

Time is right for Trudeau to step up and invest in science

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"We need to support the next generation of creative, skilled individuals to ensure they are equipped to meet the demands of a more mobile, more integrated, and more complex world."

By temperament and training, scientists are a skeptical bunch. Which makes the conversations happening across lab benches these days on the prospects for government support of science in Budget 2018 all the more surprising. Notes of cautious optimism are beginning to ring over the din of Bunsen burners.

The optimism can be traced back to the last election. The Trudeau Liberals came to power promising to restore science to its rightful place in the country as both a source of evidence for decision-making and an engine of economic, social, and environmental health. Early moves have been promising: allowing government scientists to speak freely about their work to the media, restoring the valuable data coming from the long-form census, and fulfilling the campaign promise to create, and then appoint last October, a Chief Science Advisor to provide advice on what is known and not known about the science underlying topical issues before government.

And then came the Fundamental Science Review. Also known as the Naylor Report after its namesake Chair, the review called on the government to make a major reinvestment of public funds into 'blue-skies' research (work that is focused on knowledge for knowledge's sake), to the tune of approximately \$1.3 billion. Cheers rang out from labs across the country. Although the government response was initially tepid, in December the Finance Minister signalled that science will form a central pillar of this year's budget. Anticipation is now high that brighter days could be just weeks away.

Just how bright will the future be for science? That is harder to tell. More money for the research system is a start, especially if the bulk of it goes to support early career researchers and trainees. We need to support the next generation of creative, skilled individuals to ensure they are equipped to meet the demands of a more mobile, more integrated, and more complex world.

But it is *only* a start. Beyond a desperately needed injection of funds, what else does the research system in this country need? The answer depends on who you ask. The federal government would say more impact, by which they usually mean economic growth. Scientists typically say more research. Surely, we can do better on both fronts.

But so far, neither the feds nor the scientists have articulated anything close to a compelling vision. Here are three suggestions to get the conversation started.

First, put knowledge *and* skills at the centre of what we do as a country. Too often, the two are treated separately, as when the federal government takes primary responsibility for research funding and the provinces focus on education. A well-supported, vibrant research system provides insight into the natural world and the human experience, is a source of ideas and innovation, and is a major vehicle for training the next generation of skilled and creative citizens. Knowledge and skills are inextricably linked. Any national road map for research in this country *must* include both.

Second, recognize that the nature of how research is done is changing. The next generation of researchers are highly focused on impact and engagement, take an agnostic view towards the distinction between basic and applied research, and are exploring new modes of knowledge creation and scholarship that extend beyond traditional intellectual boundaries. Examples include citizen science, open laboratories, community co-creation projects, and direct engagement with social entrepreneurs as well as traditional and indigenous knowledge holders. We need to do far better at supporting emerging research leaders by making it easier for them to cross boundaries and scale up their work quickly.

Third, be open to the world. The world is far more connected, and talent far more mobile, than ever before. We need to do all we can to make Canada an attractive place for international talent. Expanding the new Global Talent Stream program, which reduces visa processing time to no more than two weeks, to include researchers would be a start. We also could bolster opportunities for Canadians to interact on a global stage by, for example, expanding programs like NSERC's Michael Smith Awards that provide supplements for foreign study to research trainees. Opening up Canada to the world, and the world to Canadians, will make it easier to cultivate the collaborations necessary to tackle globally wicked problems like climate change or antimicrobial resistance and, in the process, forge stronger ties to countries, and markets, abroad. These initiatives should be a central component of our diplomatic tool set.

There is clearly much to do. And, given how the political winds are blowing south of our border and elsewhere, now is the time to do it. A research system that supports both knowledge creation and economic growth is possible because it is an investment in the next generation of skilled and talented Canadians. Piecemeal funding of a patchwork of programs for

research and training does not a vision make. Both the federal government and the scientific community must seize the opportunity to lay out a long-term research strategy for the country. Our future depends on it.

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