



Government Science and Innovation in the New Normal

Key messages from 10 Foresight Workshops
March – May 2021

From March 2021 to May 2021, the Institute on Governance hosted 10 workshops which employed Foresight Methodology. The first eight workshops each focused on a distinct theme of the GSINN initiative. The final two workshops explored how the pandemic impacted and may continue to impact the types of science federal public servants conduct.

This document presents a summary of the 10 most common themes that arose across the 10 workshops. The themes are presented in decreasing order of frequency.

More diverse training for scientists. There is growing demand for scientists and researchers to demonstrate a broader range of skills in the federal public service workplace. This wider set of skills ranges from strong written and oral plain language communications skills to working with public policy and program (admin) staff to working collaboratively with industry and civil society stakeholder groups (and demonstrating social and emotional skills). This demand for more diverse skills runs deeper than on-the-job training, and in doing so, asks tough questions about the ability of scientists and researchers to work across disciplines. As such, this conversation asks tough questions about Canada's postsecondary academic model and the lack of interdisciplinary work to which these students are exposed.

Trust in science, trust in government is declining, for many reasons. There is a palpable decline in trust in Canada. For the purpose of this project, we are most concerned with the decline in trust in science and the decline in trust in government. Building trust - in any situation - takes time and is complicated. That is definitely true in this case as there are a number of reasons for which trust is in decline. These range from a lack of transparency in evidence-based decision making in government, to a perception that scientists do not reflect the Canadian population (EDI,

Indigenous, women, etc.) and that they lack the skills, ability or desire to connect with people on an emotional level, or simply that scientists are elites out of touch with the lives of regular Canadians. A proliferation of misinformation and disinformation are also cited as reasons for a decline in trust: many Canadians aren't sure what to believe, and they don't see reputable government sources actively taking on those who are spreading disinformation and misinformation.

Human Resources (HR) is an internal-to-government barrier to change. The nature of how we do science is changing. Thereby, the skills and knowledge that the public service requires of scientists – to analyse big data sets, to deliver programs, to collaborate with colleagues in other areas of the public service and in other sectors, and even to manage labs – is changing. Yet the science stream continues to work within outdated frameworks for hiring and evaluating staff. The challenges continue to increase as the pandemic subsides. There is appetite for a hybrid return-to-work model that will require the Government of Canada to overhaul and rethink much of its suite of HR policies... From the science side, there is appetite to change, and as a start, to hire more Indigenous people who live and want to work in remote areas. There is also appetite for mechanisms that allow for short-term deployments across departments so scientists from the same discipline can help each other in a time of crisis (like the pandemic).

Consistent science advice, free from political ideology. Participants in the Foresight Workshops (public servants from more than a dozen federal departments and agencies) see science advice as both a necessary component of evidenced-informed decision making, and a type of advice that has become particularly susceptible to acceptance or rejection along partisan lines. Participants often asked: How can science advice be separated from political ideology? This might be a pipe dream. A better question might be, how to deliver science advice in a way that is increasingly consistent, regardless of which party is in power, and to improve the transparency of science advice - the information and the mechanism - to normalize it alongside other types of inputs to inform public policy.



Misinformation and disinformation are big problems. Who are our champions? Misinformation and disinformation are big problems in Canada, especially when it comes to the promotion of scientific ideas and information. They are big barriers to "getting things done", whatever those things might be. There are also some concerns that misinformation (unintentional promotion of fake information) is linked to low levels of media literacy, though some parties that promote disinformation are quite sophisticated, and more research is required to determine if there is a link between misinformation or disinformation and media literacy. There are also few visible champions for science who actively fight misinformation and disinformation (according to Foresight Workshop attendees).

Support for mission-based research and infrastructure funding. There is broad recognition that Canada is a country of limited means, and so Canada's investments could be more strategic if they were guided by a strategy that linked regional and national strengths with international priorities on grand challenges. This is true for infrastructure as well as R&D.

Science is not well understood. For those who work in or study science, we understand that science is knowledge. It is a type of systematic inquiry, a form of human activity, and a total societal enterprise. It is simultaneously one of those things and all of those things at the same time. And because it is all of those things, we also appreciate that science is an ever-changing body of knowledge. The COVID19 pandemic - brought about by a novel coronavirus galvanized our scientific community to do what it does best: solve a problem. But the nature of the pandemic meant that society was learning right alongside science. And as such, the pandemic stands out as a tremendous example of society's concept of science. Not as an ever-changing body of knowledge subject to revision based on new evidence, but, actually, as a static body of knowledge. The constantly changing parameters of what we did or did not know (coupled with a virus that mutated quickly) created frustration within society. Many people became overwhelmed, were challenged to "keep up" with science, and in extreme cases, rejected all scientific evidence and advice by not wearing masks, not abiding public health protocols and not getting vaccinated.



This will not be the last time that science and society are living through rapid change in real time. The challenge becomes one of increasing scientific literacy, both communicating new and changing scientific evidence as well as explaining the scientific process.

Normalize research integrity across all areas of scientific research.

Part of science's "image problem" is related to ethical indiscretions that date back years or decades. Scientists need to demonstrate that they have been educated to operate ethically, and to speak up about that education and the ethical guidelines that inform their daily work. A related category is the area of ethics of technology, and specifically, the reliance we have cultivated on technology without considering if technology we use has been designed to operate ethically, and how we should adjust our actions accordingly to compensate for those ethics, or lack thereof.

Do scientists and science have the right incentives? Linked to the topic of research integrity, and demand for greater transparency and to build trust, is the question of incentives. Or, specifically, two questions that came up six times in our foresight workshops. 1) Are our scientists sufficiently motivated to consider EDI in their work, as well as on their teams? Second, what incentives exist - overt or otherwise - that determine how and what research is funded? And what important research is not being done in Canada because there is no funding for it? (The last question also links back to mission-based research.)

Digital infrastructure is changing how government works. Our world is increasingly digital. This is no secret nor a surprise. Yet the transformation to an increasingly digital professional space is still creating tensions among different teams, and producing questions which have not yet been fully answered. For example, some government teams are working with data sets where multiple people are inputting and sharing data. These large data sets are stored in a cloud, operated by a private sector company. These teams access those data sets via hardware provided by the private sector company. The fee structure to access and run queries on the data is different than the traditional fee structure in place in most departments, which involves supporting a government-run data centre. The new way of working, accessing data, and the new relationship with the private sector provider raises questions about storage



capacity, access, and the budget structure for that lab/division/department or agency. It reflects outdated, out-moded systems inside the Government of Canada. It is creating tensions between the IM/IT teams who are wary of security protocols and intellectual property regimes and scientists who are driven by a desire to collaborate and publish.

