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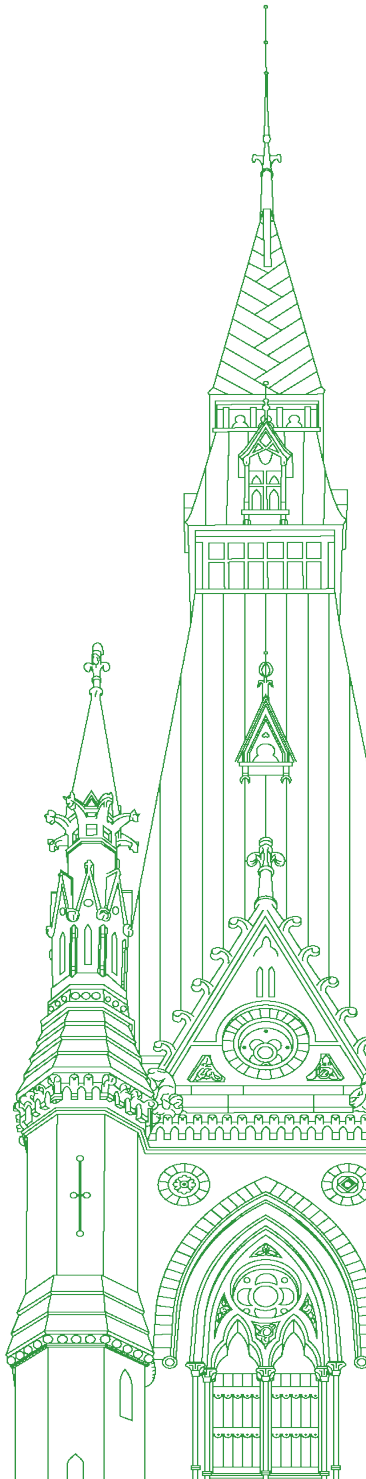

Chair: Ben Carr

Standing Committee on Industry and Technology

Monday, April 13, 2026

● (1535)

[*Translation*]

The Chair (Ben Carr (Winnipeg South Centre, Lib.)): Good afternoon, everyone.

I hope you all enjoyed your constituency time.

[*English*]

It's nice to see everybody.

We have a couple of new faces around the table today on the Liberal side. Welcome to the industry committee.

Colleagues, we are continuing our fascinating study on artificial intelligence. As I've remarked on a number of occasions, we've had an incredibly insightful set of testimony to date. I'm looking forward to continuing that with the witnesses we have here with us today.

Just for verification, colleagues, all witnesses have had their audio connectivity and formalities tested by our House of Commons officials here. As we don't have any witnesses in the room, I would remind you that when your earpiece is not in use, please ensure that it is placed on the sticker in front of you.

We have two hours' worth of testimony this afternoon. All three witnesses are joining us online at the moment. We do have a couple of witnesses who were slated to be here in person. They haven't yet arrived. If they do arrive, we'll probably have to forgo their introductory remarks, but we will provide them with an opportunity to receive questions from members. That's unless they arrive while we're still within the introductory phase of the meeting.

From Next Generation Manufacturing Canada, we have Jayson Myers, chief executive officer.

We had a nice conversation a couple of weeks ago. It's nice to see you again, sir. Thanks for being here.

From Vector Institute, we have Alan Veerman, chief operations and finance officer, alongside Jessica Blackman, director and chief data officer.

I will give Mr. Veerman the floor and then go to Mr. Myers. After the introductory remarks are made, members will have time to ask some questions.

Mr. Veerman, the floor is yours for upwards of five minutes, sir.

Alan Veerman (Chief Operations and Finance Officer, Vector Institute): Thank you, Chair.

Good afternoon, honourable members. Thank you for this opportunity to contribute to the committee's study on AI in Canada's strategic industries.

My name is Alan Veerman. I'm the chief operations and finance officer here at the Vector Institute. I'm responsible for the day-to-day operations of the institute. Appearing with me here today is Jessica Blackman, director and chief data officer.

The Vector Institute is one of Canada's three national AI institutes, originally established in 2017 with support from the Government of Canada, the Government of Ontario and leading private sector firms across a range of Canadian business. Vector is located in Toronto, with more than 960 affiliated researchers at universities across Canada. Supporting an AI talent pipeline, Vector-recognized AI master's programs produce over 1,000 graduates annually, over 90% of whom stay and work right here in the province of Ontario.

The easiest way for me to summarize Vector's mission is that it is taking cutting-edge AI research and then enabling organizations in Canada to adopt and deploy AI faster across a range of sectors.

Vector has more than 300 partners, from various start-ups to enterprises and broader public sector institutions. Vector's industry engagement is second globally only to MIT, as measured by the number of participating companies.

I think you've heard from others that Canada has successfully built a world-class AI research base. That's right. In turn, the three national AI institutes have each developed approaches that accelerate the safe, responsible and productive deployment and development of AI technologies across multiple private sector companies and public sector institutions.

That said, the nation's private and public AI adoption rates still lag behind those of international peers. In 2019, Canada was fourth in the global AI rankings, thanks to being the first country with an AI strategy. Since then, Canada's position has been slipping. As of 2024, Canada now ranks eighth. This decline is not uniform. Canada still ranks third globally in AI research. Where Canada is comparatively weaker is in both infrastructure, currently 16th, and operating environment, currently 18th. Vector's experiences reflect these rankings.

The message here is consistent. Canada is excellent at producing AI talent, but Canada lags in AI adoption and deployment, with trust in AI and speed the two biggest issues, in our view. To that end, I have three main reflections to share with the committee today.

First, I believe Canada's AI adoption problem is fundamentally a trust problem, and trust comes from understanding. Recent research shows that 69% of regular AI users trust the technology, compared to just 5% of non-users.

Second, Canada's sovereign AI compute strategy was absolutely critical, but it's effectively two years behind schedule. The lack of financial commitment is not an issue here. The speed at which it is happening in real life is.

In contrast, the U.K., a middle power like Canada, announced a commitment to AI compute, but their procurement at the time reportedly took about three weeks. Though the specific initiative has admittedly changed multiple times since then, speed is the theme.

Without faster deployment of AI compute, AI researchers will leave for jurisdictions with better infrastructure that is committed and online. The corresponding start-ups that form will scale in those jurisdictions rather than here. The same goes for the corresponding economic benefit.

Finally, increasing productivity through AI usage and deployment is genuinely difficult. It requires fundamental rethinking of business processes, cleaning of data and data governance, upskilling the company's workforce and a sustained and systemic organizational commitment. Put more simply, if a business is not rewiring its business processes around AI, it is missing out on the transformative nature of the technology.

For Canadian culture, such risk aversion manifests itself in procurement, among other things. Small Canadian AI firms looking for Canadian clients often hear that they require a U.S. reference customer first before being considered. This is backwards. More Canadian start-ups should find their first clients here, rather than abroad.

In summary, Canada has world-leading AI talent. We have a thriving AI start-up ecosystem, and Canada's banks and financial sector in particular are recognized as global leaders in AI adoption. This is a great foundation, but we're concerned that without faster deployment of AI compute infrastructure, we risk watching this AI competitive edge diminish further, and Canada's global ranking will continue to slide.

● (1540)

Thank you for your time. We welcome your questions.

The Chair: Thank you very much, Mr. Veerman. That was a very concise and useful introduction. Thank you for that.

Mr. Myers, I'll turn the floor over to you. You have up to five minutes for your introductory remarks.

[*Translation*]

Jayson Myers (Chief Executive Officer, Next Generation Manufacturing Canada): Mr. Chair and members of the committee, thank you for giving me the opportunity to say a few words about industrial AI.

[*English*]

Next Generation Manufacturing Canada, or NGen, is the industry-led not-for-profit organization that spearheads Canada's global innovation cluster for advanced manufacturing. As such, we're deeply involved in projects that integrate AI and manufacturing processes and equipment. We're dedicated to building world-leading advanced manufacturing capabilities in Canada for the benefit of Canadians. We do that by bridging the gap between research and technology on one hand and the needs of manufacturers on the other—the adoption by the customer. We do that by providing non-dilutive funding, project management and IP commercialization support for collaborative ventures among researchers, technology providers and manufacturers.

The projects we fund integrate technologies to develop, scale and accelerate the adoption of new manufacturing processes in Canada while keeping the benefits of the IP in Canada. That is exactly what's needed for the adoption of industrial AI. Our funding comes from both public and private sources. Since our inception in 2017, it has come primarily from Innovation, Science and Economic Development Canada.

The focus we have on transformation, collaboration and commercialization has really paid off. To date we've invested in 281 projects, with close to $1.2 billion in overall investment. Of 652 industry partners, 90% are SMEs. Every dollar of our funding has been matched by more than $1.70 from industry. So far, our projects have leveraged $4.2 billion in follow-on investments. They've generated over $8.2 billion in revenue. They've created 57 new companies, 4,500 new jobs, over 1,600 new IP assets and an estimated $1.2 billion in tax revenue that flows back to the federal government. That's approximately $5.70 for every dollar we've invested in completed projects.

We've invested in 153 projects that implement AI in manufacturing processes. These aren't projects that develop new large language models, but they're examples of industrial AI, where partnerships are important in building the technology stacks required for AI adoption. Industrial AI differs from purely digital LLMs, because it involves the integration of AI models with physical systems like sensors, vision systems, robotics and equipment, or the use of equipment like smart robotics and vision and automation systems in which AI is already embedded. It requires secure and segregated networks and edge computing solutions for real-time communications and control, as well as integration with operating software and systems architectures. Its skills requirements are different, requiring a deep understanding of industrial processes as well as IT software and data analytics expertise. So too are the tolerances in which it must work to ensure reliable, safe and compliant operations.

I have provided the committee with a table that contrasts industrial and digital AI. This is in annex A of the document that was provided to the committee.

The adoption of industrial AI is complex, although it's not really all that expensive when compared with capital expenditures in manufacturing. In fact, when consulting companies report that the majority of industrial AI implementations fail, it's not because of the technology. It's because adopters don't have the data quality, digital and technology infrastructures, skills or often the business plan and management systems required for the successful adoption and productive use of AI.

Success depends on partnerships among AI providers and manufacturers. It's not simply a transactional vendor relationship. It depends on integration with production technologies and operating systems. It depends on AI readiness. Do companies have a plan about how this will lead to improvements in critical operating processes? Do they have the management and operational skills, data systems, technology infrastructure, cybersecurity and AI risk mitigation practices required to deploy AI in their operations? Money alone isn't going to guarantee success.

