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Chair

Mr. Dan Ruimy

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● (0845)

[*English*]

The Chair (Mr. Dan Ruimy (Pitt Meadows—Maple Ridge, Lib.)): We're going to get started, although we seem to be missing a few people. We're tight on time.

Just so the witnesses know, apparently we have some votes coming up, so I'm just going to get right into it.

Welcome to meeting 69, everybody.

We are continuing our study of intellectual property and technology transfer. With us today we have from the Natural Sciences and Engineering Research Council of Canada, Bert van den Berg, acting vice-president, research partnerships directorate; and Michael Lam, senior manager, RPP strategic planning, research partnerships directorate, colleges, commercialization, and portfolio planning. I'd love to see your business card. I really would.

From the Social Sciences and Humanities Research Council of Canada, we have Ted Hewitt, president.

We're going to get right into it with Mr. van den Berg.

You have seven minutes.

Mr. Bert van den Berg (Acting Vice-President, Research Partnerships Directorate, Natural Sciences and Engineering Research Council of Canada): Thank you for the opportunity to provide input to the committee's study of intellectual property and technology transfer from post-secondary institutions to companies.

While I'm representing NSERC today, I have a strong personal interest in innovation policy developed through 13 years of working as a researcher at NRC, five years in a small high-tech company, and many years at NSERC.

NSERC is one of three funding agencies—my colleague Ted is from another, SSHRC—that support research activities at universities and colleges in Canada. NSERC funding enables researchers to explore ideas, develop promising discoveries, and attract businesses that can commercialize research results. This year we'll invest about $1.1 billion in grants, the vast majority of which support student participation in research. About one-third of the funding is for knowledge transfer partnerships, of which only 4% is focused on commercializing inventions.

A key part of NSERC's approach is to provide funding that enables researchers to work across the continuum between discovery and innovation—exploring ideas, working with companies to apply promising ideas—which in turn generates new ideas to explore, so it's a virtuous circle.

Some of the NSERC programs that enable universities and colleges to support business innovation and commercialization have already been mentioned in testimony to the committee so far. They include I2I or Idea to Innovation, Engage, and technology access centres or TACs. More than 3,600 companies access university and college expertise each year using our support. They can work with 30,000 students who we fund and about 10,000 faculty professors. This support for knowledge transfer attracts about $95 million in cash and $140 million in in-kind contributions. By working in collaborative projects with partners, students gain valuable work-integrated learning experience. One in three companies partnering with NSERC hires a student from the funded project.

I believe innovation is a contact sport, and NSERC's funding is focused on bringing university and college people in contact with company staff while conducting experiments, building prototypes, developing standards, and undertaking other activities that transfer knowledge. Companies report that they gain knowledge and grow their research capacity; advance the technology readiness of their products, processes, and services; and sometimes even attract investment.

A study NSERC conducted with Statistics Canada a few years ago indicated that companies that participate in our programs tend to have higher sales and employment after they start collaborating with university or college teams.

We also invest in helping university inventions attract business investment. Each year we support about 50 projects through our Idea to Innovation program, and in a context where one in 10 start-ups typically succeeds, we're pleased that about one in seven of the Idea to Innovation projects results in products or services sold by Canadian companies and, of course, the creation of jobs.

NSERC also supports centres focused on technology commercialization. These are the centres of excellence for commercialization and research. These centres often focus on commercializing the results of university research. One example is GreenCentre Canada, which applies academic inventions to develop green chemistry-based solutions to meet the needs of various industries. These centres are effective in commercializing technology and attracting funding from other governments and investors as well as generating income from successful market entry.

In 2004, NSERC began funding applied research at colleges. This funding leverages the advantages of Canadian colleges, polytechnics, and CEGEPs. They are a local presence; they have a client focus; and of course they have talented staff and students.

This year we'll provide more than 500 grants to more than 70 colleges and help about 1,000 companies advance their innovation projects. A key element of the support is a network of 30 technology access centres. Each centre supports the innovation needs of local companies in domains ranging from agriculture to advanced manufacturing. To increase the effectiveness of these centres, NSERC is supporting a networking organization that shares leads and best practices among the centres to improve their reach and reputation.

NSERC has supported research collaborations between business and university researchers for more than 30 years, and we continue to evolve to increase the impact of our support. This includes changes to NSERC's approach to intellectual property. For example, in 2009 we began permitting intellectual property to be assigned to the participating company. In 2015, NSERC implemented open access—which I believe Ted will talk more about as a general concept—which helps companies find researchers with relevant expertise.

Currently, we are working to reduce the time for funding to flow in our partnership grants, reducing the friction in our processes. We are also working to streamline the process of developing IP agreements between universities and companies.

As the committee has heard, while large companies can keep an eye out for promising ideas and researchers, small companies don't have that luxury. Recognizing these challenges, in 2009 NSERC launched a series of actions aimed at making it easier for companies to access university capabilities under the brand “Strategy for Partnerships and Innovation”.

● (0850)

The objective of this strategy is to double in five years the number of companies that partner with NSERC. As a result, we now fund mixer events that encourage researchers and companies to meet, support research visits to define projects, and support six-month Engage projects that do not require company cash but do assign foreground IP to the company. These changes provide a better runway for new partnerships to form, and the impact has exceeded our expectations. And, yes, we have more than doubled the number of partners participating.

Finally, the testimony and discussion at this committee have explored ways to increase the awareness of, linkage to, and use of the capabilities created by the government's investment in research at universities and colleges. The possibilities have included developing public repositories of information about research capacity, such as databases, and strengthening interpersonal connections through enhanced networks and/or concierge services. NSERC and, more particularly, its five regional offices continue to work with a wide variety of organizations on both these fronts to better mobilize the knowledge and talent at Canada's universities and colleges for the benefit of all Canadians.

Thank you, and I look forward to your questions.

The Chair: Thank you very much.

We're going to move now to Mr. Hewitt.

You have seven minutes, sir.

[*Translation*]

Dr. Ted Hewitt (President, Social Sciences and Humanities Research Council of Canada): Good morning, Mr. Chair, vice-chairs and distinguished committee members.

[*English*]

I want to thank you all for inviting me here today. Like Bert, I'm also someone who's very interested in this topic, so it's great to have an opportunity to discuss it more fully. It's certainly a very welcome mandate: identifying best practices for sharing and commercializing the amazing research that's being done in post-secondary institutions across Canada. It has real value, not only for scholars and entrepreneurs, but for all Canadians.

One of the things I want to explain, however, is that I'm not here principally as president of the Social Sciences and Humanities Research Council, or SSHRC, as we like to call it.

[*Translation*]

The Social Sciences and Humanities Research Council of Canada (SSHRC) has certainly funded research in intellectual property. Some studies we have funded include one examining the future of the Copyright Act in Canada and reconciling creator and user rights.

● (0855)

[*English*]

In fact, we have long lists of these, which I've shared with some of you, and which speak directly to some of the work that you're doing in terms of evaluation, analysis, policy, and so forth. We're more than happy to put you in touch with that research and those researchers.

SSHRC, however, unlike NSERC, is less involved in intellectual property questions or policy per se. In other words, we don't provide direction to university and college researchers with respect to ownership of IP coming from projects funded through SSHRC. Rather, we defer to the policy of post-secondary institutions. I'm not saying that's the way it necessarily should be or has to be, but that's become our policy to date.

[*Translation*]

Today, I would like to comment instead on intellectual property challenges, particularly in the university sector, based upon my experience as a former vice-president of research at Western University, in London, Ontario.

[*English*]

You heard from George Dixon, who is the vice-president of research at the University of Waterloo. Well, I was George's counterpart at the other “W” university down the road, and we worked together very effectively.

[*Translation*]

There is currently much discussion in the university community about intellectual property ownership—specifically, university versus individual researcher models.

