HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

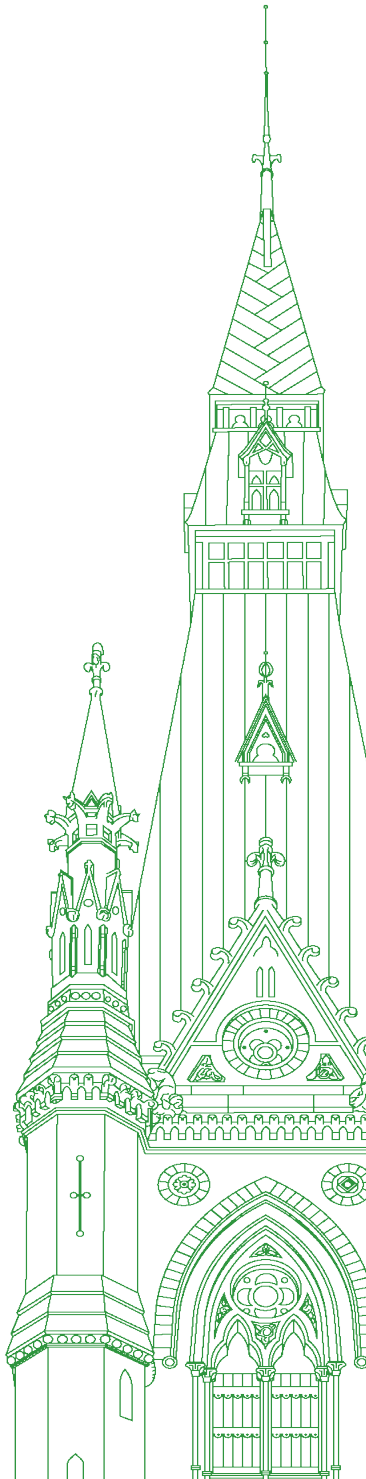
45th PARLIAMENT, 1st SESSION

Standing Committee on Science and Research

EVIDENCE

NUMBER 029

Monday, March 23, 2026



Chair: Salma Zahid

Standing Committee on Science and Research

Monday, March 23, 2026

● (1530)

[*English*]

The Chair (Salma Zahid (Scarborough Centre—Don Valley East, Lib.)): Good afternoon. I call this meeting to order.

Welcome to meeting number 29 of the Standing Committee on Science and Research. The committee is meeting to study governance and accountability of federal science policy and institutions.

I would like to make a few comments for the benefit of the witnesses as well as the members.

Please wait until I recognize you by name before speaking. For those participating by video conference, click on the microphone icon to activate your mic and please mute yourself when you are not speaking. For those on Zoom, at the bottom of your screen, you can select the appropriate channel for interpretation: floor, English or French.

This is a reminder that all comments should be addressed through the chair.

I would like to welcome our witnesses for this panel.

We have Wyatt Tessari L'Allié, founder and executive director of AI Governance and Safety Canada. We are also have Dr. Stéphanie Michaud, president and chief executive officer of BioCanRx; and Robert Annan, president and chief executive officer of Genome Canada.

The witnesses will have five minutes for their opening remarks, and then we will go into our round of questioning with the members of Parliament.

Mr. Tessari L'Allié, we will start with you. Please go ahead.

[*Translation*]

Wyatt Tessari L'Allié (Founder and Executive Director, AI Governance and Safety Canada): Thank you, Madam Chair.

Members of the committee, thank you for the honour of inviting me.

AI Governance and Safety Canada is a non-profit and non-partisan organization. It's a community of people across the country.

Our starting point is the following question: What can we do in Canada and from Canada to ensure that AI is safe and beneficial for everyone?

Since 2022, we've been providing the federal government with public policy recommendations, including through our briefs about the former Bill C-27 on artificial intelligence and data, and our numerous appearances before parliamentary committees.

[*English*]

Two years ago, in the context of the AI and data act, I testified before the industry committee that, while early forms of AI like facial recognition and chatbots require some regulation, there were much more powerful forms of AI on the horizon that Canada needed to get ready for. We made the case that certain AI capabilities pose an unacceptable risk, such as systems that could detect and evade monitoring, rewrite their own code, make unauthorized copies of themselves or refuse shutdown.

In the last few weeks, a major jump in AI capabilities has produced such systems. We have now entered the era of AI agents. Unlike chatbots that simply respond to a prompt, AI agents can take actions in the real world, working autonomously for hours. Think of them as overeager employees that you give a computer and a goal, like building a software program or launching a cold-calling campaign. They can come up with a plan, navigate the files and tools they need, send and receive phone calls, make purchases and troubleshoot any issues along the way.

Earlier this month, we found out that hackers manipulated the Claude Code agent to break into the Mexican government's systems and steal data on over 100 million people. The tool didn't just write code or perform odd tasks for the hackers; it planned and executed much of the sophisticated campaign itself.

Now we're starting to see loss-of-control incidents. These include agents stealing passwords, harassing developers and modifying themselves to evade shutdown in order to achieve the often mundane goals they have been given. A couple of weeks ago, we found out that Chinese tech giant Alibaba produced an agent that, unbeknownst to its engineers, created an elaborate hack to mine cryptocurrency for itself, despite being given a completely unrelated goal.

These loss-of-control incidents are concerning because they are the precursors to agents that could permanently evade human control and act adversarially in ways we cannot detect or stop. This is why hundreds of leading scientists, business leaders and policymakers are calling AI an extinction risk.

What needs to be done? In October, we published our white paper titled “Preparing for the AI Crisis: A Plan for Canada”. In light of this latest jump in capabilities, we now focus on three recommendations.

First, we must pivot to meet the AI crisis. The risk of loss of control is a growing national security threat, as recognized by agencies like the U.K.'s MI5. Given its impact on a wide range of files, success will require coordination across cabinet, parties and jurisdictions.

Second, we must spearhead global talks. AI development is a global issue, and no country can manage it alone. At Davos, Prime Minister Carney showed that Canada can lead. Our strongest card is to convene talks, propose solutions and lay the groundwork for an AI treaty that the U.S. and China might sign when they realize they have no alternative.

Third, we must build Canada's resilience. Canada needs multiple lines of defence against weaponized and malfunctioning AI systems.

This includes monitoring. Currently, governments have little to no visibility into AI agent populations or activity, and the publicly reported instances are therefore likely just the tip of the iceberg. Ottawa needs to rapidly work with AI companies, data centres and Internet service providers to gain a clear picture of what is happening on Canada's digital infrastructure.

On prevention, per our AI and data act recommendations, systems with capabilities that pose an unacceptable risk must be banned in Canada. Parliament needs to act quickly to pass a law to this effect.

On defence capacity, if technologists can't stop an AI system, government needs to be ready to intervene. Canada needs defence strategies and containment and shutdown protocols to neutralize weaponized and malfunctioning AI agents.

On emergency preparedness, we need scenario planning and joint exercises to ensure readiness for potential large-scale attacks, corrupted communication lines and shutdowns of critical infrastructure.

The challenge we face is daunting. Most of the world is still unaware, and failure could lead to permanent loss of control, but this story isn't written yet. As Canadians, we have an opportunity right now to lead by example at home and on the world stage so that we may all share in the benefits of this transformational technology.

Thank you.

● (1535)

The Chair: Thank you.

We will now proceed to Dr. Michaud, president and chief executive officer for BioCanRx.

You will have five minutes for your opening remarks.

[*Translation*]

Stéphanie Michaud (President and Chief Executive Officer, BioCanRx): Madam Chair, members of the committee, thank you for the opportunity to appear.

My name is Stéphanie Michaud. I'm the president and CEO of the Canadian immunotherapy network BioCanRx, a federally funded organization dedicated to accelerating the development of made-in-Canada cancer immunotherapies, including CAR-T therapies and other cell therapies, from the laboratory to patients.

[*English*]

We appear before this committee as direct participants in the federal science funding system, not as observers of it.

I want to begin simply. This study matters. It is timely and we thank you. The questions you are asking about governance, accountability and transparency of federal science funding are not procedural questions. They have direct consequences for patients, including those far from urban centres, and for Canada's ability to retain the economic value of its own publicly funded discoveries.

Since 2015, BioCanRx has invested $54.5 million in federal funds, leveraged $156 million in partner contributions, treated more than 400 patients, created eight spin-out companies and supported 15 made-in-Canada clinical trials. BioCanRx alone accounts for 47% of all Canadian-origin cancer immunotherapy clinical trials since our founding.

Yet, between 2002 and March 2026, only 3.4% of all cancer immunotherapy trials conducted in Canada were based on Canadian discoveries. Our progress is real, yet it reveals exactly how large the structural problem remains.

Here's the problem in concrete terms. Think of it like funding a contractor to build an architecturally sound house, but not funding the permits, the soil test or the safety inspections needed to break ground. The money for construction is ready, the builder is qualified, but the house cannot be built, because the preparatory work was never funded. That is exactly what happened with three of our projects in 2023 and 2024, when we no longer had funding.

CIHR funded these projects to conduct clinical trials, but did not fund the GMP, assay development and toxicology studies required to file the clinical trial application with Health Canada. This work is too applied for CIHR's mandate. It is too early and risky for private capital. The project sat idle for at least a year. There was no federal mechanism to apply to. This gap between CIHR fundable research and clinic-ready therapy is structural, not incidental. It is invisible to any single federal accountability framework, because no single framework has visibility across the full pipeline.

All three projects subsequently received BioCanRx funding specifically designed to meet Health Canada's requirements. One has since opened a clinical trial providing a novel CAR T-cell therapy for both pediatric and adult blood cancer patients, a therapy that had no path to the clinic before BioCanRx intervened.

In a moment when Canada must harness its scientific strengths for sovereignty and competitiveness, we cannot afford governance structures that leave funded science stranded on the bench.

This is not a uniquely BioCanRx observation. In December 2025, we commissioned the Institute on Governance to benchmark Canada against six international comparators. What was the finding? Canada's underperformance reflects a structural design gap, not a lack of policy effort. Our health and innovation portfolios are complementary, but operate without mandated synchronization. This is a risk governance deficit. The U.S., U.K. and Japan have each built dedicated national translational infrastructure to answer the question Canada currently cannot: Is our investment reaching patients?

The committee is examining whether an independent oversight function, modelled on the Auditor General, could strengthen federal science accountability. We support that direction with one essential condition. The mandate must cover real-world outcomes, patient access, clinical deployment, manufacturing capacity and health system efficiency, not only publication counts and grant compliance.

It must evaluate coherence across the full pipeline, not just individual programs in isolation. The report also recommends a cross-departmental translational health research concierge program to guide innovators across the structural gaps between federal portfolios, a coordination mechanism that does not yet exist in Canada.

