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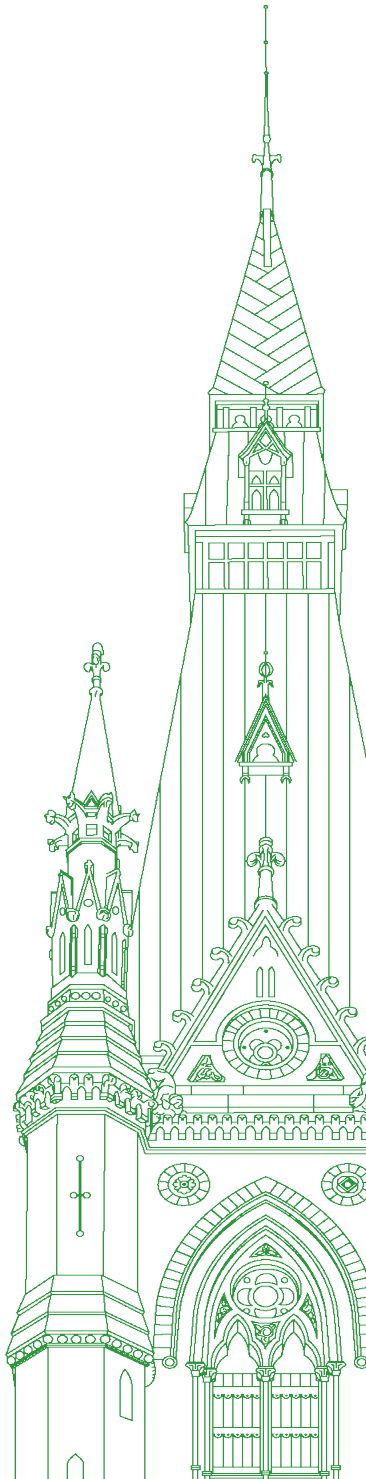

Chair: The Honourable Kirsty Duncan

Standing Committee on Science and Research

Thursday, March 9, 2023

● (1100)

[*English*]

The Vice-Chair (Mr. Corey Tochor (Saskatoon—University, CPC)): I call this meeting to order.

Welcome to meeting number 33 of the House of Commons Standing Committee on Science and Research. Today's meeting is taking place in a hybrid format, pursuant to the House order of June 23, 2022. Members are attending in person in the room and remotely using the Zoom application. For our first panel today, we are going to continue our study on the support for the commercialization of intellectual property.

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

Interpretation is available. For those on Zoom, you have the choice at the bottom of your screen of floor, English or French. For those in the room, you can use the earpiece and select the desired channel. I will remind you that all comments should be addressed through the chair. For members in the room, if you wish to speak, please raise your hand. For the members on Zoom, please use the "raise hand" function. The clerk and I will do our best to maintain a speaking order when appropriate. In accordance with our routine motions, I am informing the committee that all of our witnesses have completed the required connection tests in advance of this meeting.

We will start our meeting with two opening rounds of five minutes each from our presenters.

I now welcome Dr. Beauger to present for five minutes.

The floor is yours.

[*Translation*]

Ms. Nadine Beauger (Former President and Chief Executive Officer, IRICoR, As an Individual): Thank you, Mr. Chair.

Good morning.

Thank you and the members of the committee for the time you have given me today. I also particularly thank Ms. Diab for her invitation

For the past seven years, I have been the CEO of IRICoR, a centre of excellence in commercialization and research specializing in drug discovery based at the the IRIC, the University of Montreal's Institute for Research in Immunology and Cancer.

Owing to my 14 years at IRICoR, the commercialization of intellectual property piqued my interest because it has been IRICoR's core activity in pursuing its goal of creating therapeutic solutions for patients with cancer or rare diseases.

Here's what we've seen in recent years. According to Statistics Canada, at the height of the COVID-19 pandemic in 2020, incidence of death from cancer ranked first with 80,000, followed by 50,000 deaths from cardiovascular diseases. Deaths from COVID-19 ranked third.

For cancer, the situation was and still remains particularly alarming because diagnoses dropped dramatically without a decline in incidence.

Discovering innovative therapeutic solutions in this field is more important than ever if we are to cope with the wave of new cancer cases in the coming years.

In my view, one of the solutions is the efficient commercialization of Canadian intellectual property. This activity is central to IRICoR's pan-Canadian mandate, which is to accelerate the discovery and development of projects leading to the commercialization of new therapies. For us, commercialization relates to the establishment of co-development partnerships with the biopharmaceutical industry and the creation of spinoff companies.

The socio-economic returns of our activities go beyond the marketing of new drugs. The IRICoR solution for financing and supporting the best drug discovery projects in oncology and rare diseases, towards their next value inflection point, is of the utmost relevance if Canadian innovation is to actually benefit patients.

Year after year, this model contributes to enhancing the value of government investment in basic research. It also helps to boost activity in Quebec and the rest of Canada, particularly by attracting foreign capital that directly funds Canadian research and development, by creating and maintaining high value-added jobs in a crucial sector for the country, and by creating new spinoff companies.

We have entered into partnerships in Canada and internationally with big private sector players such as Ipsen, AbbVie, and Bristol Myers Squibb, or BMS, to promote Canadian innovation resulting from projects initially supported by us. The key is that we use government funding before establishing partnerships with industry or creating companies. This allows us to create high value intellectual property and achieve major financial returns for our academic institutions, for our research teams and for organizations like ours, while keeping expertise in Canada. This expertise, generated jointly by the public and private sectors, and not traditionally found in academia, is a major asset that is then used to develop new projects.

IRICoR's investments and business support also attract organizations complementary to ours, such as Canadian technology transfer companies, the Stem Cell Network in Ottawa, the CCRM in Toronto, adMare Bioinnovations, local investment companies like CTI Life Sciences and the FSTQ, and international firms like Advent Life Sciences. All of this is focused on the creation of Quebec-based spinoff companies that conduct clinical studies around the world. I am talking here about examples like ExCellThera, Epitopea, and RejuvenRx, which we helped to create.

In 2019, Canada had the lowest level of corporate R&D funding in OECD and G7 countries. Since then, the federal government has deployed several initiatives, such as the Strategic Science Fund, but we can do more.

IRICoR is a benchmark model that the federal government must continue to support, and that should be adopted in other sectors to position Canada among the top countries in terms of the commercialization of intellectual property.

Thank you very much for your attention and I'd be happy to answer your questions.

● (1105)

[*English*]

The Vice-Chair (Mr. Corey Tochor): Thank you so much, Dr. Beauger.

We now have Professor Karim for five minutes.

Mr. Karim Sallaudin Karim (Associate Vice-President, Commercialization and Entrepreneurship, University of Waterloo): Good morning. Thank you for inviting me to speak.

My name is Karim Sallaudin and I'm the associate vice-president of commercialization and entrepreneurship at the University of Waterloo.

I'll point out that much of our work at Waterloo takes place on the traditional territory of the Neutral, Anishinabe and Haudenosaunee peoples. Our main campus is situated on the Haldimand Tract, the land granted to the Six Nations that includes six miles on each side of the Grand River.

The University of Waterloo started as an unconventional institution and this has led to a leadership position in intellectual property development and commercialization. The university has a creator-owned IP rights policy that grants full ownership to the inventor. This policy has given rise to a university culture that has become the engine for driving commercialization success of student-led and research-based innovation.

I'll draw your attention to two of our important commercialization initiatives currently.

Velocity, Canada's most productive incubator, has incubated 434 companies since 2008. These companies, in turn, have generated more than $35 billion in enterprise value and created more than 5,000 jobs. University industry collaborations have served over 1,100 companies in the Advanced Manufacturing Consortium, a partnership between the universities of McMaster, Western and Waterloo.

Debate on Canada's innovation and productivity gap often centres on research and development within existing private companies. However, the activities and role played by post-secondary institutions like Waterloo are filling the gap today that private enterprises cannot fill effectively. I'll mention three ways in which this is done.

Number one, universities like Waterloo train large volumes of highly entrepreneurial students who, through their experience with co-op education, are motivated to bring productivity innovations to market. Students can often achieve this faster than incumbent enterprises can as students are not constrained by any particular business model as are most SMEs. Given the necessary supports like the Velocity incubator, these students are very successful agents of change and have generated productivity-based start-up unicorns for Canada. Recent examples include ApplyBoard and Faire.

Number two, post-secondary institutions generate the majority of R and D-based deep-tech discoveries. Deep tech is disruptive. Think about what happened to Kodak with the advent of digital cameras and the Yellow Pages with the advent of online search. To commercialize deep tech, both capital and specialized technical labour is required, but most Canadian enterprises have neither the will nor perhaps the ability to commercialize deep tech. An alternate way to commercialize deep tech is through university start-ups. These start-ups involve the university inventor, especially since it is the inventors who have much of the tacit knowledge to commercialize. They also benefit from a supply of specialized trained graduate students who act as diffusers of this knowledge from academia to the start-up. These students often take up leadership positions within the start-up instead of heading south for more lucrative opportunities.

Number three, economic growth and social impact are often not well aligned. Challenges such as a net-zero economy, climate change, sustainable health care, inequality and food insecurity continue to exist despite decades of strong economic growth. Private enterprises do not take on these challenges because the financial returns are modest and the time to returns can be very long. However, sustainable social enterprises founded on university campuses like Waterloo can take on these societal challenges and they do. They attract qualified employees who are motivated by the social mission, and they find capital to grow from a new breed of social impact investors and governments who value social impact alongside financial returns.

I'll make three recommendations.

One, we recommend that the Government of Canada provide more focused investment into increasing university commercialization capacity. Research, innovation and commercialization are part of a continuum. If we constrain one part of the pipeline in favour of another, the whole ecosystem and Canadian society suffer.

Two, universities should be included in any new programming supplied by the CIC to ensure that no innovation opportunity is left on the sidelines. We need CIC and other programs for universities to advance the commercial readiness of new technologies for translation to start-ups or the private sector.

