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# Standing Committee on Science and Research

EVIDENCE

**NUMBER 008**

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Chair: The Honourable Kirsty Duncan





## Standing Committee on Science and Research

Tuesday, March 22, 2022

• (1830)

[English]

**The Chair (Hon. Kirsty Duncan (Etobicoke North, Lib.)):** I call the meeting to order.

[Translation]

Welcome to meeting number eight of the Standing Committee on Science and Research.

[English]

Colleagues, the Board of Internal Economy requires that the committee adhere to health protocols, the same ones that have been in place, but they are now in effect until June 23, 2022.

If you have questions, please contact our clerk of the committee for further information on preventative measures for health and safety, but they are the same ones that have been in place.

As the chair, I will enforce these measures, and I really thank you all for your co-operation. We have a really lovely committee.

[Translation]

Today's meeting is taking place in a hybrid format, pursuant to the House order of November 24, 2021.

[English]

There are a few rules to outline. Interpretation services are available for this meeting. You may speak in the official language of your choice. At the bottom of your screen, you may choose to hear floor audio, English or French.

The “raise hand” feature is on the main toolbar, should you wish to speak. All comments should be addressed through the chair, and when you're not speaking, your microphone should be muted.

The committee clerk and I will maintain a speaking list for all members.

We are delighted to welcome our witnesses tonight. We are thrilled that you can join us.

As an individual, we have Dr. Ken Coates, professor, University of Saskatchewan.

Welcome.

We have Mr. Jim Balsillie, co-founder and chair of the Council of Canadian Innovators.

We welcome you.

From Evidence for Democracy, we have Rachael Maxwell, who is the executive director, and Farah Quaiser, director, research and policy.

We will now hear from our excellent witnesses. You will have five minutes. At the four-and-a-half minute mark, I will hold up a yellow card so you know there are 30 seconds left to go. I will make sure that it is fair and even for everyone.

With that, I would ask Dr. Coates to take the floor for five minutes.

Thank you.

**Dr. Ken Coates (Professor, University of Saskatchewan, As an Individual):** Thank you Madam Chair. It's an honour to be with you today.

The subject of your talk—the successes, challenges and opportunities for science in contemporary Canada—is one of the most paramount issues of our time. We live in one of the most scientifically intense times in world history. Most of the scientists who have ever lived—when you define “scientist” in western terms—are actually alive today. The number is growing at a very dramatic pace, particularly in China and East Asia, and moving across the rest of the world.

We've now come to see science not as something by itself for academic purposes, but as something crucial to economic competitiveness. Governments are investing very heavily and are shifting their attention away from where it used to be, which is on the science of discovery, toward the whole question of science for the commercial benefit, the benefit of society as a whole, so there's a little bit of tension between pure science and that of practical, productive and commercial developments.

Canada has struggled to keep up in this enterprise. We try. We're earnest, as we always are in Canada. Like most countries, we've actually followed a very simple equation, which I call the "innovation equation". We put a whole bunch of money into post-secondary education; Canada is a world leader in that area. Investing heavily in basic science, we do okay; we're not top of the list, but we're not terrible, either. Then, we put a whole bunch of money into the commercialization of scientific and technological discoveries. We do well on the inputs—we put money in for incubators and things of that sort—but we don't do all that well on the outputs in terms of creating great economic activity.

We have a situation in Canada where our scientists are actually doing very well. We have a high, better than expected return, but economically, it's not so great. We have some really bright lights: Kitchener-Waterloo, Toronto, Montreal, Ottawa and Vancouver. Watch what's happening in Prince Edward Island, Sherbrooke, Saskatoon, Kelowna and Victoria.

Innovation, not just in Canada but around the world, has become more imitative than innovative. In fact, innovation is no longer an innovative element within our society as a whole.

I suggest that Canada has to consider a series of specific changes. We don't have a plan for what Canada looks like when it's a technologically enabled nation. What is the vision for a science-based country? We need very much to give our scientists, our technologists and our companies something to build towards. We need to recognize the uneven access to the benefits of science and technology: high-quality education, not uniform across the country; access to the Internet, not uniform; the availability of practical high technologies.... What we're actually seeing is the strengthening of what I call "city states" in Canada, a widening gap between rural areas and small towns, and the further marginalization of indigenous people and the urban poor.

I think we also have to make much better use of government as an agent for change, using the government and their spending power as a positive agent for change. We watch this happening in Israel. We see it happening in Estonia, in Taiwan, in India, but not as much in Canada, which is unfortunate.

We also have to greatly improve our speed of decision-making. Decision-making has to match the speed of innovation and the speed of global business. Our current processes are cumbersome, slow and very predictable. We're not very much of a risk-taker.

I think we need to put a lot more emphasis on unique Canadian challenges by looking at providing health care in remote communities; dealing with a national housing crisis that is urban, rural and remote; rebuilding wildlife and fish stocks; and improving our resource extraction. We can solve Canadian problems first, and export technologies to the rest of the world.

We need to find a better balance between pure science and practical technological change. I would encourage your committee to look at the polytech sector, which does a really good job of taking the bench science and actually applying it in practical ways. I'm sure you're going to talk to these folks. I would encourage you to make sure this country invests in scientific literacy as well. One of our basic problems is that there is a huge gap among our politicians

and civil servants, and the scientists and even the innovators who are working on the commercial side. They don't talk to each other particularly well, because the literacy is not as strong as we want it to be.

You have a very formidable challenge in front of you. Canada must be a country where the science and technology serves the legitimate and pressing needs of our country as whole. Money is part of the issue, but quite frankly, I think Canada needs to put more emphasis on direction, commitment and collective understanding. We have to know how scientific discovery can make us a better nation. We have to make us a wealthier nation and a stronger country. I think you have a formidable task in front of you.

I wish you all the very best in your deliberations. Thank you very much.

• (1835)

**The Chair:** Thank you so much, Mr. Coates. You've given us a lot to think about.

With that, we will go to Mr. Balsillie for five minutes, please.

**Mr. Jim Balsillie (Co-Founder and Chair, Council of Canadian Innovators):** Madam Chair and members of the committee, thank you for the opportunity to present to your committee.

I'm Jim Balsillie, presenting on behalf of the Council of Canadian Innovators.

As the committee is currently studying the successes, challenges and opportunities for science and research in Canada, it's important to evaluate both the inputs and the outputs of this ecosystem for Canada. Canada has spent tens of billions of dollars of public funds to build capacity in science and technology. These investments have propelled our universities to the top of global rankings for academic publications and the education of highly sought-after graduates.

Where Canada fails is in the commercialization of its ideas. We invest in science and research and developing ideas that have significant commercial potential, and then we either squander them or give them away. Simply put, Canada is missing critical capacity to turn its valuable ideas towards meaningfully advancing our prosperity and security.

Forty years ago, the traditional production-based economy began transitioning to a knowledge-based economy, and more recently to a data-driven economy. A world previously based on open, shared science and on liberalizing trade through tariff reductions and a patent system designed to reward genuine innovation has transitioned to a world of closed science, closed markets and monopolization of knowledge and information.

In recognition of the growing importance of IP, in 1980 the United States passed the Bayh-Dole Act, sweeping legislation that addresses the ownership of inventions that arise from publicly funded research. Canada continued to ignore the importance of generating IP. By 2016, even as the global share of the capital stock composed of intangible assets rose dramatically, the share of intangible assets in Canada's economy actually declined.

Repeated initiatives aimed at promoting economic growth either had no strategy for generating and commercializing IP or were designed to transfer decades' worth of publicly funded IP to foreign firms. Today, forty years after the advent of the knowledge-based economy, Canada's deficit in IP payments and receipts is widening at an alarming rate, a position we share with developing countries.

These outcomes have consequences for our prosperity, security and sovereignty, as indicated in a recent internal briefing to the Prime Minister. The OECD recently projected that Canada's economy will be "the worst performing advanced economy over 2020-2030" and the three decades after, affecting Canada's ability to pay for the goods and services we value.

To stop these naive and damaging outcomes, I propose three recommendations. One, re-establish the Economic Council. Canada needs the institutional capacity for the contemporary knowledge-based and data-driven economy. Two, create provisions for research agreements in line with what our Five Eyes partners have done. Properly delineate strategic technologies requiring oversight and regulation that are developed out of publicly funded research. Three, invest in IP collectives that can provide professional, centralized resources for the science and research community.

In conclusion, despite a highly educated population and public investments in R and D, Canada has consistently been a large net importer of IP. Canada's history of research and education excellence deserves better outcomes on commercialization opportunities where they exist. The path forward is not spending more or less money on R and D. Rather, it's about building the missing policy capacity for the contemporary economy, including how knowledge is generated, monopolized and commercialized.

Thank you.

● (1840)

**The Chair:** Thank you so much, Mr. Balsillie.

We're grateful to all of you for joining us today, and I thank you again.

Now we will go to Evidence for Democracy.

Welcome. You have five minutes.

**Ms. Rachael Maxwell (Executive Director, Evidence for Democracy):** Thank you, Madam Chair and members of this new standing committee, for the opportunity to be here.

My name is Rachael Maxwell. I am the executive director at Evidence for Democracy.

I am joined today by my colleague Farah Qaiser.

Evidence for Democracy is a national, non-partisan non-profit that works to close the gap between decision-makers, like you, and the best available science and evidence. We achieve this through original research, skills training and issues-based campaigns. We do this because we believe that we all benefit when governments make decisions informed by the best available science and evidence.

Our origin story reminds us that Canadians care about the importance of well-founded evidence in public policy. In 2012, thousands of Canadian scientists and their supporters concerned about the diminishing role of science in government organized the nationwide "death of evidence" rallies. Their message was clear: We need evidence-informed policy for a strong democracy. With this momentum, the organizers of the event went on to form Evidence for Democracy.