The ask is not more money. It is governance that is fit for purpose, transparent, independently evaluated and oriented towards real-world outcomes. Canada invests in science. This committee has the opportunity to ensure that we govern it wisely.

I look forward to your questions.

● (1540)

The Chair: Thank you.

We will now go to Mr. Robert Annan, president and chief executive officer of Genome Canada.

You will have five minutes for your opening remarks.

Robert Annan (President and Chief Executive Officer, Genome Canada): Madam Chair, vice-chairs, members of the committee and fellow witnesses, thank you for the invitation to appear today.

I'm Rob Annan, president and CEO of Genome Canada.

[*Translation*]

Thank you for the opportunity to contribute to your study on the governance and accountability of federal science policy and institutions.

[*English*]

Let me start by saying that Canada's research and researchers are absolutely world class and something we should be proud of. However, given the scale and urgency of Canada's current challenges, world-class research alone isn't enough. We need to maximize the impact of that research. That is where I'll focus my remarks today.

Genome Canada is an independent, national and mission-driven research organization dedicated to advancing genomics research and adoption in Canada. We work to push the frontiers of biotech and life sciences, focusing on technology adoption and commercialization by Canadian companies, doctors, farmers and other users. We are built on a unique federated model, with six regional genome centres across Canada, and with funding from both federal and provincial governments, as well as industry, foundations and non-profits. We have a truly team Canada approach.

Since our founding in 2000, we have worked with hundreds of Canadian companies, helped spin out 135 new companies from our research projects and supported the creation of more than 500 patents, licences and inventions. Today, Canada is third in the world in the creation of genomics-related IP, and we continue to advance commercialization and adoption through the Canadian genomics strategy. We know what it takes to turn research into impact.

That's why we believe strongly that this study matters. Canada has world-class researchers, strong institutions and major areas of scientific strength, but system challenges mean we are not realizing our full potential. Our research initiatives are too often subscale, unsustained and fragmented. They do not sufficiently link to adoption and commercialization. That gap matters because it affects innovation, commercialization and our economic security.

From where we sit, the core issue is not simply whether the system needs more oversight. It is the larger governance question of how the pieces fit together and whether the system is organized and optimized to meet Canada's biggest needs.

I'll make four practical points to address these issues.

First, Canada needs to define a national science, technology and innovation strategy. Most advanced economies support economic growth with clear, explicit science and technology strategies that define long-term objectives and identify key national priorities. Without a clear strategy, institutions compete or work at cross-purposes. Strategic leadership gets everyone on the same page, allowing the system to self-organize, and gives institutions the clarity needed for execution, performance measurement and continuous improvement.

Second, Canada needs stronger capacity to do mission-driven research. The most important problems we face do not fit neatly inside one discipline, one institution or one funding stream. Addressing them requires clear objectives, cross-sector collaboration and sustained effort over time. Five years ago, we at Genome Canada adopted an explicitly mission-oriented, challenge-driven approach and have found that this orientation aligns partners, reduces fragmentation and connects research investments to tangible outcomes.

Third, Canada needs better coordination across the system. Today, no one has clear authority to align priorities and resolve trade-offs across granting councils, departments, third party organizations and others. Other countries have addressed this with central science offices, capstone bodies or mission-led coordination models. The structure can vary, but the function is essential. Someone must be responsible for making the system work as a system.

Finally, Canada needs stronger pathways from research to impact. World-class research on its own is not enough. Knowledge translation and mobilization need deliberate, sustained support. Genome Canada does this kind of work: ensuring that research shortens the diagnostic odyssey for kids with rare disease, improving nickel recovery from tailings with non-toxic approaches or improving breeding outcomes for crops and livestock in our food systems. There's a crucial and consistent gap between discovery and application. We need novel thinking and significant attention paid to fill that gap.

● (1545)

If I were to leave the committee with one central point, it would be this: Canada has extraordinary assets, and we shouldn't neglect them. Research excellence is the foundation for everything else. We're really good at this. What we lack is alignment, coordination and delivery at scale. This is the governance challenge we must face, and Genome Canada will be happy to support this work.

[*Translation*]

Thank you. I wish the committee the best of luck on this study.

I look forward to your questions.

[*English*]

The Chair: Thank you to all the witnesses for their opening remarks.

Now we will start with our round of questioning.

We will begin with MP Baldinelli for six minutes. Please go ahead.

Tony Baldinelli (Niagara Falls—Niagara-on-the-Lake, CPC): Thank you, Madam Chair, and thank you to the witnesses for being with us this afternoon.

I'm going to begin with Dr. Michaud.

I enjoyed your presentation. With regard to BioCanRx, in your remarks, you said, “progress is real” and it leads to “real-world outcomes”. You said that we need to harness our scientific strengths for our overall sovereignty. Ultimately, the question that we need to ask is, with those dollars that we spend—I think it's over $10 billion in public research funding for scientific research—whether the investment is, in your case, reaching the patient.

I just read an article that was published in the Hill Times, which revealed that ISED had informed organizations such as yours that the strategic science fund would be cutting $20 million from the $800-million fund as part of the government's overall expenditure review decision.

It's interesting that we're doing a study on governance and accountability of federal science policy and institutions. As part of the strategic science fund, one of the means of accountability where the government is dealing with the not-for-profit sectors is they put in place accountability measures, performance targets and funding for projects. They ask whether the not-for-profits are getting results for those projects. To your point, Dr. Michaud, is that funding reaching the patient? For example, one of the means of accountability is the contribution agreements that are put in place by the government. Your funding will be cut in the last year of that contribution agreement.

My understanding is they're legally binding documents. How is it that the government can pull funding in your last year as part of that contribution agreement?

Stéphanie Michaud: All of the contribution agreements that are in place for strategic science fund recipients such as ourselves have a clause that stipulates that future funding is subject to parliamentary appropriation. This is the mechanism by which these contribution agreements will be renegotiated with the different recipients affected by these cuts.

Tony Baldinelli: Dr. Annan, your organization was impacted as well. What was the impact on your organization?

Robert Annan: We're still sorting out the full details. Some of the projects that we've already launched may need to scale back. Mostly it's about the opportunity cost of the projects that we won't be supporting in that last year of the agreement.

● (1550)

Tony Baldinelli: That's a key term, the opportunity cost.

Dr. Michaud, you questioned whether the investment is reaching the patient. When those contribution agreements are signed, does your organization then go forward and present business plans for the government that transcend that period of time? Now the government is asking you to make last-minute changes to those agreements. You're well into your plans. How is that going to be impacting certain decisions? Certain projects may not be able to go forward. Is that correct?

Stéphanie Michaud: That is correct. We are working with different government stakeholders and look forward to meeting with them to further discuss the impact of these cuts. The reality is that we believe the work we're doing at BioCanRx is very much about bridging and filling a gap that exists in the ecosystem.

As I mentioned in my remarks, there is little to no funding for the kind of work that we do because it is required to meet the regulatory requirements of Health Canada so that we can get to a clinical trial. It's development work; it's very difficult funding to get.

Now, instead of focusing on what those later projects are going to be, we'll have to focus on attempting to find other partner dollars in order to bridge that gap. Again, we are very much focused on working with different government stakeholders to see a clear path through so that we can mitigate these cuts that are happening in the last year.

Tony Baldinelli: To your point, the role the organization plays is filling an important gap that exists in the system. The research is being done. The federal government is committing the research through the CIHR, for example. They're doing the health research, but it's getting to the next stage, that clinical trial. Again, are we investing those critical dollars? Are they reaching the patient? Do you not think that cutting your funding will impact patient safety?

Stéphanie Michaud: With respect to patient safety, in the development work we carry out in order to meet the regulatory requirements, 99% of the different products we work on are brand new products. Establishing safety and demonstrating safety to Health Canada is absolutely key before a product will be administered to a patient.

I think this is why this study here is so key with respect to examining accountability and governance. It's really about understanding how a cut in a certain part of the ecosystem really has downstream ramifications. It really points to the need to take a holistic look at how we're supporting our research. The research we do would not be possible without the great research that's being carried out by CIHR-funded researchers. We benefit from that, but our investment is key to getting it to a clinical trial.

Tony Baldinelli: To your point, which is valuable, this study is so important, along with having you appear here today, because it does show the differences between the tri-agencies, for example, in how they report on the outcomes for the dollars that are being spent; the means and the accountability measures that the government puts in for private groups such as yours; and the accountability measures, the performance measures and the project designs that need to be required. I think it's ultimately responsible that the government take a look at everything and come forward, to your point, with a plan that kind of covers all outcomes.

Stéphanie Michaud: I would agree with you. That is why we are very much looking forward to working with different government stakeholders to see a path through this situation at this time that we've been presented with.

Tony Baldinelli: Thank you.

The Chair: We will now proceed to MP Noormohamed.

You have six minutes.

Taleeb Noormohamed (Vancouver Granville, Lib.): Thank you, Madam Chair.

Mr. Annan, how long have you been with the organization?

Robert Annan: I've been with the organization for about six years.

Taleeb Noormohamed: Are you aware of the significant cuts your organization underwent in 2014?

Robert Annan: Yes. It was before my time, but yes.

Taleeb Noormohamed: Do you have any context on the cuts that you could share with this committee?

Robert Annan: No. As I said, I know that we went through them, but I don't really have the context to speak specifically about them.

Taleeb Noormohamed: If I were to tell you that the cuts were to appropriate drug cases for hepatitis C patients and other folks who were receiving care, as well as to programs and research supporting farmers and crops and profitability for farmers, would that seem reasonable to you? Would that seem to be the type of cuts the organization would have seen?

Robert Annan: Yeah; I mean, I do know that we certainly had to shift resources around in a lot of projects.

Taleeb Noormohamed: Those significant cuts were made by a Conservative government. Can you talk a little bit about how, after 2015, your funding was increased?

Robert Annan: Again, really it's before my time. I can speak mostly about what's happened since about 2018-19, which is when I joined the organization.

● (1555)

Taleeb Noormohamed: You have seen funding increase over those years, have you not?

Robert Annan: We have. It varies from year to year, but generally we've been pretty stable since that time.

Taleeb Noormohamed: Is it fair to say that this government has been consistent in increasing your funding and giving you the support that's been required to do the work you need to do?

Robert Annan: Overall, yes, we've been pretty steady over the last five or six years.

Taleeb Noormohamed: Perfect. Thank you.

Dr. Michaud, you have expressed some concern about the cuts that you have had to manage and absorb. Can you talk a little about the increase in funding that you had seen over the course of the last decade prior to these cuts?

Stéphanie Michaud: Yes. We have been in existence since 2015. We were funded through the networks of centres of excellence program. We received a total amount, from 2015 to 2024, of $40 million through the networks of centres of excellence program. Due, I believe, to the strength of the application we put forward to the strategic science fund, making the compelling case of the gap we bridge in the ecosystem, we received an increase from what was our approximately $5 million a year through the NCE program to overall, over five years, $38 million.