[*English*]

We talk, and you have probably talked at some length, about investigator-owned versus university-owned IP policy. In fact, as you may know already or should know, most universities have investigator-owned policies whereby the actual investigator-researcher owns the IP that's produced from the work, regardless of who pays for it. There are some university-owned policies. It's a great source of debate, and it's something that needs to be discussed. In my view, the real issue isn't so much who owns the IP—because it ends up going somewhere and is typically licensed—but rather how post-secondary institutions facilitate or assist the commercialization of IP in terms of freedom to operate on the one hand, incentives or disincentives, and how that all plays out.

Currently, we know that the outcome, if you look at traditional tech-transfer models, is pretty limited. Royalty returns, for example, from investments in intellectual property are roughly equal to the amounts that get invested in the development of IP for dissemination or transfer.

It's not about the scope or scale of invention or patenting either, because, to some extent, universities, in my view, are sitting on a considerable volume of patents, hundreds and thousands of patents. The fact is that they're not necessarily moving, and the question is why?

In my position, it may not even be about IP policy or the legal framework of it. The real issue in the academic community, as I said, is how to move IP to market to get knowledge moving and, importantly, to de-risk the process for all the partners.

[*Translation*]

The old ways are not working; we need to look at new tools. To successfully commercialize university research, we need better collaboration between business and academics.

[*English*]

Certainly we need to build up demand in the private sector for the supply of the knowledge that our scholars can produce, while at the same time ensuring that the integrity of the research project remains intact in the transfer process.

How can we do that? Certainly things like contract agreement templates can be used universally. Right now we use a very broad patchwork of tools. Umbrella agreements among industry, universities, researchers, and information exchange work very well. We used these to great effect when I was at Western. These are all ways to standardize and to facilitate knowledge transfer in a broader range of ways.

There is also the bundling of technologies and the development of regional academic industry consortia. You may have heard about the Western Canadian Innovation Offices, and about CRIAQ, the aerospace consortium in Quebec. These are all ways to promote or attract industry engagement and break down barriers to commercialization.

[*Translation*]

Such strategies help to reduce the institutional impulse to competitiveness and replace it with efforts to collaborate. But collaboration needs to somehow be rewarded.

● (0900)

[*English*]

One of the suggestions that I heard about in terms of IP and technology transfer was quite interesting. Instead of universities chasing dollars through royalty agreements and so forth, we as a society, a province, or a country, should just finance the development of the IP and the transfer of the IP itself. If universities are earning only about $60 million a year or so from royalties, why don't we invest twice that and just instruct the universities to push it out? Take the money, go for it, and move it, instead of spending all the time and all the effort that we spend to develop and license all the agreements.

I've left some material with you. There can be a case for a completely open approach, open innovation, which frees research from the traditional closed and rigid proprietary licensing models.

Despite what has been said, this isn't simply about universities or investigators giving away IP. It's about inviting companies and other third parties into the early-stage discovery process from the outset, often for a fee or through cash for access, and then allowing them to protect and utilize IP at the stage that's useful for them.

This keeps early-stage research, from our public universities financed typically with public money, open to everybody, as a platform on which to build, while at the same time giving third party research partners the option to protect and to develop that IP which they are in a position to exploit.

[*Translation*]

It has been argued, for example, that a model like that could save years off the development of pharma products, since early stage research in a more protected environment is essentially lost to all but the sponsor of the research.

[*English*]

In fact, the research I've seen, colleagues, such as that of Aled Edwards at the University of Toronto, has shown that the time to development of pharmaceutical projects in an open innovation environment can be reduced by potentially tens of years.

[*Translation*]

These methods are currently in place within Toronto's Structural Genomics Consortium, and the Montreal Neurological Institute and Hospital. This approach may not work in all fields, especially where time to market is very short.

[*English*]

It may not work for software development in which things move very quickly. It can certainly work in the case of drug development.

In concluding my remarks I'd like to state the obvious. In essence, research collecting dust on a shelf has no value, and there is a considerable amount of this. Goods and services that don't connect with people or reflect consumer preferences are also equally doomed to fail. I think both academics and entrepreneurs often lose sight of this fact. To achieve the economic growth that Canada needs in this increasingly globalized trade environment, we need to get ideas to market quickly. By assessing our collaborative capabilities as this committee is currently doing, we can hopefully establish a default model that eliminates some of the obstacles to this commercialization and increases the efficiency of knowledge transfer to the benefit of all Canadians.

[*Translation*]

Thank you.

I welcome any questions the committee may have.

[*English*]

The Chair: Thank you very much.

Mr. Baylis, you have seven minutes, please.

Mr. Frank Baylis (Pierrefonds—Dollard, Lib.): Thank you.

Mr. Hewitt, you mentioned that it was easy to do business with a contract template. It makes it easier for a company to come in and work with a university. We also heard about the need to collage or bring together data. For example, what's out there in terms of IP? What's out there in terms of know-how, expertise, and all of that? A company can go out and find it easily, and then, once they've found it, have a regular template to access it.

You also mentioned that they collect about $60 million in royalties a year, plus or minus, and you had a good idea—to double it and just give it to them. If we want them to use a template, if we want the universities to provide the data, is there a way in which we can encourage them through something? How would you see that happening?

Dr. Ted Hewitt: That's a great question.

In fact it's already happened in some institutions. The consortium that I helped to establish in southwestern Ontario included six universities. We all adopted the same templates. We all adopted the same strategy. In effect, we commercialized each other's IP.

Mr. Frank Baylis: That was the southern Ontario group that had it.

Dr. Ted Hewitt: Yes. My understanding is that WCIO is doing something similar, so it can be done that way, through the establishment of these consortia. Some of the groups in Quebec, I understand, use the same template material.

I think it would be a great idea. I think it should be operationalized through such organizations as the Canadian branch, or the about-to-be Canadian branch, of the Association of University Technology Managers.

● (0905)

Mr. Frank Baylis: That's the AUTM branch?

Dr. Ted Hewitt: That's right.

It certainly could be implemented through discussion with the main groups representing the post-secondary institutions, whether CIC, the U15 particularly, or Universities Canada. I think it has tremendous benefit, and would be used to the extent that it would be made broadly available.

Mr. Frank Baylis: Let's say we came out with a program and said,"Look, if you provide us the data, and if you use these templates, we'll sweeten the pot. For every patent you get licensed, for example, we can add $10,000 or the cost of licensing it."

Would that work?

Dr. Ted Hewitt: For sure. For the programs that do provide funding for that, or to the extent of the funding provided by the Tri-Council to support knowledge transfer, it could certainly be stipulated that the preference or the requirement is to use templates or to use materials that are widely available in accordance with *x* or *y*.

The trick may be not so much whether the universities are willing to adopt this but whether the companies are willing to adopt this. I think this is an important aspect. I had discussions earlier on with a major automotive assembler here in Canada, and I asked why it takes so long to get agreements. The response was that it wasn't so much the template but that they have lawyers and we have lawyers, so it takes a while.

Companies also aren't necessarily appreciative of the templates that you may bring to the table. Industry would have to be a key player, in my view, in those templates.

Mr. Frank Baylis: This is in drafting those templates, or in making sure that there's some equilibrium if we're going to make them successful.

Dr. Ted Hewitt: Yes. I would agree.

Mr. Frank Baylis: Okay. Very good.

Mr. van den Berg, you talked about TACs. How is that working for the colleges? Is that something we should be looking to expand?

Mr. Bert van den Berg: The short answer is “yes”. The TACs started about five years ago. They're modelled on the network in Quebec that's been running for 30 years. Our expectation was that after five years they would have about as much revenue from clients as we gave them. They've exceeded that benchmark. There are definitely some that do better than others, but on average they're exceeding that benchmark. They serve, on average, about 35 to 50 clients a year. They certainly reach into the local community. They're very good at serving SMEs.

It's a great model, from our perspective.

Mr. Frank Baylis: So that's a working model for the colleges, and you think that's something we should look at expanding.

Mr. Bert van den Berg: Yes. The colleges have a broad spectrum of capabilities. We need to help them grow their capabilities, but once they have good capabilities, the TACs are a great way to continue to deliver that to clients.