Three, the CIC should engage deeply with experts at universities and incubators who have proven track records of commercializing specialized technology. To close our research and development gap, Canada needs a much more coordinated approach than what is currently happening. If we continue to look at education, research and commercialization as mutually exclusive, the productivity gap will only continue to widen.

● (1110)

Thank you. I can take questions now.

The Vice-Chair (Mr. Corey Tochor): Thank you so much, Professor Karim and Dr. Beauger.

We now will enter our six-minute round of questions.

To kick it off, we have MP Williams.

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

Thank you to our witnesses for coming to this important study today.

Professor Karim, I'm going to start with you, if I may, sir. The president of the university was in front of this committee a little while back in an earlier study. An alarming statistic is that in Canada we lose 75% of our computer science graduates and software engineers to the United States.

I'm curious to know what the rate is for intellectual property. Do we see the same rate of its leaving, of venture capital coming in and taking that IP out of Canada? If we do, how do we stop it from leaving?

Mr. Karim Sallaudin Karim: That's a great question.

I don't know the exact numbers for how much of our IP is leaving Canada, but I can say one thing: Deep tech, which is where a lot of IP resides, is difficult to commercialize within Canada, for the reasons I mentioned previously. One, our companies do not have the capacity to commercialize or, sometimes, the will. In that situation, it's not unlikely that this IP would leave Canada to find a home where it could be commercialized.

The second part of your question is how we stop that from happening. If we're trying to stop that from happening, we need to enable Canadian businesses to commercialize deep tech and to stay in Canada. I mentioned that existing businesses sometimes don't have the ability or the will to do so. Start-ups are a very interesting alternative. Start-ups are inherently tied to the country because the inventors are tied to the universities, and the graduate students, if you can attract them and prevent them from leaving by offering them leadership opportunities, would stick around.

We are seeing, in a sense, a rise in deep tech in Canada that is focused on start-ups coming out of universities like Waterloo. That's one option.

Mr. Ryan Williams: Then, how are we funding commercialization? We've talked a lot in the past about R and D, and we spend a lot of money on applied research. How specifically or how through the university system, the University of Waterloo, do you see funding commercialization?

Mr. Karim Sallaudin Karim: Again, I think that's a very pointed question, and I think it's a good question.

The universities, with the current funding that we get from government, can take technologies like deep tech up to prototype stages. For example, the tri-councils like NSERC have I2I programs and others that enable that.

Once that happens, you have to get the technology out of the company, either to the private sector or to a start-up. That money has to come from angel investors or VCs. Now, within Canada, we don't have a very large number of venture capitalists who would go into high-risk deep tech, so you have to rely on angels.

Oftentimes, the other way to do this is to rely on strategic investors, i.e., other Canadian companies that may see a value in the technology but don't have the resources internally to do it, so they'll invest in a start-up to have it grow.

● (1115)

Mr. Ryan Williams: In your opinion, for venture capital, how much is coming from the U.S. and how much is Canadian at this point, percentage-wise?

Mr. Karim Sallaudin Karim: It's a good question. I don't have the exact numbers off the top of my head, but anecdotally I would suspect that a larger share is coming from the United States than is coming from Canada.

Mr. Ryan Williams: Are there active venture capital groups that operate through the university, that are coordinated through the university at this point?

Mr. Karim Sallaudin Karim: The university does coordinate with VCs and micro-VCs for sure. The university being a charity, obviously it's not going to run its own VC because it is a for-profit enterprise, but there are interactions that do occur.

Mr. Ryan Williams: Do a lot of those interactions happen with Communitech in Waterloo?

Mr. Karim Sallaudin Karim: Absolutely, Communitech is part of the big picture. It is a key regional player that helps to provide education and connections.

The other piece is of course Velocity, which is a university incubator. It's a not-for-profit. We've realized a lot of value through that Velocity incubator. Velocity also has quite a few connections, both locally and in the United States, and brings in funding to the start-ups that are in the Velocity incubator space.

There's also, of course, the Accelerator Centre in the Waterloo region that is also coordinating.

All of these work together to make sure the ecosystem is vibrant.

Mr. Ryan Williams: When I've done research for the U.S., they seemed to not even have to look for it. There are enough angel investments and enough venture capital in the universities that they don't have to do that, but in Canada it seems, from other testimony, we really have to work hard at it.

Do you think there are things we could do on the government side to encourage the large network of alumni you have or the swath of businesses, not just in the Waterloo area but across Canada, that have certainly benefited from your institution? Are there recommendations we could make that would encourage more angel investments and venture capital from different human capital sides in Canada and not just from the government?

Mr. Karim Sallaudin Karim: I'll make an interesting point here. Venture capital is often synonymous with taking risk, but the real question you're asking is this: What types of risks are VCs taking? VCs most often do not take on technological risk, but they take on market risk. What I mean by that is they're happy to take a product or a prototype that is nearly commercial-ready and see how to get it introduced into the market. Most VCs in Canada or the United States do not have the means, the capacity or the intention to take on technological risk.

Technological risk in the United States is overcome by government programs like the SBIR or the STTR. These are very large, substantial pools of funding that can be obtained not just by small businesses but also by universities and university start-ups. Sometimes they can offer up to $2 million U.S. of funding over the course of a year or two. That can be very instrumental in bringing deep tech to market.

Mr. Ryan Williams: Thank you, Mr. Chair.

The Vice-Chair (Mr. Corey Tochor): Thank you very much.

Now we will be moving to Madam Diab, who is online, for six minutes.

Ms. Lena Metlege Diab (Halifax West, Lib.): Thank you very much, Mr. Chair.

Welcome to both witnesses.

[*Translation*]

I'd like to welcome the witnesses here with us today.

Ms. Beauger, t's a pleasure to have you with us at the committee meeting this morning. I'd like to begin by by saying that I was delighted to make your acquaintance at the Stem Cell Network lunch organized for the group by my colleague, Ms. Valerie Bradford.

● (1120)

Ms. Nadine Beauger: It was a pleasure for me too.

Ms. Lena Metlege Diab: I'm sure that you have lots of advice and information for us to use in our study.

Could you tell us a little more about your own experience and work in commercialization, particularly in the health field?

Ms. Nadine Beauger: Thank you very much, Ms. Diab.

I can provide more details about our sector, which is discovering medicines. As I mentioned, the pandemic showed how important this sector is for Canada's economy.

I'd like to mention something that links to the previous comments. I'm going to use IRICoR as an example, but I believe it's a model that could be applied more broadly in Canada. High-value assets that can be developed in a university environment are needed before establishing companies. Doing this mitigates the potential risk for Canadian and American venture capital corporations. I can also see that my colleague, Professor Sallaudin-Karim, is working on this at the University of Waterloo. I believe that models like this would raise the value of Canadian innovation and intellectual property before establishing industry partnerships.

When I talk about partnerships, as you were pointing out, based on our experience at IRICoR, we mean partnerships with international pharmaceutical companies. Accordingly, what's involved is demonstrating that Canadian innovation can attract major funding. In our first 10 years, we funded drug discovery projects at various stages of development, ranging as high as $5 million or $6 million. These investments attracted $50 million to $60 million in research and development funding from international companies.

Unlike deep tech, pharmaceutical company headquarters are outside of Canada. We were nevertheless able to attract funds.

In addition to the research and development funding that would come to Canada, there are the contracts we sign with these companies. We're talking about intellectual property and expertise development. At IRICoR, working with Canadian research teams, we developed new intellectual property. However, we also afterwards established collaborative partnerships with major pharmaceutical firms, giving rise to knowledge transfers between university and pharmaceutical company research teams.

This jointly developed expertise generates benefits for research teams and universities in Canada, as well as for organizations like ours, and enables us to reinvest in research projects and make them sustainable with federal and provincial funding.

Ms. Lena Metlege Diab: Thank you very much.

Do you feel that the health field in Canada is doing better or worse at commercializing intellectual property than other areas, such as clean technology?

Ms. Nadine Beauger: I haven't been monitoring other fields as closely. However, I believe that initiatives like the Strategic Science Fund are crucial for fields like health and science. I'm sure that there are other opportunities for the government. It should also be supporting organizations like IRICoR, the one I was heading, to generate this added value.

We were just talking about human capital, and that's added value that you don't find in the traditional university setting. What I'm talking about is the mentality specific to the private sector. I'm talking about people who have worked for venture capital companies or for private intellectual property companies. I'm talking about adding all this knowhow to Canada's scientific expertise and excellence.

● (1125)

Ms. Lena Metlege Diab: Do you have anything to add, not only to encourage us as parliamentarians, but also to help us in our discussions on commercialization in the health field?

Ms. Nadine Beauger: I find that we've done very well together. I applaud the government's initiatives because it's really the government that made it possible to create a program like the centres of excellence in commercialization and research, as well as the centre of excellence networks. The federal government's vision is what led to success stories like those.

I believe that the government should continue this support, specifically for organizations that have demonstrated they are capable of getting results. That would enable us to increase the number of new companies in Canada and strengthen entrepreneurship in the life sciences, which is important for us. We shouldn't depend solely on human and financial capital from outside Canada.

Ms. Lena Metlege Diab: Thank you very much, Ms. Beauger.

[*English*]

Is that my time, Mr. Chair?

The Vice-Chair (Mr. Corey Tochor): Yes.

[*Translation*]

Ms. Lena Metlege Diab: Thank you very much.

[*English*]

The Vice-Chair (Mr. Corey Tochor): That's all right. I like to let the witnesses finish their thoughts. I will cut off members, but I won't cut off witnesses, unless it gets extreme.

Now, we'll go to MP Blanchette-Joncas for six minutes.

[*Translation*]

Mr. Maxime Blanchette-Joncas (Rimouski-Neigette—Témiscouata—Les Basques, BQ): Thank you very much, Mr. Chair.

I'd like to thank the witnesses who have joined us to contribute to the study.

I'll begin with some questions for Ms. Beauger.

Ms. Beauger, It's a pleasure to welcome you to the committee today in connection with this important study.