Taleeb Noormohamed: I note the questions asked by my friend opposite and his concern for some of the cuts and some of the challenges you now face. If, for example, a government that was not this government, but the party opposite, had taken power, would you have had any concerns about the fact that there were targeted restrictions on research on such things as embryonic research and stem cell research?

Stéphanie Michaud: That is really completely outside the area of research that we fund. I'm really not in a position to comment.

Taleeb Noormohamed: Would it concern you if government were directing what you could or could not research?

Stéphanie Michaud: Again, this is completely outside of my scope of expertise. We do not fund any kind of stem cell research or embryonic research, so I don't have the expertise to comment.

Taleeb Noormohamed: My question is not about those specifics. My question is, how do you feel about government directing what you should and should not research?

Stéphanie Michaud: I think that when these applications are put through we define exactly what our scope of work is going to do. This is carefully evaluated by experts, who are brought together by the government and validated in this way. That kind of validation exists at the application stage.

Taleeb Noormohamed: Mr. Annan, if I could, I'll switch to you on a similar question. When government starts to determine what you can and cannot research—and I'm giving an example here of a party platform that says embryonic research would not be allowed—does it concern you at all?

Robert Annan: I'm not familiar with the platforms in question.

I will say that there's a tension at play. I think it is absolutely the responsibility of the government to set broad strategic direction. I would actually argue that we need more of that at the level of setting targets, objectives and goals.

Having said that, I think there are great risks when governments get involved in directing science at a level of specific sorts of technologies or directions, as we're seeing in some other national jurisdictions right now, and limiting research that has great benefit and potential for both health and the economy.

Taleeb Noormohamed: If I were to dig in a bit, then, on embryonic research, what would be the risks if Canada were to say that we're no longer going to do embryonic research?

Robert Annan: This isn't really an area of particular expertise for me; however, Genome Canada does fund a lot of work when it comes to ethics, policy and genomics research, including human research.

Globally, there is a moratorium on doing any kind of what we call “germline editing”—research involving persistent changes in the genome that can be passed on—but it is also an area of ongoing discussion and debate, because the ethics are complicated. We do find that we want to keep the options open for the future and that there may well come a time where we see that the benefits outweigh the risks and costs.

Taleeb Noormohamed: I guess, then, that the question becomes, how do we ensure in this conversation that when we're talking about governance, when we're talking about making sure that structures are in place, government is not imposing on researchers and on research?

The Chair: I'm sorry for interrupting. Your time is up. Maybe it will come in the second round.

● (1600)

Taleeb Noormohamed: Thank you.

The Chair: With that, we will now go to MP Mario Beaulieu.

Welcome to this committee for this week.

Please go ahead. You have six minutes.

[*Translation*]

Mario Beaulieu (La Pointe-de-l'Île, BQ): Thank you, Madam Chair.

Thank you to the witnesses for being here.

Mr. Tessari L'Allié, in light of the discussions the committee has had on the lack of independent audit bodies for scientific systems, what model of an independent mechanism do you recommend for assessing the safety and societal impact of AI systems? How can we avoid its politicization?

Wyatt Tessari L'Allié: That's a very good question.

I'll provide some context. Most cutting-edge research on artificial intelligence is done in Silicon Valley, often by Canadians, but OpenAI or Anthropic pays them millions of dollars. So Canadian AI research isn't really on the cutting edge anymore. There are some exceptions, but for the most part, that's where it's happening.

However, Canada is still in a very good position to advance research on AI safety. I know, for example, that initiatives like Mr. Bengio's and the LoiZéro organization, and all the work at the Canadian Artificial Intelligence Safety Institute, are moving in the right direction.

The problem with scientific research on artificial intelligence is that AI is advancing very quickly. Research projects often take years. We could have artificial intelligence that is smarter than humans in 18 months. So, if a research project begins today to look at an ethical aspect of AI, for example, or an aspect of controlling AI agent systems, by the time it yields results and is regulated, it will be too late. That's why we're increasingly in a situation where the most responsible thing to do is slow down or ban AI agents systems that are too dangerous, at least until safety research catches up.

Mario Beaulieu: Could an independent body help decide which system should be banned?

Wyatt Tessari L'Allié: Yes. For example, the Canadian Artificial Intelligence Safety Institute is a step in the right direction, but it has a very small budget and it doesn't have the mandate to monitor autonomous agent systems. So a reorganization would be in order and the mandate would have to be changed. In addition, the institute should be given more power so that it can have an influence, and not just make information public without being able to react to it.

So I would say that this institute should be strengthened, and we should work with institutes around the world. The one in the U.K., the AI Security Institute, is probably the best example. They do tests on leading-edge models, and I would say they're among the most aware of what's going on.

Mario Beaulieu: Thank you.

Dr. Michaud, how do you ensure that francophone teams have equitable access to platforms, tests and assessments? I'm thinking in particular of French-language services or committee membership.

Stéphanie Michaud: At BioCanRx, we subsidize all the universities in Quebec. In addition, we subsidize about a third of the clinical trials that take place in Quebec. In terms of assessing the different projects, we have international committees. Committee members come from all over the world, because we seek out certain types of expertise. Committee meetings do take place in English, but all the universities in Quebec still participate. All those who have medical schools, such as the Université de Sherbrooke, Université Laval, Université de Montréal and McGill University, participate.

BioCanRx currently subsidizes about nine research teams in different types of translational programs.

Mario Beaulieu: They still have access to platforms and all the tools in French, don't they?

Stéphanie Michaud: Yes. Our website and our communications are always in both languages.

Mario Beaulieu: That's great.

On the whole issue of microdata collected in secure environments, what clinical and performance data from immunotherapy projects could be shared anonymously to allow for independent evaluation of results and biases?

Stéphanie Michaud: If you want to talk about the clinical trial results, of course they're available. The data is collected in the various hospitals where the clinical trials take place. Those kinds of results don't give us access to patient names. We only have access to the overall clinical trial results that we fund.

So everything is well protected through the various systems in the hospitals we work with.

● (1605)

Mario Beaulieu: That's excellent.

What kind of governance adaptation between organizations like the Canadian Institutes of Health Research or the Social Sciences and Humanities Research Council would reduce fragmentation and improve the traceability of research funding decisions?

Stéphanie Michaud: That's a great question. Of course, that's why we're here today.

We really need to look at a new governance system to properly monitor development. In the case of BioCanRx, it's the development of a product from discovery to the clinical trial. Right now, there's no way to have a new system, but non-profit organizations like ours, which are funded by the strategic science fund, are used to manage the immunotherapy development pathway.

Better governance between organizations is really something that should be considered for developments related to the various diseases patients are grappling with across Canada.

Mario Beaulieu: Thank you.

My next question is for you, Mr. Annan—

[*English*]

The Chair: I'm sorry for interrupting, but your time is up. Thank you.

This ends our first round of questioning. We will start our second round of questioning with MP Holman for five minutes.

Please go ahead.

Kurt Holman (London—Fanshawe, CPC): Thank you, Madam Chair.

This is a question for Mr. Tessari L'Allié.

The federal government needs stronger AI governance. There have been repeated concerns about delays, limited consultation and a lack of clear legislative direction.

Your organization made a submission to the national AI task force. Do you feel your key concerns were meaningfully reflected in the government summary? If not, what was missing?

Wyatt Tessari L'Allié: I would say that, broadly, no, our recommendations were not reflected, partly because there were 11,000 submissions and ours was only one of them.

The biggest piece was our message to government for the last three years, which has been this: Think ahead. AI is moving very quickly. If it takes government a few years to put something in place, you need to think about where AI is going to be in a few years. That's why you have to follow what every major AI company is saying. They are saying, “We're building 'smarter than human' AI systems—systems that can do everything a human brain can do, only faster, better and cheaper.” We need to be ready for that.

On the legislation front, the AI and data act was probably the last chance to get something in place before “smarter than human” AI. You can still pass a bill like Bill C-5, which was rammed through, but that's the speed at which you would have to move. You would also have to make it very flexible so the regulator can regulate very quickly, because if there's a new capability coming out every week, you're going to need a new regulation every week. That's the speed at which you need to move.

Kurt Holman: Thank you, sir.

You raise concerns about the lack of oversight for rapidly evolving AI systems, including open-source models. Is the federal government behind on developing its AI policy and safeguards for Canadians?

Then I have a follow-up question. Have you seen any progress with the federal government AI policy ever since your appearance and warnings at the industry committee two years ago?

Wyatt Tessari L'Allié: I will say there has been increasing awareness over time, and every country is far behind in this, so it's not just Canada.

I'm sorry. I forget the other question.

Kurt Holman: Is the federal government behind on developing its AI policy and safeguards for Canadians?

Wyatt Tessari L'Allié: Yes. Everyone's behind. Even the AI companies at the front end, at the frontier, are saying that they're going too fast to be able to often test these things sufficiently before they roll them out. There's a huge competitive pressure right now to go as fast as possible, because the company that doesn't shift, you know, is the company that falls behind. That is increasingly dangerous because we're seeing, for example, Anthropic, which is considered one of the most responsible organizations in the field.... They recently publicly reneged on their pledge to not build unsafe systems, and they did so because they realized that if other people are building unsafe systems and they're not, they'll fall behind.

That's where you really need governments to be able to see this happening and step in now. At this point, you don't have five years to put a law in place. You're going to have to slam the brakes on the stuff very quickly if you want to stop the worst outcomes.

Kurt Holman: Would you say in a quick overview that Canada is not fully prepared for AI, that the government has not been transparent or inclusive in how it's developing policy and that, at the same time, our funding system is not delivering results for Canadians—i.e., the government is behind, experts are not fully heard and there are real, unaddressed risks? Would you agree or expand on that?

Wyatt Tessari L'Allié: That's roughly correct in the context of every other country being in the same boat. As mentioned, time really is running out. The experts we talked to in the frontier labs are saying that this thing's happening much faster than people think it is. The latest breakthroughs we saw in January and February, where we had AI agents.... Literally, companies are buying extra computers for their employees so that their employees can have multiple computers. Each of those computers is running an AI agent on its own, kind of like its own AI employee.

That is what's happening. It's going to transform research as well. I haven't really gotten into this yet, but a lot of the fundamental assumptions we have about how the economy works, how human labour works, how human cognition works, and the value of human knowledge are about to get very rapidly disrupted. That's why we need time to work through that. There's a lot of opportunity there to work through if we do get through it, but it's going to require some very hands-on governing in the very short term.

● (1610)

Kurt Holman: Do you feel that Canada should require mandatory safety testing or certification before high-risk AI systems are deployed?

Wyatt Tessari L'Allié: If Ford and GM have to do testing before they can put a car on the road, the same thing should happen with an AI system.