Mr. Frank Baylis: You mentioned also that the flow of students is a good way to do tech transfer.

Mr. Bert van den Berg: As you've heard in this committee, the best way to transfer technology is on two legs.

Mr. Frank Baylis: In that light, we have the Mitacs program, which arguably right now is available only for universities. Would it be good to have that available to colleges too, to help them...?

Mr. Bert van den Berg: The short answer is “yes”. That's from my personal perspective, clearly, but yes.

Mr. Frank Baylis: Mr. Hewitt.

Dr. Ted Hewitt: I would agree. Under the right conditions, as has been shown again and again, and as you've heard, the best way to transfer knowledge is via the individuals, the people who move into companies and start to transfer that on a day-to-day basis. To the extent that the program can be structured that way and truly can be effective through a college-based program, absolutely. Why not?

There are lots of ways that information gets transferred, and as we know, lots of innovations come from the shop floor and from almost anywhere other than, in some cases, the traditional sources.

Mr. Frank Baylis: We've heard a lot that the best way to move technology, or whatever, is to have that flow, to let students do that.

Do you have other suggestions along the line of how we could encourage that flow?

Mr. Bert van den Berg: Again, the next-biggest way of doing that is through collaboration. The more we can do to enable companies to access and collaborate with researchers, the better we're going to transfer the knowledge and expertise at universities and colleges. It's about collaboration more than it is about licensing of patents.

Dr. Ted Hewitt: May I add to that?

Mr. Frank Baylis: Go ahead, please.

Dr. Ted Hewitt: One other piece of data we know is that the value of post-secondary research collaboratively with industry is over $1 billion a year. This number is many times the amount realized through licensing and royalties. This is an excellent vehicle, in fact, to involve students and researchers in research projects in which they're interested.

Mr. Frank Baylis: Instead of just saying to a company, “I have a patent. Here it is, written down on a piece of paper. I'll hand it to you. Please go and figure it out”, it's helpful to have the person who might have worked on it or who knows a bit about it move over to the industry.

● (0910)

Mr. Bert van den Berg: I think that's essential. Typically we have eight students involved in a collaborative project.

Mr. Frank Baylis: You have eight students per project.

Mr. Bert van den Berg: Yes, per project, and one in three companies actually hires somebody from the project.

Mr. Frank Baylis: As you said, that flow is critical to making it happen. We have to have that. It's not just saying, “I have a piece of paper here. Go figure it out or read the manual.”

Mr. Bert van den Berg: That doesn't work. As a researcher, I've experience that.

A patent is like a publication. It attracts the attention of companies. These people might have expertise, but what they want is not actually the patent; they want some version, some modification, or some adaptation.

Mr. Frank Baylis: They want the know-how.

The Chair: Thank you very much.

We're going to move to Mr. Lobb for seven minutes.

Mr. Ben Lobb (Huron—Bruce, CPC): Thanks very much.

To start, I have one question for both of you on the last topic. The $1 billion in combined collaborative investment for this is obviously a smaller percentage than the overall investment that governments make in research.

There's a good return when you have business and academia vis-à-vis government dollars to focus on a project and make something happen with it, but the majority of the money is in, I would say, other. Is that correct?

Mr. Bert van den Berg: The majority of the money is in training. It's again that you're training the next generation who will actually have the expertise and go to companies and help them innovate.

Dr. Ted Hewitt: I'm sorry, but just to clarify, if you're talking about federal investments in research per se, which is in the order of $3 billion, or maybe more if you include the investments in infrastructure through CFI, then yes, that's the lion's share. Then also count provincial investments, and I gave you the figure for industry investments in collaborative research with post-secondary.

Mr. Ben Lobb: We're putting billions in every year. If the government is putting in billions, and maybe you won't get your return the first, second, or third year, or maybe it will take 10 years, should the government look at getting a return of every dollar it invests? What are your thoughts?

Dr. Ted Hewitt: If one takes the narrow view that a dollar invested has to produce a dollar in patentable IP or commercializable products, I don't think that's going to work. The overall question is, is our investment in fundamental science paying off in broad terms with respect to creating economic activity in a huge economy that is many times that investment? That's only a tiny portion of the total GDP of Canada. From my perspective, as president of SSHRC, I look at whether it is the kind of society that enables and enlightens citizenry who can participate in the further development of prosperity in the country and in the elimination or treatment of some of the serious ills that affect other countries.

It's a broader question and very difficult to measure in terms of what those investments return. Sometimes I say that if you want to know what those investments return, stop funding it. I'm not suggesting that, but look at other countries where those investment aren't made and ask yourself if you want to live there.

Mr. Ben Lobb: I asked the Canadian universities that were at the last meeting whether there is a general guideline we as members of Parliament can use when we have constituents saying, “You've invested $3 billion or $4 billion a year in research; how much of that actually goes to the researchers and their work, how much goes to fancy buildings and big administration, and how much actually goes to the people who are doing the work?” What kind of numbers are we looking at?

Mr. Bert van den Berg: About 20% of the $1 billion or the $3 billion dollars together goes to funding the indirect costs of research, on average, to universities. The smaller institutions get a higher fraction, but on average, it's about 20%.

Mr. Ben Lobb: Is that a number that we should be satisfied with in Canada? How does that compare to Europe, the U.S., Japan, etc.?

Mr. Bert van den Berg: As you heard in previous testimony, other countries actually have a higher rate.

The government has funded increasingly strategic—that is, grouped—research activity. “Grouped” means organized. It takes more effort to organize activity than to go off and individually explore all sorts of directions, so there is some benefit to be had from these higher overhead costs in terms of strategically investing. It's a philosophical question, but certainly Canada is not overspending on the indirect costs. We're spending very high amounts on the direct research.

● (0915)

Dr. Ted Hewitt: My understanding was that you were also asking about where the money goes, in terms of where the investments go. Is that correct?

Mr. Ben Lobb: No, I just want to make sure that as members of Parliament we should be satisfied that the money's actually going to researchers and not administrators.

Dr. Ted Hewitt: In our estimation, across the councils it's fairly standard. Most of the money, 70%, goes to people. The researchers are paid through the university, but they hire students and research assistants, so these are big investments in communities.

In London, Ontario, the $100 million or so that comes in from the Tri-Council and CFI is invested in people and in jobs in that community, and then we see the benefit of that in what's produced in the research. With regard to the indirect costs, now we're talking about equipment, but also people, because that's maintenance, utilities, and all the things that are required to keep the research moving. It's a people enterprise, at the end of the day, if you take the equipment out of the equation.

Mr. Ben Lobb: We had an individual who was here perhaps two meetings ago. He had worked at Nortel, and he said that if he came up with an idea, Nortel owned that idea. His name is on the patent, but Nortel owns it.

With universities, he said, it's basically government money going in. The professor or the researcher gets paid through tax dollars. All of a sudden, they come up with an idea and magically, somehow, they are now a part owner in IP. There seems to be something philosophically incorrect with that.

Those are not my words; those are his. Are there any thoughts on that? Is it an issue to get technology transferred out of the lab and into the commercial space?

Dr. Ted Hewitt: As I was saying in my earlier comments, first of all, there's a huge compulsion within the academic community to publish. That's part and parcel of the requirement for any research funding that goes on anywhere across the country, regardless of the discipline, to get that information out. That's available to anybody who wants to use it. It may not contain the kind of information one needs to commercialize, but that's the second issue.

What I was saying earlier was that it doesn't really matter who owns the IP. The university can own the IP, as is the case at McMaster University, or the investigator can own the IP, as at Waterloo or Western. What's really important is what the institution does to get that IP out of the university and what process is used.

Mr. Ben Lobb: Some of the testimony we've heard, though, is that it kind of does matter who owns it, or who's in control, because there are a lot of personalities you have to deal with in getting it out of a university. So is that a problem? We had two businesses at committee, and they both said the same thing.