In the decade since, much has changed. Canada brought back a chief science adviser in 2017, whose office has championed a network of departmental science advisers and the rollout of science integrity policies. Since 2015, mandate letters have all stated a commitment to the use of science and evidence-based decision-making. These are commendable steps, but there is more to be done.

We support the calls already brought forward to you to make bold investments in science today. Canada must keep up and think bigger. But investing in science is simply a good first step.

Last summer British professor Ruth Morgan remarked, "The role of science has traditionally been reserved for enabling developments. Think about getting humans to the Moon, how we've transformed medicine...or simply how we've come to understand the workings of our planet."

These are all critical developments to improving the quality of life for Canadians, and should continue to be pursued with vigour and ambition. But Morgan also noted that "science will need to become more than this if we are to make the breakthroughs in the global issues we currently face."

The opportunity for science I want to emphasise with you today is this: While the returns of our investments in science and research matter greatly to our innovation and economic objectives, we need to ensure that they matter equally to our democracy and inform the decisions being made within it, because public policy needs science more than ever.

Virtually every policy issue that you will face as a parliamentarian can benefit from science, especially as we consider the ever-growing challenges related to climate change, food security, widening social inequality and so much more. We must work together to put evidence at the heart of public policy.

First, we need to make sure that a voice for science is secure in the federal government, because inevitably, every government will need access to science advice in the decades ahead.

We encourage this committee to consider efforts to protect and formalize the office of the chief science adviser. Additional advisory resources, such as a parliamentary science officer or expanding the science and research capacity in the Library of Parliament, could also be considered.

We need to revisit investments in federal government science to make sure government scientists are able to deliver on their work.

Beyond the federal level, science advice across this country requires a linked-up, pan-Canadian approach. Historical examples of science coordination of this kind exist and should be reconsidered in the current context.

Second, COVID-19 has shone a light on the three-way relationship between science, society and policy. We need more deliberate opportunities for scientists and policy-makers to come together to better serve society.

Getting the right evidence starts with asking the right questions. Schemes that allow policy-makers and scientists to co-create research questions could return more relevant and timely evidence. Better serving society also demands that we reimagine the skills that scientists and policy-makers need, and help them acquire these competencies.

We have just wrapped up our science to policy accelerator training program. Over 250 researchers expressed interest, making it clear that scientists want to participate in public policy.

For researchers, some important skills to contribute to policy include communicating evidence concisely and demonstrating its relevance to policy problems, and engaging with stakeholders to build trust and credibility around scientific evidence.

For their part, policy-makers may benefit from increasing their understanding of the nature and limitations of scientific evidence as well as risk and statistical literacy.

In closing, I wish to highlight that while science has never been more advanced and our ability to gain value from vast amounts of data is unrivalled, we are buckling under the pressure of threats such as climate change, misinformation and unchecked inequality. Future-proofing our country and economy requires a bolder approach to using science to absorb the shocks of the coming decades. This is true in the way that we invest in science and research today,

and equally true in the way that the impact of publicly funded research finds its way back to you and decision-makers across the country.

Thank you so much for your time.

• (1845)

**The Chair:** Thank you so much, Ms. Maxwell.

We're really grateful to all the witnesses for their time and their expertise.

I know our members are eager to talk with you.

We will go to a six-minute round, and we will begin with Mr. Williams, for six minutes.

**Mr. Ryan Williams (Bay of Quinte, CPC):** Thank you, Madam Chair.

Thank you to all the witnesses for joining us today.

Mr. Balsillie, I'm really interested in all the work you've done, talking about intellectual property and protecting that in Canada. You've identified some of that today. Canada, in 2019, generated about \$39-billion worth of IP, but the U.S. generated \$6.6 trillion. That's 169 times our intellectual property.

You had some recommendations tonight, but what, specifically, is the U.S. doing that we're not to generate the intellectual property that they are just south of us?

**Mr. Jim Balsillie:** The things that I recommended Canada begin, and much more, the U.S. began doing 40 years ago. The old expression is "The best time to plant a tree is 20 years ago. The second best time is now." We simply have no strategy, no orientation and no capacity to generate and control intangible stock assets. They work on a principle of negative rights or restrictions, which is the polar opposite to the traditional tangible economy. We just had no capacity and no orientation.

There's a direct causal relationship. Canada is in last place in productivity growth in the last 46 years in the OECD, forecasted for the next 30 years. There is a direct causal relationship to this inattention to generating, controlling and then commercializing intangible stock assets. I've done business in 156 countries and it is in the water table of every aspect of how they manage research, commercialization, education and so forth in the successful innovation economies. It is epicentral.

I chaired a panel on this for Ontario. There are three simple recommendations. They're fairly similar to the recommendations here.

We simply didn't change for a changed world.

• (1850)

**Mr. Ryan Williams:** In terms of what you said about intellectual property before, is it better for our country to be more protective of our IP or more open-sourced?

**Mr. Jim Balsillie:** Being more protective of IP is kind of like raising rent for the homeless. You can't protect something you don't have. The issue is that those who have a lot come to Canada and say it's raised protections so that we pay them more rent. They create a false myth that higher rents will catalyze more creation of intangible assets in Canada, and that's hokum.

The best thing for Canada is to lower protections, because we're an IP popper. Unfortunately, we've signed into treaties that have locked these in for decades to come. We have to play for the train we're in and, fundamentally, play the game that everyone else is playing. I don't think we have the opportunity to take these down. We've signed in extremely high provisions in the USMCA, the TPP, the TRIPS provisions and CETA, so this is the realm, whether we like it or not for decades to come.

All my recommendations are not to change the system, because we've locked into it; they're how to play better within the system. I reiterate that we should have done this 40 years ago, but let's get going now.

**Mr. Ryan Williams:** In Canada right now, about 80% of IP is institutionally born. Is that similar in the U.S. or is it all over? Are some of these recommendations going to scatter that?

**Mr. Jim Balsillie:** No. I think it's much more commercial in the U.S., but their companies are trained and sophisticated and have scaled in this game.

Unfortunately for Canada, our best IP, even if it's institutionally generated, is claimed by foreign companies, so we don't get the economic benefits. The economic benefits and the security benefits flow with the stroke of a pen or the click of a mouse. They move differently from traditional, tangible assets, whether it's oil or manufacturing. That's the controlling mechanism.

Even if we generate it here, we squander it. I give lots of linked examples in the documents I provided, but I can give you lots of them.

**Mr. Ryan Williams:** That's fantastic. After this, if there is anything else written that you can provide, that would be fantastic.

**Mr. Jim Balsillie:** I will. I have lots to share with you if this is of interest.

This is not about money. I don't say spend more or less money. This is about getting more for the money that we spend, where appropriate. And I say "where appropriate", because not all research should be oriented to be commercialized. It's simply where the opportunity exists.

**Mr. Ryan Williams:** Yes.

In terms of the work you've done with the CCI and across Canada, where do you see Canada having a competitive advantage

over the Americans or over the world right now? Are there certain things you see that we haven't taken advantage of yet?

**Mr. Jim Balsillie:** Yes. We have tremendous....

We invented the fundamental artificial intelligence, and then we gave it away to foreign firms. We had fundamental telecommunications technology and we gave it to Huawei. Canada is great at ideas and we have great indigenous industries. We could apply those to be value-added to raise our productivity.

I think Ken said it. We need some strategies. There are institutional arrangements, there are policy arrangements and there is capacity-building. Those are my three core recommendations.

We're full of opportunities to do better. Mine is an optimistic story. I think we can raise our GDP per capita.

**Mr. Ryan Williams:** Thank you.

Dr. Coates, I don't have much time. Maybe you can write this for me, or just include it with another answer. I'm really interested in how we're developing rural innovation, not just urban innovation. You mentioned Charlottetown and I'd like to hear more.

I know I don't have any time, Madam Chair.

Thank you.

**The Chair:** Mr. Williams, I always appreciate how to the point you are.

Perhaps we could hear from someone else and maybe you can get those answers or you can have that tabled. Thank you for your important questions.

Now we will go Ms. Bradford for six minutes, please.

**Ms. Valerie Bradford (Kitchener South—Hespeler, Lib.):** Thank you very much.

I want to thank all of our witnesses today for being with us.

Mr. Balsillie, I'm recently elected and represent Kitchener South—Hespeler. I'm very interested of course, in your perspective. You have a very unique perspective with the Council of Canadian Innovators and with the BlackBerry history, which I would argue is still today one of Canada's most iconic tech start-ups. It brought us mobile email and many of us can't even remember what life was like before that.

We do know that the success of the Waterloo region is largely attributed to the IP policy with the University of Waterloo, where the developer of the IP gets to keep the IP and commercialize it. This is quite unique among many universities, where the university institution owns the IP. This has resulted in attracting professors and students who find that very attractive.

I was interested in your comment about IP collectives. Could you explain how they might work?

• (1855)

**Mr. Jim Balsillie:** First of all, I'm not aware of a situation where Waterloo's IP policy has really materially contributed to Waterloo's success. I'm not aware of a company that's been a successful spin-off from Waterloo of any scale in the last 20 years that's professor-based research. Of course, you have tremendous students who begin to do this. The returns from Waterloo's commercialization have been minuscule—between \$50 and \$500,000 a year gross, with six and a half FTEs and hundreds of millions of dollars in research. I would be interested in the case where Waterloo's IP policy has contributed to the Waterloo region's success. I'm not aware of any in the last couple of decades.

IP collectives are very common around the world. There's a pilot at ISED right now, headquartered in the Waterloo region, for clean tech and data-driven technologies. Canada was built on collectives, whether it was credit unions for financing communities, mutual companies for insurance, grain co-ops, equipment co-ops or butteries. You can go on and on. Canada was built through coordinated strategies. It's simply that playbook.

They're very common around the world. Japan has multiple ones, as well as France, South Korea, Germany and Singapore. They're an organized structure that retains it and gives it stewardship rather than fragmenting it.