In the 2010s, you had these single-purpose, machine-learning tools. You were training your model to recognize images or to work on a bigger science project. Yes, you need some regulation, but it's not too big a problem. Chatbots are a similar problem, and you're starting to see issues with creative industries.

However, we're now in a very different era. We don't just have AI that can talk; we have AI that can act, AI that is buying and selling stuff, AI that is making phone calls, AI that is interacting with people, as a human being would. That is a whole other level of risk, and that's where we have to deal with it very quickly because we're waiting for an accident to happen, basically.

Kurt Holman: Thank you.

The Chair: Now we will proceed to MP McKelvie for five minutes.

Please go ahead.

Jennifer McKelvie (Ajax, Lib.): Thank you, Madam Chair.

My first questions are for Dr. Annan.

Thank you for coming today.

I took note of your four recommendations. Today is about governance, so I'm just wondering whether you can speak to Genome Canada's governance and oversight. Do you have a board? What does that look like?

Robert Annan: There are a few layers of governance, I think. We are an independent, not-for-profit organization with an independent board of directors, subject to the Canada Not-for-profit Corporations Act. As such, we have to exhibit good governance, as well as publish audited financials every year. We have an annual report that outlines all of our activities, lists of projects, and so on and so forth. We also have an international science and industry advisory committee that provides the board with guidance on best practices and trends internationally when it comes to the kind of research we support. We have all of the elements of good governance that you would expect in any privately held organization.

On top of that, we are subject to the terms and conditions of our funding agreement with the Government of Canada, which generally follows Treasury Board guidelines. We are subject not only to quarterly reporting on financials but also to regular audits and to value-for-money audits, as well as to a regular five-year impact assessment, which is tied to our funding renewals.

There's a second layer. Because we have funding from the provinces, we are also indirectly subject to provincial oversight through the co-funding received through our regional genome centres.

Then, of course, we have governance internally on the actual dispensing of funds at the project level. We have two layers of peer review: for scientific and technical merit and for impact. We also subject all projects to independent financial assessments before the flowing of funds. They are then overseen by governance committees of experts, with quarterly reporting and milestone-driven funding arrangements.

Jennifer McKelvie: You spoke to the need for a science strategy, mission-driven research, coordination of priorities and ensuring uptake and commercialization.

However, on that, I think my colleague also touched on the importance of academic freedoms. For example, in the stem cell space, researchers have done a very good job at using a technology with a lot of possibility for good and for human health. I know we have other technologies at the forefront where we haven't necessarily developed these sorts of ethical frameworks, for example, synthetic biology.

What sort of scientific oversight do you see, and how do you see people coming together, in addition to government regulation, by bringing self-regulation around these very rapidly evolving technologies where they are at the front and centre?

Robert Annan: Thanks for the question because it actually relates to some of the comments my fellow witness was just making around AI.

Generally speaking, as a society, and certainly when we think about creating positive economic impact, it's easy to focus on getting money into the hands of the inventors and the people who are going to really push the technology to the forefront. I really do think it's important that we are always also supporting work by independent researchers in the space who are working around ethics, law and policy to be able to support the effective context that's required for a lot of these transformational technologies. A lot of that comes from the communities themselves.

At Genome Canada, we've always spent roughly 10% of our budget in social sciences and humanities research. That's to help smooth the adoption of these technologies by understanding social needs and public acceptance and the ethical and legal dimensions around that research. I think we should do more of that. I think we should guard against the bias towards the technology side and make sure we're doing some of that work.

I do think it's somewhere the government doesn't necessarily need to do the work, but can provide leadership by being able to point the direction—though not at the level, as your colleague mentioned, of dictating what science should and shouldn't be done. Important questions should be asked. What sorts of outcomes are we really driving as a society? What do we want AI to do for Canada? What do we want genomics to do for Canada? What are the kinds of outcomes we see? Then organizations like ours can mobilize those experts in pursuit of those goals.

● (1615)

Jennifer McKelvie: Thank you.

Dr. Michaud, you spoke very well to the importance of the strategic science fund. I know there are a lot of wonderful organizations covered by that fund.

Bringing this back to governance and oversight of that fund, it's kind of always one-off funding and people coming and going.

How can we better coordinate within that strategic science fund? For instance, who is working in that fund and how are they working together? How can we make sure that we're maximizing the success of all of that work?

The Chair: Make it a 15-second answer, please.

Stéphanie Michaud: Again, at BioCanRx we are very focused on key deliverables: the number of clinical trials taking place in Canada and the number of patients treated. We communicate these results to our SSF secretariat, which then assembles all of the results from similar SSF recipients.

When we're thinking about different sectoral strategies, there's really a need to develop goalposts for where Canada wants to be and where we want to go. I think we took a first stab at this with a biomanufacturing and life sciences strategy—

The Chair: I'm sorry to interrupt, but could you wind up quickly?

Stéphanie Michaud: I can follow up.

The Chair: Thank you.

We will now go to MP Beaulieu for two and a half minutes.

Please go ahead.

[*Translation*]

Mario Beaulieu: Thank you, Madam Chair.

Mr. Annan, essentially, based on the findings regarding fragmented data governance, what type of national, federated or centralized architecture do you recommend for the secure sharing of genomic and health data? Furthermore, what public performance indicators do you recommend?

[*English*]

Robert Annan: I'm going to give my answer in English, if you don't mind.

Globally, there is a tension between how to ensure we have effective oversight and privacy of data, especially human patient data, and the recognition that bringing that data together allows us to find the treatments, diagnostics and so on that so many patients need.

Best practices are still being developed, but we actually have a wonderful organization based here in Canada called the Global Alliance for Genomics and Health. It is an international organization that sets standards for how to effectively share data across jurisdictions while protecting those privacies.

Generally speaking, there's a bit of a combination between federating that data so that the data are being held in different locations, often at a provincial level when it comes to hospital data and so on, while at the same time recognizing that some data needs to be combined, and identifying the set of what we call "minimal metadata". This is patient data that ideally won't identify individuals but can be used to make the data more useful.

[*Translation*]

Mario Beaulieu: Thank you.

I have a more general question. It has been noted that there's no independent body in Canada to systematically assess the distribution of research funding by discipline, institution, language, or other criteria. Do you have any recommendations in this regard?

Stéphanie Michaud: Is the question for me or for everyone?

Mario Beaulieu: It's for you, Dr. Michaud.

Stéphanie Michaud: The answer is yes. All my colleagues here as witnesses and I would need a governance system capable of managing the various investments or, at the very least, reporting on the various investments made across Canada. This would also enable us to evaluate the performance of research investments.

I also want to reiterate that researchers in Canada are absolutely exceptional, and their work is excellent. We're recognized internationally for the quality of the research we conduct. Right now, we're really talking about how to move to the next stage and leverage all the results we have.

Do we need to carefully consider what such an organization might look like, what it could do, and what kind of governance it might have? Yes, absolutely.

● (1620)

[*English*]

The Chair: Thank you. Your time is up.

We will now proceed with MP Ho for five minutes.

Please go ahead.

Vincent Ho (Richmond Hill South, CPC): Thank you, Madam Chair.

My first set of questions is for Dr. Michaud of BioCanRx.

The Liberal government recently announced a series of cuts to science funding. It's affecting over a dozen science organizations. One of them is BioCanRx.

Can you walk the committee through how some of these recently announced funding reductions will impact BioCanRx's current research portfolio and future research ambitions, particularly those around cancer immunotherapy projects?

Stéphanie Michaud: We're still determining how we will navigate these cuts. Again, we are looking to work with government stakeholders in order to potentially alleviate the extent of these cuts here. We are in the process of launching a competition at BioCanRx, in addition to meeting with government stakeholders and working with a number of other not-for-profit stakeholders and charities in the cancer space to see how we can mitigate these cuts to BioCanRx.

It's still early days as we try to determine the overall impact of the cuts. The worst-case scenario is that there could be projects, potentially, that are not funded in that very critical development space. Ultimately, the impact could be that a research team isn't able to file with Health Canada for a future clinical trial application because that funding wasn't available to fund the development.

Vincent Ho: That's really unfortunate.

This Liberal government spent $19 billion—that's “billion” with a B—on consultants last year alone. Those consultants aren't doing any research, most likely. At least, it's not the groundbreaking work the folks at BioCanRx are doing.

You talked about clinical trials. Can you quantify the downstream impact that these funding cuts could have on patients, particularly those who rely on the clinical trials or emerging therapies that BioCanRx helps support?

Stéphanie Michaud: BioCanRx is committed to bringing forward made-in-Canada therapies. The pace of research worldwide is accelerating at an incredible pace. The goal of BioCanRx is to fund development in future clinical trials so we're able to capitalize on those new discoveries and new treatments.

The products we work with are entirely novel and really represent a chance for cancer patients in Canada to access the best that science has to offer them. These are patients who have run out of options, who have exhausted the standard of care and who are looking to clinical trials in order to, perhaps, survive the disease they are confronted with. In our previous funding portfolio, we funded CAR T programs and had patients access therapies that were previously unavailable in Canada. I'm happy to report that they are four years post treatment, and they are still alive and doing very well as a result of the work of our network. Anything that interferes with bridging this gap....

Yes, ultimately, the downstream impact will be on the number of clinical trials that are supporting made-in-Canada solutions.

Vincent Ho: The Liberal government kept singing the rhetoric that it's going to somehow spend less and invest more, and we're seeing the opposite. It's spending a record $78-billion budget deficit. It doesn't seem like it's making the 15% cuts; it hasn't met that target yet in terms of day-to-day operational spending.

Then, on the investing more part, it seems like in this aspect, again, it's doing the opposite of what it's saying. It is actually investing less in science.

We've seen this government spend money on things like $8 million for gender-just, low-carbon rice in Vietnam and $22 million for beans for women for empowerment in the Democratic Republic of the Congo.

What kinds of conversations, if any, did BioCanRx have with the federal government prior to these cuts? Were these cuts thrown at you so that you just had to deal with them?

● (1625)

Stéphanie Michaud: We did get a little bit of advance warning that these were potentially going to happen. Of course, nothing is cemented until you receive the letter informing you that this is in fact going to be happening.

Vincent Ho: Were you consulted, or was it just a notice?

Stéphanie Michaud: It was a notice.

It highlights the important work this committee is doing with respect to governance and being able to take a step back to examine what seems like an overall small cut and the downstream impact it will have with respect to our individual organizations and the kind of work that we do.

We've been selected in the strategic science fund for very specific reasons to achieve a specific set of results for Canadians.

The Chair: I'm sorry for interrupting, but the time is up for MP Ho.

We will end this panel with MP Rana for five minutes.

Please go ahead.