Dr. Ted Hewitt: Let's put it this way. If the investigator ultimately develops the IP and is under an obligation to report it to the university, that's true whether the investigator owns the IP or the university owns the IP. If you don't want to report that, even though nominally the university owns it, it's not going anywhere. So, it doesn't really matter, in my view, who owns it. It's a question of creating the milieu so that people want to disclose, they do disclose, and the university provides the mechanism to allow them to run with it. In some universities, that works better than in others. I'm sure you heard, and Dr. Dixon told you, that at Waterloo there's a very liberal regime. They encourage individuals to work with companies. They put no restrictions on that ability to work with companies to patent or copyright, and to use that data. At other universities, it's not a priority.

It's getting them there that I think is the bigger issue.

The Chair: Thank you.

We're going to move to Mr. Masse.

You have seven minutes.

Mr. Brian Masse (Windsor West, NDP): Thank you, Mr. Chair.

Thank you, gentlemen, for being here today.

Mr. Hewitt, I think you mentioned that there are 1,000 patents—

Dr. Ted Hewitt: There are probably more.

Mr. Brian Masse: Probably more. So do they become like the new residents of the island of misfit toys, in that they just kind of go there to linger and...?

Dr. Ted Hewitt: It's worse than that.

Mr. Brian Masse: Please explain.

Dr. Ted Hewitt: Let's go right back to the notion of disclosures. I was the same: when I started out at Western back in 2002, I said we had to get our disclosure rate up. The fact is, you can do that. You can walk around, talk to everybody, get them to disclose, and put everything on the table. The problem is, they're going to disclose everything and anything they think might go somewhere.

Then the tech transfer folks have to decide what's worthy of protecting and what's not. There's a tendency to want to protect, as opposed to not to protect. Most universities carry inventories or stocks of patents that are probably too high. It's worse because you have to pay to maintain these patents.

When I first became VP of research at Western, we were spending on the order of hundreds of thousands of dollars every year to maintain patents that were going nowhere. That was part of our ongoing cost. How to get them out is one issue, and selecting the things that will move forward is another.

● (0920)

Mr. Bert van den Berg: I'd like to add the fact that patents are like publications. They are a marker of achievement. Here's some knowledge that I've realized. Researchers who collaborate with companies better understand the opportunities for innovations and therefore better align the research to the opportunity. The more we can do to encourage collaboration, the more likely we are to end up with innovations that are relevant.

I'm not so concerned with what's happened in the past. It's about how, going forward, we can make a greater impact with the money we're spending in terms of producing innovations.

Mr. Brian Masse: It sounds to me as though we have a bit of a cultural problem here. I heard a little talk about how the patents and ideas are only worth what somebody will pay for them. It seems like a yard sale, where you bring stuff out and realize that it has a sense of value to you, and then soon afterwards that the sense of value to other people is quite different.

I kind of get that feeling. I've toured a lot of universities and colleges over the years. They seem to be environments in which it's almost as though they're waiting for the next greatest idea to come out. It scares off, maybe, some of the.... I've raised a number of times the cases of inadvertent innovations, discoveries that.... Some of those are the best the world has ever seen.

How do we incentivize that? You mentioned, Mr. Hewitt, cash for access, and I thought I saw some Liberals choke over there. But I get what you mean.

Dr. Ted Hewitt: Context is really important.

Mr. Brian Masse: I get what you mean. Is there a way to incentivize...?

Mr. Frank Baylis: We started there.

Mr. Brian Masse: Exactly, maybe the question goes to them.

Mr. Frank Baylis: Don't hold that against me.

Mr. Brian Masse: Actually it was really good. It was really relevant. Maybe I'll ask both of you to comment.

Is there a way for us to kind of grease the wheels or loosen...? Is there something else that can be done to kind of shake it a bit looser? It seems this protective element we have is strong.

Dr. Ted Hewitt: Bert spoke to this very well, and the fact is that not everything needs to be conceived as product development technology transfer. Working together produces amazing results sometimes when there's no obvious IP. I've seen it more than once. I've seen a $25,000 project at a major oil sands company in Canada that was done at two universities result in—and this is from the president of the company—a 2% saving in operating costs. There was no IP; it was just a student project. Faculty were involved, but that was the end of it.

To your broader question—and this was a real eye-opener for me—I spent time in the States at an institute at the University of Texas where they focus specifically on IP, IP-related issues, and technology transfer. The one lesson I came away with was don't expect your researchers to become star entrepreneurs. It's not going to happen. They may not even be able to realize the potential of what they're working on.

What you need, in the environment of the university particularly, are people who can recognize the potential of what people are working on, and that's what our tech transfer folks typically do in universities. We need more of that activity, in combination with the kind of collaborative research we were just talking about, to start to shake things up.

We don't expect the entrepreneurs to be amazing inventors. Why would we expect the university professors to all of a sudden become entrepreneur magicians? We need to find ways to work together to extract that value, using the expertise as a component part of that.

Mr. Bert van den Berg: I'd just add one thing. About 20% of the collaborative projects that we fund result in tangible IP; probably 80% result in knowledge transfer; and 90% result in interactions that the company values enough to recommend to its peers.

Mr. Brian Masse: Thank you.

One thing I do want to touch on is that I recently toured St. Clair College in Windsor. They have a lot of good stuff happening there. One concern that was raised was about the ability for capital investment in machinery and equipment.

I want to use my time for you to speak, but the concern was with being able to keep up with the pace of industry to make sure that what they do is also relevant so that the training takes place and so that the transferable skills are there for their students to graduate. I think that's important to keeping work in Canada, and making sure it's relevant, but the costs....

● (0925)

Mr. Bert van den Berg: NSERC funds a program that provides support for equipment at colleges. The money we have for colleges is about the same as the amount we spend on university equipment in NSERC. The problem is it's a small budget and there's limited access. Selfishly, if we could grow that budget, then we could offer more equipment.

Mr. Brian Masse: I hear nothing but good things; it's just the amount of availability. I hear nothing but good things about every aspect related to it.

Dr. Ted Hewitt: That's not to mention as well that CFI, the Canada Foundation for Innovation, does have a college infrastructure program. They should be talking to them for sure.

Mr. Brian Masse: Thank you, Mr. Chair.

Thank you, gentlemen.

The Chair: That's good. Thank you very much.

We're going to move to Mr. Longfield.

You have seven minutes.

Mr. Lloyd Longfield (Guelph, Lib.): Thanks, Mr. Chair. Thanks to our witnesses. These are great conversations at this committee. I wish we had more time. That's what I say every time I get up.

I want to focus my questions around the technology access centres that you mentioned, Mr. van den Berg. I had a business back in the early 1980s, when I was developing some solutions for industry. On the weekends I was putting together some ideas. I can remember selling an idea to the American government for 300 systems. It was a really good thing for my business. I put it together on the weekend. I sold it on Monday morning, and then we tried to build it in quantity and then get money into our business so we could go again. I remember my dad asking me if I would patent it. I said, Dad, I'm chasing the next order. I have to keep my business going. There wasn't a technology access centre that could have done the prototyping I did in my garage on the weekend.

In rural Canada in particular, in small business in particular, those are the supports that we need out in the field. Could you maybe go into that a little bit more for our testimony?

Mr. Bert van den Berg: Sure. A technology access centre, on average, has between three and 10 employees. They're located in places as remote, let's say, as Grande Prairie and Victoriaville, I believe. Their business model is to offer technical services, small applied research projects, and specialized training on the equipment expertise they have that's different from what the college has, and for that they will be charging business clients.

What it means is that they are responsive, so they do answer the phone and they do say, yes, how can we help? They do want to serve the clients. The one in Grande Prairie is focused on beekeeping, on the health of bees. There are all sorts of different technology access centres, but essentially because they're focused and they're interested in serving clients, they help with the technology de-risking, what you talked about: building a prototype, testing the prototype, understanding what the environment is. They are connected to the local IRAP agents. Sometimes the IRAP agents are there. They're connected to the local economic development organizations, which often are partners in the centre. Then, in effect, you have a lever for bigger impact in the centre.