Of course, I congratulate you on your commitment to IRICoR. I know that you worked there for quite a few years and that you now appear to be headed towards new challenges. I did nevertheless want to draw attention to your excellent work and point out that we can take pride in having an organization like IRICoR in Quebec. It is having a major impact on the transformative research being conducted in Quebec, elsewhere in Canada, and around the world, on highly innovative therapeutic solutions.

I'm going to follow up on my colleague's line of questioning. I'd like to know more about the status of the situation in Canada and where it stands in the commercialization of intellectual property.

According to the most recent data from Innovation, Science and Economic Development Canada, which happens to be from 2016, Canada was ranked 31st out of 37 OECD countries in terms of trademark applications per capita.

Do you have anything to say about that?

Ms. Nadine Beauger: Thank you very much for your kind words.

As I was saying earlier, I believe we can do better.

You also mentioned something very important that is related to intellectual property, namely trademarks. And in addition to trademarks, there are also patents. That's something that needs to be followed up.

Given the level of innovation and funding from the federal and provincial governments, we are capable of transforming these early investments into marketable intellectual property on a larger scale. We are clearly able to do this.

Once again, I believe that organizations like ours, if they work together with technology transfer companies and other organizations across Canada, will be able to increase the value of intellectual property.

We can even create new intellectual property through public funds in order to establish partnerships with the industry. That would definitely improve our status among OECD and G-7 countries.

Mr. Maxime Blanchette-Joncas: Thank you, Ms. Beauger.

I'll take the liberty of adding to your comments.

Of course, further details would help. As you mentioned, we need to talk about patents. In terms of Triad patents, which is what a series of patents for a given invention in Europe, Japan and the United States are called, Canada ranked 19th out of 37 countries per capita. I'm no expert in mathematics, but 19th out of 37 means that Canada would not necessarily qualify to be a G7 country.

I'll continue with some further questions.

In your opening address, Ms. Beauger, You went on to talk about the low level of investment by the Canadian government in research and development. You said that Canada lagged behind the G7 countries in 2019.

I would nevertheless like to add that Canada was the only G7 country to have reduced its funding over the past 20 years. It's also the only country to have lost some of its researchers over the past six years. I think the picture is still rather bleak, and I'm trying to understand it.

As someone who headed an organization like IRICoR, can you tell us what companies in this sector are doing to become competitive and raise their profile internationally, when we have a government that does not make research and development funding a priority?

I'd like to hear what you have to say about that.

● (1130)

Ms. Nadine Beauger: It's true that the situation is not very good based on the numbers you mentioned. What I said about 2019 was that corporate research and development funding was what put Canada last in the ranking.

I still believe Canada can do better. I was talking about data from 2019, and since then, there has been additional funding in Canada. Initiatives like this need to continue, because—and this gets us back to some extent to the question of patents—for far too long, the only performance indicator used was the number of patent applications.

What we're now seeing in our specific field, the discovery of drugs, is the importance of developing patents and filing high-value patent applications on the composition of products that lead to significant financial gains. It's really a way of proceeding that would raise our profile and increase the value of what we have in Canada.

To get back to your question, I believe that the government really needs to channel its funding and focus on organizations that are working effectively and offering high-value assets that would attract research and development funding from outside the private sector.

Mr. Maxime Blanchette-Joncas: Ms. Beauger, you said that we can do better. And yet, our neighbours, the United States, doubled the core budget of the National Science Foundation. It's the biggest single research funding program.

How can we compete in this area when Canada is lagging behind the United States? As you know, internationally, science and research are highly competitive fields. I'd like to see what you have to say on this. If you don't have the time here, you could no doubt send us your opinion in writing.

Thank you very much.

Ms. Nadine Beauger: I'd be happy to do so.

[*English*]

The Vice-Chair (Mr. Corey Tochor): Thank you so much.

Now we're moving on to MP Cannings for six minutes.

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

Thank you to both of the witnesses here today.

I'm going to start with Mr. Karim and some of the recommendations you made. You had three. Two of them specifically mentioned CIC, the Canada innovation corporation.

You went on later to talk about the differences with the American situation. Here we have an economy that's 10 times the size of ours and, arguably, has a different culture around investment and risk. You then mentioned that there were American government incentives on top of that.

I'm wondering if you could comment in more detail about what the American government provides start-ups or other companies, compared with what Canada is doing right now and how that relates to your recommendations you mentioned around the CIC.

Mr. Karim Sallaudin Karim: Absolutely. Thank you for that question.

To answer the question, I'm going to address a couple of points that came up just before.

One of the points was why Canada is lagging in patents and trademarks.

The answer to that lies in how many large pharmaceutical and/or high-tech firms we have in this country. The U.S. and Japan—the U.S., especially—have a very large number of high-tech firms like Google, Apple and Facebook. These are your drivers of patents. Trademarks come because you're pushing out new products. The pharmaceutical folks and high tech are always pushing out new products. You will see a large number of trademark applications.

The reason why Canada is lagging is that we don't have large pharmaceutical or high-tech firms in this country. We have some decent ones, such as OpenText, for example, but in the past, we had Nortel and BlackBerry, which were driving a lot of that. We don't have that now.

To come to your question now directly, what is the U.S. doing that's giving it such high returns?

I think they are investing in early stage innovation more effectively than we are. This goes to the three recommendations. The U.S., I mentioned, has these SBIR and STTR programs. Both of those programs can be applied for not just by small businesses within the United States but also by universities. You can take researchers out of the university or the national labs, and they can go and run a start-up and get funded through these programs for two years to get the start-up and the prototype to a level that might attract VC investment.

By doing lots of this consistently over time, they have created a pipeline of innovation. That's what eventually ends up giving the long-run advantage.

In our case, we don't have such a program in Canada. In fact, when we put forward these programs, we try to section universities and research, education and commercialization into different buckets. We have to start to put these three together to make sure that all three have the ability to work synergistically.

● (1135)

Mr. Richard Cannings: Thank you.

You mentioned big pharmaceutical companies. I'd like to turn to Madam Beauger and ask her to comment on that.

Madam Beauger, you mentioned how important it was for your researchers to interact with big pharmaceuticals in order to move up and grow. I imagine the investments big pharma is providing.... It's often buying those ideas, innovations and IP and moving them out of Canada.

Is that correct? Is that the price we pay for not having big pharmaceuticals in Canada?

Ms. Nadine Beauger: Thank you for the question.

I would put some nuance in. When there was collaboration between big pharma and the research teams we worked with at IRICoR, there was initial recognition of the value of the research we developed together. When we're talking about dollars, there are some initial upfront licence fees the companies pay.

The other thing I would point out is that there's joint IP developed between the research teams within the pharma companies and research teams. This joint IP is recognized through payments made throughout the development of the projects, when there's development made by companies based in the U.S. or in Europe—that is, be they within Canada or outside. There are constant financial returns for our public sector in Canada, in return for those collaborative projects.

I think, with a model like ours, that's the reality. We see, for example, that the Canadian market for pharma companies is quite small, so, for sure, they launch their products outside Canada. However, this portion of innovation is crucial. With this model, we've demonstrated we can have significant returns for the country on innovations we developed.

I would add, as well, that there are some royalty payments made to the institutions and the public organizations in return for the market introduction of innovations made in Canada. Those are all the tangible returns we have.

I would add even more with regard to, as I mentioned, *savoir faire*. When there is collaboration between the research teams in academia and those in big pharma companies, all of that knowledge is invaluable for the next projects coming out of our academic institutions in Canada, which can benefit from this know-how, going forward, and create new IP coming out of Canada.

● (1140)

Mr. Richard Cannings: Thank you.

The Vice-Chair (Mr. Corey Tochor): Thank you so much.

We'll now move on to our five-minute round. We have Dan Mazier.

Mr. Dan Mazier (Dauphin—Swan River—Neepawa, CPC): Thank you, Mr. Chair.

Thank you to the witnesses for coming out here today.

Dr. Karim, how many patents have you filed?

Mr. Karim Sallaudin Karim: Are you talking about me, personally, or do you mean from a university perspective?

Mr. Dan Mazier: I mean from a university perspective.

Mr. Karim Sallaudin Karim: We know how many our professors are filing but our students are also filing patents, and those are harder to track. I would say it's probably on the order of close to 100 or higher, perhaps, annually.

Mr. Dan Mazier: Good.

How many of those patents have resulted in commercialized products?

Mr. Karim Sallaudin Karim: Again, I'd have to go back and review our exact numbers. I can probably get back to you.

However, I can also throw in that I, myself, have been involved in commercialization through the university, so I can say for certain that at least 21 of those have resulted in a range of commercial products.

Mr. Dan Mazier: Congratulations.

That is something that you do track, though, right, as a university and as—

Mr. Karim Sallaudin Karim: Absolutely, and I can get those numbers if you're interested.

Mr. Dan Mazier: That would be great.

How many of your patents are now owned by non-Canadian organizations or individuals?

Mr. Karim Sallaudin Karim: That's a good question. Again, I will have to go back and get the answer to that. I wouldn't be able to answer that off the top of my head.

Mr. Dan Mazier: Okay. Can you submit that as well?

Mr. Karim Sallaudin Karim: Yes.

Mr. Dan Mazier: You mentioned in your opening remarks that companies are not willing to come into Canada and invest in Canada. Why not? Can you expand on that a bit?

Mr. Karim Sallaudin Karim: I indicated that Canadian SMEs may not be able or capable of investing in deep tech. I think there are companies from the U.S. and elsewhere that wish to benefit from our innovation pipeline, because our own local businesses are unable to capitalize on it.

The reason why our local businesses are unable to capitalize on it is primarily that, first of all, they don't have a very large presence in the high-tech space. You don't have something like an Apple, a Google, a Facebook or an Intel that is such a large enterprise and has so much revenue that they have a very rich research focus. We don't have that in Canada.

We have smaller and medium-sized enterprises, where most of the day-to-day activity focuses on product development, sales and commercialization of existing technology, and maybe on incremental innovation. You don't see a lot of people taking a lot of risks. That's why I would suspect that we don't do too well on the new deep-tech front.