Aslam Rana (Hamilton Centre, Lib.): Mr. Tessari L'Allié, you have talked about how governments have almost no visibility into what AI agents are doing on our digital infrastructure. On the publicly funded side, who is keeping track of what's being built in Canadian labs, how it's being tested and whether there are real safety protocols in place? Is there an accountability gap we should be worried about?

Wyatt Tessari L'Allié: In the government, there is a new initiative to have a registry of AI systems, which I think is a good idea developed by TBS.

In the private sector of the broader world, it is the Wild West. There is no regulation. There is no oversight. Every province has a list of every motor vehicle in the province, what make it is and what safety testing it has had. For AI, there's none of that. This is really where it is.

Right now, we're seeing incidents like the AI agents stealing passwords or harassing developers, but this is probably just the tip of the iceberg. A lot of these incidents are not being reported because they're embarrassing for the companies, or they're embarrassing for the hackers or the developers who use them.

As a first step, the first thing you need to do is get a clear dashboard of how many agents there are. Are we looking at millions or billions of agents in our systems? What kinds of agents are being used?

Even for the ones that are public, MIT did a study that came out in February on the 30 top AI agents being used in industry up until December. The vast majority did not have any shutdown protocols or safety protocols, and there had never been any safety testing. These are the major companies like IBM and OpenAI, which have a business incentive do the right thing and have some safety in place.

Think of all the open-weight stuff that's happening with developers doing their own thing with no oversight. This is where we're waiting for an accident to happen here. As these systems get more and more capable, all the frontier companies are saying they want to make these systems more capable than humans. If you go to their websites, they're saying “We're building AGI,” or artificial general intelligence.

People talk about driving towards the cliff; I think we've driven off the cliff and we're waiting for impact, basically.

Aslam Rana: Many researchers push back strongly against anything that could interfere with academic freedom or investigator-driven research. You have flagged serious concerns about loss-of-control incidents and agents acting in a way nobody intended. Where is the line? How do we protect the freedom to do research without letting federally funded projects produce something that could be generally dangerous?

Wyatt Tessari L'Allié: That's an excellent question.

One thing I keep forgetting to mention is this is obviously a technology with a lot of really good benefits in science and research especially. The big thing we need to do is separate the kinds of AI that are a major concern from the ones that aren't.

As mentioned, with single-purpose systems, when you're training a machine learning model to do one single thing, there are some issues with bias and privacy, but you don't need to have hands-on regulation for that kind of stuff, or at least not as much.

With chatbots, you start getting into issues like deepfakes, and we're seeing teenagers commit suicide. There are some regulations you need, but you don't need to be quite as hands-on.

Where you really need to draw the line is AI agents. If your AI system can basically do the work of a human being on a computer, there needs to be a licence for that AI agent and there needs to be safety testing. Scientists and researchers should still be able to use them, but that's where it's kind of like it was with nuclear research. Up until a certain point, it was all fun and games: People could do the research on their own with no problem at all. When they realized, “Oh, wait a minute; you can get a chain reaction and cause a nuclear bomb,” that's when government stepped in and said that if you want to do research on this, you have to have security clearance and you have to work within certain bounds. That's what needs to happen with AI right now, because we're at that stage.

Aslam Rana: You have appeared before several committees in warning about how fast AI is developing, and your organization has put out a plan calling on Canada to treat advanced AI as a crisis-level issue. With that in mind, do you think NSERC, CIHR and SSHRC are equipped to evaluate and oversee AI research at the pace that this technology moves?

● (1630)

Wyatt Tessari L'Allié: No. I don't think any traditional research would be.

I do think that, in an ideal world, if we can get our handle on the really dangerous models and at least put some kind of temporary moratorium on them, then we can absolutely harness our excellent scientists and researchers to figure out how we keep these systems under control, to take those figures to figure it out.

Then you can lift the moratorium and you get the best of both worlds. In the meantime, if you race ahead without that, then it'll be like.... Human research is too slow to be able to deal with that kind of threat.

Aslam Rana: Thank you, Madam Chair.

The Chair: Thank you.

With this, the panel comes to an end.

I want to take the opportunity to thank all the witnesses for appearing before this committee.

We will suspend this meeting so the witnesses for the second panel can take their seats.

● (1630)

(Pause)

● (1635)

The Chair: I call this meeting to order. Welcome back.

I would like to make a few comments for the benefit of the witnesses and the members.

Please wait until I recognize you by name before speaking.

For those participating by video conference, click on the microphone icon to activate your microphone, and please mute yourself when you are not speaking. For those on Zoom, at the bottom of your screen you can select the appropriate channel for interpretation: floor or English or French. I will remind you that all comments should be addressed through the chair.

With that, I would like to welcome our witnesses for the second panel.

We are joined today by the Federation for the Humanities and Social Sciences, represented by Karine Morin, president and chief executive officer; Tech-Access Canada, represented by Ken Doyle, executive director; and the University of Toronto, represented by Professor Timothy Chan, associate vice-president and vice-provost, strategic initiatives.

Welcome to all our witnesses. Thank you for appearing before the committee. All of you will have five minutes for your opening remarks, then we will go into a round of questioning.

We will begin with Ms. Morin.

Please go ahead.

[*Translation*]

Karine Morin (President and Chief Executive Officer, Federation for the Humanities and Social Sciences): Thank you, Madam Chair.

Good afternoon, members of the committee.

I'm Karine Morin, president and chief executive officer of the Federation for the Humanities and Social Sciences.

[*English*]

The federation promotes scholarship and leadership in the humanities and social sciences through advocacy, capacity building and knowledge exchange. Our membership spans 76 post-secondary institutions and 66 scholarly associations, representing a diverse community of 90,000 researchers and graduate students in Canada.

[*Translation*]

I'm pleased to appear before the committee to contribute to its work on the capstone organization and research excellence.

Today I wish to once again share my observations regarding our disciplines, as well as my previous experience within the granting agencies.

[*English*]

To begin, I want to note that for intramural and extramural research and innovation to be well governed and accountable, the science policy ecosystem must be guided by fundamental principles. In Canada, these principles are well established and are a core strength of our system.

Research is conducted ethically and with integrity. I note that the relevant tri-council policies uphold international best practices and undergo periodic reviews.

Assessment of research proposals should be carried out fairly and by experts and it is. Our peer reviewers act neutrally and they disclose their conflicts of interest. They are trained to avoid unconscious biases, and, again, these are the practices that are put forward by the research councils.

Furthermore, our agencies are at the forefront of assessing questions, such as whether the pool of applicants is representative of the population and whether certain groups perform better than others within given applicant pools.

For example, the Social Sciences and Humanities Research Council, SSHRC, produces detailed and publicly available dashboards, because the federal government made it a policy.

Assessment of funding programs should be transparent, accountable to government and the public, and it is. Research councils' funding programs undergo rigorous public evaluations that assess relevance, efficiency in delivery and fulfillment of objectives. I would cite, as an example, a very comprehensive 2024 review of support for research training and talent development.

Let me turn to opportunities for improvements, which we must seize as we mobilize research and expand our understanding of its value. I first want to note the rapidly evolving field of metascience, which heavily relies on data. As you heard previously, the research councils' legacy systems currently present challenges; however, a new grant management system is being implemented and should eliminate some of these difficulties. Nevertheless, researchers are able to make data requests and to obtain such data to answer some research questions.

Nevertheless, clearer mechanisms could be implemented to support data requests from researchers and to make these data requests publicly listed, including the relevant findings or related publications. These improvements should be an important part of a capstone organization.

Furthermore, what is most needed is a clear mandate to assess strengths and gaps in our science policy. This should be embedded in the long-awaited advisory council on science and innovation and in the national strategy that is called for by the chief science adviser.

Finally, the key question is whether we are measuring the full benefits of federally funded research or relying on narrow assessments that value only certain types of research that mostly benefit private firms rather than communities. Measures need to extend beyond tech transfer, patents or spinoffs. Personally, I'm not convinced that I need another app on my phone.

To broaden the assessment of the value and impact of research is to establish a new contract between science and society, one that recognizes social innovation; supports research to be spread and scaled to benefit health, social resilience, adaptability and cohesion across our communities; restores greater trust in our institutions; and preserves our sovereignty. As we anticipate policies that will set mission-driven research, we must ensure that they will be human-centred.

● (1640)

[*Translation*]

To sum up, I would say that the federation believes that the government already has a number of mechanisms at its disposal to identify needed improvements. At this time, the federation doesn't believe it's necessary to create another body or another independent monitoring, analysis and accountability function. However, we do need to broaden our assessments of the value and impact of research to improve Canadian science policy for the benefit of everyone.

Thank you for your attention. I will be pleased to answer your questions.

[*English*]

The Chair: Thank you.

With that, we will now proceed to Mr. Ken Doyle, executive director of Tech-Access Canada.

You have five minutes.

Ken Doyle (Executive Director, Tech-Access Canada): Thank you for the invitation to join you again this afternoon.

Tech-Access Canada is our national network of technology access centres that work directly with Canadian companies to help them adopt technologies, develop prototypes, validate innovations and move new products and processes into real-world use. Our centres focus on solving practical innovation challenges faced by small and medium-sized companies by providing access to highly specialized equipment, applied R and D, and commercialization expertise that helps translate promising ideas into the usable solutions people will pay for. Our non-dilutive support lets companies retain 100% of their IP and subsequent profits.

Over the past five years, more than 28,000 innovative Canadian companies have worked with our network, trusting our centres to help them improve productivity, adopt new technologies and bring innovations to market. One of our health tech centres has supported nearly 500 companies over the past five years and helped develop or improve more than 400 products and services, strengthening our digital health sector with made-in-Canada innovations.

From our perspective, Canada's innovation ecosystem is not lacking in inspiration. My friend Dr. Chan from the University of Toronto will speak to how Canada already punches well above its weight in breakthrough and interdisciplinary research.

One of the consistent challenges identified—both in Canada and internationally—is translating knowledge into adoption to generate real economic and societal value. That is precisely where our centres operate. One of our Ontario centres helped a small company validate a proprietary predictive maintenance technology that uses smart sensors to detect equipment failures before they happen, helping them grow to $5 million in global sales and creating seven new jobs in Ontario. We work at the stage where novel technologies must be tested, adapted, prototyped and validated in real-world operating environments—steps that are often difficult for smaller companies to do without in-house R and D capacity.

In other countries, researchers describe themselves as "working with" national government research organizations. In Canada, we far too often hear these relationships described as "funder" and "award recipient". Strengthening that "working with" dimension—connecting researchers, companies and national-scale infrastructure like our centres and the National Research Council—can help ensure that we translate more research into real-world outcomes.

At the same time, it is important to recognize that not all research outcomes are commercial in nature. Canada's strength depends on a broad and balanced research ecosystem capable of supporting adoption and deployment. Our work complements longer-term research investments by helping ensure that emerging knowledge and technologies are actually used by companies, in the economy and in communities. One of our centres in western Canada partnered with northern communities to design high-performance buildings, achieving a 41% reduction in annual emissions while creating shared data to guide future infrastructure decisions in those same communities.

