for the 2017–22 cohort and will allow the CFI to continue to refine and improve its approach, as well as its reporting framework.

Promoting and sharing good practices in the management and governance of MSI-funded facilities

The MSI workshop was identified as a valuable means of sharing good practices amongst the MSI-funded facilities. Facilities also provided additional suggestions including the mentoring of new facilities and visits to and exchanges with international facilities. In parallel, the CFI will continue to seek out good practices put forward by other agencies across the world in managing large-scale facilities.

OUR RESPONSE: The fifth edition of the MSI workshop is scheduled to be held in Ottawa on November 29 to 30, 2018. This edition will be the second time all 17 national research facilities have the opportunity to network and share their experiences of managing and sustaining the operations of such facilities. As was the case last year, we have worked with representatives from the facilities to develop the MSI workshop program. In addition to the workshop we will consider other suggestions to promote and share good practices.

Thank you for your leadership in research, your fine work, your collaboration, and your participation in the targeted MSI Fund consultation.

THE "TAILORED-TO-FACILITY" OVERSIGHT APPROACH REMAINS EXTREMELY IMPORTANT IN ENSURING THAT FUNDING CONDITIONS AND OTHER REVIEW COMMITTEE RECOMMENDATIONS ARE EMBRACED AND ENACTED BY THE FACILITIES.

APPENDIX 1

Challenges related to the impact and effectiveness of the facility's operations, management and governance, and questions raised through this consultation

- Does your facility fully or partially meet this objective? Why?
- What are the main challenges limiting your facility's impact and effectiveness (e.g. constraints or gaps under the MSI Fund guidelines, securing matching funds, ineligibility of certain costs, etc.)?
- What are the limitations and constraints, if any, created by the current 40-60 (CFI-other partner) funding formula?
- Do you have sufficient capacity for long-term strategic planning?
- Do you have adequate resources (financial, human) and capacity to support users? If not, how can the MSI Fund be improved to help your facility meet these demands?
- Do you face any challenges in attracting and retaining leading scientists and highly qualified technical staff to operate your facility? Is there any roadblock (e.g. immigration requirements) that can make it difficult to recruit and retain the best staff? If so, how could the CFI help?

CHALLENGES AND QUESTIONS RELATED TO THE IMPACT AND EFFECTIVENESS OF THE FACILITY'S OPERATIONS, MANAGEMENT AND GOVERNANCE, AS WELL AS TO INTERNATIONAL COMPETITIVENESS AND COLLABORATION WERE RAISED THROUGH THESE CONSULTATIONS.

Challenges related to international competitiveness and collaboration, and questions raised through this consultation

- How important is international collaboration to your facility and its users? What are your current collaboration efforts and initiatives with international counterparts? Do you face any barriers to enhanced international collaboration? If so, how could the MSI Fund be improved to enhance your international cooperation, collaboration and competitiveness?
- It is expected that the MSI-funded facility and its host institution work to identify and meet the needs of the research community and stakeholders in order to maintain the facility's competitive international standing. How can the CFI ensure that the longer-term vision for the facility be continuously informed by the national research community's needs? How can the CFI help the facility in meeting this objective?
- Are there international programs, structures, models or best practices that Canada should adopt for its current or future MSI Fund? If so, which ones, and why?

These questions were shared with facilities and their host institutions to stimulate discussions and trigger ideas, suggestions and advice for continuous improvement to the MSI Fund.