Mr. Dan Mazier: Do you know much about the investment atmosphere in the United States versus Canada or anywhere else? Do you know of certain regulations or tax codes or something that are standing in the way of this, and where someone would take on that extra cost if government could get out of the way or if some legislation could get out of the way? Is there something that we could look at in this study?

Mr. Karim Sallaudin Karim: That's a great question.

Again, I do have personal experience in this space, but I'm not aware of any tax limitation on why somebody from the U.S. would not invest in Canada. That being said, there is a preference for American investors to try to invest in the United States, potentially because there are states that have very favourable labour laws and very favourable acquisition laws.

Oftentimes, when an American company or American investor wants to come into Canada, they will advise the Canadian company to set up a U.S. Delaware office. I am aware of that, but I don't believe there is anything fundamental—at least, off the top of my head—that would prevent an American company from directly investing in Canada, other than just an intrinsic fear of the unknown.

Mr. Dan Mazier: This question is for both of you. I'm going to quote from a report of the Institute for Research on Public Policy:

> ...the majority of patents filed by research teams with at least one Canadian inventor are assigned on the date of issue to firms outside Canada or to foreign subsidiaries in Canada. And of the patents that are assigned to Canadian residents, a significant portion are subsequently sold to foreign entities.

It is my understanding that around 50% of the Canadian-invented patents are transferred to foreign firms. Can you explain why this is happening and how we can keep IP in Canada? I think my colleague Mr. Williams has commented on this before. If we can keep that technology and that IP in Canada, that's more generation....

I'm sorry. I didn't realize that I was out of time. It went fast.

● (1145)

The Vice-Chair (Mr. Corey Tochor): You're 20 seconds over right now, so we're going to have to ask for a written response.

Once again, I do not like to cut off witnesses, but MPs need to manage their time.

Moving on to the next five-minute round of questioning, we have Ms. Bradford.

Ms. Valerie Bradford (Kitchener South—Hespeler, Lib.): Thank you, Mr. Chair.

Thank you to both witnesses today. You bring very interesting and different perspectives to this important discussion, and I thank both of you for being here.

Being from the Waterloo region, I will be directing my questions to Professor Karim.

Also, I wanted to refer to MP Williams' earlier questions with respect to venture capital or whatever. We have invited Chris Albinson, the CEO and president of Communitech, to be a future witness. I did a round table recently. He has all those answers for you. I'm going to focus on IP, but I really hope he is able to come, because there is a lot of information there about venture capital and how it's working and all of those things.

In looking at the IP perspective, Professor Karim, could you comment on how the newly announced ElevateIP program helps address some of the challenges facing IP? Right now, it is funding these hubs across the country, and I'm glad that they go from out west down to Halifax as well. How is that going to help companies ramp up? As you know, the challenges are always in the ramping-up process, it seems, not in the starting-up process.

Mr. Karim Sallaudin Karim: Absolutely. Thank you, Ms. Bradford.

The government has announced money for this ElevateIP program. ElevateIP is supposed to help business accelerators and incubators get the tools to Canadian start-ups to understand, manage and leverage their IP. That's the purported reason for the creation of the ElevateIP program. As such, universities are perhaps not as closely involved as potentially business accelerators and incubators might be. The money is being provided to help start-ups understand, manage and leverage their IP.

From a start-up perspective, one of the biggest challenges is.... We all know IP is important. The question is how we pay for it, because IP is expensive. This program is helping us understand and manage the IP from a start-up perspective, but I don't know if it's going to enable us to pay for IP.

When you think about a start-up, a typical start-up might raise anywhere from $300,000 to a million dollars in its first few years of operation. If I talk about how much it costs to file a U.S. patent, from filing to issuance, you're looking at anywhere from $25,000 to $30,000. That can add up very quickly and become a very significant portion of the start-up's costs. I think it's a good program, but I don't know if the goals that it's purporting to meet will actually be met.

Ms. Valerie Bradford: On the university's website, there is a bit of a warning message there. It says:

> In an academic environment, it is common that IP creators might be involved in presenting their research at conferences, or publishing in journals, or thesis defense proceedings...or having preliminary discussions with potential research funding partners.... All of these activities could represent public disclosure that if not carefully managed could restrict your ability to secure broad patent protection.

In the academic context, is there a tension between the movement for open science, and the push for protection and commercialization of IP?

Mr. Karim Sallaudin Karim: Again, that's a fantastic question, MP Bradford.

Absolutely, there's a tension, but you have to learn to manage the tension. In general, at Waterloo, we educate our researchers on the importance of IP and the importance of having this discussion with the university tech transfer office in advance of publication. Should those researchers reach out to us, we immediately file the IP.

It's relatively inexpensive to file a provisional, and it buys you a full year to file the full patent. In that gap, the IP is protected, and the researchers can then publish without the same concerns that were noted before. There is definitely a piece there on education for people to know that this is important.

● (1150)

Ms. Valerie Bradford: Are there areas where Canada is excelling in IP commercialization? Are there areas we need to support better, such as in academia or certain business sectors? Could you elaborate on that?

Mr. Karim Sallaudin Karim: Canadian pharmaceutical IP, from what I understand, does quite well. Unfortunately, we don't have a very large pharmaceutical company within Canada to truly reap the benefits, but from an IP perspective, we generate a lot of IP in the pharma space.

We also generate a fair bit of IP in the tech space. On the tech side, we are doing reasonably well with start-ups, especially our high-tech start-ups. For example, in Waterloo, like I mentioned, Velocity has created $35 billion of enterprise value over the last 15 years, which is quite staggering coming from one little region.

There are some bright sparks. If someone were to ask, “What should we be focusing on?”, I would say that we should be focusing on growing our start-up ecosystems. Start-ups offer us the best chance to create these large behemoths that can compete on the international stage with other countries.

Ms. Valerie Bradford: And Velocity knows how to turn them out.

Thank you so much.

The Vice-Chair (Mr. Corey Tochor): On to our two and a half minute round, we have MP Blanchette-Joncas.

[*Translation*]

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

Ms. Beauger, Earlier, we were talking about how difficult it was in Canada to stimulate funding from private businesses. I'd like to quote a few items of data. As you know, if things are to improve, you need an overview of the situation that you can acknowledge. However, not everyone is aware of the situation.

Of all the OECD countries, in 2019, Canada ranked 24th in terms of private sector funding for research and development. That's 24th out of 37.

Can you give us an explanation for this low level of productivity in Canada?

Ms. Nadine Beauger: Thank you for the question.

I can comment specifically on the situation for companies in the pharmaceutical sector. Unfortunately, as we were saying, the capacities of pharmaceutical companies in Canada are relatively limited because they have focused on the marketing and sale of products rather than on research and development. That seriously limits the Canadian companies' potential for direct funding.

Mr. Maxime Blanchette-Joncas: Ms. Beauger, I'm going to have to interrupt you. Time is getting short and I want to move on to the next question, which is related to your answer.

Quebec, mainly in Montreal, has for a long time been considered an economic hub in the global pharmaceutical industry. The companies located there include Merck Canada, Pfizer Canada, AstraZeneca Canada, Boehringer Ingelheim Canada and GlaxoSmithKline. They were all in Quebec in the 2000s.

You joined IRICoR towards the end of that decade. You were the president and chief executive officer for about seven years. You know that these companies didn't shut down because it was cold in Quebec in the winter.

Why did these Companies leave Quebec and Canada?

Was Canada the only G7 country, yet again, not to produce COVID-19 vaccines?

Ms. Nadine Beauger: I'll answer the first question briefly.

The tax incentives are a factor. I believe that there is really a way to improve the situation by increasing tax incentives for pharmaceutical companies. I believe that we were very innovative in retaining the human capital of these companies.

As we previously mentioned, several companies shut down in Canada. However, the people who had been trained at these companies ended up in the broader university ecosystem, mainly at the IRIC Drug Discovery Unit, where we are based. The unit is made up of approximately 70 highly qualified people who came from the pharmaceutical companies. They are therefore able to contribute to the development of university research as it moves towards the next value inflection point.

● (1155)

Mr. Maxime Blanchette-Joncas: Thank you very much, Ms. Beauger.

Ms. Nadine Beauger: It was a pleasure.

[*English*]

The Vice-Chair (Mr. Corey Tochor): Now we're on to our final two and a half minute round with MP Cannings.

Mr. Richard Cannings: Thank you.

I'm going to follow up on that line of questioning, but I'll turn to Professor Karim to talk about pharmaceutical companies.

You talked about societal challenges that the private sector is often reluctant to get into and the government role there. Is there a possible role for...?

We used to have Connaught Labs, for instance, which produced vaccines and other pharmaceutical products as a Crown corporation. Is there a role for Crown corporations in this space that would keep not only the production of pharmaceuticals in Canada but also the IP? We've heard a lot about encouraging companies to develop the IP, but it seems, as it has been said, to leave the country fairly quickly.

Is there a role for the government to produce Crown corporations that would do this and keep that in Canada?

Mr. Karim Sallaudin Karim: I think there's absolutely a role for the government to support infrastructure, be it through Crown corporations or otherwise, for what could be termed “essential industries” for a country. Vaccines, to me, appear to be one such essential industry. I would imagine that this is a high priority, because if there's another pandemic, we may be in the same situation.

There are other essential industries, as well, for example, across medical.... We don't have a very large medical device ecosystem in Canada either. We typically tend to buy all of our equipment from the U.S. or elsewhere. During the pandemic, we also felt acute shortages, for example, of ventilators and simple X-ray equipment.

Absolutely, this is something that should be part of a wider discussion of what a critical industry and critical infrastructure for Canada is, and then how we should go about looking at investing, be it through a Crown corporation or some other similar mechanism, to ensure that we have access.

Mr. Richard Cannings: Thank you.

The Vice-Chair (Mr. Corey Tochor): I thank the witnesses very much for their testimony and the members of Parliament for their insightful questions.

We'll now break to get the second panel up and running.