As a small example, the Fraunhofer Institutes—the 72 research institutes in Germany with 29,000 researchers—have one centralized agency. Ontario, where I chaired a panel on this, has between two and three dozen, depending on how you define, and is a fraction of the size of the Fraunhofer. It's two orders of magnitude of fragmentation of structural organization.

That's why I say it's really about the organization. It's an organization structural principle, to summarize it. There are tons of examples around the world.

Ontario started IP Ontario as a recommendation of our panel. Ottawa has a pilot. Scale it and it's pennies. It just helps those that quite frankly need the help. It's a market failure and a capacity failure. This is small dollars, if not zero dollars.

This is not a criticism of the universities. You've asked them to do a job that is not their normal job or skill. Like you don't want me to be your chef because I'm not skilled at it, but I have other skills.

**Ms. Valerie Bradford:** Thank you for that.

I'd like to transition now to the area of talent attraction and retention. Canada has a great workforce shortage across most sectors of our economy. I was wondering if you could go into some detail on how we can attract more top talent to Canada. We're a great country to live in.

What do you and the Council of Canadian Innovators see as a way to compete with the likes of the U.S. and U.K.? A lot of our grads maybe go down to the valley, for example, in the area of tech. How can we combat this?

**Mr. Jim Balsillie:** The first thing I would suggest is that you convene a panel with this specific question, because the rules on talent management used to be relatively reduced to convention, but everything is thrown up in the air now with COVID, remote work and all of that.

There's a tremendous number of things Canada can do. Because people can live where they want and then work where they need, and work and live in the same place, quality of life has become central, and then all the infrastructure to do that.... Our focus on bringing foreign branch plants is not relevant anymore, because the greatest competition for Waterloo companies, as an example, is actually working for Silicon Valley from Waterloo.

I think you have to get your arms around it. You have to have definite strategies: fast-tracking immigration; supporting good researchers; having appropriate infrastructure for them in terms of broadband, quality housing and all these things; and appropriate work law.

It's a new realm and there's a lot we can do, but when you begin with a sophisticated country, with a great quality of life, Canada should be a magnet for talent.

• (1900)

**Ms. Valerie Bradford:** I agree. I think COVID especially has made it a global talent pool. I'm concerned that it's very difficult for us to compete with low-wage places in the world where the standard of living is not what we would want in Canada, so that's going to be an ongoing problem.

Thank you very much.

**The Chair:** Thank you so much, Ms. Bradford. It's a really interesting discussion tonight.

[*Translation*]

We will now go to Mr. Blanchette-Joncas for six minutes.

**Mr. Maxime Blanchette-Joncas (Rimouski-Neigette—Témiscouata—Les Basques, BQ):** Thank you, Madam Chair. I would like to welcome the witnesses joining us this evening.



My first questions are for Ms. Maxwell, from Evidence for Democracy.

I read the report your organization released back in November. It provided a progress update on each of the 35 recommendations in the Naylor report. In fact, this spring, April to be precise, will mark the fifth anniversary of the report.

In the report, you conclude that the Liberal government has implemented only nine of the 35 recommendations in the past five years. One of the main recommendations in the report was the creation of a Canada research coordinating committee. A call for applications was put out in 2019, but no progress has been made since.

You should know, Ms. Maxwell, that I asked Canada's chief science advisor, Mona Nemer, about that very thing, but I didn't get an answer. She didn't know what I was talking about. In February, I also brought it up to Dr. Nipun Vats, the assistant deputy minister of science and research, who was supposed to get back to the committee with an answer. Unfortunately, a month later, we have yet to receive it. We want to know what is happening at the department with that call for applications.

This is my question. In the wake of the Naylor report recommendations, how does this lack of progress hurt the competitiveness and productivity of Canada's science ecosystem?

[English]

**Ms. Rachael Maxwell:** I am going to pass this over to my colleague Farah Qaiser, who actually led Evidence for Democracy's work on our review that you mentioned on the fundamental science report.

**Ms. Farah Qaiser (Director, Research and Policy, Evidence for Democracy):** Thank you, Madam Chair and Mr. Blanchette-Joncas, for the question.

The recommendation you're talking about is for NACRI, the National Advisory Council on Research and Innovation. You're correct that there haven't been any updates since.

When we were carrying out this research to look into progress since, we found that there have been no public details about this committee. There was a call for applications in 2019, but there hasn't been an update since. There was a secretariat. There were two employees who were listed as within the Council on Science and Innovation secretariat, but I can't find that information anymore.

That body was intended to act to provide broad oversight of federal research and innovation. It was meant to include sciences as well as innovation leaders from both business and civil society. It was going to act as a convening body to really connect research and innovation.

In terms of an update from someone within the federal government, I will point you toward a recent news article. It was published in *University Affairs* on March 2, 2022, by reporter Brian Owens. There was a quote in there from a spokesperson from Innovation, Science and Economic Development Canada where they noted that the government "continues to work towards" implementing the council but they didn't offer any specific details or timeline.

I share your frustration. I unfortunately do not have additional insights to note, but we're eagerly awaiting details on this too. This body could help connect research and innovation in Canada's science ecosystem.

[Translation]

**Mr. Maxime Blanchette-Joncas:** Thank you.

I always strive to approach things constructively.

I want to discuss something with you. I read the report, which set out 35 recommendations. Nine of them have been implemented, 13 are in progress, and 13 are outstanding. In other words, 25% of them—or one in four recommendations—has been implemented.

What do you think of that?

Which recommendations would you say the government needs to prioritize?

Which ones does the government need to act on immediately?

• (1905)

[English]

**Ms. Farah Qaiser:** Absolutely. I do want to note that nine recommendations are complete, but there are 13 in progress. Technically, 22 out of 35 recommendations have seen some progress. That is a notable win. But you are correct in saying that there are 13 recommendations that are still unresolved.

These include NACRI, or the council of science and innovation body you referred to. Other unresolved recommendations include the call to implement a first ministers conference on research excellence, bringing together both provincial and federal actors when it comes to talking about and investing in science and research. Another unresolved recommendation is to harmonize legislation across the federal funding agencies, as well as to review the current allocation of funding across the federal funding agencies.

I will note that these remain unresolved, but I do want to point out that there are a few caveats to consider when it comes to looking at the fundamental science review. This review was published in 2017. It's been almost five years. There have been two mandates and two governments since. We've also been living through the COVID-19 pandemic. The science landscape in Canada has changed, as has the global science landscape.

I do also want to note that while the fundamental science review had a large and broad scope, it wasn't inclusive of all the different inputs in Canada's science ecosystem. It didn't include government science and it didn't include applied science, so it's not a very complete report.

What I want to note in my last 30 seconds is that whether we use the fundamental science review as a guide or not, it is urgent that we continue to invest in Canada's science and research ecosystem. The challenges we're facing—climate change, future pandemics—are not going away. The costs of not having the right evidence on hand will be far greater in the long run than the immediate costs of investing in science and research today.

Thank you.

[Translation]

**The Chair:** Thank you, Mr. Blanchette-Joncas.

[English]

We will go now to Mr. Cannings.

The floor is yours for six minutes.

**Mr. Richard Cannings (South Okanagan—West Kootenay, NDP):** Thank you, Madam Chair.

I think I will stick with Evidence for Democracy for now. I was going to ask about the Naylor report card that you presented, but Monsieur Blanchette-Joncas just did that.

You also put out a report on transparency in government research and policy, called *Eyes on Evidence*, in January. I wondered if you wanted to expand on that. I'll ask you a specific question about how transparency can or should be built into government legislation and policy. I was peripherally involved in drafting the species at risk legislation. It was built on a model of transparency. There was scientific evidence presented to the government by the Committee on the Status of Endangered Wildlife in Canada. The government then made a policy decision, but the evidence on all that chain was clear and public.

I'm wondering if that's a model that is used in other pieces of legislation or policy—or should be. Perhaps you could give me a sense of where we are in Canada with using evidence in policy-making.

**Ms. Rachael Maxwell:** I'll speak for a few seconds and then pass it over to my colleague. She led the *Eyes on Evidence* work specifically.

I mentioned off the top that since 2015, mandate letters have all stated a commitment to the use of science and evidence-based decision-making. We really appreciate these repeated signals, but what really spurred our interest in transparency was that, from our position, we think that if the public is to assess what progress is actually being made in this endeavour in evidence-informed decision-making, they must be given the opportunity to scrutinize the relationship between evidence and policy decisions that are impacting their lives. That kind of transparency gives citizens the chance to consider whether they agree with how evidence is being used to formulate public policy. This is why transparency is really mission-critical here to evidence-informed policy.

From this position, we undertook the *Eyes on Evidence* study to examine transparency specifically in the federal government. Put simply, can the evidence behind policy decisions be found by the lay public, or can someone from outside government understand what the government is proposing to do, and why?

I'll pass it over to my colleague. Farah actually led this work and can provide more specifics.

• (1910)

**Ms. Farah Qaiser:** In doing this work, as Rachael mentioned, we ask if the public can find the evidence behind policy decisions. We used the transparency framework that was developed in the United Kingdom by Sense About Science. It includes different categories, such as asking what information we know about the issue itself, how and when we will know if the policy has worked, and why the specific intervention was chosen. Can we find the evidence behind these questions?

What we ended up doing was collecting a total of 100 random federal policies from 10 different federal departments and agencies. All of these policies were announced between January 2021 and June 2021. We applied the transparency framework and we gave them scores between zero and three. In each case, could we find the evidence behind the issue at hand or the intervention that was proposed? When would we know if the policies worked?

What we found, sadly, was that, overall, the transparency of evidence usage across federal policies scored very low. They scored either zeros or ones. This means that it's very difficult for members of the public to find evidence behind policies. They're left questioning. If this policy announcement is made, how will we know when the results of this policy will be shown? How will we know why this was made? For example, why was a ban proposed, rather than a tax refund, a rebate, an eviction notice or something like that?