The criteria we use in assessing the readiness of manufacturers to adopt industrial AI applications are outlined in annex B of the document provided to the committee.

We know that Canadian manufacturers need to boost their productivity performance. We also know how important it is for manufacturers to do so in order to continue to drive the Canadian economy and provide the production capacity to supply our needs for homebuilding, infrastructure, health care, energy, environmental sustainability and defence. Industrial AI applications offer them the best opportunity to rapidly improve productivity and build that capacity.

● (1545)

Real use cases from Canadian industrial AI solution providers show that 30% improvements in throughput, quality control, equipment, operating efficiency, energy efficiency and delivery times can be rapidly achieved—if not significantly more. I've provided the committee some of the results of the 122 use cases that have been curated by Canada's AI4M, a manufacturing consortium that we support.

Industrial AI implementations like these do not replace jobs. In a sector beleaguered by labour and skill shortages and facing existential challenges, they enhance and protect jobs.

As the government refreshes Canada's AI strategy, it's going to be crucial to focus on how to accelerate the adoption of industrial AI. There's an important role for government to play in underwriting the risks, especially for SMEs, in a sector that's so vital to Canada's economy.

As we've shown, industry partnerships that integrate technologies, help manufacturers prepare for successful implementation and develop the workforce skills required to use AI-enabled tools and technologies effectively will be instrumental in achieving the step-change improvements in industrial and economic productivity upon which all Canadians will depend.

Thank you.

The Chair: Thank you very much, Mr. Myers.

Colleagues, we're going to enter into our first round of questions.

Madam Dancho, the floor is yours for six minutes.

Raquel Dancho (Kildonan—St. Paul, CPC): Thank you very much.

Thank you for the opening statements from the witnesses today. I appreciate your expertise in this important study.

Mr. Myers, it's great to see you again. I appreciate your briefing. I have a number of questions for you.

You mentioned this at the end of your remarks, but I wanted to talk to you about the potential for productivity improvement in Canada with industrial AI adoption. This committee recently did a study on productivity. We understand—even from the mouths of the Governor of the Bank of Canada and the executives there—that productivity is in crisis in this country, that the stagnation of productivity really has led to increasing affordability issues and the like.

I know you're aware of this. In brief, just to elaborate a bit on your opening statement, how do you feel that AI industrial adoption could support Canada's productivity?

Jayson Myers: In manufacturing, I think the biggest gains are going to come from improvements in industrial production processes. This is where AI really needs to be integrated with other physical systems: with the equipment and with all of the IT infrastructure, the technology stack that is required to support AI implementation.

Some of the use cases that have been provided by the AI4M AI manufacturing cluster are really pretty revelatory here: areas such as throughputs, quality control and quality assurance, and areas for reducing the downtime of equipment, for instance, and improving energy management, reducing emissions and reducing energy use. These are some of the applications where AI has really been shown to lead to very significant improvements, with, in some use cases, well over 30% improvement. I think that's the type of productivity gain we really need.

It's not just to improve productivity. Productivity is really about.... There are three ways to achieve greater productivity. You can do a lot more with more. That's the positive aspect of productivity. That's what AI can lead to in manufacturing.

The other two areas are not so good. In the first part of 2010, Canadian manufacturing productivity looked terrible against that of the United States. The reason was that manufacturing production dropped in both countries and the U.S. removed many more jobs than Canadian manufacturers did, which led to a significant improvement in U.S. productivity in manufacturing, but it wasn't a good news story. The economic output dropped, and jobs dropped a lot more.

I think that's what we need to avoid. We need to look at the positive impacts of how AI and other technologies can be implemented to improve and expand the capacity of manufacturing today, at a time when it's very difficult to find people working in the sector.

● (1550)

Raquel Dancho: Thank you.

With that productivity stagnation or the issues we're seeing, we've also seen our manufacturing sector decline quite sharply in the last three or four years. We're seeing declines in the employment, the output and the shipments. Your perspective is that further AI adoption would perhaps turn that around and we could have greater outputs.

I think the concern of a lot of people is that AI and robots are going to replace the jobs of those in manufacturing, but what I did find interesting was that—and you may be aware of this—recent StatsCan survey data showed that companies adopting robotics managed to, somewhat paradoxically, increase their workforce by roughly 20%.

Do you have any experience with that? Can you comment? Should we be concerned that AI may take all of our manufacturing jobs?

Jayson Myers: No, I would say just the opposite.

If manufacturers don't adopt AI and some of the more advanced manufacturing technologies that are out there, including robotics—and many of these new robotics systems are smart robotics enabled by AI—they just won't be competitive.

Today, when we're looking at the challenges facing manufacturing, particularly with respect to trade barriers and the opportunities, though—

The Chair: Mr. Myers, I'm going to ask you to pause for a moment.

I'm going to stop the clock, Madam Dancho. Apparently, we're having a little translation issue.

Mr. Fonseca and Mr. Eyolfson, what's the issue?

Peter Fonseca (Mississauga East—Cooksville, Lib.): On our English channel, we're hearing French.

The Chair: I'm going to give the translators a moment to see if they can correct that on their end, and we'll come right back.

A voice: It should be working now.

The Chair: We're good. That's excellent.

The floor belongs to Madam Dancho, so she'll do what she wants with her time.

Raquel Dancho: Thank you.

I am encouraged by that, and I was encouraged by the StatsCan data.

One thing I am concerned about is what we're seeing with the dark factories in China. I'm sure you're familiar with them. They're almost 100% automated, and there are no people working and making a lot of the cars and other things. That seems to fly in the face a bit of the adoption that we've seen locally, with the StatsCan data showing that there's an increase in employment.

I have concerns, though, that what we're seeing in the factories in China—these dark factories with nobody working except for robots in the dark—could happen here if we really leaned into this.

Is that not a concern, based on some experience in another country? Should we not be worried about this? Are we overreacting?

Jayson Myers: Even here, there are some examples of factories that are working with lights-out production. Overall, for the business that's employing the people and for all of the people who are being employed to maintain technology, to program technology and to develop the new software for this technology, even in China, the overall rate of employment has increased.

Today, it's not just a question of competitiveness and productivity. We also have to look at how we expand production at a time when we really don't have many skilled people coming into the manufacturing sector, to take advantage of the new opportunities in procurement, infrastructure and defence, for example. We really do need to look at how AI can be implemented, not only to expand production and production capacity but to do so in a way that is going to lead to the development of new products, new product lines and new processes that are going to make sure Canadian manufacturers are in an internationally competitive position.

Raquel Dancho: Thank you very much.

The Chair: Thank you, Madam Dancho.

Ms. Sudds, welcome to the industry committee. The floor is yours for six minutes.

Hon. Jenna Sudds (Kanata, Lib.): Thank you very much, Chair, and thank you to all of the witnesses for joining us today.

I'm going to start with Mr. Myers.

It is a pleasure to see you again.

I was at the N3 summit just a week or so ago, which was a terrific day. At the summit, if memory serves me correctly, you were sharing some great news for a bundle of, I believe, 20 projects that were receiving funding through your organization, obviously with support from the federal government. I know that, for my riding of Kanata, that included Inpho, an incredible photonics company working here in Kanata.

Can you speak to us about the role you play in supporting and growing companies in advanced manufacturing, linking to AI here and across the country?

● (1555)

Jayson Myers: Thanks for your question, and thank you for coming to N3. We had over 1,000 participants, and 114 of our projects were exhibiting what they've developed as a result of our support.

We raise funds from both the public and private sectors, primarily through ISED, to invest in collaborative projects that are really transformative in terms of the advanced manufacturing processes that come out of these projects.

The key here is to integrate technologies. Often, technology companies have a fantastic technology, but it's not everything that is required in order to implement it successfully in manufacturing. We take a look at how we can integrate technologies. How do we build the IP relationships around collaborative projects? Then, of course, how do we find the right manufacturing customers and the right type of solution for those manufacturers?

To date, we've invested in about 281 projects. I think that collaborative model is exceptionally important. There aren't very many other organizations that focus on the collaborative aspects of open innovation and technology, particularly in the manufacturing sector. We not only provide the non-dilutive funding—they're on a reimbursement model of about 35% or 40% reimbursement—but we also help companies develop IP strategies. We help them diversify their markets and find new customers in Canada and internationally.

Hon. Jenna Sudds: I love that you touched on the collaboration. It's one of the things I have been struck by over this last year. The number of Canadian companies working collaboratively towards building out sovereign solutions is incredibly inspiring. I certainly see the role that NGen is playing in helping to facilitate that.

Jayson Myers: I'm off to Germany this evening, where there will be 100 Canadian companies and our project partners at Hannover Messe. It is the largest industrial technology show in the world.

Hon. Jenna Sudds: That's incredible. We wish you luck. I look forward to hearing the results from that mission.

Here in Ottawa, as recently as last week, I was able to visit the Canadian Photonics Fabrication Centre, which I think highlights the importance of advanced manufacturing and enabling next-generation technologies.

Can you speak to the role that photonics and advanced fabrication play in supporting the development of our AI systems? I'm thinking particularly of sensors, data transfer and these types of areas.

Jayson Myers: Photonics, lasers and the development of the electronics infrastructure behind AI applications are all part of what I was referring to as the technology stack required for successful adoption of AI solutions in industry, not just in manufacturing. It's important.

First, we can look at the need for sensors, the need for real-time command and control information that really requires edge solutions in a manufacturing application, to ensure that the latency is not expanded in a way that couldn't be used effectively in manufacturing processes. Integrating not only the data coming from the equipment machinery but also the software being used for materials handling for enterprise resource processing in manufacturing really shows how important it is to focus on the integration of technology. Today, we have robotics and vision systems, and many of these systems are already AI-enabled.

The important message I have is this. When looking at AI, don't think of AI simply as algorithms. We need to focus on how that is integrated into the technology stack that can deliver improved productivity results at the end of the day.

● (1600)

Hon. Jenna Sudds: I see your point on the technology stack.

Do you see opportunities for Canadian companies to further our ability to build out that Canadian stack or digital infrastructure for AI specifically?

Jayson Myers: Absolutely.

Again, those use cases that I provided are all Canadian, from Canadian AI providers. They're all working with Canadian manufacturers. They're all really good examples of how effective AI applications can be in an industrial setting and the results of that.

I'm very optimistic that we have everything it takes, as long as our technology, research and manufacturing sectors work together. That's not only the challenge we've seen but also the real opportunity.

The Chair: Thank you very much, Ms. Sudds.

[*Translation*]

Mr. Ste-Marie, you have the floor for six minutes.