● (1155)

_____(Pause)_____

● (1200)

The Vice-Chair (Mr. Corey Tochor): We are carrying on with our study of commercialization of IP in Canada.

We have our next panel of witnesses. Each witness will have five minutes for their opening remarks.

Please do your best to keep it to five minutes. I'll try to get your attention when you're coming close to the end.

First off, for five minutes, we have Professor D’Agostino.

Ms. Giuseppina D’Agostino (Associate Professor of Law, Osgoode Hall Law School, York University, As an Individual): Hello, everyone. It's an honour for me to be here.

My name is Pina D'Agostino, and I am a law professor at Osgoode Hall Law School, York University, for the last 17 years. I specialize in IP, emerging tech, and innovation law and policy. I have researched, published, taught and advised multiple levels of government, and I have been cited by our Supreme Court of Canada.

I felt passionate enough about these issues that, 13 years ago, I founded the first pro bono legal clinic of its kind in Canada, the IP Innovation Clinic, where I have subsidized over $2 million in legal fees, which would have otherwise been billable, to help disenfranchised entrepreneurs start up their businesses. That has has lead to many success stories and jobs created in Canada.

Beyond academia, I have experience as a corporate lawyer working with entrepreneurs, and I serve on the board of directors of Ontario's homegrown Alectra, which is the second-largest municipally owned energy distribution company in North America. I have observed many of the challenges Canadian businesses face and the crucial role that IP plays and should play in the commercialization process. Here, I also note the crucial role of data.

We have blossoming talent and creativity in Canada. Canada boasts a proven track record across all areas of science and tech with leading Nobels, industries and, more recently, artificial intelligence.

To learn from history, Banting and Best discovered insulin in Ontario, but this life-saving compound was not commercialized here. Today, it's a multi-billion dollar industry. This was a missed opportunity not be be repeated. We can and should be doing so much better.

IP is frequently not properly diagnosed, protected or exploited. A serious challenge lies in the commercialization of this talent and creativity. From an IP perspective, developing IP strategies at every level, from nascent to enterprise companies, is key. IP is the new global currency to foster innovation.

All too often, without the security of IP protection, investors will not spend the money to build businesses and to make local talent blossom. Here, we face various challenges and opportunities. I will note just some.

First, universities are the hub of innovation, and they are well poised to solve today's big problems. However, most academics are not trained entrepreneurs. They need to be educated about IP and require expert support from day zero. The average research-intensive university is trying its very best with its scant resources but remains under-resourced and is left with siloed institutional approaches.

Second, tech-transfer personnel are the gatekeepers, but they often have limited industrial experience and knowledge in IP and they lack the financial resources to support IP. Either they don't adequately recognize that there is valuable IP to be protected when a scientist says, “Eureka!”, or they protect the invention by filing a patent. However, because of institutional policies and financial constraints, there is a mandate that, in order for the patent to keep progressing, a licensing deal needs to be in place within a year. This results in missed opportunities.

In biomedical science for instance, stem cells, which is another groundbreaking Canadian invention, has added the burden of conducting preclinical studies for proof of principle. This arbitrary one-year deadline means that valuable patents can be dropped too early. This can all be fixed by changing an institution's practices and investing in commercialization. Note, however, that there is no one-size-fits-all solution. For other sectors, a one-year policy might suffice, for instance in the case of software, thus we need a sector-specific institutional approach. We need to ask what the best IP strategy per sector, per innovation is.

Of course, hiring the most qualified tech-transfer personnel, making investments and paying for the brightest minds can go a long way. In Ontario, the provincial government's IPON has recently put out a call to assist at the tech transfer level. More such help is needed.

Third, we must be committed to a made-in-Canada solution. We need to have a cultural shift and to be risk-takers, while at the same time, we need to have a longer-term business plan. This means not seeking the fastest route once the IP is secured and offloading it. This comes at a cost, since the IP and the future IP, the follow-on IP, likely ends up in the U.S. Insulin is a case in point.

Fourth, and in closing, as tempting as it is for me, as a lawyer, to say that we need to change the law, to make commercialization a success, the entire socio-economic system needs have attention. This is why I applaud you today for convening this study.

● (1205)

Again, we need a sector-specific approach, starting with inculcating and rewarding a culture of innovation, embedding sound institutional policies and practices at every level, and fostering a society that is more inclusive and attuned to under-represented communities sidelined by the innovation ecosystem for far too long. Here, two communities that my work is concerned with are women and indigenous communities.

I thank you for your time and look forward to your comments and questions.

The Vice-Chair (Mr. Corey Tochor): Thank you so much for that.

Now we will move on to our second witness, Mr. Gravelle, who is online.

[*Translation*]

Mr. Louis-Pierre Gravelle (Partner, Bereskin & Parr, LLP, Intellectual Property Institute of Canada): Good morning.

Thank you for having invited me to appear before the Standing Committee on Science and Research.

I'm here today to represent the IPIC, the Intellectual Property Institute of Canada. I'm a lawyer in private practice, and I'm also an engineer. I've been working in the field of patents for approximately 25 years.

The IPIC has been working for many years now with Innovation, Science and Economic Development Canada and with the CIPO, the Canadian Intellectual Property Office, to promote intellectual property and make people aware of its importance. It also develops intellectual property strategies based on corporate business strategies, and works to implement intellectual property incentives in general.

Iin terms of training and awareness alone, each of our members contributes dozens or even hundreds of hours of unpaid work through activities with companies, incubators, accelerators, universities and colleges, chambers of commerce, and other organizations.

One of our many initiatives involved our association submitting a brief in May 2017 on the same topic the committee is looking at today. Since our last appearance, not counting the health crisis we are still in, there have been two important events that deserve the committee's attention.

On the one hand, in 2018, the government launched its intellectual property strategy. This initiative deserves to be underscored and praised for what it accomplished in terms of obtaining intellectual property information tools, modernizing the patent agent regulatory framework, and establishing the Innovation Asset Collective, the IAC

The other event was the recent decision handed down by the Federal Court in *Janssen Inc. et al. v Sandoz Canada Inc.*, which puts Canadian companies at a serious disadvantage.

This case examined the issue of the scope of patent agent privilege, and more specifically, the confidentiality of communications. The court adopted an extremely restrictive interpretation of the applicable legislative provisions in the Patent Act.

Indeed, the situation is worse now than it was before the adoption of the legislative provisions awarding this privilege to patent and trademark agents. The government needs to take legislative action to set the record straight and ensure that companies that hire patent and trademark agents have this privilege.

The current study is about support for the commercialization of intellectual property, but several questions need to be addressed to circumscribe the scope of what the committee is studying

Who is responsible for commercialization? What kind of intellectual property are we talking about? Where is it from and how is it protected?

In attempting to answer these questions, we could begin by exploring the challenges of intellectual property commercialization.

The first challenge is the misunderstanding of intellectual property by small and medium-sized enterprises, SMEs, and large corporations, in addition to the myths surrounding it.

The government introduced its intellectual property strategy in 2018, and it is an important initiative.

The ElevateIP and IP Assist programs have just been introduced, and it's still too early to assess their impact. Nevertheless, initial reactions to the IP Assist program have been very positive.

However, some research and development funding programs do not have a commercialization component. For example, the tax incentives program for scientific research and experimental development does not require any company receiving benefits to develop an intellectual property strategy to protect the research being done, nor an obligation to protect the outcomes of the research or to transform it into a marketable service. According to the Department of Finance, these incentives totalled funding of $3.5 billion in 2022.

As a result of this initial challenge, many companies are struggling to identify the intellectual protection created and are accordingly unable to properly commercialize it because there is a risk of not being properly protected.

The second challenge is related to the time between obtaining an intellectual property title and being able to develop it to make it into a marketable product or service.

Simply having protected an innovation does not automatically mean that it's ready for the market. Many patented innovations never make their way to the store shelves or to a website entry.

There are various reasons for this lack of alignment between intellectual property and commercialization: the market may not be quite ready for it; shortage of funds; features poorly suited to the commercial needs of potential clients, and so on. Ongoing support that would enable companies to turn the intellectual property asset into a marketable product would be desirable.

● (1210)

The third challenge is related to the existence of intellectual property held by third parties that can prevent the free manufacture and sale of the innovation. This challenge, although it is real, must first have made better use of the intellectual property by innovative companies in order to create intellectual property assets that can attract value and serve as a counterweight in the event of a dispute, whether real or apprehended.

The previous witnesses and the committee members raised the issue of basic research in the universities. Our 2017 brief did in fact provide a number of potential areas that might mitigate these problems. I'd like to point out that organizations like Axelys, a new Quebec technology transfer centre, are actively working on developing programs, strategies and incentives to make researchers aware of the importance of intellectual property and of the need to protect it, sometimes at the risk of delaying publication of their research findings.

This issue is complex, and it needs a thorough change in culture in university settings. There is no single approach that will meet everyone's needs. The differences between the academic institutions, and the regions, and even between the different fields of science, will require flexibility and adaptability.

In addition to all that, a major gap is the shortage of trained personnel…

● (1215)

[*English*]

The Vice-Chair (Mr. Corey Tochor): I'm sorry to cut you off here. We are over a minute past the time. There's a lot of great information there. I'm sure you'll be able to unpack more of it once we get into the Qs and As.

Starting with the Conservatives, we have Dan Mazier for six minutes.

Mr. Dan Mazier: Thank you, Chair.

Thank you to the witnesses for coming out here today.

Ms. D'Agostino, you mentioned university gatekeepers when discussing concerns with patent applications being dropped too early by universities. You stated that this does not bode well for Canada's innovation economy. Can you expand on that or explain that?

Ms. Giuseppina D'Agostino: When that scientist says, "Eureka!", the first place they'll look to is their tech transfer office, which is usually their innovation office within the university. There are certain personnel there who are hired to work alongside the inventor to help file and protect the patent.

In one instance, I talked about stem cells. Sometimes you have personnel there who don't have the deep experience and expertise within that particular sector to even understand the technology. That already is a first barrier of limitations. There are also financial constraints within that office. Here, it would be good for you to also speak directly with a person from tech transfer. I see the follow-on effects when they come to me.