We found that there were different transparency scores across different federal departments and agencies. In general, we were left wanting. Yes, there was evidence mentioned, but there was no source or reference provided, or we noticed that there were pieces of evidence on different parts of websites, but they weren't included in the policy announcement in the first place.

In short, we found that it's very difficult for members of the public to find evidence, but we see promising signals. In conversations that we've had with federal departments and agencies, we've seen that folks are surprised by the findings. They didn't realize how big an issue it was, and they are thinking about how they can make these pieces of evidence more accessible for the public.

**Mr. Richard Cannings:** Thank you.

I probably have a short amount of time left, but I want to ask both Evidence for Democracy and Dr. Coates about this science literacy among decision-makers.

Perhaps I'll just ask Dr. Coates to expand on his comments, because I have the yellow card.

**Dr. Ken Coates:** I'll be very quick.

There is a lot of documentation on the problems of scientific literacy. We have civil servants gathering together with six or seven people who are asked to make multi-billion dollar investments in very complicated scientific situations. It's a really big problem in western democracies. With no disrespect to the politicians at all, these are really complicated issues. You have to make big decisions about these kinds of things.

We don't systematically go about making sure that the politicians and civil servants have the necessary background. It's ironic, because I also see a problem where we then default it onto expert committees that tend to be self-preferential and very averse to risk. They tend to support the work they're already doing—

**The Chair:** Dr. Coates, I'm sorry to interrupt. You were just getting started. I apologize.

Dear colleagues, we're now going to go to the second round. This is for five minutes.

We'll begin with Mr. Tochor.

**Mr. Corey Tochor (Saskatoon—University, CPC):** Thank you, Chair.

Thank you to our witnesses.

I'd like to carry on some questioning with Madame Maxwell. You talked about how this government has lots of signals and a lot of nice words, but, unfortunately, there isn't a lot of action that follows the nice words.

I think one of the most negatively impactful policies, maybe in this country's history, is around the vaccine mandates. To be clear, I'm a pro-vaccine, anti-mandate parliamentarian. I believe that the policy was not based on science.

I'd be interested to hear your comments on how you would investigate or give a report on whether science was used to enact the mandates that were put in place during the election last year. How would you develop a framework that would look at whether science was used at all?

• (1915)

**Ms. Rachael Maxwell:** I'm not quite sure where to start with that one. In a sense, you've sort of made the case for our transparency framework. As my colleague mentioned, unfortunately we didn't find that there was a strong demonstration often in the relationship between the evidence and information being used and the policy decision.

In a sense, the starting point would simply be our transparency framework. We could apply that framework; you can apply that framework. The framework itself does not require subject matter expertise, so anyone can use it. You yourself could use it and assess the policy announcements and related documents to see how well the policies associated with vaccine mandates score on the transparency framework.

I don't know if my colleague wants to add any additional information.

**Ms. Farah Qaiser:** I will just add the caveat that just because we can't see the evidence from the sidelines doesn't mean it doesn't exist.

ist. There might be confidentiality reasons; there might be crisis-time circumstances.

That is just one caveat to keep in mind. Just because we can't see the evidence from the sidelines doesn't mean it doesn't exist. However, that's sort of the case to point out that perhaps evidence should be available as a default, and only in crisis times should evidence remain private for a while.

**Mr. Corey Tochor:** Madam Maxwell, on the Evidence for Democracy website, I notice that you used to run Can Scientists Speak, on whether government scientists felt muzzled. I see that report from 2015, but I haven't seen it updated and it's a little puzzling. In 2018, we had the Professional Institute of the Public Service of Canada reporting that over half of government scientists felt muzzled in the Trudeau government.

I'm just interested to know, if you haven't done that report again, is there a reason; or is it going to be coming out here shortly?

**Ms. Rachael Maxwell:** Yes, that work was done by our predecessors at Evidence for Democracy. We stand by that work. It was important work, particularly at that time.

Since that time, there has been a huge effort around rolling out science integrity policies across federal departments and agencies, which in part has addressed this issue around whether scientists can speak freely. If I understand correctly from the office of the chief science adviser, they are working on science integrity policy 2.0., hopefully furthering federal scientists' ability to speak freely and openly about their work.

In terms of the current sentiments within the federal public service, from our position at Evidence for Democracy, we have the information at hand to provide you with an informed response, but we certainly encourage you to get in touch with the Professional Institute of the Public Service on that question.

**Mr. Corey Tochor:** There's more than that. That was in 2018. I would encourage you to study the subject matter again to look at the actual effects.

Once again, you said there are plans in place, but did that actually result in better transparency? Even as recently as last year, the *Canadian Medical Association Journal* expressed concerns about the science around COVID and I would say that there's probably a benefit for a look over to see if things were actually improved or not.

I believe our time is almost up here, so I once again thank the witnesses for taking part today.

**The Chair:** Thanks, Mr. Tochor.

Something that I really appreciate about this committee is the respect and dignity that we show one another.

With that, we will go to Mr. Collins for five minutes.

**Mr. Chad Collins (Hamilton East—Stoney Creek, Lib.):** Thank you, Madam Chairman.

I'd like to start with Mr. Balsillie.

Sir, I represent the riding of Hamilton East—Stoney Creek, so I can't let the opportunity pass without saying thank you for the "Make It Seven" campaign back in the 2000s. I was a member of council at that point in time, and I know you put a lot of your own personal time, energy and resources into that. A heartfelt thank you for everything you tried to do for Hamilton.

Seinfeld has Newman as his foil and Hamilton has Bettman. There's no need to comment on that, but thank you for everything you did, sir.

I went to the Council of Canadian Innovators website. It's very clear on the front page there that you talk about access to capital. I heard the constructive criticism that you provided to a couple of the other questions that were asked of you, specifically, investments may be...into institutions and what that has yielded in terms of innovation, and what's come of it. I know that successive provincial governments, of different political stripes, have made big investments into your area, where you came from, in Kitchener—Waterloo. Certainly in Hamilton, McMaster Innovation Park is doing tremendous work, currently, on the vaccine as well as on autonomous vehicles, amongst a couple of projects.

It sounded like your comments—and I just want to be clear—were that we're making investments in innovation but maybe not in the right areas.

Can you clarify that in terms of the comments you made earlier? On the website it says, "We believe that Government investments into innovation should be directed towards high-growth firms". I'm just trying to rationalize that statement with your other statements, and looking for some guidance in terms of where weighted investments should go with institutions and/or other organizations that are into innovation.

• (1920)

**Mr. Jim Balsillie:** Sure. Thank you for your question and your kind comment.

I'll go to the panel I chaired for the Province of Ontario. We only had three recommendations. They said that sometimes the most vexatiously complex problems have the simplest of solutions. Number one, we don't teach it, we don't govern for it, and we don't provide services for it. All the rest of the world does. It's not whether we spend more or less, it's whether we develop the capacity to keep owning what we come up with. Owning ideas works on a fundamentally opposite principle of the tangible economy. You physically own the jacket you are wearing. That's called a positive right. But the design of that jacket is a negative right. I can stop you from making that if I own the design. But it's very hard to do without proper training, without proper governance and without proper services.

I'm not saying spend more money or less money; I'm simply saying, have the capacity and the institutions and the accountability structures that say you have to treat this responsibly. If you dig just a little bit deeper, you will be very disappointed with how we've treated this national security and prosperity asset over the past four years. That's a very sad story; but the good-news story is it can be fixed very quickly with, effectively, no money.

**Mr. Chad Collins:** Okay. Thank you for that.

On access to talent, you talked about competing with the U.S., and you gave some statistics there in that regard, in response to another question. I think, again, on the cover page of the Council of Canadian Innovators, it says, "We believe high-skilled talent is the jet-fuel Canadian companies need to reach new heights."

You talked about immigration and some other things that we can do to improve upon that. Can you expand upon your previous answer in that regard in terms of whether it's retaining the talent that we currently have that is coming through the McMasters of the world, or other universities and institutions? How do we compete in terms of attracting people from other parts of the world to come to Canada and provide us with that expertise?

**Mr. Jim Balsillie:** Yes, I think you need to have deliberate strategies. I think we've had strategies, as a nation, to bring the branch plant here, but not really to keep the high-end talent here, and to keep all the positive tax effects, management effects, wealth effects and security effects.

All roads go to a magnet for talent and for growing domestic companies. It basically requires a spillover analysis, but you can't do that analysis if you don't have capacity. That's why I recommend the economic council for the analytical capacity, which Canada cancelled and stripped out of its civil service in 1992.

**Mr. Chad Collins:** Thank you, sir.

**The Chair:** Thank you so much, Mr. Collins. It's a good discussion tonight.

Now we will go to the two-and-a-half minute round. We will start with Mr. Blanchette-Joncas.

• (1925)

[*Translation*]

**Mr. Maxime Blanchette-Joncas:** Thank you, Madam Chair.

Mr. Balsillie, according to the OECD, the Canadian private sector's R and D investments accounted for just 0.81% of GDP in 2019, while the average for OECD member countries was 1.76% of GDP. In light of that indicator, Canada ranked 24th among OECD countries.

Can you tell us why the level of R and D investment by Canada's private sector is so low?

[*English*]

**Mr. Jim Balsillie:** Yes, I'm happy to do that.

In this policy area, Canada's policy community has peddled myths that there's a complacency, lack of competitive intensity or weak receptors for the business community. You have to understand that research by government leads to research by business in the traditional production economy, but when you go into the intangibles economy, research for government must then translate into what's called freedom to operate or owned intellectual property, which naturally then drives corporate investments. We missed the middle step in the changed economy.

For instance, if I say that I want to make the next Google and here's \$5 billion to go build a data centre, of course that's not going to work. If you wanted to be a brick manufacturer 100 years ago, it would work because you don't own the ideas. The reason we lose the translation from GERD to BERD is that we missed the institutional middle piece of freedom to operate. That's the foundational flaw of our public policy.

