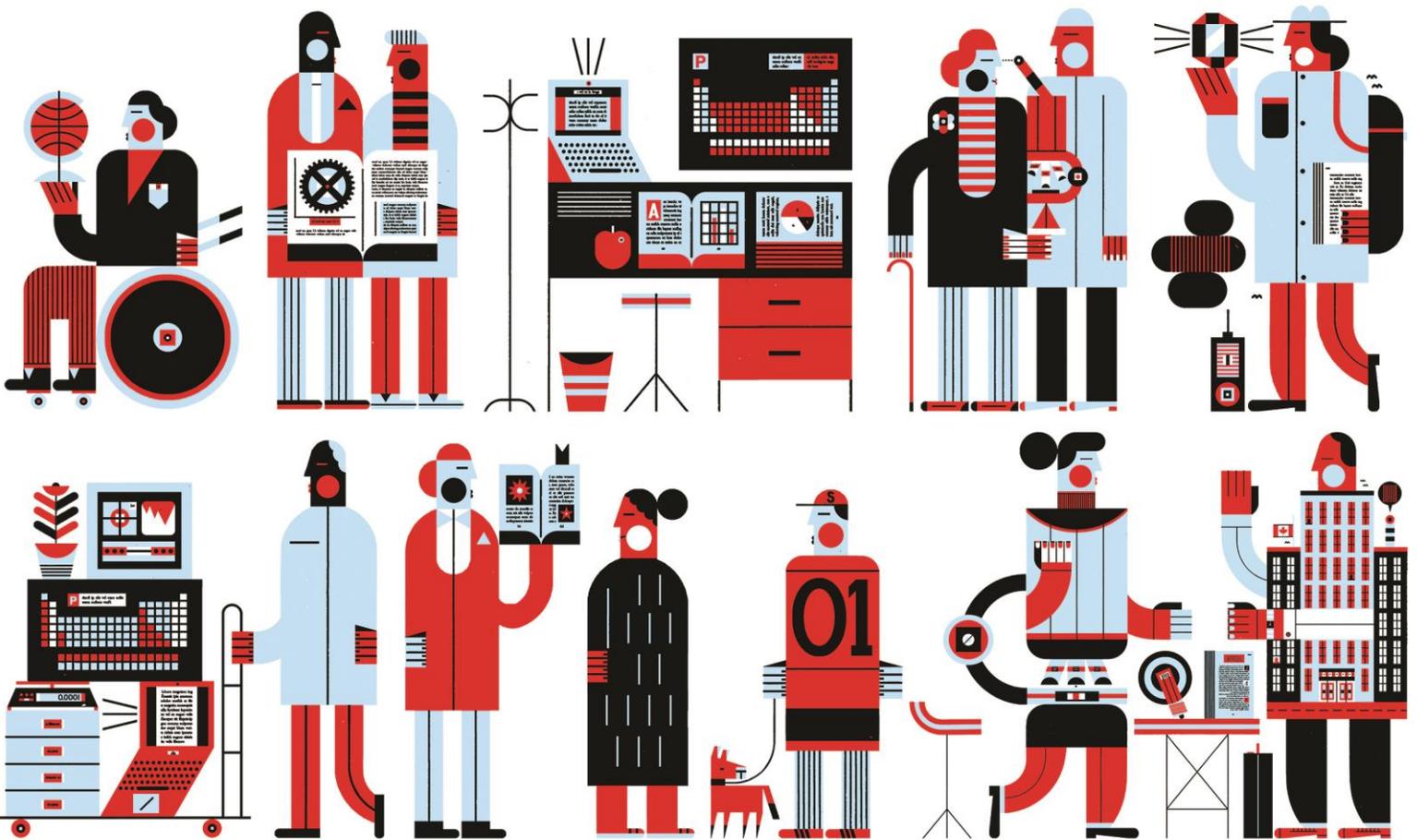


NSERC 2030 discussion papers

# Enhancing research access and impacts in society

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## Enhancing research access and impacts in society

This document is one of a series of discussion papers generated by NSERC staff to foster discussion during the development of the *NSERC 2030* strategic plan. Items presented do not represent policy directions; they are meant to elicit discussion among NSERC's stakeholders. Similarly, all themes discussed in these papers are cost-neutral: they would not require new program funding or cuts to existing programming in order to fund new initiatives.

### Overview

As Canada's leading supporter of discovery and innovation in the natural sciences and engineering (NSE), NSERC plays an increasingly influential role as arbiter of scientific norms and practices such as research assessment, open science and public science engagement (CCA, 2021). As a publicly funded institution, NSERC must balance its role in supporting researchers in the pursuit of new knowledge and innovations with its obligation to ensure that the values and needs represented in Canadian society are being addressed by the research it funds. Several elements addressed in this paper have implications for the Tri-Agency (NSERC, the Social Sciences and Humanities Research Council [SSHRC] and the Canadian Institutes of Health Research [CIHR]) and thus provide additional opportunities for enhanced impact and harmonization.

A core element of NSERC's mandate is to support and promote NSE research that benefits all Canadians. Political decision-makers worldwide commit substantial amounts of public funds toward scientific research. In return, they expect publicly funded research to generate impact that will benefit the societies they represent. As stewards of these public investments, funding organizations have a key role in identifying and supporting research that generates such impact, using specific funding criteria and decision-making processes. However, these decisions must be made within a framework that considers how NSE research responds to societal needs.