Let's say they do file the patent. For it to keep progressing, the tech transfer office is hungry and worried and wants to ensure they've put their bet on a winning patent. They want to see your licensing deals and what's going on with this technology. They want to see how things are going. Sometimes the tech transfer office will say that they can't follow on with your patent.

That, to me, is a missed opportunity. There's a time gap. The previous witness just talked about this. It depends on the technology. In the case of the biomedical sciences, you just need a little bit more time and some more money to get things done. This is not the case with other technologies.

That's why one of my recommendation is to really look at the tech, have a sector-specific approach and ensure that tech transfer offices are properly staffed with knowledgeable personnel. We need to ensure they're properly compensated and have an understanding and the patience to walk the inventors through their patents. They're at the nascent level because they're the gatekeepers. If they don't make it out of the patent office within the university, they're done and that's something we lose in our innovation ecosystem.

I think it's so crucial. I saw that this was happening and that's why I rolled up my own sleeves to help within the university to do my part to ensure that it doesn't. Now my hope is that, working directly with Innovation York at the York University IP clinic.... It is supported by Innovation York, so we work together. This also avoids that siloing that we talked about that we see happening.

I'm just talking about York. I've seen it happen across other universities as well.

Mr. Dan Mazier: Thank you.

You mentioned IP protection. How big of an issue is the theft of intellectual property to commercialization in Canada?

Ms. Giuseppina D'Agostino: By "theft", I imagine you mean patent infringement and copyright infringement. In a sense, we could almost convene another study on this. Canada, as many of you know, is always on a watch-list, in a sense, because we tend to, I imagine, have perhaps a more progressive policy in terms of the IP as opposed to other countries, so sometimes you do see infringements taking place.

In my view, when it comes to commercialization, I think we need to focus on the start-up stage, what IPs are getting filed and how they're protected. We need to have a business and an IP strategy in place to ensure there is that commercialization and that it is kept in-house in Canada.

● (1220)

Mr. Dan Mazier: In our existing system, right now, we have some holes that need to be addressed. How much of this intellectual property would be considered stolen? How much do you think is actually stolen outright?

Ms. Giuseppina D'Agostino: How much is stolen? Do you mean Canadians stealing IP? I wouldn't—

Mr. Dan Mazier: No, other entities. Are there any big offenders known for stealing IP?

Ms. Giuseppina D'Agostino: I don't—

Mr. Dan Mazier: Are there no shenanigans going on, when it comes to IP?

Ms. Giuseppina D'Agostino: No, none that I can speak about or have come to my attention.

Mr. Dan Mazier: Are there any G7 countries we can learn from, when it comes to cracking down on IP theft?

Ms. Giuseppina D'Agostino: I'm looking at it more through the lens of commercialization.

One country I love to look at is Germany. They have a very strong entrepreneurship ecosystem. Their innovation is very good within industries, because they typically have an inventor-centric approach. Within companies, employees are incented to invent, because they know they're going to have some stake in it. That also incites the manufacturing industry to be more vibrant.

Germany is a nice country to look at.

Mr. Dan Mazier: That's the second time we've heard about Germany. Thank you for those comments.

I know my time is closed. Thank you, Mr. Chair.

The Vice-Chair (Mr. Corey Tochor): Thank you so much.

We will move on to MP Sousa for six minutes.

Mr. Charles Sousa (Mississauga—Lakeshore, Lib.): Thank you, Mr. Chair.

Thank you to both witnesses for their presentations.

Ms. D'Agostino, congratulations on your accomplishments and expertise. I appreciate what you've had to say. My first round of questions is to you, and then I'll go to Mr. Gravelle.

We've talked about scaling and bringing the venture to market. We've talked a lot about IP and the commercialization of it. I understand how critical it is.

You recently mentioned the notion of that one-year deadline, which is concerning. Put yourself in the context of the government. Members of Parliament are going to ask where your money is being invested and why it's failing. That's the criticism. That so-called gatekeeper is there to protect the taxpayer. The taxpayers are saying they don't want their money invested in ventures where they don't have security or any confidence in success. That's your point. We're trying to ensure we do as much as possible to get one or two big hits. It's a problem.

When I hear about theft versus sale.... I'm trying to suggest we let go of our IP early in the stage, because we are looking for that capital and for that tolerance or appetite to invest long term. They go to private investors elsewhere, because, in Canada, we don't seem to have the socio-economic desire. Look at Nortel, for example. During their windup, all the assets and value—even Canadian-made ones—were held in IPs in the U.S. We lost a lot of potential to provide for some of those jobs and pensioners. They were lost to IP held elsewhere because that market took on that risk.

You've given us a few recommendations. University hubs should be more entrepreneurial. That's awesome. I'd love to say that's the case. How do you encourage that? How do you encourage tech personnel to look at the sectors more specifically—to look more long term, as opposed to short term? The bottom line is, when you look at the culture, that whole appetite...?

We've been at this a long time. We've been talking about the same issue for a while. Some Canadian pension companies that have those offshoots are looking at nurturing this more than the government. The government is involved, but someone has to assume that risk.

How do you encourage that?

Ms. Giuseppina D'Agostino: That's a great question. I think it encapsulates a lot of the points I've been making.

From a government perspective, your role is to set the tone for the country. You set the vision and policies. We say, "tone at the top". I'm heartened, at least within Canada.... This study is a case in point. The tone in commercialization, right now, is a vibrant, dynamic and very uplifting one.

I can't remember the number of times I waited to even hear the word "IP" in the budget. In the last five or six years, there has been a flurry of activity in the government. We've seen this not only within the government of Canada but on multiple levels—within Ontario, as a case in point, and municipally. This, to me, is heartening. All of this has that visionary effect.

We also need to match that at the grassroots level.

● (1225)

Mr. Charles Sousa: Yes, that's a good point.

I'm going to go to Mr. Gravelle. Should government be venture capitalists?

Mr. Louis-Pierre Gravelle: That's a billion-dollar question; isn't it?

Mr. Charles Sousa: That's what's being presented before us, and some of the suggestions that are being made by our witnesses are, "Yeah, we should expand some of our taxpayer dollars to somewhat adjudicate some of these deals." You've mentioned it too. You said that one size doesn't fit all, and that our SMEs and some of our businesses don't understand it fully. I agree with you.

Following up with Ms. D'Agostino, how do we encourage all parties in government to allow government to be a bit more of a risk-taker?

Mr. Louis-Pierre Gravelle: I don't know that government needs to be more of a risk-taker than it already is. The government does have programs funded through the BDC where it does assume some of the risk related to deep tech and other IP heavy companies.

What I do think, however, and you've alluded to it in your comments, is that we have a behaviour problem. If the Canadian government wants to change the behaviour of the actors, then the Canadian government should be looking at incentives that will effectively change that behaviour.

With respect to the lack of personnel or the lack of qualified personnel within the TTOs, the tech transfer offices, the government did have a program about 20 years ago where it would fund part of the salaries of those people who were experts in tech transfer, experts in intellectual property, and allowed the TTOs to have more staff.

That program was cut about 20 years ago. Maybe it would be a good idea to revisit that, because that way, you're subsidizing or helping the TTOs spread the knowledge more effectively. You're building expertise within the TTOs, so that you can have more effective tech transfer out of the universities into the hands of entrepreneurs, who can then take that IP and bring it to market.

Mr. Charles Sousa: I appreciate that. My time has run out, but thank you both.

The Vice-Chair (Mr. Corey Tochor): Moving on to our third round of questions, we have MP Blanchette-Joncas for six minutes.

[*Translation*]

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

Greetings to the witnesses here with us today.

Mr. Gravelle, it's a pleasure to see you again and, of course, to welcome to you to the committee, an important one that is currently studying intellectual property.

In your address, you provided an overview of the situation and also suggested a few solutions. I have familiarized yourself with your 2022 pre-budget recommendations. Needless to say, the 2023 ones will be forthcoming.

You recommended that the government introduce the first patent program. This program was already in place in Quebec, but was discontinued. It covered the costs of initial research, establishing an intellectual property strategy, and drafting a first patent application for an invention.

Can you tell us why it would be important to reintroduce a program like that?

Mr. Louis-Pierre Gravelle: Once again, I think that the important thing is to change behaviour. As studies conducted by the intellectual property office of Canada and statistics Canada have shown, Canadian companies underutilize intellectual property assets in general, and patents in particular. Being able to provide a grant to an established company that would give it an incentive to show concern for intellectual property is beginning to change behaviour. We're not talking about new companies here, or emerging companies from the universities, but rather established companies.

What we've have found is that the first patent is a remarkable step forward. It's very good. However, it takes more than one patent to build an intellectual property portfolio,. It's often the second, third or fourth patent that will add an enormous amount of value to the initial intellectual property.

With that in mind, establishing a program like this would change people's behaviour, and once behaviour begins to change, it becomes easier to further encourage the use of intellectual property tools.

● (1230)

Mr. Maxime Blanchette-Joncas: Thank you.

Do you feel that the current intellectual property ecosystem in Canada is sufficiently robust and equipped to provide a structure within which companies and researchers can develop their products?

Mr. Louis-Pierre Gravelle: I believe some useful steps have already been taken, but many more are required. In terms of tools, programs like the recently launched ElevateIP and IP Assist are a good starting point.

I mentioned research and development tax credits earlier. My view is that failing to encourage companies to change their behaviour is a missed opportunity. At the very least, they should be required, in one way or another, to give consideration to the intellectual property issue in the work they are doing and to commercialize the intellectual property as soon as it has been defined.

The other requirement, which I mentioned earlier in my address, would be to do something about the recent patent agent privilege issue, about communication confidentiality between the client and its agents. That needs to be dealt with; the current situation can't continue for long.

Mr. Maxime Blanchette-Joncas: Thank you, Mr. Gravelle.