The Quebec example really was compelling when we looked at it five or eight years ago. While our centres now are on the scale of 1:1, $1 for a $1 investment, the Quebec centres are well past that. As they build a reputation, as they build a network, they're very effective in the local community in terms of having impact.

Mr. Lloyd Longfield: There are two things from my story. One was that I needed a fast response. I remember it was about a $30,000 order, and for me that was a really big deal. I didn't get a second order. It went to the United States. They probably saw how I did what I did, and they probably just duplicated it, so I didn't get any kind of lasting benefit.

As a business person, I didn't understand that at the time. I was in my twenties. How do we get small businesses to understand the value of the new products they're creating? How do we get rapid response back to those small businesses so they can get ongoing benefit from their ideas?

Mr. Bert van den Berg: Education is clearly an important part of that story, education in an informal fashion. As I say, these centres are connected to local actors, and they are able to help them connect to places to protect IP.

Very often the colleges are going to be looking at this and asking whether there's something in terms of IP there. They will often look at that, and if there is no tangible IP being created, they will give some advice back to the company and ask them to think about it. If there is tangible IP, they will say to think about protecting it, and provide some linkage to someone else who might help them protect the intellectual property.

● (0930)

Mr. Lloyd Longfield: I'm going to focus on colleges as well.

Mr. Hewitt, I was a graduate of Red River College, so I'm kind of biased towards colleges in the first place. You have seen using colleges and universities together to solve some of the problems with a rapid response. You've seen doing that through consortium. I'm thinking that in Newfoundland or in rural Saskatchewan they might not have the same access, so they are making great farm machines, but they are doing it on their own. They don't go for outside help where they could get it.

Dr. Ted Hewitt: I think that makes sense and it's an amazing idea. I was out not that long ago at Red River College, so I'm well aware of the capacity to undertake work there in many fields.

I was looking at a program of early childhood education, which is now being exported globally. The methodology they are using in inner-city Winnipeg is now said to be used in Africa and Latin America.

I think where that makes sense is with the technology transfer group. The consortium we developed in southwestern Ontario did have as partners Fanshawe College and one other college as well. Anytime you can do that, it creates benefit.

I think their pitch was that they had some of the equipment and they had some of the ability to do that rapid testing that the universities didn't have, and that provided a very nice piece to the broader process undertaken through the university. Where that can happen, it should absolutely.

Mr. Bert van den Berg: I would just like to underline that, as you know, your typical SME is going to make a decision on a project in days or weeks and is going to need to have the results in weeks. In that space, they are not particularly interested in defining a longer-term collaboration, and so the centres really help in that regard.

That said, for those companies that are looking at IP and looking at a longer-term development process and can cobble together the pieces to support that, we link colleges and universities together in supporting that kind of collaboration. It's more complex, and many of the commercializations don't need that, but it is a possibility.

Mr. Lloyd Longfield: To go back to the island of broken toys, or whatever that—

Mr. Brian Masse: It's misfit toys.

Mr. Lloyd Longfield: The Island of Misfit Toys—that's it. We need more feet on the street. Would the government have to play a role in getting those feet on the street, or do we have some delivery mechanisms in place that we can be leveraging? I'm thinking of IRAP or NSERC.

Mr. Bert van den Berg: I think IRAP with its 250 ITAs is excellent in working with companies. They reach 9,000 companies for advice. NSERC is partnering with 3,600 companies. My vision is that NSERC is helping de-risk technology for the small companies, and IRAP.... I shouldn't speak for it, but my sense is that it is increasingly working with businesses to help them grow. But perhaps once they have the technology, it will de-risk it. It is really focusing on advice, so it is helping the company understand what it needs to do to move forward, and it is looking for companies with a vision towards export and growth.

Mr. Lloyd Longfield: Maybe part of the study is encouraging that to continue or expand.

Dr. Ted Hewitt: I think part of it has to be creating a sense of collaboration in that community, because the options out there at the municipal, provincial, and federal level are mind-boggling.

The only other thing I would say is that in this repository of misfit toys, some are very cool. I've seen hand-held 3-D scanners, 360-degree cameras. Can you buy one? I know that the technology exists, so why doesn't it get out there?

Part of it has to do with companies. Companies quite often, I think as you mentioned, have the firm belief that working with universities or even colleges is not worth their time, that it's hard, and that they're not going to get anything out of it or that it's going to take years. In fact, in my experience, where companies have worked with universities, that hasn't been the case. They don't like to advertise that fact, because if they say they have an excellent working relationship with university X or college Y, they have just told their competitors that this is where the competitors need to be too, so quite often people don't talk about their good experiences. They talk about what doesn't work. We have to get over that as well.

The Chair: Thank you.

We're going to move to Mr. Nuttall.

You have five minutes.

Mr. Alexander Nuttall (Barrie—Springwater—Oro-Medonte, CPC): Thank you, Mr. Chair.

Thank you to the presenters today and certainly to Mr. Hewitt for the written comments as well.

Going through some of your remarks, I note that you talk about how essentially the process needs to change to perhaps bring in the private sector earlier on to identify and shape the research towards where they are looking for answers. I guess my first question would be—and you started to go into it just now—whether the issue is that the private sector just isn't willing or that no entity exists to really combine academia with the private sector.

● (0935)

Dr. Ted Hewitt: I would say there are multiple entities. We talked about IRAP and certainly the technology access centres and so forth.

A lot of this will depend on the ability of a business or a company to, in the first place, identify opportunity. That's partly an educational activity, and it's partly a selling job that universities and colleges need to do. It's what I used to do; I'd just go visit.

The structures for that are more difficult. In terms of the early access or collaborative research activity, there is quite a bit of that in Canada already, about a billion dollars' worth. What people are doing now at the Montreal Neurological Institute and particularly at the Structural Genomics Consortium in Toronto is different. They are bringing companies into the research process—particularly the Structural Genomics Consortium—at a very early stage, and they are paying to have access so they can be at the table when discoveries are made and then collaborate work with the researchers and inventors to move those to market.

All that early stage, research is never lost because it's all made public. It's all out there as opposed to research that starts in a company lab or in a company facility where it's all protected to the very bitter end. Companies have the opportunity to save a lot of money. They don't have to invest in a lot of early-stage development. They can pick up a technology at the point where they can use it and then protect it, and then off they go, and everybody's happy. That's the exception right now. If I were a vice-president of research these days in Canada, creating more of those would be my objective.

You are currently up against a cultural wall that would render that fairly difficult, in part because of the way researchers approach this, in part because of the way companies approach the exercise, and in part because of the way tech transfer offices manage that process. I'm pretty convinced, though, from having a look at this, that it make sense in that model.

Mr. Alexander Nuttall: Are you aware of the $950 million fund that was created in the last budget for superclusters, etc.?

Dr. Ted Hewitt: Yes.

Mr. Alexander Nuttall: Where do you see that fitting into solving some of these issues? Obviously those clusters are going to include academia, the private sector, research institutes, etc.

Dr. Ted Hewitt: We are responsible for agencies that fund primarily fundamental research or earlier-stage research. We haven't worked directly with the organizations or agencies that will deliver that program. At face value, from my perspective and given my university experience, this will be a huge catalyst towards moving information from the universities and colleges into businesses that directly participate in that, and they will facilitate that kind of collaboration in a very direct way. How that plays out, at the end of the day, I can't comment on, but if it puts people in the same room, and they're focused on the same object, they are bound to start moving ideas, in my experience.

Mr. Alexander Nuttall: I have an interesting riding, because I have a fairly urban part in Barrie but very rural parts as well. One of the issues we've been facing is that we just don't have anything like the accelerator centre there. Also, in the rural areas where there is the space for companies to grow.... I think of Napoleon Wolf Steel right off the bat. Basically, a man's research in his garage turned into a company that has 1,800 employees today. However, there is no broadband or anything along those lines where the facility is.

While there may be offices in these rural areas, are there any other inhibitors you see to helping in rural areas where somebody may be coming up with a new piece of technology, but there's not necessarily the access there is in more urban areas, whether London, Waterloo, or Toronto?