The technology access centre model has now been operating nationally for more than a decade and has been studied internationally, including by the OECD, as an example of applied research infrastructure that supports and enables firm-level innovation and technology adoption. Today, the network includes 70 centres across the country operating under a common, proven model. Demand is strong, the model is well understood and the results are consistent. In that sense, this is not a concept or pilot. It is proven infrastructure that is already delivering outcomes at scale.

A clean-tech company approached one of our centres to develop an automated solar panel recycling system. We helped them reduce manufacturing emissions by 33%, while also helping them recover valuable materials for reuse in their core product.

At a time when there is a strong focus on evidence and measurable outcomes, independent economic analysis using StatsCan data examined the performance of firms that collaborate with technology access centres. This analysis found that small companies working with one of our centres experienced substantially stronger growth in both sales and employment than comparable firms that did not. On average, small firms saw employment growth of 70% and increased sales of more than 140% following their engagement with a technology access centre. These are firm-level outcomes—measurable, real-world impacts that reflect companies adopting technology and creating wealth here at home.

As you consider questions of governance, accountability and effectiveness within the science and innovation ecosystem, we offer a simple observation: Strong outcomes depend not only on how research is funded but also on whether it is ultimately used. Canada has a diverse and capable research ecosystem. Ensuring that it delivers maximum benefit requires increased attention to adoption, deployment and scale. Our centres are designed to operate in that space, working shoulder to shoulder with companies to translate capability into impact. We are a proven, national network with a consistent model. We are trusted by thousands of companies each year and deliver measurable results. The infrastructure exists. The demand exists. The results are measurable. We are well positioned to do even more.

My parents raised me to be an optimist, and I think the future is bright.

Thank you. I look forward to the discussion.

● (1645)

The Chair: Thank you.

We will now proceed with Professor Chan for five minutes.

Please go ahead.

Timothy Chan (Associate Vice-President and Vice-Provost, Strategic Initiatives, University of Toronto): Hello, Madam Chair and members of the committee. Thank you for the invitation to be here today.

My name is Timothy Chan. I am the associate vice-president and vice-provost for strategic initiatives at the University of Toronto. In that role, I am responsible for the identification, assessment, prioritization and support of large-scale, excellence-driven, interdisciplinary research initiatives. Our institutional strategic initiatives, ISIs, cover areas including AI, robotics, energy and infectious disease. They tackle global challenges and catalyze collaboration across disciplines.

I am also a professor in the department of mechanical and industrial engineering. My research focuses on the development of novel optimization models to solve decision-making problems in health care, medicine, transportation and sports. Mirroring the focus of my administrative role at the university, my research program is deeply interdisciplinary and has been funded by a variety of sources, including NSERC and CIHR.

I'm here today representing the University of Toronto, which, according to the Times Higher Education world university rankings, is the number 21 ranked university in the world, number 10 among public universities and number one in Canada.

In 2024-25, U of T and our hospital partners secured approximately $1.5 billion in research funding, with about a third coming from the granting councils.

How does this funding translated into impact? In the last five years, we've published close to 70,000 scientific articles that have been cited over 1.4 million times. More than that, this research lays the foundation for industrial innovation. Last year alone, we supported close to 700 start-ups and generated over 100 patents. In 2025, PitchBook named U of T Canada's top university for producing venture-backed entrepreneurs. Every year, we engage industry partners in over 200 joint R and D projects.

Our reputation is also a magnet for international talent attraction. The most recent example comes from the Canada impact+ research chairs program, where U of T and our partner hospitals received nearly 1,000 applications from international scholars eager to join us.

I provide this information to the committee as context so you know how my research and institution shape my thinking around interdisciplinarity. Historically, the way much research has been done has been within disciplinary boundaries, and we have done well in this regard; however, societal grand challenges that we are faced with are increasingly requiring an interdisciplinary approach. Wicked problems require wicked approaches. Misson-driven priorities require focused support and coordination to ensure that strategic goals are met.

The granting councils provide a critical foundation for our national research ecosystem. Canada must leverage this foundation as it contemplates how best to invest in new mission-driven and strategic priorities, whether through a capstone agency or other mechanisms that provide an extra layer of coordination and support.

Thank you.

The Chair: Thank you.

Now we will start our rounds of questioning. The first round is six minutes each. We will start with MP Mahal.

Please go ahead.

Jagsharan Singh Mahal (Edmonton Southeast, CPC): Thank you, Madam Chair.

Thank you to all the witnesses for attending this important meeting today.

I would like to start with Ken Doyle.

You come from a platform that is solely related to outcome, not just on rhetoric and what other institutes are doing. You come from where you can see the results. You offer results to companies, provide solutions and bring them to a platform or stage where they can commercialize or where they can make real use of Canadian dollars.

After a decade of Liberal innovation policy and billions in spending, would you agree that the system is overly focused on academic research and government announcements rather than on delivering real-world results like commercialization, productivity and firm growth?

● (1650)

Ken Doyle: All the structures are in place. From time to time, there come issues with connective tissue between them. The top of the funnel, the input and the basic discovery research, where we are a world leader, absolutely...and we should be proud of that. The translation piece into products, processes and services that people will pay for is where there's a bit more balancing that may need to happen. We stand ready, willing and able to do it. Demand is definitely there. It's in the enabling mechanisms that we may need a bit more support.

Jagsharan Singh Mahal: That's right. Would you agree that Canada's innovation system is designed around the needs of institutions and administrators rather than the needs of businesses trying to bring products to the market?

Ken Doyle: I'm not sure if I can speak eloquently to that one.

Our centres are connected to post-secondary institutions across the country. For them, the challenge is operating as a small business, effectively, inside a public institution, where there's quite a bit of bureaucracy to deal with, which inhibits their ability to maximize their potential. For 40 hours a week of every week of every year, they're out there grinding and helping these companies turn really innovative ideas from the benchtop scale to the pilot scale into a product that can be scaled up and commercialized to create wealth here in Canada.

Jagsharan Singh Mahal: Mr. Doyle, you have demonstrated strong private-sector encouragement and engagement. Does that suggest that applied research models like yours are better at crowding in private investment than traditional academic funding schemes?

Ken Doyle: We work with 6,000 private companies a year, but we also work with 980 other partners, like universities, government labs and those kinds of public institutions, where we're partner-agnostic. We're assessing the novelty of their innovation challenge and whether we are in a position to help.

One of our true strengths is our ability to be objective with our clients and partners. If the idea doesn't have technological merit or commercial potential, we'll tell them to stop dumping money into something that's probably not going to be successful. We'll tell them to pivot and try a different approach.

That objectivity and cost avoidance is part of our secret sauce that makes us a trusted partner to so many thousands of companies every year.

Jagsharan Singh Mahal: From your perspective, does the federal government have any credible way to track whether taxpayer-funded research is actually producing economic returns, or is the taxpayer writing blank cheques without measuring outcomes? It's especially when you have to relate the research to commercialization and industrialization, so that Canadians can see real value in their dollars being invested on the research side.

Ken Doyle: That's another very nuanced question. Thank you.

We're in sort of a weird space where we operate in the innovation ecosystem. We don't invent anything on one end and we don't invoice for anything on the other. We're sort of an intermediary. Another element of our secret sauce is giving the client 100% of the intellectual property to commercially exploit it. The trade-off there is that we have no hook in them later on to figure out if they commercialized, if they created wealth or if they sold out. What happened to that innovative IP that we helped advance along the technology readiness levels? Unfortunately, I'm unable to speak to that concretely.

Jagsharan Singh Mahal: That's sad, isn't it? Despite all the spending, we are still not seeing results. That's a policy failure, in my opinion.

Is it fair to say that system is built for institutions and not for Canadian businesses, based on your experience?

Ken Doyle: I think it is important that we acknowledge programs like the industrial research assistance program at the National Research Council, which does help thousands of companies every year. It even has “industrial research” in its name. That's a very effective model.

I've been a fan of the patent box model in other countries, where, when a company creates some intellectual property and patents it, future revenues are almost protected from taxation, if they do grow and commercialize here in Canada. That may be something the country may want to explore in a bit more detail.

● (1655)

Jagsharan Singh Mahal: SMEs face bigger barriers to adapting and scaling new technologies. After years of Liberal programs and promises, are SMEs still left behind by a system that is too complex, too slow and too disconnected from their needs? Can you elaborate?

The Chair: You have three seconds left.

Jagsharan Singh Mahal: Can you provide a written answer?

The Chair: Maybe we can come back in the second round. We have 35 minutes more to go.

We will proceed to MP Deschênes-Thériault for six minutes.

Please go ahead.

[*Translation*]

Guillaume Deschênes-Thériault (Madawaska—Restigouche, Lib.): Thank you very much, Madam Chair.

I'd like to thank the three witnesses for their testimony.

Ms. Morin, first of all, why is it important to consider the social sciences and humanities perspective in our work on the governance and accountability of federal science policy and institutions? How does that perspective differ from that of other disciplines? Do you have any specific points or factors to bring to our attention in this regard?

Karine Morin: Yes, when it comes to science and technology, I think we tend to focus on the health sciences, natural sciences and engineering, and we forget the social sciences and humanities.

However, in the well-known case of COVID-19, we know that biomedical researchers did their work and were able to produce a vaccine within a year. However, the pandemic continued on for several years after that. Why? It was due to factors related to human behaviour, factors specific to different communities, factors specific to health systems and institutions, and other factors that were not biomedical in nature.

If we focus solely on how to solve a complex problem like pandemics and only pay attention to biomedical research issues, we risk falling back into the same problems—that is, we will have a biomedical solution, a health solution, but not a solution tailored to communities, individuals or society.

Guillaume Deschênes-Thériault: In your testimony, you mentioned that one possible area for improvement would be to better assess the impact of research funded by the various federal programs. If I understand correctly, it's a matter of broadening our criteria to better understand the impact on Canadian society. Can you tell us more about this? How do you see this?

Karine Morin: Thank you for your question, because it aligns precisely with the purpose of my testimony, which is to point out that we are not paying attention to this impact. We fund a lot of research—and, in my opinion, rightly so—in the humanities and social sciences, but we don't really concern ourselves with its implications to better validate its importance and fully understand its impact on individuals, communities, society and institutions. These are therefore evaluation measures that haven't really been developed within our ecosystem.

I would say that's not the case, or very little, in other countries either. When we talk about science and innovation, we tend to pay much more attention to technological issues first and then economic issues, and we often seem to forget the issues of society, values and impacts on individuals, communities and society.

Guillaume Deschênes-Thériault: Do you have any examples of what such criteria might look like and how they could be better included?