The impacts of NSE research outputs are often unpredictable, and societal needs are diverse and in constant evolution. As a result, assessing such impacts is challenging. Evaluating disparate impacts such as new knowledge, economic development, or societal advancements require their own specific considerations, and our community encompasses a broad range of disciplines pursuing complex goals. NSE research can be a longer-term endeavour and, as a result, tangible results or benefits may not be inherently evident or could take years to reveal themselves. Despite these challenges, accurate assessment is vital for publicly funded research to successfully address social needs.

This paper topic also aligns with NSERC's vision to make Canada a country of discoverers and innovators for the benefit of all Canadians. Publicly funded research should be returned to the public, and research funding organizations hold a position of

influence that can ensure that results are accessible and beneficial for all populations in Canada. This means supporting scientists and engineers to share their knowledge and innovations in order to enhance access to, and understanding of, scientific results.

Therefore, NSERC must define its goals for how NSE research could benefit society, how to evaluate those benefits, and how to ensure results are proactively disseminated by researchers to populations in Canada.

## **Opportunities**

### ***Enhancing societal impacts***

NSERC could enhance expectations for how researchers are asked to integrate social considerations into research activities at the proposal stage of funding programs. Identifying social, health, economic, and environmental benefits for new research directions and technologies at an early stage can help ensure that research challenges are driven by the needs of communities and/or society. The UK Research and Innovation agency indicates that 10 years of requiring an impact statement in proposals has changed its research culture; public benefit is now routinely considered in proposed research (CCA, 2021). Furthermore, increasing societal impacts often requires creating partnerships among non-traditional stakeholders and researchers working across disciplines. These partners each bring different approaches and outlooks that need to be considered from the outset to produce appropriate outcomes.

### ***Evaluation of research and research impacts***

NSERC has an opportunity to reflect on, and reconsider, how it defines “impact” when referring to research results and their subsequent effect on society. Recent internal studies associated with the Tri-Agency Equity, Diversity and Inclusion Action Plan have reinforced the value of breaking down societal assumptions when assessing research impacts. For instance, we must consider who benefits from research funding and whether beneficial impacts are evenly distributed in society.

How NSERC evaluates research and research impacts has been — and will continue to be — influenced by many factors. For example, NSERC signed the San Francisco Declaration on Research Assessment (DORA) because it recognized that many factors have and will continue to influence how research and impacts are evaluated (NSERC, 2019). While metrics for social impacts are currently a challenge, funding agencies worldwide are seeking reliable methods to assess a broad range of impacts. NSERC could seize opportunities to pilot promising methods as new approaches are developed. Additionally, NSERC could integrate novel impact assessment metrics, such as altmetrics (which include alternatives to traditional citations, such as mentions on websites and blogs, mainstream media coverage, bookmarks on reference managers,

and mentions on social networks), to understand non-traditional impacts of the research that we fund and to adapt to changes in how knowledge and technology is disseminated.

### ***Knowledge mobilization***

NSERC has an opportunity to reassess its goals for knowledge mobilization and how it supports researchers to share their work with the public. NSERC currently promotes knowledge mobilization through the Discovery Horizons program (pilot) the new Donna Strickland Prize and the NSERC Alliance program. NSERC could harmonize its approach with CIHR and SSHRC to enhance the impact of the research it funds and broaden its reach into society by providing knowledge mobilization resources to its community.<sup>1</sup>

### ***Open access and science communication***

Communicating impacts of NSE research to Canadians delivers the benefits of that research back to society, promotes greater understanding and trust in scientific outputs and helps citizens make informed decisions. Enhancing access to NSE research strengthens Canada's knowledge economy, fosters innovations throughout its research community and builds trust through transparency with the public. In a post-pandemic world, greater attention needs to be paid to the growing gap between science and society. NSERC has an opportunity to determine its role in training scientists on how to widely promote and communicate their research.

Open science maximizes the benefits and impact of NSE research as it enables discovery, creates opportunities to build on knowledge, and develops trust with the public through transparent research practices. There are opportunities for NSERC to further examine its role and policies in the global open science landscape. For example, NSERC could engage with partners who have signed onto Plan S (which requires that, starting in 2021, scientific publications that result from research funded by public grants must be published in compliant open access journals or platforms), to better understand its impacts on research, and its implications for international collaborations and projects co-funded by NSERC. The new Tri-Agency Research Data Management Policy is another example of how NSERC creates opportunities for research impact. Research data management practices are a necessary part of research excellence and promote knowledge transfer and innovation. NSERC can further explore data-sharing to better understand its ethical and legal obligations and to ensure that research results are as accessible and safeguarded as necessary.

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<sup>1</sup> Social Sciences and Humanities Research Council: [Guidelines for Effective Knowledge Mobilization](#); Canadian Institutes of Health Research: [Knowledge Translation](#).

## Discussion questions

- *Evaluation of research and research impacts:* How should NSERC define research impacts? What metrics can be used to assess enhanced research impacts?
- *Enhancing societal impacts:* How could NSERC adapt its practices to increase research impacts to meet societal needs, e.g., designated 10 urgent problems for Canadian science to tackle? How should NSERC define and measure what it considers a societal impact?
- *Knowledge mobilization:* How should NSERC support effective translation of research into impact?
- *Science communications and enhancing public access to research:* What role should NSERC play in supporting public understanding and trust in science, and how can it best support researchers in making their research accessible to the public?

## References

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