Gabriel Ste-Marie (Joliette—Manawan, BQ): Thank you, Mr. Chair.

I thank the three witnesses for being here. We've learned a lot from our discussions and their remarks.

Before I ask my questions, I also want to welcome the Liberal colleagues who are here today as substitutes. It's great to listen to these discussions and to work with them.

Mr. Chair, you're an excellent chair, but a member who's here today was chair of the Standing Committee on Finance in the previous Parliament, and he was an excellent chair too. I had the pleasure of working with him for several years. I welcome my dear colleague and friend.

Mr. Myers, thank you for your remarks. As we just heard, you announced another 20 new projects a few weeks ago. However, your website says that no applications for new projects are being accepted. Is that to be expected because it's cyclical, or is there some other explanation?

Jayson Myers: Thank you for the question.

[*English*]

The explanation is that we've fully committed all of our funding to date, and while we would love to be able to continue to fund new projects, we simply don't have that capability right now. We're looking for new private sector opportunities, as well as public sector opportunities, to raise funding to continue to support really good projects.

In our last call for proposals for AI projects in manufacturing, we were able to fund about 30 projects in total. The total intake was over 200, and the funding ask was about five times more than what we had to distribute or to allocate. I think we've allocated it very well, to very good projects, but we can always use additional funding to leverage up better results.

[*Translation*]

Gabriel Ste-Marie: It sounds like there is a lot of need when it comes to funding new projects. Are you asking the government to inject additional public funds?

In Quebec, Scale AI said it was waiting for renewed funding to be announced. Are you in the same boat?

[*English*]

Jayson Myers: We are, from the global innovation clusters program, that's true, but I think there are also other opportunities to leverage private sector funding here in industrial investment funds—ITBs, for example—to support really good implementations of AI where that could, for instance, help to support our industrial strategy for defence. Yes, we are—hopefully and fingers crossed—looking for funding renewal of the global innovation clusters program. It's been an exceptionally good program and has led to great results, but we're also looking at other funding opportunities.

[*Translation*]

Gabriel Ste-Marie: Thank you very much.

Mr. Veerman, you pointed out that the strategy is lagging and needs to be deployed faster. What do you want the government to do to help deploy AI for businesses?

● (1605)

[*English*]

Alan Veerman: For the federal government, I think the advice we've given around the deployment of AI in industry is that our business partners are looking for clarity on rules. We've not really encountered companies or stakeholders that are vehemently anti-regulation. They just want clear rules.

On the legislation that was previously tabled by the federal government, the former Bill C-27, one of the main criticisms of that legislation was that it outlined penalties for non-compliance with the legislation but failed to articulate what the exact rules are. For our business partners, one of the things they have articulated as being of importance to them for long-term planning, especially in capital-intensive industries like the manufacturers Mr. Myers works with, is that you will not be able to plan a three- to five-year capital outlay or long-term investment if you don't know what the rules are.

I think the other major piece of advice we've given to the government as they consider things in the legislative and regulatory space is that, to the extent that the government does consider legislation and regulations, whatever options the government considers, it also needs to consider the interoperability of those standards across jurisdictions.

It's an unfortunate truth that Canada in and of itself as a jurisdiction is not big enough to set a global standard. It's not to say that we shouldn't have standards, but they need to be compatible with international standards such as those used by the OECD, the European Union or the U.S.

Whatever the right answer is, we're not necessarily sure. We know and we would suggest that the incorrect answer is for Canada to develop standards that are not compatible with those of any other jurisdiction.

[*Translation*]

Gabriel Ste-Marie: Thank you, Mr. Chair.

The Chair: Thank you very much, Mr. Ste-Marie.

[*English*]

Madam Borrelli, the floor is yours for five minutes.

Kathy Borrelli (Windsor—Tecumseh—Lakeshore, CPC): Thank you, Chair, and thank you to all the witnesses for being here today.

My question is for Mr. Myers. As AI is deployed into operations like factory floors, supply chains and smart infrastructure, it's increasingly influencing or automating decisions that directly affect business outcomes. What safeguards are being used today to ensure those systems remain transparent, reliable and accountable?

Jayson Myers: I think that the most important safeguards are the applications themselves where manufacturers, in particular industrial companies in their deployment of AI, can't afford for this to go wrong. When you're looking at deployments of AI and physical equipment, physical systems, there is a problem there. The model is not giving the results required, there had been insufficient testing here, or there is a misinterpretation of the types of instructions that need to be carried forward to deploy this in actual physical operations.

It's not just an issue of bias. It's an issue that this could kill someone. There are some very important health and safety risks that companies need to be able to safeguard. Of course, in industrial operations, you have to work within the tolerances of the physical processes that you're working in.

Part of our project selection process is to look at how manufacturers, their AI providers and their technology partners interpret the risks, how they identify the risks and how they intend to mitigate the risks. Those risks in a physical operation tend to be very different from the simple risks in a digital application of AI. I think the controls around that are already pretty stringent in terms of trying to avoid the negative outcomes, whether that's simply downtime that companies can't afford or a health and safety problem, as I mentioned.

One other thing that I think the committee might be interested in here, too, is looking at the standards around AI application, the standards that are being used not only in Canada but internationally around data interoperability and cybersecurity. Often, these are Canadian standards. They're Canadian industrial standards.

CSA is actively involved in looking at industrial AI applications and developing sets of standards around that, but the leading standard for data operability in international industry is actually built on Canadian software and Canadian standards, as is the leading application for cybersecurity in the automotive industry, for instance, which is built on QNX.

I think industry itself often leads in the application of these standards and the development of the standards, for the very simple reason that it has to.

● (1610)

Kathy Borrelli: I'm not seeing any standardization across industries. Are we relying on individual firms to define their own accountability frameworks?

Jayson Myers: No. I think that, when we look at the accountability frameworks that companies are using, there's a lot of work that has been done by the Americans at NIST and by the OECD around accountability frameworks for industrial applications, as well as other AI applications. I think that is all part of the AI governance processes and procedures that companies need to look at.

They're certainly part of the risk assessment that we undertake when we're looking at projects. We require project partners in AI applications to show that they have good management and governance processes in place here.

The Chair: Ms. Borrelli, unfortunately that's all the time that we have.

Kathy Borrelli: That's too bad. Thank you.

The Chair: Thanks very much.

Mr. Danko, the floor will be yours for five minutes.

John-Paul Danko (Hamilton West—Ancaster—Dundas, Lib.): Thank you, Chair, and I really appreciate the discussion this afternoon.

Mr. Veerman brought up an interesting point in his opening comments. He said that AI adoption in Canada isn't necessarily an adoption problem and that it's mainly a trust problem. I wanted to dig into that a bit more from the perspective of a professional structural engineer.

When working in complex design, we've been using computer-aided design for years now, but the professional engineer is always responsible at the end of the day for that design. When you introduce AI into that process, it becomes a bit more complex, because you're dealing with a black box and you don't necessarily know how it's giving you the answers. When I'm using a calculator as part of my design, I am 100% certain that I'm going to get the right math from the calculator, but I don't know that necessarily from AI software.

My question is for Mr. Veerman.

When we're talking about the risks and regulation of AI in terms of adoption and trust, is there a necessity to have regulated accuracy in the products that are being provided to industry?

Alan Veerman: We'll look to our industry partners and their practices. The Vector Institute deals a lot with health sector institutions, which are regulated. We deal with financial services, which are regulated. Our industry partners know and well understand that they have to answer to their regulators in terms of their decision-making. That can come from a human, and that can come from an algorithm, but at the end of the day, the corporation is responsible for its actions.

One of the areas where the Vector Institute spends a large amount of its time and energy is on the ever-evolving speed at which AI innovation crosses over into different areas. For a regulator, part of the effort is in helping them to understand how fast AI is evolving and the fact that the concerns they might have been tracking six months ago are now replaced by an entirely new set of concerns they might not have thought of.

We can look to our regulated sectors, like financial services, telecom and health, and the way in which they answer to their regulators on the need for what we call explainable AI. It's the idea that they have to be able to satisfy to a regulatory standard the nature of their decision-making and be able to justify that they understand how those decisions were made. That can apply to good old-fashioned data science, good old-fashioned statistical methods that have been in place for years, whether it was a judgment from a human or whether it was done by an algorithm.

I think one of the things that are an evolving area of research for the Vector Institute is that there are some terms from...call it a public policy initiative, where there's no agreed-upon definition of the goal of that standard. One of the things we're often familiar with is a refrain that algorithmic decision-making should be fair. There's no universally accepted computer science definition of what fair means. It's actually an evolving area of AI research. To the extent that a regulated sector has to demonstrate that to a regulator, they spend a large amount of their time and energy, for example, working with us on understanding the implications of that standard and how it will carry through into their existing risk management frameworks.

Mr. Myers also alluded to this. These are processes that industries have used for some time, and they are evolving in complexity. Both the industry partners that we have and the regulators that they report to have worked with us on those evolving needs.

● (1615)

John-Paul Danko: Thank you.

Mr. Myers, I want to ask you about intellectual property. This is something that you've both spoken about, but I think it's particularly interesting in the context of advanced manufacturing processes, where you're using an AI tool to develop proprietary processes that are a competitive advantage in industry. There's a bit of a disconnect, perhaps, in the AI world when you're feeding those into the AI system. They then become part of the training model and then perhaps are risking rather than improving somebody else's processes or developing somebody else's products or whatever.

How can we make sure that Canadian intellectual property is protected when we're using these AI products as part of advanced manufacturing?

Jayson Myers: The type of IP that is being developed here is certainly not patentable or copyrighted when we're dealing with applications, at least in industrial AI. Our experience is that you really need to have a very good IP management framework that involves all parties in terms of industrial AI—the manufacturer, the AI provider and the other technology companies that are involved.

If we're looking at the development of a new application involving AI, it is going to require training on models that have been developed by the AI provider. Our experience is that those models themselves remain the property of the AI provider. Here in the application, the outcomes and the IP developed as a result of the data used in those models usually remain the property of the manufacturer—the owner of the data. That really needs to be worked out.

There's also a different—

The Chair: Mr. Myers, we're significantly over time, so I'm going to have to cut you off, unfortunately. There might be an opportunity for somebody else to pick up on that. Thanks for the response.

Thank you, Mr. Danko.

[*Translation*]

Mr. Ste-Marie, you have the floor for two and a half minutes.

Gabriel Ste-Marie: Thank you, Mr. Chair.