Karine Morin: Perhaps the simplest examples I could give are related to health, among other things. We clearly understood that it wasn't just about finding solutions to diseases, but about treating patients. We adopted a perspective that was much more centred on the patient as an individual. If we did that in other areas, be it energy, development or natural resources, there would be ways to measure the impact on people and communities, among others. So I think we could find a number of examples in all sectors that are important for our research areas.

Guillaume Deschênes-Thériault: We know that the current governance frameworks include ministerial oversight, public reports, program evaluations and various mechanisms in place when a researcher receives funding. The motion before us is broad and focuses on the hypothetical creation of an independent body that would be responsible for monitoring, analysis, accountability and federal science policy.

If I understood you correctly, that wouldn't necessarily be the preferred approach. It would therefore be preferable to look at the current mechanisms and make the necessary adjustments. Do I understand you correctly?

● (1700)

Karine Morin: That would be my suggestion, yes.

There are already plenty of mechanisms in place. The idea is to broaden them to capture an even more comprehensive measure of the value of the impact of our government-subsidized research.

Guillaume Deschênes-Thériault: In that regard, you've already mentioned a number of avenues. Are there any avenues that you haven't had the opportunity to present to us so far and that you would like us to explore in our work?

Karine Morin: I wouldn't want to speak for a previous witness, but I did have the privilege of working at Genome Canada. The program they called “genomics in society,” I believe, assessed the impact of these new genomic technologies across sectors by looking at measures beyond economic ones. They were measures of impact on the various agricultural sectors, for example, on the various types of markets and communities, as well as on environmental, legal, ethical and public policy issues. These factors were all part of the program, which is quite unique, by the way.

Guillaume Deschênes-Thériault: Mr. Chan, you mentioned that your research has been supported by federal programs. Do you have any suggestions for improving existing accountability mechanisms, based on your experience?

[*English*]

Timothy Chan: I believe there are already a host of accountability mechanisms in place right now across our funding landscape and our granting councils. As an individual researcher, I have to submit reports and attest to financial reporting and end-of-project reporting. The institution has to attest, as well, to the responsible research that is conducted, the university to the responsible use of funds. Therefore, I believe there are already a host of reporting mechanisms and good governance processes in place.

[*Translation*]

Guillaume Deschênes-Thériault: Thank you.

Do I have any time left, Madam Chair?

[*English*]

The Chair: I'm sorry for interrupting. Your time is up.

We will proceed to MP Beaulieu for six minutes. Please go ahead.

[*Translation*]

Mario Beaulieu: Ms. Morin, if we want to go beyond accounting audits and really judge the public interest of investments, which indicator of societal impact, including on francophone communities, should be standardized and published annually, in your opinion?

Karine Morin: I wish I had an answer to your question, but there isn't one, really. That hasn't been sufficiently developed. The work isn't being done, because those aren't the concerns we have when we subsidize science, research and technological development. It is done mainly for economic reasons.

Mario Beaulieu: You said that you didn't think it was necessary to create an independent organization that could assess all research funding and that could also compare, for example, research in the humanities with research in health or biology. Is that correct?

Karine Morin: We've already talked a lot about the idea of creating an umbrella organization, which seems intended to better coordinate all the organizations. In my view, the type of measures I'm thinking of should be developed based on the ones that exist, that we know and that we know how to evaluate. To better recognize what's not being done, I would take a coordinated look at what's being done, rather than separately examine each granting agency, which only considers its own perspective. By bringing it all together, it becomes much more interdisciplinary, and that is probably where we would be better able to measure the effects on individuals, communities, society or institutions, among others.

Mario Beaulieu: Then, you're not necessarily opposed to the objective of creating an umbrella organization.

Karine Morin: We agree on that, but we have to wonder whether it's necessary to set up a new organization from scratch. I don't think there's a compelling case for it.

Mario Beaulieu: Setting up a new organization doesn't mean erasing everything that was done before. It could combine everything that was achieved.

Karine Morin: We agree.

Mario Beaulieu: Great.

What concrete measures do you propose to guarantee the vitality of research in French in the federal structure? What are the indicators, mechanisms and targets to put in place to ensure follow-up?

Karine Morin: Here again, it's a matter of prioritizing that objective, which can be measured quite easily by assessing the number of French-language researchers who submit a funding application in French and who later publish their work in French. All of that can be tracked and measured. If there are gaps in that regard, we can look at why and determine what support measures or incentives are needed.

In my view, choices are often made based on the type of research. If we want international co-operation, are we limiting ourselves to francophone countries or are we looking to work with other countries where the common language is English? It's important to understand the challenges so that we know what kind of support is needed for French-language researchers to choose to continue working in French within the system.

● (1705)

Mario Beaulieu: There is a fairly broad consensus on the fact that research in French is really underfunded and that researchers are more inclined to submit their applications in English. How could we make progress on that front and ensure that there is more research in French?

For example, in Quebec, if we look at the federal research funding granted to universities, we see that anglophones receive three to four times as much as francophones. Some people dispute that data, but researchers have compiled it.

Karine Morin: Again, are these informed choices or choices by default? I don't think we understand the specifics of every discipline and those of the researchers making the choices. There are certainly instances where support for research in French is lacking. Therefore, that support should be strengthened, especially in minority language communities outside Quebec, where universities are even more spread out and have even fewer resources, so that these communities can continue to evolve by conducting research in French.

Mario Beaulieu: Yes, absolutely.

Mr. Doyle, what guarantees can you provide to ensure that small and medium-sized francophone and regional businesses have fair access to technology access centres and federal programs?

Ken Doyle: There are about 70 technology access centres in Canada, but there are 33 in Quebec. Our model is based on the system of college centres for the transfer of technology. Our data indicates that most of the companies we support in a given year are Quebec companies. There is expertise in Quebec, but there is also specialized expertise outside Quebec. There are centres in Alberta, British Columbia and Nova Scotia that use their expertise to help SMEs in Quebec get closer to their goal, which is to commercialize their technologies.

Mario Beaulieu: Okay.

[*English*]

The Chair: Thank you.

We will now proceed to MP Ho for five minutes. This is the start of our second round. Please go ahead.

Vincent Ho: Thank you, Madam Chair.

I'd like to take a moment to move the motion that was put on notice back on February 11 of this year. I believe members in this committee have had ample time to look it over, and copies were distributed at the start of the meeting.

The Chair: You would like to move this motion now. Please go ahead.

Vincent Ho: Should I read it, or should I just move on to debate?

The Chair: Has everyone seen it?

MP Beaulieu, have you seen this motion MP Ho is moving? You're good. Okay.

MP Noormohamed.

Taleeb Noormohamed: I wanted to speak to the motion that Mr. Ho has moved. We are generally supportive of the motion with one amendment that I would like to propose, which is that we strike (e) from the motion, and then therefore change the number from five meetings, obviously, to four to reflect that. Other than that, I would be very supportive of this motion.

The Chair: Is everyone in favour of the amendment by MP Noormohamed?

MP Beaulieu, are you okay with it?

● (1710)

[*Translation*]

Mario Beaulieu: I will support the proposal if the member who moved the motion is prepared to remove that point.

(Amendment agreed to)

[*English*]

The Chair: We have the motion as amended.

(Motion as amended agreed to *See Minutes of Proceedings*)

The Chair: The motion is adopted. Thank you.

Vincent Ho: I'll use my remaining time to ask a few questions.

My first set of questions is for Professor Chan. It's good to have you here on this committee. As a U of T alum, I've seen first-hand the research process that U of T outputs every year. It really puts Canada on the map, on the world stage, when it comes to research.

Is Canada too focused on early-stage research funding at the expense of scaling and commercialization? In your view, what policies could be adopted to correct that imbalance?

Timothy Chan: It's always great to meet an alum.

I think it's not a zero-sum game. We need to continue to support the early-stage research because that is what fills the pipeline with ideas, with technologies and with inventions that will then fuel the businesses and the products of tomorrow. If there's a perception that we don't do as well in the latter half of the pipeline, then I think we have to invest there more, but I don't think that means it should come at the expense of investments upstream.

Vincent Ho: Thanks, Professor Chan.

I'll ask the question again to Mr. Doyle. What ways can we fix that imbalance? We're seeing taxpayer-funded IP being owned overseas ultimately. What are some ways that the federal government can change its policy so that research is outputted to ownership by Canadians and for Canadians?

Ken Doyle: I mentioned the patent box earlier. I think that might be a step in the right direction, but there are best practices from other jurisdictions that we may want to look at. You're right. We have incredibly smart people doing some incredibly novel things, but that IP, when the company or the entity gets to a certain point, gets snatched up. It goes either down south or across the pond, and then gets, through the technology radius levels, commercialized and sold back to us as a finished product.

Other jurisdictions put hooks into the public funding of research projects where it's almost like the company runs a tab with the government. As the government invests more and more in that technology development, should they decide to sell their company or take that IP elsewhere, whoever acquires them has to pay off that tab, and then often a multiplier based on the future value of that. Those funds get reinvested into the companies that want to grow and scale in that country, and that's something we may want to explore as well.

Vincent Ho: Would you be agreeable to a policy where, if that money gets offshored, the recipients of that money would then have to pay it back to the government, or pay a portion of it back to the government?

Ken Doyle: I think it's absolutely the right approach to be able to reinvest those funds that do come back into the companies who do want to stay and grow here in Canada.

Vincent Ho: Thank you.

Mr. Doyle, we've seen in previous committee meetings that, depending on how you calculate it, there are hundreds of different grant programs for seed and investment and commercialization funding. Do you see the fragmentation in all the paperwork and the administration of those programs as being a barrier? Do you think some consolidation of the bureaucracies could maybe make the operation of that funding more efficient and easier for businesses to navigate?

Ken Doyle: One of the major pain points we hear from the companies we work with every year is exactly that. There's a proliferation of programs at the federal and provincial levels asking for effectively the same piece of information five or six different ways, depending on the funding program. Then there are the timelines where the fiscal year of the program is not aligned with the company's operating quarters, or they're looking a quarter ahead and not towards March 31 or April 1. It's a bit of a disconnect at all levels.

You're right that there would be efficiencies gained by normalizing some of these items. If the goal is to help companies commercialize in Canada and create wealth, some of those barriers, such as the administrivia, might be one place to start.

● (1715)

The Chair: Thank you.

We will now proceed to MP McKelvie for five minutes.

Jennifer McKelvie: Thank you, Madam Chair.

My first question is for Ms. Morin.

I notice that you have experience in bioethics and law. This is about governance, and we did talk about balancing academic freedom with mission-oriented research, so I'm wondering what your thoughts are around governance of new and emerging technologies. I know that we always use AI as that example, but I think there are others, including synthetic biology.

I'm wondering if you could speak to some of your recommendations in that regard.