The Chair: Be very brief.

Dr. Ted Hewitt: I'm going to turn it over to Bert, but I can tell you that our agency has funded research on precisely these questions on rural access, services, and infrastructure. So, if you like, I could take that as homework, and we could dig out some material for you.

● (0940)

Mr. Alexander Nuttall: That would be great. Thank you very much.

Mr. Bert van den Berg: Researchers and companies often work with people close to them, so it's helpful to have somebody nearby. Georgian College in Barrie is certainly a source of research capability. One of the visions for the superclusters is to network capabilities into the supercluster. At NSERC, we already network research from across the country to companies across the country. That said, I recognize the challenges you've outlined. Having a technology access centre in Barrie would be something, assuming that it was successful, that would probably be very important.

The Chair: Thank you.

The final questioner for this period is Mr. Jowhari.

You have a very fast five minutes.

Mr. Majid Jowhari (Richmond Hill, Lib.): Thank you, Mr. Chair.

Thank you to all of our presenters.

I'd like to go back to what I call the collaborative model, what you called collaborative research. Specifically, you talked about open and early-stage research and bringing the public as well as the companies into this process. We know that most of the research is happening in the universities. Given the fact that most research is done by professors and the, let's say, post-doctoral students, and there is the concept of protecting that and keeping it away from the outside world so it can be considered as pure or fundamental research, how do you reconcile that? We've heard that there are some best practices out there. You gave us two examples of those. You said how successful it is; it's collaborative; it has cut the cycle time and it generates jobs. Then we talked about the fact that we need fundamental research, pure research, and it's a much longer term. We naturally want to be able to look into how we can commercialize or how we can do the technology transfer in an efficient and effective way in a short period of time. In your opinion, how do we reconcile these two things?

The question is for both Bert and Ted.

Mr. Bert van den Berg: Ted mentioned open access. The key thing in getting technology out is that people have to know that there are 20,000 companies that do research in a particular year. We've talked about the 10,000 faculty we support. There are more who SSHRC supports. So it's a many-to-many problem. I have to find the right person to work with, so publications are going to be good, and open access is going to be good, because I can find a person through a web search. If you can find the person and you're physically in the same country, you have a better chance to partner with them. A person in China may find the publication, but it's not enough for them to actually capitalize on a commercialized opportunity. The more we can enable the interactions, the meeting events that we support, the more all of those things speed up the early finding of the other. Once you can work together, you're going to work better on a problem of relevance and produce something.

Mr. Majid Jowhari: How can we convince some of the fundamental researchers in the universities that this is a world that will work and it will not impact their research in the long term?

Mr. Bert van den Berg: NSERC has a strategy that focuses on that continuum, and, as it is in business, it's a word-of-mouth business. “Oh, you managed to get that publication out, and you're working with this company, and the students got placed? Well, I want that too.” It's when peers show that this works well. The best researchers we have also happen to be involved with companies. It's not that the best researchers are not the people involved with companies.

Mr. Majid Jowhari: Go ahead.

Dr. Ted Hewitt: I would just respond as well that this will entail a major culture shift, because the model in place now is a traditional model for the most part. I should mention as well that there is lots of research and development and knowledge transfer that does not involve technology. This is equally important, and it's more in the space that we work in. So, that's important to recognize.

In the case of the Montreal Neurological Institute, they decided amongst themselves, however many dozen researchers there, that they were going to enter into an open innovation model. That meant publishing and posting all of their findings on a daily basis to the Internet for everybody's access—companies and non-companies. It was the same thing with the Structural Genomics Consortium in Toronto. That was a radical move. They themselves voted to do that. How that experiment will play out, I don't know. To get to the point of something like that requires a cultural shift and agreement that it, in fact, is the direction to go.

Mr. Majid Jowhari: Thank you.

I have 45 seconds, and I want to ask one more question and that's regarding the fundamental researcher.

We all agree that fundamental research is important. But we are measuring fundamental research in terms of the dollar value, in some cases, that it leads into technology transfer. My question to you is should we actually use a different base of measurement for the fundamental research? I still strongly believe that fundamental research is very important, but if we keep measuring it on the basis of technology transfer and how for every dollar invested one dollar is commercialized, then are we measuring the effect and is the fundamental research the wrong way?

● (0945)

Mr. Bert van den Berg: I would suggest that we measure first the value of the students who go to work in companies; second, the value of the collaborations; and a distant third, the value of the licences and patents.

Dr. Ted Hewitt: I would generally agree. As I said earlier, it's really important to take a broader view of this, because the impacts and the results are often not anticipated. As was mentioned earlier, we just have to keep the pipeline going—invest in the best minds and see what happens. It may be a leap of faith, but it will produce. The Germans are very good at showing why that's true.

The Chair: On that note, I would like to thank our guests for coming in and sharing their time with us and each other.

We are going to break for a very fast one minute, just to do a switchover. We are being mindful of potential votes, so let's get back.

Thank you.

● (0945)

(Pause)

● (0945)

The Chair: Sorry to rush everybody.

To our guests, we have potential votes coming up, so we really want to get your testimony on record.

We are going to start with Jacqueline Walsh, associate professor of entrepreneurship and strategy at Memorial University, all the way from Newfoundland and Labrador.

You have the floor for seven minutes. Go ahead, please.

Dr. Jacqueline Walsh (Assistant Professor, Memorial University, As an Individual): Thank you for the invitation and the opportunity to present to the committee. I've been following the testimony, and throughout my statement, I will refer back to remarks made in previous testimony.

My perspective on this issue of intellectual property and technology transfer comes from a combination of areas that I have been involved with in my career. I practised IP law for 17 years, working with small high-tech firms. I have a Ph.D. in IP law, and I spent many hours trying to access IP out of university.

In my current position, my research relates to entrepreneurship strategy, regional innovation, and the role of post-secondary institutions in economic development. I hope I bring you a perspective that you haven't heard to this point.

The solution to the question that you're raising is very complicated, and I don't think there are any magic bullets. However, I do believe there is a fundamental barrier to a more successful technology and knowledge transfer. I believe this originates from the university itself, not from the researchers or the TTOs. It originates from the administration and leadership of the universities, and I will explain that.

We know that universities are complex and cumbersome institutions. They have competing demands from many different stakeholders. They face a lot of pressure, more so today with reduced operating funds, budget limitations, pressure to grow enrolment in a global context, and increased pressure to show value to taxpayers. This is relatively new territory in the world of university leaders.

Traditionally, universities have two missions: teaching and research. Many countries outside of Canada have progressed to what the academics call the third mission: economic development. In my opinion, Canada has not advanced in the same respect as some other countries have. In fact, I would argue that we are still, in many cases, trying to reach our potential in the second mission, research. Many universities in other countries have embraced the concept of what we now call the entrepreneurial university. This has many definitions in literature, but I'll just highlight some of the main components. There is to have as part of their core activities an emphasis on research knowledge transfer, which includes technology transfer and exchange; on partnerships in regional areas; on entrepreneurial pedagogy and support infrastructures, such as incubators, maker spaces, etc.; and, importantly, on governance, strategy, and leadership in organizational design to make all these things happen.

A lack of governance, strategy, and design around this leads to some of the problems that we are experiencing in Canada. Technology transfer, for example, requires significant resource allocation, capacity, expertise, patience, leadership, intensive partnerships, risk, and perseverance. These objectives cannot be reached without direction, leadership, and incentives. While we focus on the TTO, who manages the TTO? It's the university administrators. It's the university administrators who will set the university policy, the HR policy, and the goals and directions for any TTO.

Likewise, we talk about incentivizing faculty. Well, faculty are employees of a university, and it's only the university that can negotiate collective agreements. I heard some discussion earlier about incentivizing faculty with money. That has been tried in many other jurisdictions. Faculty are generally not that incentivized by more money. They get paid rather well. They are incentivized by more of their personal goals, so we need to find ways to incentivize them. It's up to the university to find those ways. I'm not sure that it is something that is within the federal government's ability to do without being a very blunt object to get there.