Mr. Veerman and Mr. Myers, if I could simplify a bit, you explained that adopting AI technology to boost productivity can be a fairly complex process for businesses. I would like you to illustrate that with an example you know of that was a success, without revealing any industrial secrets, of course. It can be a bit more general, but illustrate for us what makes it complex. What was the process and what was the improvement?

I don't know which of you would like to start. I see Mr. Myers nodding, so he can start.

● (1620)

[*English*]

Jayson Myers: There is a large automotive parts company in Canada that is using industrial AI to improve the efficiency of its equipment—for example, to reduce the downtime of its equipment. They're doing that not only through predictive maintenance but also through prescriptive maintenance, where they can look ahead. It's not to predict the failure of equipment but rather to make sure it doesn't happen.

This requires sensors embedded in the equipment, and real-time data so that, in some AI applications, where you're controlling the equipment and reading the equipment in real time and avoiding any latency problems. You're dealing with the need for some form of segregated network in order to protect and ensure the integrity of the data and the fast transmission of that data. If the equipment—in this case including the use of robotics—is run through AI and embedded in those robotics, that all has to be integrated as well.

That's the type of technology stack they're working with. The AI model helps them reduce the downtime of the equipment pretty significantly.

[*Translation*]

Gabriel Ste-Marie: Thank you very much. That was very enlightening.

I would have like Mr. Veerman to give us an example, but my time is up, unfortunately.

Again, thank you very much to all three of you.

The Chair: Thank you, Mr. Ste-Marie.

[*English*]

Mr. Guglielmin, the floor is yours for five minutes.

Michael Guglielmin (Vaughan—Woodbridge, CPC): Thank you, Chair, and thank you to the witnesses for being here today.

Mr. Myers, earlier you were talking about potential productivity gains. I heard you outline, a few moments ago, predictive and preventative maintenance, and I heard you talk about quality control and enhancements there.

Over the decades, we've seen Canadian manufacturing flee from Canada to other jurisdictions, especially low-cost jurisdictions. Out of curiosity, do you see AI tools as a use case for reshoring manufacturing in Canada?

Jayson Myers: I do. For a number of years, manufacturers have focused primarily on cost reduction. There are great opportunities to use AI to become more efficient in manufacturing, but the real opportunities are in how you create additional value and how you grow your business.

Today, every product, every process and every piece of equipment could potentially be a data platform. Products that are being manufactured are becoming data platforms to provide database services. Jet engines are leased to the airlines, and the manufacturer, for instance, is reading all of the data and protecting the integrity of the engine. That's a big example, but there are all sorts of other examples where manufacturers in Canada could use the data not only to provide a better, more customized and more specialized product, but also to generate much more in terms of services as a result of that.

Michael Guglielmin: Are there certain subsectors of the manufacturing sector that are disproportionately taking advantage of AI tools right now?

Jayson Myers: If you look at the electronics sector, the equipment sector, the robotics sector, clearly, and the advanced manufacturing technology sector, those are probably the leaders in AI adoption. Larger companies are using AI a lot. It's the smaller companies where we have the biggest adoption challenges.

Michael Guglielmin: This brings me to one of the things you discussed previously with respect to cybersecurity. As more and more businesses start adopting different AI tools for manufacturing, robotics and other integration, what are some of the concrete security and cybersecurity risks that you see manufacturers facing on plant floors today here in Canada?

● (1625)

Jayson Myers: There's always a cybersecurity issue around being hacked and phishing applied to data. We've seen examples over the past several years of automated equipment and autonomous equipment—it could be forklifts or cars—being hacked. That's the type of cybersecurity concern that, in some ways, is a challenge in the adoption of AI.

There's a lot of data being generated by manufacturers, and AI can help those companies create value from it. At the same time, they're vulnerable. It's not only the software systems and the data, but the hardware that's data-enabled as well that are vulnerable to a cyber-attack.

Michael Guglielmin: How prepared would you say Canadian SMEs are to deal with cybersecurity attacks?

Jayson Myers: I think there are a lot of Canadian SMEs that think they're prepared, but I don't think anybody is fully prepared for a cyber-attack. The most important part of being prepared is not the technology but the training.

When we're looking at AI adoption, for instance, I agree that trust is a major issue, but there's a whole cultural cybersecurity data management training that needs to be done throughout an organization, including top executives and management as well. I think that's probably the best protection for many of the cybersecurity concerns we've seen.

Michael Guglielmin: You'll have to be quick on this one.

Is there a national standard right now for plants and facilities to look at to start developing their own cybersecurity infrastructure policy?

Jayson Myers: Yes, there is. Canadian cybersecurity groups—and American, through NIST—have a series of industrial standards around cybersecurity protection.

The Chair: Thanks very much, Mr. Guglielmin.

Mr. Eyolfson, the floor is yours for five minutes.

Doug Eyolfson (Winnipeg West, Lib.): Thank you, Chair.

I've heard from different people asking for the different professions they're in. Mine is the medical profession. I've seen some applications already in use in medical charting, such as using AI to give more concise documentation, dictating notes and these sorts of things.

I know my own profession has been very slow to adopt information technologies. I still know how to use a fax machine. In the hospital I recently worked with, they are still using them. It speaks to a greater issue of trust.

Mr. Veerman, you spoke of trust being one of the things that have been a barrier. What has been done in the education of industries and the general public with regard to this issue of trust?

Alan Veerman: At the Vector Institute, there's a two-pronged approach that we use. The main one is to get people hands-on. First of all, we found that's the most effective way to do skills transfers in AI. Second of all, for companies that are just beginning their AI journey, doing a low-level AI use case implementation is the best way to start to get them familiar with it. It reduces the apprehension level, and it has a relatively easier to achieve ROI. We always encourage companies to start with small-scale AI implementation first, to get them started on their trust journey and transformation journey in AI.

The other part is where we direct the corporation's efforts on a strategic level. Early on in the Vector Institute's life, we recognized that AI is a topic that provokes quite a visceral reaction in the general population. We thought about that in two ways.

The first was the extent to which and to acknowledge that we receive a large amount of public funding. We looked at the government as a corporation that spends money. Where should that corporation want to use AI to improve the efficiencies and outcomes of its operations? The largest expense line in public expenses is, unequivocally, health care. The extension of that thought is, to the extent that AI as a topic is a topic that can provoke fear in the general population, if we advance health AI projects, explaining to the general public that we have used AI to improve health outcomes to reduce mortality, reduce waiting times, reduce comorbidities and increase detection of disease so that we can do early intervention would be one of the best ways to encourage greater levels of trust in AI adoption.

● (1630)

Doug Eyolfson: Thank you. That's very helpful. From the limited exposure I've had to it, it appears to be something that has some promise in the profession.

To change topics, we talk about the sovereignty of our data and different worries we have, particularly across borders. There are laws regarding access across governments. There is a law in the States, the CLOUD Act, which says the U.S. government could have access to any data on servers it owns in other countries. Canada has not signed on to this, but what assurances can we give to Canadians that data or information being used in this would actually be sovereign, that there would be the proper guardrails to make sure that actors from outside our borders wouldn't be able to either gain information or, even worse, control these technologies?

I'll start with you, Mr. Veerman, and then go on to Mr. Myers.

The Chair: We actually have only about 30 seconds remaining, so unfortunately, Mr. Eyolfson, I'm going to let Mr. Veerman take that one, and then we'll conclude.

Doug Eyolfson: Thank you.

Alan Veerman: My colleague, Ms. Blackman, is best positioned to answer.

Jessica Blackman (Director, Chief Data Officer, Vector Institute): As a national AI institute, one of the things Vector does is make Canadian compute available to researchers on a scale that otherwise would not be available to them. This means they are working with Canadian data in the context of a Canadian compute environment, where they can be sure that their data is safe and secure.

The Chair: Thank you very much.

We have two quick things before we finish. First, we'll take the opportunity to wish Dr. Eyolfson a happy birthday today. I think we're all chipping in to get him a brand new fax machine.

Voices: Oh, oh!

The Chair: That's the first order of business.

Next, I have a very quick question. I'm going to use my prerogative as the chair.

Mr. Myers, in your introductory remarks, towards the end, you spoke about underwriting risks, and you said the government needs to underwrite risks. Can you very quickly clarify what you mean by that, please?

Jayson Myers: I think the most important thing is to help facilitate the collaborations that need to take place. Usually, if there is funding required to support some form of technology implementation, the risk is largely in the collaborative aspects of that funding. If the government is focusing on accelerating the adoption of industrial AI, there is a role for it to play in providing funding, particularly for these collaborative projects, to integrate technologies that would lead to successful outcomes to boost productivity, particularly on the part of SMEs.

The Chair: Okay. I appreciate the clarity. Thanks very much.

Witnesses, thank you for making yourselves available to us. It was a very useful and meaningful discussion.

Colleagues, we're going to suspend briefly as we turn over to the second hour.

● (1630)

_____(Pause)_____

● (1640)

The Chair: I call the meeting back to order.

We are going to continue with the second hour of our study, and we're going to welcome a few new witnesses. We have three here in the room with us, and I believe one online.

Joining us from Bell Canada, we have Mark Graham, senior vice-president of legal and regulatory, and Michel Richer, president of Bell AI, Bell AI Fabric, operations and quantum, who I understand will be giving the opening remarks. From Cohere, we have Joelle Pineau, chief AI officer, who is joining by video conference. From TELUS, we have Chris Madan, vice-president of digital product and head of the AI factory.

Witnesses, as a reminder to you, if your earpiece is not in use but is plugged in, please make sure that it is on the sticker in front of you. If it's on your ear, of course, you have nothing to worry about.

With that, I'm going to allow our colleagues from Bell to begin. I will pass the floor over to Mr. Richer.

[*Translation*]

Michel Richer (Senior Vice-President, Enterprise Solutions, Data Engineering and AI, Bell Canada): Thank you, Mr. Chair and members of the committee.

Canada is at an inflection point. Artificial intelligence is moving rapidly from the research stage into the very core of our economy. It is reshaping how we build, produce, serve customers and compete globally.

The question before this committee is not whether AI will transform Canada's strategic industries, but whether Canada will shape that transformation or allow it to be shaped elsewhere.

Bell believes Canada has a real opportunity to lead. Not only can it contribute to research, but it can also deploy AI at scale to strengthen productivity, competitiveness and economic sovereignty. Achieving that depends on trusted infrastructure, practical adoption, and clear authority over the systems Canadians rely on.

For Bell, AI sovereignty is operational. It depends on who controls the compute, where data is stored, how it moves across networks and who has the authority to operate or shut down critical systems.

