Canada's Innovation Agenda
Building on our Natural Resources Advantage
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Debate Panel

Moderator:

Ted Hewitt, President, SSHRC

Panelists:

Catherine Beaudry, Canada Research Chair in the Creation, Development and the Commercialization of Innovation, École Polytechnique de Montréal

Paul Dufour, Fellow and Adjunct Professor, Institute for Science, Society and Policy, University of Ottawa

The question for debate was whether Canada's innovation policies focus too narrowly on research and development. Beaudry argued that this is the case and Dufour argued against the premise. By way of framing this exchange, moderator Hewitt suggested "the answer to that question probably depends on where you put people into the equation."

Beaudry began with the OECD definition of R&D, which refers to creative work undertaken on a systematic basis in order to increase our stock of knowledge. "We're not talking about innovation here," she said, adding that the accompanying OECD definition of innovation describes it as a much more complex process. "The reality is far from the traditional linear model of innovation. We cannot confuse science and technology policy with innovation policy, even though the first is partly nested in the second."

Beaudry described Canada's policy, referred to as the S&T strategy, as being clearly aimed at fostering innovation and growth. "You see innovation written there everywhere. You don't actually know what it means, but it's there everywhere. Innovation is clearly the goal of this S&T policy, therefore it is an innovation policy." This policy is centred around three key points — innovation, knowledge, and talent — but she found it to be focused on science, technology, and engineering activities. This overlooks innovation that might take place in other venues altogether, such as the remarkable accomplishment of Cirque du Soleil. She also quoted from documents describing the execution of this policy, which cite R&D activities in order to measure accomplishments. "There's very little on post-R&D policy and a huge amount on R&D policy."

Dufour agrees that there is more to innovation than R&D and insisted that policy documents reveal this fact. When it comes to the knowledge economy, it is useful knowledge that matters. Like an unwieldy monster that must be imprisoned in order to be controlled, he suggests that R&D has been captured in much the same way. "Somewhere in the bowels of the Langevin Block is an archive of material labeled "R&D: do not remove under pain of yet another science and technology policy".

Citing government statements going back as far as the 1970s, Dufour pointed out that innovation has always been regarded as a logical extension of R&D. Indeed, even these efforts to promote innovation have themselves been subject to innovation. "We tend to forget the innovations that have taken place in our own institutions to promote innovation," he said. "It's worth remembering that when the new millennium approached, a spate of policy innovation took hold in Canada's innovation ecosystem — centres of excellence were established; the Canada Foundation for Innovation; the Canadian Institutes for Health Research morphed from the old Medical Research Council; the Canada Research Chairs were established; and a genomics organization was brought back on the table as Genome Canada." In fact, he observed, "the time has come for a formal study of these various bodies, some of which may be abandoned without understanding their contributions and accomplishments.

"Our innovation policies are not too narrowly focused on R&D — they are too narrowly focused on traditional innovation," he argued. "We have an enormous spectrum, ranging from social innovation to inclusive innovation to digital social innovation to frugal innovation to responsible innovation."

By way of example, he envisioned a hypothetical proposal from something called the Society for Innovative Concepts to develop a crowdfunded body called Theoretical Innovations Canada, asking for people from all walks of life to submit creative ideas, no matter how ludicrous and whimsical they might seem to be. By placing innovation on a low-cost — essentially free — basis, the system for taking advantage of these ideas would be transformed and its impact could be much more profound.

Beaudry subsequently rejected the assertion that S&T was exclusive in its ability to bring the world new ideas, technologies, product designs, and services, as well as addressing huge social and economic challenges. "I've never seen S&T involved in social innovation or management or marketing," she said. "Science and technology in itself doesn't create innovation. It needs a lot of other stuff to bring a successful innovation to market. Many companies are bringing value to market using knowledge that isn't necessarily coming from R&D." The real challenge surrounds the fact that R&D activity can be measured in straightforward ways, while these other activities are not so readily assessed.

Dufour responded that innovation in Canada suffered from a condition he dubbed CPA — continuous partial attention. Just how much attention a country devotes to this subject, he added, can vary from culture to culture. "Culture matters when we look at innovation systems, but institutions within those cultures need to be assessed in a much more rigorous way than they have." This observation lends credence to his original conclusion that there are many different types of innovation. "R&D is not the sole arbiter in defining some of these policies. Our concept and grasp of innovation has grown and its become much more varietal in nature."

Hewitt began the question phase of the session by asking why we have so much trouble supporting the "value-added elements" in the innovation chain that transform the S&T and R&D activities into much more. "If you look for example at the SR&ED [Scientific Research and Experimental Development] tax credit program, it is pretty much limited to product development. You can't claim expenses that are related to marketing, some elements of design, all of the soft things that send a product off into the stratosphere." With such activities formally credited as part of the innovation process, perhaps it would bring policy more in line with what is required to complete the task, as opposed to just the R&D portion.

Beaudry agreed that such progress might be possible, which would enhance the role and value of the people engaged in these activities that go beyond R&D. Dufour

conceded that this would be a worthwhile result, then noted that new centres of excellence are now migrating from fields in science and technology to a much broader spectrum addressing health care and social issues. “We’re starting to see some grasp of this larger concept of innovation, rather than just R&D.”

Mark Dietrich, President of Compute Canada, acknowledged that he did not know what it would take to strike the right balance between innovation and R&D, but asked specifically what should be added to the innovation side of the equation. Beaudry offered the example of an academic institution that offered a degree without a discipline, an extreme example of breaking down traditional disciplinary silos in order to get to some entirely new place in the educational process. Dufour brought up his involvement as a member of the review committee for Grand Challenges Canada, an ambitious program to improve the way health care is delivered in the developing world. “I suspect we need a grand challenge in our innovation system. The more you experiment with these things, the more you learn, and as you learn, the more you adapt, and as you adapt you can affect outcomes in a much more specific and targeted way.”

Kamiel Gabriel, a professor at the University of Ontario Institute for Technology, cited the Greek root of innovation, which referred to novelty and modernity. He also quoted Jeremy Bentham’s 1824 work *The Book of Fallacies*, which posits that innovation is an instrument of deception, one associated with negative change. Gabriel then challenged the premise that innovation was possible at all without some form of R&D. Beaudry countered by pointing to the myriad technologies that are patented but never find any commercial use. What sets commercialized products apart is the addition of other forms of innovation, in terms of organizational design, processing or marketing. Dufour expressed his sympathy for Gabriel’s observation, since it seems intuitive that some kind of R&D is present at every step of an innovative undertaking.