If we had expertise in the civil service through a new economic council and a proper analytical framework, that would snap that issue forward right away. That's precisely what the provinces are doing to address this and the ISED pilot. Let's see what the real issue is and focus on it.

[Translation]

**Mr. Maxime Blanchette-Joncas:** Quickly, Mr. Balsillie, can you tell us what the barriers are for companies that want to invest?

[English]

**Mr. Jim Balsillie:** The problem is there's no idea to invest it into because the idea's gone. There's nothing to invest. The government money went to foreign firms or it was just squandered because there was no institution that developed it over five years. There's nothing to invest.

**The Chair:** Thank you so much, Mr. Blanchette-Joncas.

We have two and a half minutes and we'll go to Mr. Cannings, please.

**Mr. Richard Cannings:** Thank you.

I will go back to Evidence for Democracy and let them respond to my question about scientific literacy in decision-makers.

Specifically, you've mentioned in passing the idea of having a parliamentary science officer who would be available to MPs, senators or whoever needs scientific advice or who could present ideas to them and ask what the science behind it is. The chief science adviser works for the government—for cabinet, basically.

Should we have some office that could provide that service for parliamentarians generally?

**Ms. Rachael Maxwell:** Yes, we did make the suggestion for a parliamentary science officer for pretty much the exact reason you just outlined. The parliamentary science officer could be there to directly serve parliamentarians and really provide more scientific expertise in the House of Commons itself.

There are models of this in other countries. The U.K. has a parliamentary office of science and technology. The White House has an office of science and technology policy. It could be similar to the Parliamentary Budget Officer who is already in place.

Specifically, a parliamentary science officer can give a stronger voice in Parliament. They could have responsibilities like assessing the state of scientific evidence relevant to any proposals or bills before Parliament. They could answer requests from committees and individual MPs for scientific information or expertise and even conduct independent analysis of federal science and technology policy.

**Mr. Richard Cannings:** I'll just leave it there, but I wanted to hear your views on that.

Thank you.

**The Chair:** Thank you so much, Mr. Cannings.

I'd like to thank all our witnesses tonight. You've provided a lot of information for us, which I know the committee really appreciates. We're grateful for your time and your expertise.

To our colleagues here, I know all of us would like to recognize the wonderful people who support this committee. We say thank you.

With that, we have a new analyst joining us tonight. Welcome to Mr. Grégoire Gayard.

Thank you, everyone. We'll break for a few minutes.

• (1925) \_\_\_\_\_ (Pause) \_\_\_\_\_

• (1930)

**The Chair:** Good evening, everyone. Colleagues, I'll call us back to order.

I'd like to welcome all our witnesses tonight.

You have a really lovely committee here that's really interested in what you have to say. We're thrilled that you are joining us. We can't wait to hear your testimony.

Tonight we have Dr. Alan Winter, who is the former British Columbia Innovation Commissioner.

We have Dr. Jeremy Kerr, who is a professor of biology, Faculty of Science, and university research chair at the University of Ottawa.

From Colleges and Institutes Canada we have Denise Amyot, who is the president and chief executive officer. We've heard she's just won this wonderful award.

We also have Don Lovisa, who is president from Durham College.

Welcome, everyone.

You'll have five minutes to speak.

With that we will start with Dr. Winter for five minutes, please.

• (1935)

**Dr. Alan Winter (Former British Columbia Innovation Commissioner, As an Individual):** Thank you, Madam Chair and committee. My name is Alan Winter and I'm pleased to be invited to appear before the committee.

This work is very important to Canada's future and I hope to explain why I think so. Although I was recently B.C.'s Innovation Commissioner, I'm appearing as an individual today, so I'll introduce myself because it will give a context to my comments.

I came to Canada for my Ph.D. at Queen's University because of Canada's reputation as the third nation in space and because the space program was driven by a mission to provide Canada with communications, remote sensing and economic opportunities throughout the country, particularly in the north.

The space program was fuelled by excellent Canadian science with government, industry and academia in a strong partnership to overcome challenges and to benefit the country. After my Ph.D., I worked as a government scientist at the Communications Research Centre on satellite programs, and led a successful international project called Sarsat. Canadian companies developed the key equipment and it's now used internationally.

Entering the commercial world, I became the director of engineering for Telesat Canada at a time when we launched six new spacecraft and extended satellite links as far north as Eureka on Ellesmere Island. We moved out west and I became CEO of several telecom and tech companies including MPR Teltech, I think at that time the largest tech company west of Ontario. We had strong research links with the universities and spun out six companies during the time I was CEO. And also for two years I was president of the space division of Com Dev in the Waterloo region.

When I left the corporate world and returned to Vancouver, I got involved with the human genome project and Genome BC in 2001. During the 15 years I was CEO of Genome BC, we were able to raise over \$700 million for B.C. through partnerships with the federal government, the provincial government and industry to invest in the science of genomics for the bioeconomy and health—and I think, Madam Chair, when you were minister, you visited us there—which is now paying off for the life science sector in Canada, particularly during this pandemic.

From 2018 to 2020, I was B.C.'s first Innovation Commissioner advising the government on research and innovation and helping to attract investment into B.C. Two of my reports were made public and I've referenced them for the committee below.

In my view, so from that experience, we've had some spectacular successes in science in Canada, and I'm sure the witnesses will be able to tell you that in each of the meetings.

Successive federal governments must be commended for continuing to invest in science at a significant level.

However, as many have said, the world has changed and we need a science framework or policy in Canada that encourages science to be a significant driver of the knowledge-based economy and to meet the challenges we face. I think there's been some discussion in the first hour around that.

In this way we would encourage the demand side of science as well as the supply side. That science framework in my view would help us to recognize several points.

Now more than ever we need to rejuvenate government science to help with the complex regulations and standards in our society and trade negotiations in an increasingly protectionist and, particularly recently, geopolitically unstable world.

We need to encourage big science in carefully selected areas and fund the basic operations 100%. The matched funding of big science just doesn't make sense.

We need to learn from the pandemic to apply our science to preventative measures and to develop secure and essential supply chains within the country, not only in health. We learned that in a big way during the pandemic.

We need to develop a science foresight system with the Council of Canadian Academies and others to identify emerging science that builds on strength and enables Canadian competitiveness.

We have at least three solitudes in Canada: government, industry and academia. We have a long way to go to connect the excellent science we do to the rest of the innovation system, to the challenges we face in the country and therefore to our security and prosperity.

It's time to get serious. There is no reason that we cannot harness the intensity we brought to the space program to address such challenges as climate change, our health system, our defence, our oceans, sustainability in an increasingly global economy and others.

Canada has long enjoyed abundant natural resources, attractive geography and favourable access to North American markets.

However, despite excellent science, we have traded raw commodities to buy technology.

• (1940)

This has led to competitive complacency, particularly over the last 20 years or so, and has left the country behind in innovation, productivity and particularly in business investment in research and development.

We need to reclaim our economic sovereignty as a country, and I look forward to seeing this committee's recommendations on how our excellent science can help lead the way.

Thank you.

**The Chair:** Thank you so much, Dr. Winter. We're delighted you could join us tonight.

Now we will go to Dr. Kerr for five minutes.

Welcome.

**Dr. Jeremy Kerr (Professor of Biology, Faculty of Science, University Research Chair, University of Ottawa, As an Individual):** I'm so grateful to join you this evening. I greet each of you from the traditional and unceded territory of the Algonquin people. I acknowledge their stewardship with gratitude.

I am a professor of biology at University of Ottawa, an ecology researcher, a research chair holder, a past president of a scientific society and an executive member of NSERC. I have long been involved in working on science to inform policy and on policy for sustaining science. Most importantly, I'm a parent who cares about the world my children will inherit. Like each of you, I wear many hats. Like everyone here this evening, I'm doing my best to make a difference for others.

It's a long road to become a scientist. Completing an undergraduate degree in any scientific discipline is frankly tough. That degree often culminates in a research project that provides a taste of what discovery requires. It's easy to doubt yourself through these difficult years. Will I discover anything? Do I have what it takes? And what comes next?

For a researcher in training, what comes next is graduate school. For many, that means a doctorate. The best bridge between an undergraduate and a graduate degree is a scholarship from a federal granting council. Such scholarships help enormously, but they are falling increasingly far below the poverty line. They are also incredibly hard to get.

The resulting hypercompetition imposes a filter that excludes many talented people from pursuing their dreams of contributing as a scientist. I drew the term "hypercompetition" from the recent report on discovery research in Canada by the Council of Canadian Academies. It simply means that the competition is so fierce that excellent people are excluded arbitrarily. Hypercompetition filters excellence out of our system.

A student completing her doctorate is usually in her late twenties, a long way yet from becoming an independent scientist. There are still years to go as a post-doctoral researcher, requiring more hypercompetitive applications for fellowships. By the time this scientist completes her post-doc, she's probably in her thirties, at least. If she finds a position as a researcher, she'll need to obtain more funding. Of those funds, 60% go directly to student support. To sustain her career, she's going to need to publish her and her team's discoveries frequently in good-quality research journals, which impose steep fees for that privilege.

There are so many gateways to pass before becoming a scientist. Each of us experiences these gateways, these filters, differently. I am not called by hateful racial epithets on the bus, but some of my students have experienced just that. When I attend meetings, I do not have to worry about unwanted physical contact in the hallways. And yet, such things, and worse, can be a fact of life for some in

our community. The hard work we are doing towards inclusion must continue in granting councils, in institutions and in our labs.

Yet, there are many extraordinary moments that make being a scientist the most rewarding career I can imagine. Moments of discovery and learning make those years of training and effort worthwhile. For me, discovering ways that climate change pushes species towards extinction resonated deeply, and pointed also to solutions. Leading students through the Serengeti to work on conservation changed my life as well as the lives of those students.