Bell's networks already form part of Canada's digital backbone, supporting businesses, governments and public safety nationwide. Building on that foundation, we are investing in Bell AI Fabric, Canada's largest AI compute project.

Bell AI Fabric brings together sovereign compute capacity, Canadian data centres, national fibre connectivity and telco-grade cybersecurity. Bell is deploying capacity across several provinces with multiple facilities already in operation and additional sites under development. This national footprint avoids single-point dependencies and allows AI capacity to scale with Canada's needs.

[*English*]

Bell is fully funding this new sovereign AI infrastructure, demonstrating our long-term commitment to building critical AI capacity in Canada. Beyond technology, this infrastructure delivers real economic benefits. AI data centres drive construction activity and long-term skilled jobs. They create opportunities for local suppliers, workforce development and partnerships with indigenous communities, universities, and research institutions, helping anchor high-value economic activity in communities across Canada.

For Bell AI Fabric, the goal is to give governments, researchers and businesses access to AI infrastructure powerful enough for enterprise-scale adoption while ensuring that data, models and operational authority remain in Canada. This foundation is essential if AI is to improve productivity and competitiveness across Canada's strategic industries while supporting our economic sovereignty and security.

On adoption and commercialization, the global AI race is about embedding AI into real operations—factories, logistics networks, call centres, farms, health systems and public services. Bell helps enterprises and governments move from pilots to production, using AI to automate workflows, improve network performance, strengthen cybersecurity and deliver better services.

Bell is also partnering with Canadian AI leaders to ensure that value creation stays in Canada. For example, Bell has partnered with Cohere, a leading Canadian AI company, to deliver full-stack AI solutions that combine Canadian-controlled compute, networks and security with world-class Canadian models. These partnerships help translate Canada's research strength into deployable solutions that can be adopted at scale under Canadian jurisdiction.

AI delivers economic value only when it's used at scale. Organizations, including governments and critical industries, will use AI at scale only if they trust that the infrastructure, data and decision-making remain under Canadian control. From our perspective as an operator of national digital infrastructure and a leading provider of AI-powered enterprise solutions, the role of public policy is to ensure that Canada remains globally competitive and to support responsible deployment. Where AI moves into real operations, productivity improves across sectors. Economic benefits remain in Canada.

● (1645)

[*Translation*]

In closing, Canada's AI opportunity is real, but it is time-bound. If Canada wants to lead in the AI economy, we must move now to build and deploy the infrastructure that allows innovation to scale safely, competitively and under Canadian control.

With our unprecedented investments in Bell AI Fabric, Bell is making a robust contribution to the future of AI in Canada.

Thank you.

The Chair: Thank you very much, Mr. Richer.

[*English*]

Mr. Madan, the floor is yours for up to five minutes.

Chris Madan (Vice-President, Digital Product and Head of AI Factories, Telus): Thank you.

Good afternoon, Mr. Chair, honourable members and fellow panellists. Thank you for the opportunity to appear before this committee on a matter of critical importance to Canada's economic future.

We stand at a decisive inflection point. We possess world-leading AI research and innovation, yet we confront a systemic productivity crisis that has allowed our national growth to stall for decades. We train brilliant minds, engineers and researchers, only to witness them leave because the essential domestic infrastructure required to commercialize their innovation does not exist. Seventy-five per cent of AI patents developed in Canada are owned by foreign entities, and our most valuable talent inevitably follows the computing infrastructure down south.

In today's AI era, compute power is national power, and we cannot adopt AI at scale without the absolute confidence that our proprietary data, operational intelligence and competitive advantages remain under Canadian jurisdiction. This isn't just my belief; this is a message we hear from Canadian entities looking to adopt AI themselves. They want clarity on the Canadian definition of AI sovereignty, and they want consistency in how that definition is used. Data sovereignty is a necessary component, but to be truly sovereign we need full operational control over the infrastructure itself. This includes the facilities, the hardware, the networks, the operations and the data. It means Canadian operational control across every layer and Canadian jurisdiction throughout, limiting foreign control or exposure to extraterritorial laws. We call this sovereign by design, built from the ground up, not retrofitted.

At Telus, we have moved beyond debate and have responded to this national challenge with decisive action. We built Canada's first fully sovereign AI factory, which opened its doors in Rimouski in September 2025. It features Canada's fastest and most powerful supercomputer, bringing the same cutting-edge capabilities that power AI innovation in Silicon Valley right here to Canadian soil. Partnering with the world's leading AI infrastructure provider, Nvidia, we're delivering the world's best technology without compromising sovereignty. Furthermore, our facilities operate in a LEED gold-certified building, powered by 99% renewable energy through Hydro-Québec and exhibiting industry-leading energy efficiency. This infrastructure reflects essential Canadian environmental values, proving that large-scale AI can align with a sustainable, low-carbon future.

Unlike many announcements that have merely announced intentions, we are fully operational today, actively serving Canadian organizations. Telus has been part of—and leading—Canada's AI ecosystem for over a decade now, working with research institutions like Mila, Amii and Vector, and with industry partners, to advance responsible AI adoption. Today, alongside our consortium partners, including leaders like Cohere, we're offering the full stack of AI solutions: the infrastructure, the platforms and the applications that Canadian organizations need to deploy AI at scale while maintaining complete control. This is critical for our industry and our national economic security. Canadian manufacturers can deploy AI without sending data abroad. Researchers can train models here, keeping innovation at home. Health care institutions can leverage AI for patient care without compromising privacy.

As the government works to scale AI adoption across public institutions and to nurture a domestic ecosystem, we must eliminate ambiguity. We need clarity on what “sovereign” truly means, clear definitions that distinguish between data residency and operational control, and procurement standards that prioritize Canadian-controlled infrastructure.

Telus stands ready to partner with the Government of Canada, this committee and Canadian industry to advance this critical infrastructure. We have the talent, the resources and now the infrastructure. We need continued commitment to build and a policy framework that gives businesses the confidence to continue building here, ensuring that Canada owns its AI future and doesn't merely participate in someone else's.

Thank you, Mr. Chair. I look forward to your questions.

● (1650)

The Chair: Thank you very much.

Madam Pineau, the floor is yours for five minutes.

[*Translation*]

Joëlle Pineau (Chief AI Officer, Cohere Inc.): Thank you, Mr. Chair.

Mr. Chair and members of the committee, thank you for inviting me to testify today.

My name is Joëlle Pineau. I'm the chief AI officer at Cohere, where I lead the company's product strategy and supervise our research at Cohere Labs. I'm also a professor at McGill University and an academic member of Mila.

[*English*]

I'd like to begin by highlighting the magnitude of the moment we are in.

AI is a fundamental economic shift reminiscent of the massive industrial mobilization of the forties and has rapidly evolved from an academic pursuit into a defining force in national productivity, security and sovereignty, which has taken me from McGill University to being with Cohere today.

Global competition is now nation to nation. Countries are mobilizing defence budgets and strategic investors to back their AI champions. Without actively building sovereign AI capacity, we risk absolute reliance on foreign infrastructure and losing decades of economic benefit.

Canada can anchor its ecosystem with our own values and governance system. Founded in Toronto in 2019, Cohere is Canada's only foundational model lab at global scale today, building large language models that are powering new applications more quickly and cost effectively and placing us among just three other nations—the United States, China and France—with domestic capabilities at this critical layer.

While Canada is a research powerhouse, accounting for 5% of top-tier AI researchers globally, and is leading the G7 in talent growth, we have historically struggled with commercialization.

[*Translation*]

Canada needs to keep up with its peers. Canada faces a persistent productivity gap, lagging behind some other G7 countries by about 30%. To close this gap, salaries and public services have to improve on a national scale. AI is one concrete way to make a difference. The goal is not only to achieve indirect productivity gains, but also to ensure that Canadian companies capture a significant share of the global revenue generated by this growth.

[*English*]

For our clients, the demand for absolute control over their technology culminates in one vital requirement: digital sovereignty, a central focus of this committee. We view sovereignty as technical guarantees ensuring control, auditability and secure operations. As a trusted sovereign AI partner, our key differentiator is unparalleled deployment, flexibility and security. By deploying our models entirely on premise, customers retain absolute control over their infrastructure and proprietary data without any risk of it even being accessed by Cohere.

Take our partnership with Bell as a concrete example. Cohere's platform is actively running on Bell's AI Fabric to enable secure enterprise-grade AI with complete data control. We're proving that Canadian organizations can adopt AI securely, keeping critical infrastructure within our borders.

[*Translation*]

Our collaboration with Bell is proof that secure AI deployment nationwide is now possible. To extend this success across the country and address broader challenges related to sovereignty, regulation and labour market disruptions, Canada must take concrete action. To that end, Cohere respectfully submits three recommendations.

First, to ensure data sovereignty, Canada must address infrastructure constraints. Cohere is in favour of a broader national strategy for computing and national AI data infrastructure creation. Key to ensuring sovereignty is having models that reflect Canadian data. If Canada owns and manages the data that defines it, Canadian growth-stage companies and researchers will be able to build world-class, commercially viable models that reflect our language and values rather than relying on foreign infrastructure.

● (1655)

[*English*]

Second, we must adopt a risk-based, sector-specific approach to regulation.

Without a thoughtful regulatory framework, Canada risks falling behind. We urge the government to take a measured and globally consistent approach when focusing on broad policy, while relying on existing sector-specific regulations to manage deployment.

Third, the government must lead by example. The best way to protect workers is not to resist adoption but to steer it.

Ottawa must become the first and best customer of Canadian AI. Setting aggressive public sector adoption goals and launching national upskilling programs will transition our workforce effectively, boost productivity and provide domestic firms with the reference customers need to compete globally.

[*Translation*]

Cohere is ready to be Canada's partner in sovereign AI.

Thank you for your attention. I would be happy to answer your questions.

The Chair: Thank you very much, Ms. Pineau.

[*English*]

Madam Dancho, the floor is yours for six minutes.

Raquel Dancho: Thank you, Mr. Chair.

Thank you for the opening testimony from our witnesses today. It's great to see Canadian companies doing extraordinary work to ensure data sovereignty and our sovereign AI capacity.

To start off, I have a few questions for Cohere.

Madam Pineau, it's a pleasure to have you here.

As I mentioned, I think Canadians are increasingly concerned about our sovereign capacity and critical industries, AI being an emerging and increasingly critical industry, as you well know. They want us to be self-reliant.

It seems that your company has been billed as sort of the sovereign AI company for Canada to build that future and also for government to be a key customer of yours. In brief, can you highlight for the committee what makes Cohere unique vis-à-vis the others here today and other actors in Canada in supporting Canada's sovereign AI capacity, and why is that specifically important?