You mentioned tax credits and incentives for the commercialization of innovations. Quebec introduced a tax deduction incentive for the commercialization of innovations in 2021. It meant that all profits from an intellectual property asset covered by the program were taxed at a rate of 2% rather than 11%. This of course encourages companies to innovate in order to lower their taxes.

Do you think it would be useful for the federal government to introduce a similar measure?

Mr. Louis-Pierre Gravelle: That should definitely be done.

The Intellectual Property Institute of Canada has been promoting a measure like that for several years. The advantage of that kind of incentive comes downstream from an intellectual property strategy deployed at the outset. When we talk about an intellectual property taxation regime, also known as a patent box or an IP box, which is what this tax deduction incentive for the commercialization of innovations happens to be, the intellectual property assets have to exist. They have to be made available to areas where commercialization needs to be encouraged. This generally occurs a fairly long time after initial patent applications have been filed, when the innovation has become a reality.

Once again, the measure needs to fit into a continuum of measures that would truly enable companies to concentrate on innovating and protecting their innovations and the various forms of intellectual property. That's when proper commercialization on behalf of Canadian companies occurs.

Mr. Maxime Blanchette-Joncas: Thank you, Mr. Gravelle.

You spoke earlier about the underutilization of commercialization and it's tools because people are unfamiliar with it. Mr. Mike McLean, of the Innovation Asset Collective, attended the last committee meeting. He said that the intellectual property strategy launched by the federal government was poorly understood and not widely known.

Could you tell us more about how the government might provide information to the right people in order to establish links to intellectual property?

How should one go about improving the way innovation is commercialized? How to reach these people?

[*English*]

The Vice-Chair (Mr. Corey Tochor): Unfortunately, I'm going to have to interrupt.

We only allowed him six seconds to answer. I know that's not enough time to give a fulsome answer.

[*Translation*]

Mr. Maxime Blanchette-Joncas: I'll request a written answer to my question.

Thank you.

[*English*]

The Vice-Chair (Mr. Corey Tochor): You're welcome. We'll have a written answer to that question.

Moving on to the final six-minute spot is MP Cannings.

Mr. Richard Cannings: Thank you.

I'm going to turn to Professor D'Agostino with a number of questions. You said a lot, and I missed some of the details.

At the end, you said something about how we need to change the law. I'm wondering if you could expand on that—what and why?

Ms. Giuseppina D'Agostino: I said as tempting as it is for me to say we need to change the law. I don't think—

Mr. Richard Cannings: You don't think—

Ms. Giuseppina D'Agostino: My sense of urgency wouldn't be there. My sense of urgency is more looking at the entire socio-economic system, because with the law, it doesn't matter. Ultimately, the law has to be clear. If it is clear to the different stakeholders, the venture capitalists and the inventors, that's all we want.

If you look at Canada, within universities, we have a patchwork system. York has an inventor-centric policy, but other universities have a university-centric policy. As long as there's an awareness of what those policies are and that gives life to that context-specific approach, I think we're okay.

● (1235)

Mr. Richard Cannings: In that context, you were talking about women and indigenous participants in this process. You said that you were helping disenfranchised entrepreneurs.

I wanted to give you a chance to expand on what you've been doing, what the results have been and what we need to do to encourage it.

Ms. Giuseppina D'Agostino: Sure. Thank you so much for raising that.

To me, the under-represented communities, women and indigenous peoples, are the have-nots of the IP system. They're the have-nots of the patents, so when we think about having a dynamic commercialization process and system, and results for the benefit of all Canadians, they're actually not at the table, because they're not the owners of the IP. They're not filing the IP.

These figures are well documented. The Canadian intellectual property office here, the USPTO and the World Intellectual Property Organization all have studies on this. I gave a presentation to Indigenous Services Canada just last year, tabulating some of these numbers. It's pretty sad. On the heels of International Women's Day, to see that women own only 16% of patents, that's a sad day in 2023. We need to do better.

I'm doing my part, in a sense, and this is in many ways a response from the federal government. The federal government identified women and indigenous communities as two communities that need assistance, and they've done this through their programming. I was the beneficiary of that through one of the proposals I put through and my IP innovation chatbot, which is a way to automate the commercialization process to be more responsive of women and indigenous peoples who often don't have the resources—even more than just mainstream ecosystems—to ask the questions and to get the answers.

That's just one of the tools that I've done through the clinic.

As an example, one of the exciting start-ups that I helped put through the clinic is Indigenous Friends. They were essentially grad students from York University who felt very alienated. They came up with this technology and a smart app, which was then funded by the provincial government and is now being rolled out across Canada. That's just one instance.

ELLA is another group within York University that is looking specifically at women and trying to help them in their commercialization success.

There are many different examples here, but one thing that I would encourage this committee to look at is avoiding the siloing. There's a lot of money and a lot of programming being deployed to help lift these communities, but we really need a heat map to find out what is being done, to have accountability and transparency, to line up the success stories and to connect the dots.

What we want to avoid at all costs is siloing. I see it within the institution, and it can happen within Canada. It happens within the provinces and the municipalities. We all need to work together.

Mr. Richard Cannings: I would ask if there's a way to get the report you mentioned and held up—

Ms. Giuseppina D'Agostino: I have it here.

Mr. Richard Cannings: —as a part of the testimony today.

Ms. Giuseppina D'Agostino: Sure, with pleasure.

Mr. Richard Cannings: Finally, you mentioned Alectra. Is that some sort of municipal Crown corporation?

Ms. Giuseppina D'Agostino: Yes, it's an energy distribution company.

Mr. Richard Cannings: I'm just wondering if you could comment on the role that agencies like that might—

Ms. Giuseppina D'Agostino: Yes, for sure.

I love working as.... I serve on the board of directors of Alectra, and I also teach business associations and entrepreneurship. To me, it's a constellation of all of these.

Within Alectra, and many other companies across Canada, they are only now in a sense realizing that, in order to be competitive, they need to keep innovating. Within Alectra, you also see how the company is changing. We're blessed there to have a visionary CEO who gets it and who is able to inculcate that culture of innovation, which I think needs to happen across industry. I'm happy to see that within Alectra.

Then Alectra is also looking to work more closely with universities and to work more closely with the technology that's coming out of the universities.

● (1240)

Mr. Richard Cannings: Thank you.

Ms. Giuseppina D'Agostino: Thank you for your questions.

The Vice-Chair (Mr. Corey Tochor): Thank you, Mr. Cannings.

Moving on to the next round of questions for five minutes, we have Mr. Williams.

Mr. Ryan Williams: Thank you, Chair.

Ms. D'Agostino, thank you for being here today.

I love your analogy in the beginning with Dr. Best and Dr. Banting, of course for insulin. I'm from Belleville, Ontario, and we had Dr. Collip.

Dr. Collip, I think, is the best analogy for Canada. He was the unsung hero. He was one of the co-inventors of insulin and played a major role, but no one really knew about him. I think that's how Canada is set. We play a major role in developing IP, having institutions, major research and applied research, but we have this problem of not being able to keep it. We're helping other countries a lot of the time.

I really want to focus on your expertise in IP law. Are there aspects of Canadian IP law that are holding our innovators back, compared with other western nations? If so, how can we change them?

Ms. Giuseppina D'Agostino: That's a great question.

Just to go back to the insulin example, one way to change them is to really look to see, from a legal perspective, what actually happened in that case. The inventors, Banting and Best, actually assigned their patent to the University of Toronto for a dollar—one dollar. That then ignited the ability for anybody to come and practise the patent. What happened there is that the U.S., having the more robust manufacturing market and really the appetite for risk, took it on and a hundred years ago started building capacity, and now there's a multi-billion dollar industry. From a legal perspective, what we want to avoid.... I should mention that along the way, in filing follow-on IP once the patent expired, they were able to then lock it up and commercialize, because then they owned it. That's how this is something that we missed out on.

Earlier, Monsieur Gravelle talked about this, that follow-on IP, and it's something that I also mentioned in my opening. What we want to ensure is that we have that arsenal, that portfolio of IP. From a legal perspective, we can't give it away. We need to ensure that we are strategic in the way that we keep it, license it and commercialize it. If we want to give it away, let's get money for it, or it doesn't make sense to keep it, depending also on what the business strategy is, because it could be an innovation—and I'm thinking about Alectra, for instance—that is not germane to the business model.

Mr. Ryan Williams: I'm going to drill down on the three aspects that I've identified, and I want to hear your opinion on these.

One is patent backlog. It's not just in passports. It's also in patents. It seems like there's a significant backlog in processing patent applications in Canada.

Also, I've seen that there seems to be a lack of clarity in some of our IP law on patentable subject matter.

Finally, on limited patent terms, you mentioned that there's an expiry. It seems that 20 years is the maximum.

On those three aspects, what would you say to each of them?

Ms. Giuseppina D'Agostino: I think there's hope.

On the backlog issue, I know that on CIPO Konstantinos Georgaras is at the helm there. I have high hopes with his work. I've seen what he's done. He's looking to innovate, really, also within CIPO. I know that some positive changes are being made. There's a new strategic plan. There is technology. I mentioned AI earlier. That will come in and also expedite and automate a lot of looking at these patents—

Mr. Ryan Williams: I'm so sorry. I hate these five minutes because there's only so much time.

On all of that, too, if you have anything else to add, please submit it in writing.

The U.S. also uses something that's really interesting to me: patent assertion. These are lawsuits in order to maintain IP. They use this extensively, and I think it's one of their successes. Is that something we're seeing in Canada? Is it something that you would ever recommend as a recommendation for Canadian companies?

Ms. Giuseppina D'Agostino: When you own something, you need to protect it. If you need to sue based on that, of course, putting my legal hat on, I would say, yes, but there what needs to happen—and I think we need to avoid that because it would cause access-to-justice issues, litigation and more backlog in the process—is to make sure that the technology is properly protected to begin with and that we have sufficient and proper patents around the techs. Sometimes it's not just one tech, because the claim construction process is key.