Scientists enjoy extraordinary trust from society. That trust is both sacred and provisional, and it needs constant renewal. A great way to do this is through citizen science, which mobilizes communities to participate in data collection. We started building such programs in my lab more than a decade ago, starting on Canadian butterflies. How can people not trust evidence when they have collected it themselves?

Canada needs its scientists to remain engaged, speaking passionately and with humility about the awesome mysteries of nature that we study. So in your study of Canada's science and research ecosystem, I hope you'll remember that it is our researchers who make Canadian science extraordinary. Where hypercompetition and bias stifle excellence or filter it out, we are missing opportunities to bring all our talents to bear on the defining challenges and mysteries of our time.

With that, I thank you for the opportunity to speak this evening.

• (1945)

**The Chair:** Thank you so much, Professor Kerr. We're grateful that you are here with us tonight.

We'll now go Colleges and Institutes Canada.

Ms. Amyot, we will hear from you for five minutes.

**Ms. Denise Amyot (President and Chief Executive Officer, Colleges and Institutes Canada):** Thank you very much.

Good evening, Madam Chair and members of the committee. Today I want to discuss the role our members play in science and research on behalf of our 142 publicly supported colleges, CEGEPs, institutes and polytechnics.

[Translation]

With 95% of Canadians and 86% of indigenous peoples living within 50 kilometres of a college campus, our members are deeply rooted in their communities. As trusted industry and community partners, colleges serve as local gateways to the innovation ecosystem. Our members contribute to Canadian science in two essential ways. First, they prepare students for careers in the sciences, from technology and engineering to mathematics. Roughly 1,500 of the programs our members offer focus on science, and a certain proportion of the others naturally incorporate scientific content. These programs meet the needs of local economies by equipping students with the skills and training to be work-ready.

[English]

Second, Canada's colleges are home to a unique form of applied research. Applied research is an essential part of Canada's research ecosystem that uses the discovery process to solve problems for partners, often businesses, especially SMEs, and our business-led approach to science and research makes Canada more productive, competitive and resilient.

Our approach is unique in three ways: the research question is driven by the partner; the partner retains the intellectual property; and we develop solutions quickly, with 85% of projects being completed in under one year.

[Translation]

Small and medium-sized businesses are especially fond of our approach because they account for approximately 70% of our applied research partners. Over the past decade, investment in applied research has risen significantly. On one hand, revenue has doubled, and on the other, private sector contributions match federal investments dollar for dollar. In 2019–20, more than 8,000 businesses received support from a college, be it technical expertise, equipment or access to a talent pool. More than 42,000 students participated in applied research activities, resulting in the development of more than 5,500 new processes, products, prototypes and services.

[English]

To share more, I will now turn to my colleague, Don Lovisa, president of Durham College.

**Mr. Don Lovisa (President, Durham College, Colleges and Institutes Canada):** Thank you, Denise.

Madam Chair, it is a privilege to be here before this committee representing Durham College and speaking on the impact of applied research.

Our research partners value our collaboration with them because they know we can quickly deliver solutions on their timelines and they retain the ownership of their IP.

One example of a business that we partnered with during the pandemic is 4Pay Inc., a financial technology firm specializing in digital wallets. Durham College's AI hub assisted them with building a wallet optimizer to manage gift cards in the company's proprietary digital wallet.

Another company, ConnexHealth Inc., is a first-of-its-kind personal-support-worker-as-a-service company, providing care ser-

vices for seniors across this country. Durham College's AI hub assisted the company to build their digital health service to assist users with choosing their services and optimizing timing and delivery.

We're always grateful for our primary research funders: NSERC and the NRC. Commercialization supports, however, are limited in the current funding environment, and without assistance, companies can struggle with next steps such as regulatory challenges, certification, finding strong investment partners, sales, marketing, manufacturing and distribution. The lack of these supports for small and medium-sized companies is a limiting factor in their success. There are limited local resources to support growth, and for colleges, we do not receive any resources beyond funding projects.

Looking to the future, we are exploring the development of a trades innovation centre that would be the first of its kind, establishing an exciting new connection between diverse trades to collaborate and develop new industry solutions.

Thank you again for this opportunity to speak to you this evening. We look forward to your questions.

• (1950)

**The Chair:** I want to thank all of you for appearing at this inaugural committee for its inaugural study. We are grateful for your time and your expertise. I know that our members are eager to talk to you.

We will begin our six-minute round with Ms. Gladu.

**Ms. Marilyn Gladu (Sarnia—Lambton, CPC):** Thank you, Chair.

Thank you to all of the witnesses for being here tonight. As a chemical engineer, I started my career in research doing hollow fibre membrane separations for artificial kidneys in dialysis, so I certainly value all of your contributions here tonight.

I want to start with you, Mr. Winter. It seems to me that, if I look at what's happened over the past number of years, we have eliminated the ministry of science, the \$4 billion of increased funding that was suggested from the Naylor report didn't appear, and we put money into superclusters but we didn't really put the money towards participation in global innovation.

What would you like to see from the federal government in order to really spur innovation ahead in Canada?



**Dr. Alan Winter:** I do believe that for the money we're currently spending in these areas of science, technology, research and development, we need to get a better bang for the buck. Some of that was discussed in the first hour.

Beyond that, I think we have to recognize the fact that we're one of the only OECD countries that has been reducing year by year, to some extent, our total investment in research and development and science and technology, whether that be from the higher education side, the government side or the business side, but particularly on the business side. Our total investment, if you like, is around about 1.6% of GDP. The OECD average is something like 2.6%. That's a 1% difference, which represents something like \$26 billion.

It's not that the government funds that, but the government has to create the environment where that sort of money is spent on higher-value products. Only when we have high-value products are we able to have the productivity and the amount of revenue that's coming in at that particular time.

I do think that, first of all, we need to get more bang for the buck in the money that we're spending. Second of all, I think we have to make sure that we bring together government, academia and industry into centres of excellence. In my reports for the B.C. government, we talked a little bit about some of the recommendations of how to actually do that within a province and encourage the active participation of not only universities but also the colleges, the communities in business and government and others in centres of excellence that would be able to compete on the world stage.

**Ms. Marilyn Gladu:** Well said. Thank you.

Mr. Kerr, you spoke about the competitiveness of students and hypercompetition. It seems that we've heard a lot of things so far about how we're not competitive in the salaries we're paying to the Ph.D.s. They have not been increased in 25 years. Then there's the frustration that if they come and they do research in Canada, there are so many barriers to actually seeing a successful commercial enterprise come forth from the research.

Could you comment on what you think we need to do to be competitive on the world stage with respect to students?

• (1955)

**Dr. Jeremy Kerr:** Budget 2018, of course, was a historic investment in science and research in Canada. I think it's really worth noting that there was a major influx of support for investigator-led research, something we hadn't seen before. However appreciative we should all be of that budget, there were bits that were not in it, and that's not surprising. One of the bits that wasn't in it was the sharp expansion in student support that we might have aspired toward had funding been unlimited in some way.

We would like to see a couple of different things in terms of student support change as funding becomes available to the science and research ecosystem. The first of those is simply that the number of awards really does need to increase. To do that, we need to expand the budgets to the tri-councils to facilitate their support for doctoral or master's scholarships as well as the Canada graduate scholarship. We also need to look at the amount of money associated with those scholarships, which, as you correctly point out, has not changed in a long while. I know that many people would like to

see that change. I'm one of them. I think that's another area we can look at.

We need to adjust the success rate so that it improves. We need to adjust the funding rate for people who are successful. The innovation piece I think is probably most clearly associated with the mission that Mitacs currently has. There was a very, very large investment in Mitacs last year. If memory serves, somewhere between \$700 million and \$800 million went towards fellowships. I think we need to watch very carefully and hope that this will lead to important advances in innovation for students.

**Ms. Marilyn Gladu:** That's very good.

Now I have a question that both Ms. Amyot and Don Lovisa can answer. It has to do with colleges.

In my riding, we have Lambton College, which is always in the top three of research for colleges in Canada. I know there's lots of excellent work going on. However, it seems that the split of funding for universities and colleges is not where it ought to be.

Can you comment on what you think we ought to be doing in terms of that split?

**Ms. Denise Amyot:** Absolutely, it's a very good question. If I may, I will answer, and then Don can add what it means at the local level.

**The Chair:** Ms. Amyot, please provide a very short answer, like 20 seconds.

**Ms. Denise Amyot:** In fact, the difference is that colleges get about 2%. They get 1.9% of all the amount of dollars in research, so the potential is huge.

What is interesting is how the investment of the private sector towards colleges' research has increased, in fact, in the last two years. Now it's dollar for dollar.

**The Chair:** Thank you, Ms. Amyot. I hate to do this, but I have to be even-steven.

Ms. Gladu, thank you for your important questions.

We will now go to Mr. McKinnon for six minutes. The floor is yours.

**Mr. Ron McKinnon (Coquitlam—Port Coquitlam, Lib.):** Thank you, Chair.

Thank you to all the witnesses for joining us tonight. Your testimony has been very helpful and appreciated.

As a B.C. member of Parliament, I want to start with Dr. Winter. I represent the fine riding of Coquitlam—Port Coquitlam, so we're almost neighbours.

I appreciated your survey of your history and the broad scope of your experience and what you bring to the table. In your list, one of the main things, point number one, was that we need to “rejuvenate government science”.

Those three words seem to cover a broad territory. I wonder if you could expand on that.

**Dr. Alan Winter:** I think government science is not appreciated, really, in the country and for various reasons, because we've moved most of the science out of the government into contracting for it. What has happened as a result is that in terms of some of the advantages that we need to have in national negotiations, and so on, such as negotiations I was involved with on spectrum in the satellite world, we couldn't have been as successful as we have been as a country without the government scientists providing the background and interfacing with the senior policy people within the government at that time.

In Canada, in terms of government science, we spend about 0.13% of GDP on government science, and the OECD average, again, is about 0.25%, so it's about double—not that it's a huge amount necessarily, but it represents something like \$2.5 billion per year.