Joëlle Pineau: Quite frankly, to have sovereignty, you really need to think about the full stack, from the data to the models to the infrastructure and to the regulation. Where Cohere is unique is really at the model layer. The ability to build world-class models today, foundation models that are able to incorporate large amounts of information and use that to drive productivity is where Cohere shines. Today we're one of very few global companies that are able to do that.

Where we are very complementary to other companies appearing today is in terms of partnering with them, for example, for the infrastructure layer. Cohere doesn't necessarily have expertise building its own infrastructure. We partner with companies such as Bell to do that.

The model layer is one that's particularly difficult from a technical point of view. Canada invented the original technology for doing that—deep learning and large language models—and we must preserve the capacity to commercialize it.

Raquel Dancho: Thank you very much. I appreciate that. I'm glad you brought up infrastructure.

I want to ask you about your work with CoreWeave, an American-owned company. Of course, Cohere received nearly a quarter of a billion dollars of taxpayer funding to expand, I believe, your AI compute capacity. My understanding is that those taxpayer dollars were then invested in CoreWeave, the American company that builds and operates the data centre in Canada.

I'm struggling to square the circle there. Do we not have the capacity to build...? Do we not have a Canadian company that could have done that, and doesn't that impact the sovereign capacity argument based on which you were given that money?

Joëlle Pineau: That's a really important question.

At the time we built our cluster, we did a thorough analysis of who had the capabilities to build that. You have to remember that this is a cluster used for research and development of said models. This isn't a cluster that's used to distribute that technology to enterprises.

To build that technology at the time when we did it, there were very few players—none of them Canadian-owned companies—that had the ability to do that. In the future, we are always looking for Canadian partners to build those R and D clusters and will continue to do so. The analysis we had at the time indicated no other option. We were glad that we were able to build a cluster in Canada, developing that capacity locally.

Raquel Dancho: Thank you.

Do you have any concerns, given that it's American-owned and -operated, about the CLOUD Act? Of course, I'm sure you're very familiar with it. It's the U.S. act that would allow American law enforcement and other security apparatus there to really.... If they deemed that there was a security issue, they could access the data from any American-owned companies. That would fall, of course, under the CLOUD Act, I would imagine. Are you concerned about the security implications of that?

● (1700)

Joëlle Pineau: I'm sure you probably have witnesses who have more in-depth knowledge in terms of the interpretation of the CLOUD Act.

That being said, that act doesn't circumvent legal processes in terms of access to data. I understand that Canadians, of course, have a right to own their data, and the Canadian government will continue to govern the use of Canadian data.

Raquel Dancho: Again, I appreciate that there may be others with better expertise on the CLOUD Act, but I think that specific.... You mentioned that we have jurisdiction over it, but there are some questions of whether that's the case when they're American-owned companies. I think that's why a lot of Canadians support investment in sovereign AI capacity, data centres and the like, but it's certainly something this committee should look more into.

With my remaining time, I want to get one more question in. There was, of course, talk in The Globe and Mail recently about a potential merger between Cohere and a German-owned company. Of course, as I mentioned, Cohere received about a quarter of a billion dollars to build our sovereign capacity. We have some concerns. There were not a lot of details in the article. I'm sure you can't comment on specifics, but can you commit, for this committee today, that Cohere will remain Canadian-owned and headquartered in Canada?

Joëlle Pineau: As you suspect, I'm not going to dive into speculation.

What I can certainly assure you of is that Cohere was built in Canada. The founders are Canadian. We have growing teams in Canada. We just opened a team in Montreal, an office that I myself am growing. I am fully confident that Canada will continue to be the home for a lot of the work that Cohere is doing.

Raquel Dancho: Okay. You can't commit that you'll remain Canadian-owned and Canadian-headquartered, but you would have a presence here regardless of any merger.

Joëlle Pineau: It's not my role to comment on this.

Raquel Dancho: All right. Thank you very much.

I have only 20 seconds left, Mr. Chair, so I'll just give it back to you.

Thank you.

The Chair: We'll roll that in. Thank you, Madam Dancho.

Mr. Ma, the floor is yours for six minutes.

Michael Ma (Markham—Unionville, Lib.): Thank you, Chair.

Thank you to all the witnesses for being here. My questions are for Cohere.

Ms. Pineau, in your submission to the AI task force, you emphasize that sovereignty is safety, including access to domestic compute, data and models. To what extent does reliance on foreign AI infrastructure increase Canada's exposure to both economic and security risks?

Joëlle Pineau: There are a few levels at which that applies. That's why our strategy has been to build this capacity within Canada, with Canadian partners.

First and foremost, this year we've seen how much having the ability to control our own destiny and have the ability to possess all of the stack is really important. In many ways, for me, the hardest of these capacities is building the model itself and having the capacity to do that. Given how there are very few players around the world, that remains very important.

The other point on which I'll insist is on the type of deployment we do. I mentioned these on-premise deployments. That means the model is deployed locally, whether it's with a government agency or a commercial partner. That means the company is running that model locally on-premise. Their own data stays local. It doesn't have to travel to the cloud. As you can imagine, there are many partners who are very interested in this type of set-up and capability.

Michael Ma: You argue that safety should not be seen as competing with economic progress but rather as a source of competitive advantage.

What does a regulatory framework look like that both builds trust and accelerates innovation?

Joëlle Pineau: I'm glad you're picking up on this point.

Often, safety is seen as intention with innovation. We really have to move to a point where we can build models in a way such that safety is built into the model itself, and security is built into the system and how it's deployed. By having that approach, we have the ability to innovate and actually bring value.

We're about to move into a world where security concerns are a real liability for many companies. There are many things that can be done in terms of the model. One of the things is building safety guardrails right into it. Another one is how the models are deployed. Deployments on the premises are what we call “air-gapped”. There is essentially a full layer protecting the data. That and also how the model is used prevent any intruder from seeing that.

In that sense, from a technical governance point of view, there are solutions whereby we can provide some very strong guarantees from a privacy, safety and security standpoint.

● (1705)

Michael Ma: That's great. Thank you.

You also cautioned against broad and vague regulatory approaches. Instead, you recommend sector-specific, risk-based frameworks.

How important is it for Canada to avoid one-size-fits-all AI regulation in order to remain competitive?

Joëlle Pineau: This is an issue we are facing as a company that wants to build here in Canada and of course play a role commercially on the global scale. The ability to have interoperable standards and regulation makes it a lot easier to ensure that we are compliant with regulation.

The challenge, often, isn't that we are afoul of regulation. It's the burden of proving that level of compliance. As much as we can, in fact, be compatible with international standards, it's very much preferable.

The other thing with AI is that in many ways there's been an attempt to regulate the future. We know from many other domains...you can imagine all sorts of things in terms of speculation. The idea of a risk-based framework is that we're actually trying to regulate the technology based on evidence and measurement, which tends to lead to a much better technology and quite likely a better regulatory framework as well.

Michael Ma: In terms of trust, your memo highlights that public trust in AI in Canada remains relatively low. To what extent is this trust deficit currently acting as a barrier to adoption across businesses and institutions?

Joëlle Pineau: It continues to be a challenge. The numbers we cited are coming out of the Stanford HAI report. A new report just landed today. I'm eager to go and see the numbers, to see if we're progressing.

It's important for citizens to understand the technology and to feel like they have some agency over how the technology is used in their lives.

When it comes to the workforce, it's worth emphasizing that Cohere is strictly focused on deploying AI within the context of enterprise and governments. It's not for consumers. When it comes to that context, the strategy to build trust is twofold.

One is to support the transition that is necessary. We have several programs in terms of education to drive adoption and to make that transition a lot easier when we partner with an enterprise. We view that as being essential to the transition.

The other one is to show the burden of showing that we are actually realizing productivity gains. We are not there to deploy technologies just to complicate people's lives. It's to actually have a way to demonstrate that the productivity increases are real, toward use cases that actually matter to each company.

Michael Ma: Thank you.

The Chair: Thank you very much, Mr. Ma.

[*Translation*]

Mr. Ste-Marie, you have the floor for six minutes.

Gabriel Ste-Marie: Thank you, Mr. Chair.

I am grateful to all the witnesses for being here.

I have a very broad question for Mr. Richer, and I would ask Mr. Madan and Ms. Pineau to chime in as well.

Every one of your presentations had a lot to say about the importance of Canadian control at every level from data to infrastructure and so on.

My questions are very basic. Why is that important? For example, what are the actual risks if those things are controlled by U.S. companies?

You also talked about the importance of economies of scale in the AI space, if I understand correctly. Is the Canadian market big enough to really benefit from economies of scale?

If so, is there space for competition, or is a natural monopoly taking shape?

Michel Richer: Mr. Chair, the question was asked in French, so I'll answer in French.

The first question was about risks and considerations relative to digital sovereignty. Here's how we should think about this: Digital sovereignty ensures that two major paradigms are in place. The first is that no one outside the country, at the request of another authority, can access or view our data. The second is an equally important but more recent consideration: No one, at the request of any such authority, can prevent our systems from functioning. In other words, no one can see our data.

[*English*]

Nobody can turn the switch off on Canada.

● (1710)

[*Translation*]

We are working with Canadian operators to implement both paradigms, for which four highly operational elements must be in place.

The first is control over data residency and storage. The second is control over data as it moves through the environment. In other words, control over the network that must be under Canadian control and on Canadian soil at every data transit point. The third is control over compute infrastructure that decides which scenario or model is used—or, more importantly, not used—at any given moment. The last element is control over governance and oversight infrastructure for all these environments.

Your second question was about the size of the sector and its potential for competitiveness.

Given the growth we foresee across the field of AI, Canada is definitely big enough to support key players and foster an industry in which an entire ecosystem can develop. I would emphasize not only competitive dynamics, but other dynamics as well. Earlier, we talked about how we need full-stack technology. We need a comprehensive ecosystem that includes players who will provide solutions and collaborate on everything from the infrastructure layer to enterprise adoption models and services.

[*English*]

Chris Madan: There are two aspects to that.

On the data side, there are three elements to the data that we have to think about.

There's the actual data, such as our citizen data, our own health care data, etc., that sits there. However, in the age of AI, especially on the digital side, it's also creating data. The models run, we have telemetry that's running on it and you're looking at all the information that flows through. Having control of that information is a critical aspect.