Karine Morin: Indeed, I think we see that in some fields there's been recognition early on that the new and emerging technologies would likely be very controversial. The best way to address that—to understand what the risks are, what the aversions are and what values are at stake—does entail having not just the scientists make those decisions on whether to advance or not advance, or whether it's more beneficial or detrimental, scientifically speaking; it's also seeing it from a perspective of societal values. Bring in those ethicists and other disciplines. Sociologists can assist in this regard. All sorts of other experts can help articulate the risks so that there can be a better understanding of trade-offs and whether to advance or not with certain controversial technologies and/or regulate them in such a way that they would remain very confined under oversight, making sure there's no trespassing of the societal willingness to try to advance them.

Oftentimes, behind some of the controversial technologies, certainly in health, there are lives at stake. I'm sure there are often willing patients who would want to see those advancements. We know that other individuals are averse to certain approaches. It's about how we bring that out to facilitate a consensus or to facilitate a very controlled, tightly regulated approach so that we can make sure there's no greater harm than necessary, but if there are benefits to be gained, we don't leave those aside for too long. When they're matters of health and illness and lives, oftentimes we are looking to find solutions to those conditions.

Jennifer McKelvie: Thank you.

Mr. Doyle, you pointed out that you are an optimist. I heard you say that. I wrote it down. I'm wondering if you could speak to what you see as the opportunities in mission-driven research and collaboration. What are those potentials for Canada to make its mark? In particular, how can colleges have a role in that?

Ken Doyle: You're quite right. I am an optimist. I have a positive mental attitude. I'm buoyed by the fact that there's so much demand for the services the technology access centres offer. Each of the centres has an average wait-list of 11 weeks for companies that want to innovate, do cool stuff in Canada, commercialize and create wealth for this country. They just need an intermediary to help them out. That role—that pilot scale that we play in—is complementary to the great work going on in universities and government labs. We're the de-risking validator for the private sector, which can produce a million units of an innovative new technology or even adopt it themselves to save some money on the shop floor for their bottom line.

One of the coolest aspects, for sure, is this: Every project we do is partnered with industry or a community. We have professional R and D staff who do their thing. What I love is that it's a multidisciplinary team attacking the problem from every angle. College students and university students benefit, as well, as members of those teams. They're gaining innovation literacy and skills acquired during their studies, then have a competitive advantage in the labour market when they graduate and go out—whether it's working with the company they partnered with on the project or being able to speak to some really tangible, hands-on experience they have in a job interview. I think that's a really cool thing that we should be proud of. It's complementary to the other sides of the spectrum. We just need a bit more of it.

● (1720)

Jennifer McKelvie: Dr. Chan, can you outline your thoughts? Today's study is very much on governance. If we are to better align with mission-driven research, where do you see the opportunities around that, and how should we be governing that or making those decisions?

Timothy Chan: Based on my background doing interdisciplinary research, I think mission-driven research is a very important area for Canada to be investing in. The tri-council funds the disciplinary work. We need to complement that with a new or reinvigorated approach to really think about mission-driven work. Everything that is complex in the world today is, you could argue, mission-driven and strategic because it is so messy: AI, energy, precision therapeutics, etc. Solving all this has a benefit to society.

In terms of how we govern this, it will take a collective approach to think about not only the disciplinary aspects but also the ultimate impacts that doing this type of work will have on society. It has to be a collective approach to governing and making sure the outcomes of this work benefit all Canadians.

The Chair: Thank you.

With that, we will now proceed to MP Beaulieu for two and a half minutes.

Please go ahead.

[*Translation*]

Mario Beaulieu: Thank you, Madam Chair.

Mr. Chan, what public dashboard should a university publish, including success rates by language, institution and discipline, for example, to strengthen accountability and align with the objectives of the committee's current study?

[*English*]

Timothy Chan: Thank you for the question. I hope you don't mind if I respond in English. My high-school French is not very good.

I'll give you one example. At the University of Toronto, we have many dashboards of the type you're referring to that report on all of our funding from different sources, in different types of areas and so on. Institutions have this data. We report this in aggregate to demonstrate how we are being successful in our research and how we are sharing this research in lots of different areas.

[*Translation*]

Mario Beaulieu: At the University of Toronto, do francophones have access to research tools and the like?

[*English*]

Timothy Chan: Yes, there is, 100%. All the data, research tools and supports given to our faculty, students and researchers are available to our entire community.

[*Translation*]

Mario Beaulieu: My question is for all three of you, even though Ms. Morin already spoken about this.

Do you agree that setting up an independent body to monitor, analyze and report on federal scientific policies would be feasible and relevant?

[*English*]

Timothy Chan: Having an independent organization to evaluate and assess that is a positive thing. We should be looking very critically at our research ecosystem, its successes and areas where we need improvement. Anything that provides rigorous accounting for what we are doing is a welcome addition.

[*Translation*]

Mario Beaulieu: Thank you.

Mr. Doyle, what do you think?

Ken Doyle: I completely agree with Mr. Chan.

There is an example that is both quite funny and sad. Up until three or four years ago, when you applied for a grant from the Natural Sciences and Engineering Research Council of Canada's college research funding program, the character limit was the same in English and in French—

[*English*]

The Chair: If you can, please, quickly wind up. You have 10 seconds.

[*Translation*]

Ken Doyle: The limit for francophones was increased by 30% only a few years ago. This is something that has to be taken into account from the outset.

Mario Beaulieu: Thank you.

[*English*]

The Chair: Thank you.

We will now proceed to MP Baldinelli for three and a half minutes.

Tony Baldinelli: Thank you, Madam Chair

Thank you to the witnesses.

Mr. Doyle, it's good to see you again. Thank you for being here.

I've always appreciated the applied research side of our scientific research and the funding of colleges. Niagara College in my community is the number one research college in all of Canada, and the work that Tech-Access does is critically important.

You say you deal with 6,000 businesses in a year. The whole notion of how you're able to turn applied research requests that come in from businesses into tangible outcomes is to be appreciated, particularly as funding dollars are very valuable. We're spending about $10 billion, and I would suggest that we're not investing in the college side to the degree that we should be.

You mentioned in your testimony this notion of the patent box idea. You talk about companies that work with Tech-Access in our college system retaining 100% of the patents. Can you go further into your notion of the patent box idea?

● (1725)

Ken Doyle: It's great to be back here again.

Our model, because we're relatively new to the game compared to university research and government research, is that the companies retain 100% of the intellectual property. In exchange for that, it's a true collaboration, but we don't want to encumber them with a random royalty stake or 3% equity stake kind of thing. Where they're small companies trying to get their widget close to commercialization and get in front of investors, we don't want to upset that, the trade-off being that whenever we can engage students and put them on the projects, we do.

Canada has had a number of novel things over the years—the scientific research and experimental development tax credit and low corporate tax rates and that kind of thing—which were great and spurred things in the seventies, eighties and nineties, but the rest of the world caught up and surpassed us. Now, I think, it is worth looking at trying to attract some of that back here, or at keeping the IP here with stuff like a patent box. A company comes up with an idea, a novel idea and they register that intellectual property. They get their patent and any revenues derived from that going forward would be tax-free or at the lowest possible tax rate, a very modest tax rate, to incentivize them to stay and commercialize here, rather than just shipping it abroad.

Tony Baldinelli: At the same time, should the government invest and that person leave the country, taking that IP with them, should those dollars we've invested into that corporation then come back to the taxpayers?

Ken Doyle: As a representative of Tech-Access Canada and, at the end of the day, a Canadian taxpayer, I think so. If they benefited from support from NSERC programs or from NRC IRAP and all these other leveraging support programs that are critically important to de-risk companies investing in R and D here, especially on the applied side closer to commercialization, I'd love to see whoever acquires that pay back that tab, so that it could be reinvested in companies that do want to grow and stay here and scale in Canada.

Tony Baldinelli: Last, on Friday night they're going to be celebrating the 10th anniversary of SONAMI, the Southern Ontario Network for Advanced Manufacturing Innovation. Niagara College is a lead on this. My colleague would like to know that McMaster University is the only university amongst the colleges that participate.

They do fabulous work in working with government, not only on the research side, but with FedDev, for example, from southern Ontario, to advance those projects that are critically important to local businesses. That's why I think that work from the college level and that applied research are so valuable, and we don't take advantage of that.

The Chair: Thank you.

We will end this panel with MP Rana for three and a half minutes.

Please go ahead.

Aslam Rana: Thank you, Madam Chair.

Dr. Chan, are you a mechanical engineer?

Timothy Chan: On the industrial side, but yes, in the same department.

Aslam Rana: I don't see your ring.

Timothy Chan: My undergraduate training is in math.

Aslam Rana: Your research background is in operations research and optimization. You think about how to make systems work better. If you were advising this committee on designing an accountability framework for federal research funding, what would you change about how the system measures whether public money is producing results?

Timothy Chan: It's a very good question. It's a difficult question. I don't know that I can come up with a model on the spot. I would reiterate that such a system needs to maintain the fundamental strengths that the current ecosystem has now and then build on them. For example, there is the strength of our peer review system, which has independent researchers reviewing other people's work, where they have no conflict of interest and assess it based on the merits of research. I think that has to be an important aspect of it, making sure that the funding is used responsibly and the ethics protocols are in place. All of that has to be done responsibly.

I think we have all of the ingredients in our current ecosystem right now. We need the will to move towards a framework that will govern this type of mission-driven research.

● (1730)

Aslam Rana: Ms. Morin, do you think current accountability structures see college-based research and university-based research as being on a level playing field?

Karine Morin: I'm sorry. I didn't understand the question.

Aslam Rana: Do current accountability structures treat college-based research and university-based research as being at the same level, or is the system tilted in favour of one over the other one?

Karine Morin: Certainly, in terms of funding, more goes through universities than through colleges. That would be accurate, yes.

Aslam Rana: You have several positions across the science and research landscape. Drawing on that experience, where do you see the biggest inconsistencies in how the three granting agencies handle governance and reporting? Would the capstone organization fix any of that?

Karine Morin: I would not consider that there are significant inconsistencies. However, in having each of the councils operate legislatively in their own respective areas and in response to their respective communities, there are probably some economies of scale, if I could use that term, that aren't being realized. They could be realized through a capstone that would bring together some areas of work towards evaluations and other science policy areas where, right now, the work is more fragmented than I believe it needs to be. It would benefit from being better coordinated and aggregated together. The greater sum of the parts through a capstone would likely be the beneficial outcome.

Aslam Rana: Thank you, Madam Chair.

The Chair: With this, the panel comes to an end.

On behalf of all the members of this committee, I would like to thank our three witnesses for appearing before the committee.

Is it the will of the committee to adjourn the meeting?

Some hon. members: Agreed.

The Chair: The meeting is adjourned.