● (0950)

When we talk about industry and how do we incentivize them to work with universities, they're incentivized only when they can get relevant access in a timely manner to valuable IP with minimal transaction costs. That's their incentive. They don't need much more, but that's very hard for them to get. Again, it's the university administration that has to find the internal processes to make this technology transfer more efficient and useful.

When we talk about universities and incentivizing faculty and incentivizing the TTOs, who's going to incentivize the Canadian university? How do we make the university as a whole more interested in being entrepreneurial? I have some suggestions, and these come from what I have been researching in the U.K., in Sweden, and in other parts of Europe where they have a big push on transforming their institutions into what they call entrepreneurial universities.

I would offer the following recommendations. The federal government could establish agreements with their provincial counterparts to provide funding for those universities willing to transition into entrepreneurial universities. The federal government could provide research funding dedicated to those universities that meet predetermined criteria on being an entrepreneurial university, and the federal government could offer training programs or certification for university leaders who wish to embrace the entrepreneurial university concept and wish to act as change agents within their institutions and within their regions. And this is currently being done all over the U.K.

Next I would like to provide some insight into Atlantic Canada. I have heard great discussion about colleges and great discussion about rural Canada, so I hope to provide some insight in that regard. Atlantic Canada is home to 20 universities and colleges. These institutions are doing great work in their regions and around the world. They are critical to the success of Atlantic Canada and small business. They may not all become leading technology transfer institutions, but they surely can all become entrepreneurial institutions given the right incentives and motivations.

Atlantic Canada is fortunate to have Springboard Atlantic. This is an initiative funded by the federal government through ACOA. It acts as a central network for commercialization and industry liaison. It has 19 members, and the funding allows it to put 30 specialized positions in its member institutions. I believe that Springboard will be submitting a brief to the committee, and I think that would provide a great understanding of what's going on in Atlantic Canada for the committee.

Springboard, as I said, funds 30 positions. These positions are 65% funded by Springboard, I believe, and 35% by the institution. Very few of these have been made permanent, so they're contractual, which leads one to suggest that perhaps if the funding dries up, so do the positions. There doesn't seem to be a willingness in the universities and the colleges to make these permanent positions. Springboard plays a key role, and we're very happy to have that initiative in Atlantic Canada.

Our institutions are faced with declining enrolment, aging populations, fewer dollars and operating funds, yet they have never been so critical to our economic and social development. With the exception of Dalhousie, our institutions are not part of the U15, so they compete for the much smaller share of the research funds that are available to them. I raise this issue because of previous discussions suggesting that metrics could be used, as you just talked about in the previous session, to link technology transfer directly to research funding. That would be disadvantageous to the institutions in Atlantic Canada and those that cannot necessarily produce that level of technology transfer. If the metrics were more broad and related more to preconditions for an entrepreneurial university, then I think that perhaps we could meet the needs across Canada.

The final point I would like to make is about the unique potential for community colleges in Atlantic Canada to play a greater role in economic development. In Newfoundland, Labrador, Nova Scotia, and New Brunswick, these publicly funded community colleges have a multi-campus approach. For example, in Newfoundland we have 17 campuses reaching across the province. They reach out to some very rural areas of Newfoundland and Labrador.

● (0955)

What I find particularly exciting in talking about colleges is that they already have a goal of economic development. Unlike universities, they can be mandated. They don't have the autonomy that universities have. The government has more power to negotiate collective agreements. The college has mechanisms for professional development that can be purposely done to affect regional development. It's not as blunt a tool as universities to reach small businesses.

From this—

The Chair: I'm afraid I'm going to have to get you to wrap it up, please.

Dr. Jacqueline Walsh: Okay. To wrap it up, I was going to say that the other thing I would like to talk about is how important education for IP is. I think CIPO should be doing a much better job of that. They in fact are getting cut with regard to their funding in Atlantic Canada, and we need more people beating the streets for IP.

Thank you.

The Chair: Thank you very much. I'm sorry, but we're very tight on time.

We're going to jump to Mr. Plunkett, from Communitech.

You have seven minutes, please.

Mr. Chris Plunkett (Vice-President, External Relations, Communitech): Thank you to the standing committee for this opportunity.

For those who aren't aware, Communitech is a public-private innovation hub in the Waterloo region with more than 1,000 members. We work with tech companies of all sizes, from the earliest stage start-up to global multinationals, providing support to help them grow.

Last year, we worked directly with 717 start-ups, 124 scaling mid-size companies, and 66 global enterprises. This included everything from boot camps and business fundamental programs for early-stage founders, to helping scaling companies access the funding and the talent they need, to working on corporate innovation challenges faced by multinationals such as General Motors, Thomson Reuters, and TD Bank.

I am therefore going to speak from a relatively practical perspective, based on what we see in the Waterloo region, what we have seen be successful in helping knowledge transfer between universities and companies, and what companies need to scale their commercial activities.

In our experience, the most successful technology or knowledge transfer program that exists is a co-op program, particularly the one run at the University of Waterloo, which has more than 19,000 students in full-time co-op programs and provides up to two years of work experience ahead of graduation.

What we see is that when we send students into the business world and back again, the silos that often exist are broken down. You have professors forced to better understand problems facing companies, and students bringing the latest research and thinking with them to their co-op placements. This helps create collaborations between existing companies but also encourages students to create new companies that can tackle the challenges they confront on their work terms. One of the big reasons that Waterloo companies largely face B2B challenges—boring problems that make a lot of money—is that they've seen them before and bring them out in the companies they're working on.

The other key ingredient is incentivizing professors and students to commercialize their research. This is a more difficult challenge, which I know a lot of people have talked about on this committee, but a focus on entrepreneurialism in general pays great dividends. There is a saying that “culture eats strategy”, and when you have a culture of entrepreneurism and a culture in which professors and students alike are encouraged to start their own business or to work with businesses directly, it benefits greatly.

In the Waterloo region, we can see the entrepreneurial education that the University of Waterloo has done. In particular, the Velocity program for both students and professors is paying great dividends. We've seen at least 400 new start-ups a year for the past five years being created in Waterloo region, the vast majority from the University of Waterloo.

Of course, beginning a start-up is far from a guarantee of success in commercializing patents or even making money. One of the obstacles many face is determining how to develop an appropriate IP strategy. Obtaining sophisticated IP advice is challenging as there is a limited amount of expertise in Canada, and it is generally too expensive for an early-stage start-up to access. However, if start-ups don't develop an IP strategy early enough, they often end up making decisions that prove costly down the road, whether by revealing too much information to competitors or filing too late and opening themselves up to lawsuits further downstream.

To address that problem, Communitech offers a number of IP-focused services for early-stage start-ups. These include a brief overview as part of our introductory programming, a more in-depth session with CIPO and local law firms, and most importantly, a pro bono law clinic every Thursday for companies with less than $1 million in revenue.

In that regard, we're incredibly fortunate to have the services of Jim Hinton, who I believe spoke to this committee earlier. He is the driving force behind our pro bono clinic and provides the kind of expert IP advice that very few start-ups have access to. In a lot of ways, the only thing worse than no IP information is bad IP strategy information that companies get early on. Finding ways to regularize and deepen these offerings so they don't rely on the goodwill of someone such as Jim and scaling them so more start-ups and other companies across Canada have access would be an important step in providing base education across the country.

At a broader policy level, it seems to us that Canada actually does fairly well in developing patents. According to a recent study by the Impact Centre at the University of Toronto, the number of U.S. patents with a Canadian inventor climbed from 3,661 in 2005 to 8,903 in 2015, placing us eighth against competitor countries on a per GDP basis. We could improve, but it's certainly not bad.

The same study notes, however, that the percentage of patents developed by Canadians but eventually assigned to another country has grown from 45% to 58% over the same period. One of the key reasons is the lack of large domestic companies that develop and commercialize patents here in Canada. With the decline of Nortel and BlackBerry, this problem has become even more pronounced. The study doesn't get into why this is, but you can see spikes in the years when those companies started to actually decline.