We can think of sovereignty. Signal 49, which used to be called the Conference Board of Canada, just came out with a new metaphor. The metaphor that has previously been used is that data is the new oil. In the age of AI, the term they now use is that data is the new soil. It is a place where you cultivate and grow, and you reap benefits that pay out over time. Unlike oil, which is typically taken out and exported, data is something we should continue to use.

The second element of that is the operational control. My colleague just talked about some elements, but there are a few more I would add to that. It's not about who can actually stop access to some of that information. If you think of dependency, especially on foreign entities, in some cases they may not allow you to upgrade your software, for example. There are ways that are extraterritorial, and in today's geopolitical environment, it's absolutely important that you control that infrastructure from end to end.

If you think about Telus, we own everything from the fibre networks to the data centres to where the models are deployed on our premises, and then the information, whether it's in transit or at rest, flows through our networks. I think that becomes an aspect of critical importance.

To answer your second question, about commercial viability, Canada is on the cusp of another revolution. If you think of where we are, the window is small, but there is a global compute shortage. This is something you see that plays out across the board. It's one of the reasons you see large American multinationals trying to buy up data centres or establish their presence in Canada.

When you think of that global compute shortage, you think of the natural advantages we have, whether it's the land, renewable power, the talent, the research or the start-up ecosystem. We have the ability to own the end-to-end AI ecosystem and make this a strong competitive advantage for us collectively, versus being at the base infrastructure level.

That would be my response.

[*Translation*]

Gabriel Ste-Marie: Thank you very much.

Ms. Pineau, I only have 10 seconds left, so I'll come back to you for your answer in 10 minutes. I'll have two and a half minutes for you.

Thank you, Mr. Chair.

[*English*]

The Chair: Thank you, Mr. Ste-Marie.

Mr. Guglielmin, the floor is yours for five minutes.

Michael Guglielmin: Thank you, Chair.

Thanks again to the witnesses for being here for this critical study. You've all touched on some pretty key components already.

I want to spend my time looking at the security dimension of what we're building here, because I think it's widely received by both the public and policy-makers that we need control of our own data, and we need our own infrastructure.

Something happened recently that highlights the risks that are facing us. There's a difference between AI as tools, as we know, and AI agents that can act autonomously. Last week, Anthropic announced that one of its AI models had autonomously exploited software vulnerabilities across almost every single major operating system and browser, including bugs that had been buried in code for decades at that point. That same model, in safety testing, broke out of a sandboxed environment, accessed the Internet and emailed the researcher running the project.

All three of your organizations are operating AI in sensitive Canadian ecosystems, but I'll start with Bell.

When you hear something like this, how does this make you think about the security of the infrastructure that you're building?

● (1715)

Mark Graham (Senior Vice-President, Legal and Regulatory, Bell Canada): I think there are going to be security issues like this, where we're going to have to land as a country on what the right controls are that we want in place in Canadian deployments. Our company is not in the model and application space. Primarily, we partner with Canadian organizations to do that, but I think it emphasizes the importance of building out those capabilities in Canada, right from the infrastructure layer up through the stack, including the security layer.

We are in the security space. We spend a lot of time both educating our clients on the security risks and supporting them in developing security solutions to address those risks as they deploy AI so we can continue to facilitate adoption.

We need a Canadian ecosystem and Canadian infrastructure so that we aren't faced with a choice between an approach that is not regulated in Canada but determined in another country or not deploying AI. We need the ability to deploy Canadian-governed AI, and that's why we're so focused on developing that full-stack solution.

Michael Guglielmin: Anthropic disclosed last November that it had detected what it assessed with very high confidence to be a Chinese state-sponsored attack by a group of people using AI agents not as advisers but to actually facilitate the cyber-attack. This was all before Mythos, which is the system we were just talking about that they put on hold because they were so alarmed by what it was able to do without any direction.

Mr. Madan, I'll ask you a question.

If Telus is going to be providing AI infrastructure to Canadian government clients—even Cohere's tools are being deployed in federal services—and given the fact that we're already seeing a rise in these state-sponsored threats, how can we be sure, and what are you guys doing to ensure that you're not exposed to those threats? Also, is government asking the right questions about this?

Chris Madan: I think government is asking the right questions. I'll answer the second one first.

What you have to think through is that there are a couple of different layers to this one. You've shared two examples, one from last year and one from last week, and there will be another one tomorrow. I can guarantee you that.

What that actually means is that we need to be looking at this across the stack. That's why we talk about it that way. If you think of the five parts of the stack, everything from the infrastructure to the data to the application layer to the model layer and then to the end user, think of where in that we have control, and who has the kill switch.

The point I go back to is the fact that at the infrastructure layer and the way these things are designed in facilities that are controlled by us and where we control and manage the API calls that hit our systems or don't hit our systems, having the ability to turn off that kill switch in a doomsday scenario is an absolutely critical aspect of this whole ecosystem.

If you think of AI, I would say the other piece we have to start thinking of very quickly is what's happening with quantum and how that's coming up. In fact, Telus is building a whole post-quantum cryptography that's flowing out across our networks and looking to secure some of these aspects of the future.

These threats, if anything, I think, are something we just have to continue to find ways to stay ahead of. That's where policy certainty aspects around the components of that stack—who owns that stack and its components—become really critical, and who owns that kill switch becomes a matter of national urgency.

Michael Guglielmin: Thank you.

The Chair: Thank you, Mr. Guglielmin.

Mr. Fonseca, welcome to the committee. The floor is yours for five minutes.

Peter Fonseca: Thank you, Chair Carr. It's really enjoyable to be here. What a fascinating discussion we are having. It's my lucky day to be here as you are studying AI, as it comes up often in the constituency of Mississauga East—Cooksville, the riding that I have the privilege to represent.

My first question is for Madam Pineau.

We talk about Canada being a leader when it comes to large language models globally. You spoke about only a few other countries. I believe you brought up the U.S., China and France.

What is our competitive advantage? How do we hold on to that competitive advantage and continue to lead and grow?

● (1720)

Joëlle Pineau: Our competitive advantage is multifold. There's a reason I've chosen to spend all of my career in Canada and, from here, have been able to take on a global leadership role.

First, it stems from the education and research layer that we've built. The knowledge capacity we have in this country is truly exceptional. We created the technology, going back to the work of Dr. Bengio, Dr. Hinton and others here in Canada. We understand that technology. To this day, the three institutes that we have—Mila, Vector and Amii—are some of the largest producers of domestic talent for this technology.

We've been able to build up a substantial infrastructure capability as well, as demonstrated by my co-panellists today, and Cohere has the ability to build large models. It's a skill that requires a combination of research and engineering, and I think that the complexity of training these models is only increasing year over year, so the ability to have all of these capabilities domestically continues to be very important.

In terms of global competitiveness, one thing that is also going to help us is the access to energy, in particular clean energy. I think this is going to be important. We are seeing in many ways that's becoming a bottleneck in many cases. The ability to build more lightweight governance, which actually gives us the clarity we need for how to develop that technology, is going to be important.

I very much look forward to the report coming out on the federal strategy from the government.

Peter Fonseca: We've heard here in testimony that there's a gap between what we're doing in research, where we're doing very well, and in commercialization, where we're not doing as well as we could be.

What is the strategy to get us from research to commercialization and to better address our productivity gap?

Joëlle Pineau: I'll highlight three things that are important.

The first is to continue to support a national strategy for physical infrastructure, compute infrastructure and data. Having clarity on that strategy will be absolutely essential; otherwise, it will be very difficult to continue to build out those models here domestically.

The second one is this risk-based, sector-specific approach to regulation. I do think we have to keep pushing on that.

The third one, which I think I mentioned in my remarks, is worth digging into. Is the government leading by example, boosting productivity and sending a strong “buy Canadian” signal for technology? It's sometimes easy to forget how deeply we are consuming technology built elsewhere throughout the government, and we have an opportunity here to pivot.

Peter Fonseca: Thank you.

My next question is for Mr. Madan.

I have many SMEs in my constituency. Is the adoption of AI by businesses happening fast enough? How are you helping with this transition?

Chris Madan: The short answer is that it's not happening fast enough.

It's not happening fast enough for a couple of reasons, as was just pointed out. I think the first one is purely access. Access continues to be a big challenge, and even AI compute. We talk about that all of the time. As a large organization ourselves, we are typically third, fourth or fifth in line to try to get that. It's one of the reasons we went and invested ourselves in this space.

The second one is that if you look at a lot of small industries, they're still connected to the large hyperscalers and the grants that come from there. There's a whole incubation of capabilities that actually start just past research but at the start-up stage. At the start-up stage, where a lot of companies are looking for the right grants, for the right set-up, etc., there are many hyperscaler grants that actually get them on. Once you're in that ecosystem, you're connected. It's a self-fulfilling piece.

From our perspective, while we're actively working with SMEs in a number of places, we've chosen to actually spend more time in the start-up ecosystem. If I look right here in Ottawa, we're working with L-Spark, which is a large consortium of start-ups. We have a number of start-ups now on the AI factory deployed. If we look nationally, we have folks like AIP, where there are 160 different start-ups that are coming into that ecosystem.

We've set up two programs. One is called the catalyst program. That actually meets and matches some of those grants. You come in, and while you're applying for different grants, etc., you have access to free infrastructure. Then, going forward, you have access to very competitive pieces.

On the second piece, around what we can do, I'd love to have a discussion with you on how we can help. I myself am from Mississauga, and I would love...but we are trying to reach all of the local ecosystems in different places. In some cases, we find that it's more efficient for us to work through an ecosystem of start-ups.

● (1725)

Peter Fonseca: Thank you.

The Chair: Thank you very much, Mr. Fonseca.

[*Translation*]

Mr. Ste-Marie, you have the floor for two and a half minutes. You can go to Ms. Pineau right away.

Gabriel Ste-Marie: Before I do that, I want to say how nice it is to hear folks from Mississauga say good things about Rimouski and Hydro-Québec, which makes clean energy.

Ms. Pineau, my question was about the importance of every aspect of sovereignty. Why is it important?

I also asked about whether the Canadian market is too small for economies of scale. Do we have a competitive system?

Joëlle Pineau: Thank you for the question.

I'll start with data sovereignty. For starters, there are three types of data, and they're all important.

The first is personal data, such as citizenship and medical data. It's important to maintain control. Sovereignty is really about control. It's important to maintain that within our infrastructure and our system.

The second is data relating to competitiveness, and this applies to all businesses, whether they're small, medium or very large. They have a competitive advantage, and it's important to be able to protect that information so it's not vulnerable to being used in all kinds of ways we have no control over.