This is where, going back to the TTOs, you need smart people there, working alongside lawyers and ensuring we have a strong foundation of patenting, because if you get it right at a nascent stage, you can avoid the follow-on litigation. Litigation will always happen in some ways, but you will diminish that.

● (1245)

Mr. Ryan Williams: Is there a quick recommendation you can make to protect IP and for Canadian IP law?

Ms. Giuseppina D'Agostino: To protect IP, we need to file patents and have IP strategies.

Mr. Ryan Williams: Thank you.

The Vice-Chair (Mr. Corey Tochor): Thank you so much.

Now, moving on to the last of the five-minute rounds, we have MP Collins, who is online.

Mr. Chad Collins (Hamilton East—Stoney Creek, Lib.): Thanks, Mr. Chair.

Welcome, witnesses.

I'd like to start with Professor D'Agostino. As someone who was a long-time city councillor in Hamilton, I am familiar with the innovation at McMaster University and its innovation park. I've had a number of opportunities over the years to visit Dr. Ali Emadi's next-gen project in which he's working on AI. I know you're very familiar with that through all the work you do at York University. Their work on electrified vehicles and autonomous vehicles and much of the innovation there at McMaster is driven by three levels of government.

You're the first witness to date who has referenced that. I know we're early in the study, but McMaster Innovation Park is supported by the municipal governments in terms of purchasing the lands, the property sits on. Provincial and federal governments invested in the bricks and mortar. Also, as I questioned Dr. Emadi and his students, I heard that many of the operating dollars come from the private sector. They've been able to leverage, in that instance, millions of dollars from the automotive industry and associated stakeholders within the industry.

My question to them was how the federal government could get double or triple the investment it's getting today. How do we create an environment there at McMaster's Innovation Park? I'm assuming the same would hold true at York, Waterloo and others across the country. How does the federal government assist in that regard in terms of just driving innovation? You referenced that, I think, in your first point.

My second question is how we assist in terms of finding those private partners for them. For some I think it's probably an easy task. For others it's probably much more difficult, if it's social innovation. I will ask you those two questions to start.

Ms. Giuseppina D'Agostino: Yes, that's a beautiful example of really a multisectoral, multipronged approach to innovation, in which you have different partners coming together, and we see that even within York.

You asked how we bring in industry. That happens at every level. As a government, you have a line of sight as to who the key players are, but you may miss those smaller players at the grassroots level. That's where it is key to have the different hubs like the clinics, the TTOs and the municipalities that are aware of their local industry and work with them.

I mentioned a heat map, but we need more connectedness, because by working together we can also avoid duplication and be more efficient and really innovate with intention.

A few days ago someone talked about this clustering approach. We need to cluster around technologies and sectors and build that critical mass. AI is, in my view, something we need to really rally behind here in Canada, and we've seen this happening now with the government again. I'm encouraged by what we see in Canada. We have AIDA before Parliament right now, so the policy is getting promulgated. You have the start-ups. I read somewhere that we have more start-ups mushrooming across Canada than anywhere else on the AI front. You have the researchers—and I'll put myself in that camp—who are staying up at night thinking about what we're going to do with ChatGPT and how we're going to keep innovating. We have that within Canada.

Mr. Chad Collins: Thanks for those answers.

You are the first witness to reference women and indigenous communities. I had the opportunity to visit McMaster again two weeks ago. We made an investment in the aerospace industry there—300-plus positions that will be supported from a training perspective, 100 of which will be for indigenous people.

You mentioned earlier that you've had experience with government applications. How do those applications need to change to support women and indigenous communities? With what you've seen recently, do those applications appropriately or properly reflect our desire to support women and indigenous communities across the country?

● (1250)

Ms. Giuseppina D'Agostino: That's another great question. I've actually had the privilege to also serve on SSHRC adjudication panels. I know that the government takes very seriously ensuring that the best and brightest minds in this country are rewarded from their applications. Even there, and now at every stage, you see more and more in the asks that there is more mindfulness toward ensuring that women and indigenous communities are represented.

I would say that, in the actual applications, you need to ensure the parameters. When you're setting up a fund or putting a program together, you have mention that they need to be as diverse, equitable and inclusive as possible, and then ensure that those who are adjudicating, because then it's the follow-on effect, are also qualified to do so. There is also the accountability of it. I've seen applications where you just name-drop or put something, but there's no real track record of a relationship between those indigenous communities. That doesn't go well. You need to ensure that there is authenticity in every application and that in the follow-on there is transparency and accountability for what they actually produce in the end.

I think we need to do better in having accountability for every dollar that is spent, what we do with it and where it ends up, because I think it also—

Mr. Chad Collins: Professor, would you—

The Vice-Chair (Mr. Corey Tochor): Thank you so much. We are out of time, Mr. Collins.

Mr. Chad Collins: Thank you, Mr. Chair.

The Vice-Chair (Mr. Corey Tochor): I appreciate that.

Mr. Blanchette-Joncas, you have two and a half minutes.

[*Translation*]

Mr. Maxime Blanchette-Joncas: Thank you very much, Mr. Chair.

I have another question for Mr. Gravelle.

Mr. Gravelle, I'd like to get back to intellectual property.

In research, more and more people are talking about the importance of open data and access to knowledge, of course, with a view to science-based decisions and conclusive data.

Based on your expertise, can you tell us whether this reality can be reconciled with the imperatives of protecting intellectual property on everyone's behalf?

Mr. Louis-Pierre Gravelle: Some countries are looking into the possible adoption of *sui generis* protection for the data itself. We're not talking about raw data, but about how data as a whole is compiled, refined and cleaned up to make it more efficient.

The government could perhaps envisage a solution like this to enhance the data we have acquired in Canada. It could be used in artificial intelligence models or enhanced through other mechanisms, as is currently done at the IVADO Institute here in Montreal.

It's not obviously incompatible. On the other hand, the various existing intellectual property laws were not designed to protect the data as such.

Mr. Maxime Blanchette-Joncas: Thank you for clarifying that.

Canada is trying to compare itself to other countries and to learn from their achievements. People are talking about the Israeli model as an intellectual property and innovation success story.

Could you tell us more about the features of this model and how it differs from the Canadian model?

Mr. Louis-Pierre Gravelle: There are major differences between the Israeli and Canadian models. To begin with, the Israelis are not afraid to focus on key technological sectors. Nor are they afraid of putting a great deal of money into one or more companies when they think they can be successful. It's a highly targeted approach, whereas in Canada, when you look at a tax credit for research and development, the approach is much more widespread and highly horizontal. We're trying to give a little bit to everyone so that everyone can do a bit of research and development. That's the biggest difference between the two models.

Mr. Maxime Blanchette-Joncas: Thank you very much.

Mr. Louis-Pierre Gravelle: There's another difference.

I don't know whether you've heard about it on the news, but the government recently announced the creation of the Canada Innovation Corporation. Someone came up with the idea of applying a recovery measure, or a tax, when the intellectual property of a Canadian firm is sold outside the country. For example, when Waze, an Israeli entity, was sold to Google, the Israeli government pocketed approximately US$360 million for the technology transfer.

It could be a way of making sure that intellectual property created here with public funds remains here. Selling it abroad would recover at least part of the money.

● (1255)

Mr. Maxime Blanchette-Joncas: Thank you very much, Mr. Gravelle.

[*English*]

The Vice-Chair (Mr. Corey Tochor): Moving on to our final member of Parliament, we have MP Cannings for two and a half minutes.

Mr. Richard Cannings: Thank you.

I will stay with Mr. Gravelle for the time being. You mentioned some of the challenges that are facing the IP ecosystem in Canada. One was this time between the idea and the marketplace, and the sustained support that was needed.

Could you perhaps expand on that a bit more? What kind of support would be appropriate?

Mr. Louis-Pierre Gravelle: There are really a lot of different ways this can be done. One of them, for example, could be a more streamlined procurement process from government.

One stumbling block that companies have is that, in order for them to be able to find investors, they need to prove they've made some sales. When you're a start-up or an SME, it's extremely difficult to sell to government, especially if your technology involves computer-related innovations. No one wants to take the chance of investing in a company or buying a product of a company that may or may not exist two or three years from now.

Having a procurement process where we can encourage the solutions that are made in Canada to be presented and tested within the Canadian government or the provincial governments, would be an extraordinary way to allow these companies to refine their products and services and to bring them to other markets, where they could generate more income.

Mr. Richard Cannings: On a second piece, you talked about the sale of IP. You just mentioned the idea of this clawback. Could you perhaps expand on anything else around that problem of Canada losing IP when our companies are sold? How can we retain that IP here in Canada, based on what you've heard today? Can you expand on anything else we haven't heard?

Mr. Louis-Pierre Gravelle: Thank you very much for giving me this opportunity.

Today, I've heard words like “theft” and “losing”. I've heard words like people “taking advantage” of some of the IP that's created in Canada. We need to be very careful when we use words like those.

For the past 30, 40 and 50 years, Canada has generally been a very attractive destination for foreign investment. We've been able to attract foreign companies to open offices here in Canada, some of those offices are commercialization offices but many of them are research and development arms. These companies hire local talent. That's why they're here. They subsidize and pay for research and development. They own the IP that comes from that. There is no theft of IP there. There's no leakage of IP there. They come here, they pay the people to do R and D, and they own the IP. It's as simple as that.

The fundamental problem we have is that Canadian companies that do R and D here are not leveraging the IP tools they have at their disposal properly to build assets upon which they can create value. That is fundamental. Having an IP strategy from the start of a company, from the start of an innovation project and from the start of a pivot of a company to a different market, these are fundamental anchor points to be able to capture the IP that's then going to be created and protected, so that we can build IP assets here that remain here, at least as much as possible.

Mr. Richard Cannings: Thank you very much.

The Vice-Chair (Mr. Corey Tochor): That concludes our witnesses for today. I'd like to thank them for presenting at our science committee and give a big thank you to our members of Parliament as well.

Also, this is a quick reminder that our next scheduled meeting isn't until Tuesday, March 21.

Is there agreement to adjourn this meeting? Seeing so, we now stand adjourned.