If you think about that being applied in all the areas where we have challenges, not just trade and not just telecommunications but in our areas around health as we've seen, the economy, our international defence, our Arctic programs, and so on, we need to have people who are in government who understand the science and can provide good advice, which might be confidential at times. That's the direction in which we should go.

• (2000)

**Mr. Ron McKinnon:** Thank you.

You also mentioned that we need to support big science and we need to support it 100% in carefully selected areas.

What kinds of areas, and how do we carefully select them?

**Dr. Alan Winter:** Yes. That is why I think quite a few people have recommended various ways to go about this, perhaps from a council perspective, which I think had been intended to be set up, but part of the issue here is the context. In terms of the context, as a country, we have to be able to understand that complacency doesn't do it. As we look forward, I think we all agree that we have significant challenges ahead, not just on the economy side but also in our security, in the fact that the world is becoming more protectionist, and so on. If we look at all those things happening, we must make sure that we are able to choose areas that have a connection across academia, across industry, across government, and address some of the things that we really need to deal with, such as climate change. You can take those areas and say, if you work your way back, what are the emerging technologies and how do we invest in them?

I'm on the board of Ocean Networks Canada, which is a great organization, but it spends most of its time trying to find matched funding for the work that's being done. It has been much appreciated that CFI has been able to raise its amount of funding to I think 60% of the total, but the other 40% is still there. Part of what we need to be able to do is not only choose the areas well, but when we've chosen those areas, invest in the basic operations 100%.

**Mr. Ron McKinnon:** Thank you.

I have a minute and a half left. I have a quick question. I believe I'll direct it to Dr. Kerr. It's about open science.

On other committees in the past we've heard testimony that says public money gets invested in research that is then held in confi-

dence or used in proprietary ways. The thought was that this research, paid for by public funds, ought to be open to basically everybody.

Do you think that's a good idea? Would it stifle research, or would it enhance it?

**Dr. Jeremy Kerr:** Thank you. That's a superb question. There are lots of ways that we can think about this problem and I think we need to be very cautious at the outset that we don't try to argue that all research is specifically conducted in the public interest or that it is investigator-led research.

What that means is that some kinds of research are really targeted towards industry and innovation. There can be all kinds of opportunities along that road for that work to take on a proprietary air, and if so, that might be entirely appropriate.

In my own field, where what I'm thinking about, for example, is usually science in the public interest in some way or another, science thrives on reproducibility and open testing of ideas that are published. As a consequence, we like to see our work appear and be open for everybody to evaluate. That means open science is the way we'd like to go for that work.

• (2005)

**The Chair:** Thank you, Professor Kerr; and thank you to Mr. McKinnon for the important questions.

[*Translation*]

Mr. Blanchette-Joncas, go ahead. You have six minutes.

**Mr. Maxime Blanchette-Joncas:** Thank you, Madam Chair.

Welcome to the witnesses joining us this evening.

My first question is for Ms. Amyot, from Colleges and Institutes Canada.

Ms. Amyot, what a pleasure it is to see you again and to have the opportunity to speak with you. Thank you for being here.

I read the recommendations in your brief to the Standing Committee on Finance as part of the committee's pre-budget consultations. I was especially struck by the funding request in recommendation four, a permanent and recurrent investment of \$40 million per year in "college applied research capacity".

Can you elaborate on that recommendation?

**Ms. Denise Amyot:** Yes, absolutely. Thank you for your question.

During the COVID-19 pandemic, we received approximately \$40 million annually for two years. Unfortunately, the funding was limited to two years and was specifically meant for small and medium-sized businesses. We feel that \$40 million in funding should be ongoing. The money was spent quickly and many businesses received support. In meeting with a number of our members, we saw just how much the support was needed.

Right now, projects are funded on a piecemeal basis, with zero capacity for follow-up. I'm not sure whether there's enough time left, but my colleague, Mr Lovisa, could give you examples of the gaps that arise when specialized projects are only partially funded, with no support for the work done at the front or back end.

**Mr. Maxime Blanchette-Joncas:** Thank you, Ms. Amyot.

In your opening statement, you pointed out that more than 95% of Canadians live within 50 kilometres of a college or institute. You also mentioned that in your brief to the Standing Committee on Science and Research.

Tell us, if you would, why it's so important to ensure the presence of higher learning and research institutions throughout Quebec and Canada, as well as their longevity.

**Ms. Denise Amyot:** It is extremely important. The research we undertake is genuinely needed by the communities we call home and local businesses.

The majority of the country's employers are small and medium-sized businesses. All too often unfortunately, they don't have the expertise or equipment to carry out the research that can help solve some of the problems they face. That is the case right across the country, whether we are talking about rural, urban, remote or northern communities.

The applied research we undertake benefits everyone, all Canadians.

**Mr. Maxime Blanchette-Joncas:** In your opinion, Ms. Amyot, how do CEGEPs or colleges in regions differ from educational institutions in big cities?

**Ms. Denise Amyot:** A CEGEP or college in a region is often the epicentre of the community's activities. It is often where people go to play sports or meet for whatever reason, serving as a gathering place for the community as a whole. Indeed, the institution is often the largest employer in the region.

To support research throughout the country's network of colleges is to foster research, productivity and economic growth right across the country. The importance is clear.

**Mr. Maxime Blanchette-Joncas:** Ms. Amyot, do you think the federal government and granting councils understand those differences and take them into account?

Do you think the federal government is doing enough to help regional institutions achieve success?

**Ms. Denise Amyot:** Honestly, I think the government can always do more. That is why we are asking for \$40 million in funding, which is not at all unreasonable. We want that funding to be made permanent so that all of the country's colleges can benefit, whether they are in urban or rural communities.

At the end of the day, it's also about fairness. Small and medium-sized businesses in Rimouski and Flin Flon, Manitoba, need support too.

• (2010)

**Mr. Maxime Blanchette-Joncas:** Thank you.

Can you talk about the barriers CEGEPs, colleges and research institutes face in their dealings with the federal government?

**Ms. Denise Amyot:** Unfortunately, the requests for proposals come out only twice a year, but businesses' needs aren't limited to twice a year. Businesses need ongoing funding.

If a business has a problem in November, we have to make it wait until the next request for proposals comes out in June. Only then can we help the business solve its problem. The business world doesn't work that way.

That's one problem. There are others, but I don't have time to list them all.

**Mr. Maxime Blanchette-Joncas:** Ms. Amyot, can you get back to the committee with that list in writing?

**Ms. Denise Amyot:** I would be happy to.

**The Chair:** Thank you, Mr. Blanchette-Joncas.

[*English*]

Thank you for your good questions. You're always so on time.

Now we're going to go to Mr. Cannings for six minutes.

Go ahead, please.

**Mr. Richard Cannings:** Thank you, Madam Chair.

I'm going to move to Dr. Kerr. I was going to ask Dr. Kerr the scholarship question, because we've heard that from several witnesses already, and I think it's important. It's a policy the government really has to address. However, Ms. Gladu asked that question for me, so I'll move on to something else.

You mentioned citizen science. As you may know, that was a big part of my life before I became a politician. I was involved in building citizen science programs to tackle the question especially around bird population trend analysis and harnessing the expertise and enthusiasm of birders across the country. I had about 20,000 people working for me for nothing—people who knew more about birds than scientists do—true scientists, I guess.

I'm just wondering if you could expand on that, because I think citizen science is such an important part of research in Canada, and this study may be the only place it gets mentioned, so I'd really like to hear more about what you feel about citizen science and where it could lead us.

**Dr. Jeremy Kerr:** Madam Chair, I'd like to say that MP Cannings and his entire family are kind of science superheroes for the rest of us, and the contributions they've made are just unbelievable.

It's a real delight to have a chance to chat with you about such things.

Citizen science puts the process of data gathering, and sometimes even the complexities of data analysis, in the hands of members of our communities. We sometimes call it participatory science. This is one of the ways in which we can open the doors of the ivory tower and make sure that the light gets in but also ideas get into the ivory tower. That goes in both directions. We want everybody to be able to have a conversation about issues that are relevant in their local communities or that they are personally passionate about.

I think we both know there is no more passionate group of naturalists than birders. Things like the breeding birds survey and the breeding bird atlases have enabled literally tens of thousands of people across more than half a century of time—nearly 60 years now, if memory serves—to monitor and detect that the world is changing in ways that affect people but also affect nature.

Citizen science made that possible. It wasn't us scientists in the ivory tower. However hard we work, we have nothing like the power of our communities to step out into nature and to detect things.

I should say that although my own personal predilections in this topic go very strongly toward looking at biological diversity, there are many applications for citizen science that go far beyond counting birds or butterflies. Things like looking at the status of bridges, for example, would make a great citizen science program, or detecting Lyme disease risks. There are a million things that can be done. Citizen science puts that power in the hands of our communities, and I think that's a really good idea.

● (2015)

**Mr. Richard Cannings:** A lot of that citizen science work that I did was funded by the federal government. I think they got a huge bang for their buck. Would you agree that this would be something that could and should be expanded?

**Dr. Jeremy Kerr:** I would indeed agree that this is something government should have a clear hand in, and at times even a directing role, or at least a very strong convening role. This gives a kind of structure to the nature of data collection so that those data can sometimes be applied to problems that are pressing. That, I think, would be a very good idea.

There are initiatives under way and we want to make sure that those things proceed. There are things like the Canadian biodiversity observation network, which might be a kind of all-hands-on-deck moment, both for citizen scientists or participatory scientists, as well as the professional science community in both government and in academics. These kinds of things will tell us answers to questions that are extremely pressing as climate changes and habitat loss also proceed.

That's why I believe, Mr. Cannings, that the short answer to your question is yes.

**Mr. Richard Cannings:** Thank you. According to my clock, I believe I'm running out of time, so I'll leave it there.

Thank you, Dr. Kerr.