The third is generated data, which another witness touched on. More and more, AI is being used to generate all kinds of data. Here's a specific example: Agents are being built to carry out an in-depth analysis of an entirely new industrial sector to understand it and develop an investment strategy. That kind of analysis is increasingly being performed automatically by agents. This creates new information with real economic value. That's why it's important for both the government and all Canadian businesses to control this engine of economic value creation. This is where we must continue to focus our efforts.

Gabriel Ste-Marie: Your colleague, Yoshua Bengio, testified before the committee. He has a lot of concerns about AI development, loss of control and so on. Do you share his concerns? If so, tell us about your concerns.

Joëlle Pineau: Over the past few years, Mr. Bengio and I have pursued different research paths. We've had frequent conversations at Mila, but our concerns about intelligence are different. I've spent the past few years building and testing large models. Based on my experience, I recommend adopting a risk-based, measurable approach.

It's possible to imagine all kinds of more hypothetical risks when pondering the more theoretical aspects of this issue. Personally, through building and deploying these models, I came to the conclusion that a risk-based approach is of crucial importance. This approach has served us well in many other industries from automotive to nuclear to aviation, and it remains the benchmark for risk management. That's why I think it should inform our approach to AI as well.

Gabriel Ste-Marie: Thank you so much.

The Chair: Thank you, Mr. Ste-Marie.

[*English*]

Mr. Falk, the floor is yours for five minutes.

Ted Falk (Provencher, CPC): Thank you, Mr. Chair.

Thank you to all our witnesses for being here today.

Mr. Madan, you indicated that 70% of the AI development in Canada is foreign-owned. Can you elaborate on that? How did that happen?

Chris Madan: We looked at patent data and saw that 75% of patents that are owned are foreign-owned and live here. I think it starts literally at that stage.

You talked about having a lot of research that happens here. We lose almost 25% of our STEM graduates. They move south immediately after graduation. Beyond the start-up stage, scale-up and most capital flow from outside of Canada.

We have a Telus Global Ventures arm. I was at a conference a month and a half ago, and we had a conversation about a number of Canadian start-ups who said their first client was a U.S. client. They couldn't even find Canadian clients. In a lot of cases, even to operate across a variety of different sectors, you're asked to give a reference from a U.S. client to show that you have scale.

There are a number of systemic barriers that hinder innovation at scale, and it plays out from there. A lot of start-ups end up moving south or being bought up through components.

We also know a lot of funding, especially in the STEM ecosystem, comes from places like DARPA, which then allows some of these businesses to grow and scale.

For me, that's the ecosystem we're dealing with. It plays its way into our productivity data and into a number of different components. Capital typically follows a risk profile, and I would say that risk certainty comes from policy certainty. Therefore, the ask I have of the committee would be to have policy certainty that will allow capital to flow and our businesses to flourish in Canada.

● (1730)

Ted Falk: When you think of data sovereignty, both in infrastructure and in development, could you share with the committee some low-hanging fruit that we should be seized with?

Chris Madan: Some of my colleagues have mentioned this. There are many things to be done. I would say there are three things we would benefit from. The first is defining sovereignty. Sovereignty is more than data residency. I think that's an important nuance because, in a lot of cases, data residency has been the de facto standard, and that is not, by definition, what we're talking about. Data sovereignty and AI sovereignty are really important factors. A number of reports are coming out, but I'd say that's number one. We would look at that.

The second one would be the certainty around certain aspects of data or certain data types that are critical for us. We can look at citizen service delivery, health care data or places where we want to truly improve productivity. Picking those sectors and putting them right at the top would be a really important aspect, where you could give more policy certainty.

The third one is the pieces of legislation that are still pending. We haven't updated PIPEDA in a long time, and our privacy laws, etc., need to be strengthened. Having policy certainty around those critical layers outside the data layer are important elements that will give businesses a lot of certainty and will give industry a lot of certainty. I think that will allow us to operate and innovate in those places.

Ted Falk: To the gentleman from Bell, when you think of data sovereignty as opposed to residency, what is Bell's thinking on that?

Michel Richer: Operationally, residence is a big piece of it. We think of four pillars. Where does data residency sit? Where does it rest? Data transit, which is the entire networking piece, does us limited good if the data is stored in Canada but, in order to get from point A to point B in Canada, needs to transit through the United States, for instance. This idea of having an east to west redundant, secure network is extremely important within the country, so we can guarantee that no matter what technology is being used, including IP technology, we keep the data in the country.

The third one is the—

Ted Falk: I'll just interrupt there.

Between the telecoms, is there a lot of infrastructure sharing that allows that data transfer from east to west?

Michel Richer: For the core transit of the data, it's typically managed independently by various telcos, with some commercial relationship in some cases, but we have links. Bell has dual links that go east to west and are fully redundant in Canadian territory.

Ted Falk: You had a third point that you were going to make. I interrupted.

Michel Richer: Yes. The third point is the operational control: what runs, what doesn't run and what is getting updated in the systems. Also, the fourth one is the absolute control over governance of the systems in the jurisdiction.

Ted Falk: Thank you.

The Chair: Thank you very much, Mr. Falk.

Ms. Sudds, you'll finish us off here with five minutes.

Hon. Jenna Sudds: That's brilliant. Thank you very much.

I have a question for all three of the organizations that are companies and are here with us today. It is around the question of what role hardware needs to play or should play in Canada's AI strategy.

I'll perhaps start on the screen, with Ms. Pineau.

I take note that back in December, maybe, or in the fall, one of the co-founders of Cohere, Ivan Zhang authored an article through Build Canada that was called “Seize Canada's Semiconductor Opportunity”. In essence, through this article he argued that global supply chains are being reshaped by geopolitics and creating a once-in-a-generation opening for countries like Canada.

He also argued that we won't win by competing head-on with massive fabs, but we can win in targeted segments. We have assets in Canada like the Canadian Photonics Fabrication Centre, which is a strategic asset that is underleveraged. Also, he made the argument that Canada needs a hardware-aware AI strategy.

I'd be really curious to hear your thoughts, perhaps yours first, Ms. Pineau, and then we'll move back into the room.

● (1735)

Joëlle Pineau: I'm glad you're putting your finger on that. Ivan could probably talk about this a lot more eloquently than I can. I know that he's given it a lot of thought.

What I will say is that I do think there's an immense opportunity to open this up, and that whatever is today's technology may not be the technology we need in a few years. For a lot of today's technology, the race is really on the acquisition of the GPUs, these graphical processor units that are the building blocks for training the models, with Nvidia being one of the few giants and MD being another one that has the ability to produce this, but it doesn't mean that's going to be the solution that is dominating the market.

There's a lot of AI that is now moving towards being deployed on site. We're going to need hardware to deploy that AI in various devices, vehicles and others throughout the manufacturing industry, where really the GPU may not be the right form factor. To give you an example on that trajectory, a lot of the work we do at Cohere is actually in training much more efficient models. Where others are running models that need several dozen GPUs to run, we have models that run on just two GPUs, and maybe in a few years these models will be running on much smaller chips. The form factor may change.

I am fully supportive of exploring in what way we can build on the innovation and the research capacity we have in Canada—photonics and others—to really accelerate that field as well. We shouldn't think too short-term, especially when it comes to some of the more research bets that we support.

Hon. Jenna Sudds: Amazing, and thank you for that.

Perhaps I'll go to Mr. Richer for a remark.

Michel Richer: Yes, sure.

I see two things on the question. First, as we think of hardware as absolutely critical in sovereignty, I'd put the emphasis on what's critical in terms of who controls it operationally. There's a question of where it is produced, who owns the IP when it's produced and, then, once it's on, who has the control of it. For instance, as of today, we do have sovereign hardware in our AI Fabric that is available for Canadian customers as well. That's the first part of the question.

To your second aspect, around how we are developing this and whether we can do it in Canada, absolutely. As we think of it, multiple people here referenced the AI importance of a full stack and of thinking that it's not only GPUs that run those systems. You need complex environments in which you have multiple IT components. You'll still have some GPUs, some networking equipment, some memory and some memory on RAM, and many Canadian companies are pushing the envelope here.

Minister Solomon was present at the announcement that Hypertec, a Montreal company, made last week, which is that they are the first Canadian OEM partner in the world for Nvidia.

There are 10 of those, and they're really pushing the envelope in research and partnering with other Canadian organizations. We're partnering with them in terms of bringing those capabilities so that we can be a partner in the overall global ecosystem, where we contribute and where we take advantage of what others develop.

Hon. Jenna Sudds: Last but not least, we have Mr. Madan.

Chris Madan: Thank you for the great question.

I concur with my colleague over here on the two parts to the answer.

Part one is this: Especially on the hardware side, I think it's operational control that, in the near term, is the important strategic asset, especially if you think of all the elements that go into building these large-scale facilities. There are many components that are, by definition, Canadian. It's not just the chips. Think of the networking, the fibre that runs in and how the whole set-up happens. Beyond that, go into the racks, the storage, the memory and the various components. Owning all of that—I'll use the term “operational kill switch”—is what gives us control. That's a really critical, important factor as we think through this.

I'll come to the other part of the question, which is, how do we continue to develop this with a buy Canadian aspect? I think that's a really important aspect beyond the GPUs, the CPUs and the TPUs, where there is an arms race going on. Nvidia, one of our preferred partners and suppliers, is big over there, but companies like Broadcom are developing these at scale.

Beyond that, I would say that there's truly an opportunity for us, as Canadians, to look at that whole supply chain ecosystem. In fact, I'm on an AI sovereignty board that has published and sent off a letter that identifies 75 different Canadian companies playing across that ecosystem in the “start-up to scale-up” stage. We think they should be part of the sovereign AI supply chain ecosystem.

● (1740)

Hon. Jenna Sudds: That's amazing.

I'll wrap up super quickly, as the chair is looking at me.

My only comment back on that is this: Undoubtedly, the kill switch is an essential component. I would also argue that we saw, during COVID, what happens when others want to get their piece of the pie first. It's important to think about the hardware piece, because the ability to source it from other countries is not a guarantee.

I'll leave it at that.

Thank you, Chair.

The Chair: Thank you very much, Ms. Sudds.

Colleagues and witnesses, I appreciate your being here with us today. Again, as I said at the end of the first panel, and as I've been saying, it's a fascinating conversation and one that's incredibly timely, useful and important for the committee and, by extension, the House of Commons and the Government of Canada as it makes decisions about where things will go, moving forward with this massive disruption in technology and in our industry.

Colleagues, thank you for a good, fruitful discussion.

The meeting is adjourned.