**The Chair:** You've all brought new perspectives, some that we haven't heard, and I'd just say it's really lovely to hear our colleague being recognized tonight. Thank you for that.

We're now going to go for a five-minute round, and we're going to begin with Mr. Soroka.

The floor is yours.

**Mr. Gerald Soroka (Yellowhead, CPC):** Thank you, Madam Chair, and thank you to all the witnesses for coming this evening.

Dr. Winter, I really like how you spoke about the need to have government, industry and academia working together. You also spoke about how we're not funding enough to get proper research done, and yet you also spoke on emerging science that's developing.

How are we able to get better information from emerging sciences if we're not even funding properly currently? What areas do you think we need to improve upon?

**Dr. Alan Winter:** I do think my comments around the total amount of money we as a country are investing in research and development applies to not just government but also business. So part of what we, as government, need to do—and this was part of my work with the B.C. government—is to determine how to create the environment into which we can attract companies wanting to invest in IP, in new products, etc., here in Canada.

If we look, for example, at the forest industry, a lot of the companies involved in the forest industry here have done very well over the years, but they're really lumber companies; they're exporting lumber. If you look at forestry companies in other countries, generally they've moved up the supply chain and up the value-added chain into chemicals, into fibres, into materials of different types, etc. That's all because the government, academia and industry have come together and decided, for Finland or New Zealand or other places, that doing this is really important to the country. If we are able to bring these groups together, then we can focus on the application for the country but also for export. Again, if we look at our natural resources areas, we've generally not developed the ability to export a lot of the expertise around, for example, mining. In Australia, if we look at the amount of GDP per capita that is contributed by the services the mining industry provides the rest of the world, it's actually greater than the amount from natural resources that are exported from Australia.

We have to be able to use whatever we have in the way of resources in the highest product way possible. The only way I know of to do that is to make that a priority within a province or within a government and to be able to bring industry, academia and government together to make sure that all the tools we have support that area we're going to invest in. That's really economic development. The piece we're missing, really, is the context for the investments we want to make.

I may not have answered all of your questions, but that's at least part of it.

• (2020)

**Mr. Gerald Soroka:** No, that's actually very good. You're right that in order to create a more stable economy, we need to build upon what we have. We can't just keep producing our primary products and sending them away, so definitely development is a great opportunity.

Ms. Amyot, you spoke about applied research and the fact that currently we do not have enough equipment in a lot of our institutions. What areas do you think we need to improve upon, especially within the same kind of scenario of trying to get new science or new technologies built? How can we improve upon this? Is it directly through funding or is it by specializing in certain areas only?

**Ms. Denise Amyot:** In fact, in your own riding you have the Bee Diagnostic Centre that is associated with Grande Prairie College. They are doing research for greenhouses. In fact, when I said there's no equipment, I meant the SMEs often do not have the equipment to do applied research. That's where colleges can help. We know there is funding from the Canadian Foundation for Innovation to buy equipment. The issue is always to cover the percentage that is not covered by CFI, and often our colleges do not have the funds to cover that 40% or 50%, depending on what we are talking about. That's a huge issue, especially for small institutions.

**Mr. Gerald Soroka:** That's definitely one area in which we need to look at improving efficiencies or maximizing our abilities.

Thank you very much for coming this evening.

**The Chair:** We will now go to Monsieur Lauzon for five minutes.

The floor is yours.

[*Translation*]

**Mr. Stéphane Lauzon (Argenteuil—La Petite-Nation, Lib.):** Thank you, Madam Chair.

My sincere thanks to the witnesses for being here today. We certainly appreciate having you.

Mr. Kerr, I think you're just about the only one who mentioned inclusion. You even gave us an example at your university. You told us about the progress the university had made to foster diversity and inclusion in the research sector.

What barriers remain in order to achieve greater inclusion in universities?

[*English*]

**Dr. Jeremy Kerr:** Thank you. That's a superb question, and I'm grateful that this has been brought before the committee.

There has been an awful lot of progress on this issue in the last number of years. I think we have seen the stirring of a revolution in terms of moving towards a more inclusive research environment for everybody in Canada. The reasons we want to do this are terribly straightforward.

First of all, there are basic justice issues. We don't want to be party to any sort of injustice, and exclusion creates that. That's unacceptable. Also, from a strategic point of view, inclusion means

that we have brought all of our excellence to bear on the problems of our time, and that's important.

There are things that we really need to do and that have started to take place in very important ways in the Canadian landscape, especially in making sure that our entire community is really well informed about what it means to train and to operate a research lab in an inclusive way. There have been some really significant changes that Dr. Duncan, as Minister of Science, oversaw, and that meant the way grants are administered means we explicitly recognize that we should train in a thoughtful way that accounts for individual differences as well as potentially systemic obstacles.

That's just one example of progress, and I think that's important, but if we were to point to chief obstacles, I would say that one of the worst things we have to overcome is bad habits. This is another way of saying that this is really the hardest part of any problem to solve.

It has to do with entrenched cultures of practice that mean we have developed ways of approaching situations that are simply informed by a bygone era, and we need to revise the way we think. Microaggressions, for example, can be significant and essentially traumatizing for some people. The fact that in some cultures it's actually very difficult to address a question to a senior authority figure means that we need to account for that when we try to understand and reach out and engage with those people.

We need to make sure that we keep the pressure on and ensure that in trying to overcome the barriers to a really inclusive research environment, we're thinking about all of the individuals and all of the excellence they represent, which can help solve problems that we all face.

• (2025)

[*Translation*]

**Mr. Stéphane Lauzon:** Thank you very much for that comprehensive answer.

That said, we may be able to draw a link.

Is there a link between inclusion and the difficult road to the top, in other words, the path to becoming a researcher?

[*English*]

**Dr. Jeremy Kerr:** Inclusion and achieving success: well, one of the things we know for very high-ranking people in the academic world, for example, is that those people are disproportionately looking like me and are disproportionately not people of colour. There are very few indigenous leaders in our academic institutions.

Some people have argued that this is changing, but I have analyzed that rate of change, as have others. What appears to me to be happening is that the rate of change is too slow to actually achieve real progress in senior leadership levels within the academic environment. Indeed, in some fields, there's not much evidence of change at all. If we were to point to achieving senior leadership in some fields like computer science or electrical engineering, for example, the rate of change of representation is really quite low in those environments, and we want to try to accelerate that rate of change.

I'd be happy to chat more about this outside of this committee should you like to engage in further conversation. I'm sorry to take so long.

**Mr. Stéphane Lauzon:** Thanks a lot for a complete answer, but we only have 10 seconds left.

I just wanted to say that it's very difficult to achieve the maximum and become a researcher.

[Translation]

Quickly, can you tell us whether immigrants have a role to play?

[English]

**Dr. Jeremy Kerr:** Absolutely they do, and we welcome their presence in our communities.

**The Chair:** Thank you so much, Monsieur Lauzon.

Dear colleagues, I'm looking at the time, and I would like to be fair to everyone. I propose that I give a question to Mr. Blanchette-Joncas and a question to Mr. Cannings.

Would everyone be okay with that?

Okay. That's terrific.

I have Mr. Blanchette-Joncas.

[Translation]

**Mr. Maxime Blanchette-Joncas:** Thank you, Madam Chair.

I'll dive right in then. My questions are for Ms. Amyot, from Colleges and Institutes Canada.

Ms. Amyot, I'd like to help the committee understand what college centres for technology transfer and innovative social practices, known as CCTTs, are. It's an innovative concept that started in Quebec, my neck of the woods, actually, the lower St. Lawrence region. The idea was to address specific applied research needs, mainly for Bombardier.

Quebec's regions are home to 59 CCTTs currently. Drawing inspiration from Quebec, Canada established technology access centres, or CATs, in 2010. However, CCTTs and CATs do not have equal status when it comes to funding. In the rest of Canada, CATs receive \$350,000 in funding; whereas Quebec's CCTTs receive just \$100,000.

[English]

**The Chair:** Monsieur Blanchette-Joncas, could we have the question, please?

[Translation]

**Mr. Maxime Blanchette-Joncas:** Ms. Amyot, what can you tell us about this funding inequity?

**Ms. Denise Amyot:** You're absolutely right to call it an equity.

The reason behind the inequity is this. Previously, the provinces made virtually no investment in applied research.

In Quebec, CCTTs were already receiving funding from the province. Even if they became CATs, they still received only \$100,000—not \$350,000—because the province was giving them funding already.

We have expressed to the government that this approach may have been fine a few years ago, but that today, a number of provinces are investing in applied research. It is unacceptable that one province's CCTTs can become CATs—which not all do—and still be entitled to only \$100,000. They should receive \$350,000.

● (2030)

[English]

**The Chair:** Thank you, Monsieur Blanchette-Joncas, and thank you Ms. Amyot.

For the last question, we will go to Mr. Cannings.

**Mr. Richard Cannings:** Thank you. I will continue with Ms. Amyot and a question about applied research.

You mentioned how important applied research is in colleges. In my hometown of Penticton, we have Okanagan College, which has a renowned sustainable building program both for research and training.

The federal government is looking for ways to quickly expand the construction of new green buildings and the retrofits to buildings across Canada. Is this something where perhaps this program could be expanded? If the government needed knowledge research results quickly...you mentioned the fast turnaround.

Is this the kind of work that the federal government could directly engage with colleges if they want quick answers on specific bits of applied research, or are they doing that now?

**Ms. Denise Amyot:** They are not, but the quick answer is yes, they could, and it would be quick.

We are waiting for their request.

**The Chair:** Thank you Mr. Cannings and Ms. Amyot.

I want to thank all of you. You have given up your time. This committee is grateful for what you had to say. You've given people a lot to think about. We're grateful for your expertise. Thank you.

To the committee members, I thank all of you, and to everyone who supports this committee.

Could I have 30 seconds of your time as soon as this ends for committee business?

The meeting is adjourned.









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