From our perspective, that means public policy should be focused on helping to scale Canadian companies, including investing in sales, marketing, IP protection, and other business activities needed for companies to grow rapidly. However, the vast majority of government investment and grants are focused on R and D and aren't eligible for those types of activities.

The SR and ED tax credit is the largest example of this. This is an incredibly important tax credit for early-stage start-ups as it helps make up for the relative lack of seed capital available to Canadian companies versus their U.S. counterparts. However, sales and marketing expenses are not eligible, which means that Canadian companies are incentivized to overly prioritize R and D activities, and not sales and marketing activities, to grow their companies.

● (1000)

It's a very complex program and this is probably not the place to talk about it. I don't want to say that SR and ED is not important. It's incredibly important, but you start to create these incentives that prioritize the research over the sales and marketing and growing of a company as if they're not important aspects to this discussion.

We tried to address these shortcomings with programs like our Rev accelerator, which is focused on helping to build scalable sales teams for companies. However, with limited funding to do this, the disincentives remain.

The recent budget has a number of promising programs, from the strategic innovation fund to the innovative solutions Canada program, which might help with more broad-based funding for scaling companies and increase government procurement, respectively. But we look forward to seeing more details on those.

Finally, in previous testimony you heard about the challenge one of our member companies, D2L, faced in being sued by a competitor in the U.S. There are a number of other companies facing similar challenges right now, including another member, Sandvine, which is engaged in an IP dispute in east Texas. This highlights an important point that I believe has been made by many witnesses but is worth repeating. The vast majority of Canadian growth companies will be focused on the U.S. and global patent markets. The Canadian market is simply too small, so changes to Canadian patent law will have a very limited effect on how Canadian companies behave.

While I'm cognizant that Canada's ability to influence U.S. laws or regulations is limited, we do have some upcoming opportunities with renegotiations of NAFTA: the addition of chapters on digital commerce, and the renegotiation of IP chapters.

There are two particular challenges that could help to limit patent trolls in the U.S.

The first is to ensure that the recent decision by the Supreme Court on venue for patent cases applies to Canadian companies as well. Currently, patent trolls tend to file patent cases in east Texas, where there were 2,500 patent cases filed last year alone related to the rules of the court and decisions that strongly favour plaintiffs, particularly non-functioning companies acting as trolls.

The recent decision means that the cases will need to be brought in the state of incorporation or where the infringement was made. It is not clear what this means for Canadian corporations, however, so it will be important to clarify and understand those issues.

Second, American courts do not provide the recovery of legal fees if the plaintiff loses, as is the case in Canada and many other jurisdictions. This means there is no disincentive to patent trolls bringing forward frivolous lawsuits that force many companies into settling rather than incurring expensive legal fees.

Even if influencing U.S. legislation may be difficult, it is important that we recognize that it is international patent markets that matter and that are where our focus needs to be. Creative solutions that other members have brought up such as patent collectives or a patent defence fund to help protect Canadian IP should be considered as further ways to protect Canadian IP in global markets.

Thank you for your consideration. I look forward to answering any questions you may have.

● (1005)

The Chair: Thank you very much.

We're just going to jump right into it. We're going to try to do five minutes, five minutes, and five minutes. Hopefully we can get through this.

Mr. Longfield.

Mr. Lloyd Longfield: Thank you.

Thanks for both presentations.

I want to drill into the Atlantic Canada programs with Springboard Atlantic. You mentioned that 65% of the funding came from Springboard and 35% from institutions.

Of the funding from Springboard, do you know how much came from industry?

Dr. Jacqueline Walsh: I believe the funding doesn't come from industry. As far as I understand, it's 65% from ACOA and a membership kind of fee.

Chris would be able to answer that more.

Mr. Lloyd Longfield: That's a model that's used in other countries where industry actually funds some of the transfer.

Reaching into the rural areas through the community colleges, previously the Government of Canada, back in the 1990s and early 2000s, had the intellectually property mobilization program. It sounds as though you've taken that idea and turned it on its head by getting people out working with industry versus having industry coming to technology transfer offices.

Are those roles like a sales role, the 30 positions that you described? Do they react to companies or do they go after companies?

Dr. Jacqueline Walsh: They do a bit of both. Some of the positions sit in the institution, and they try to work with the faculty. But there's an industry liaison role whereby they actually go out and travel around and try to find companies to speak to companies. They're very useful and there are very few of them. We have one or maybe two in all of Newfoundland. It's a very vast area. You can appreciate what they can accomplish, but it is a very effective model.

Mr. Lloyd Longfield: It seems to me that because small businesses don't know what they don't know, you have to get people to go and tell them that there's help that can be....

In that Springboard program, how much of a role is played by that organization in leading people towards IP registration or helping with contract agreements?

Dr. Jacqueline Walsh: My understanding is that while they do some education, they will do some workshops. They will help put people together. Because the people are actually embedded in institutions and are actually employed by the institution, they have to follow their contract rules and their HR rules. Once the positions are put there, I understand that Springboard has very little control over what they do.

Mr. Lloyd Longfield: Thank you.

I'm going to share my time with Mr. Jowhari.

Mr. Majid Jowhari: Thank you.

I have a quick question for Chris.

Chris, in your statements you made mention of focusing on some of the public policies and, specifically, you talked about helping scale up companies and how that will help us keep some of the commercialization here rather than going to the U.S.

Can you please expand on that one?

● (1010)

Mr. Chris Plunkett: Certainly. I think when you look at where research and development is done in the private sector and where the leading companies in Canada have been on the R and D front—the Nortels, the BlackBerries, and the really large companies that have come down—if we want to increase the number of patents that are being commercialized within Canada, the logical thing to do is to create more large companies that can do that.

It's really difficult to say we're going to create this one company, so our approach has been a funnel. The more start-ups you can have at the beginning of the funnel, the more you can bring to these high-growth and scaling companies and therefore, the more large companies you can have. If you could pick them right from the start—well, if I could pick them right from the start, I'd be incredibly rich and sitting on a beach somewhere, probably. That goes for everyone. It's very hard to do, so the more you can create, the better.

Mr. Majid Jowhari: Maybe the government can help with that.

Mr. Chris Plunkett: The government provides a significant amount of funding, but much of it is tied to very specific niche areas. I think the review going on at ISED right now or on Innovate Canada will be an important exercise, because we found 70-some-odd programs, I believe, that help start-ups and scale-ups, but they really focus either on very early-stage start-ups with very small amounts of money or on very niche-specific areas such as the auto sector. There is a whole fund for auto tech, and a company doing auto could access it, but a more promising company in another field could not.

I think breaking down some of those silos and making some of that funding more accessible to the companies that are really growing and that have the best chance of becoming the next Shopify, BlackBerry, or Nortel is going to really increase results.

Mr. Majid Jowhari: So the policy of Innovate Canada and the new model that the government is implementing is something that is actually leading to helping the scale-up in the companies?

Mr. Chris Plunkett: I would say it depends on the outcome of Innovate Canada. We're certainly encouraged by the direction and the desires expressed, but, it's a reorganization of—

Mr. Majid Jowhari: How would you measure the success?

Mr. Chris Plunkett: I think you'd measure the success in the end by the number of large companies that are produced in Canada. At Communitech our reach or stretch goals for our board are to create fifteen $100-million companies in the Toronto-Waterloo corridor by the end of 2025. It's not going to be Communitech creating those, but we're going to help create them, and I think the government should have the same perspective, which is how to create these large scaling companies that will both employ Canadians and create equity value and IP in Canada.

Mr. Majid Jowhari: Okay, thank you. That was great.

The Chair: Thank you very much.

As you can see, the bells are going off. I'd like to offer two minutes to the other side to finish. I just need unanimous consent. Are we okay with that?

Some hon. members: Agreed.

The Chair: Alex, you have two minutes.

Mr. Alexander Nuttall: Thank you, Mr. Chair.

Chris, thank you for the presentation.

It's interesting, because you covered two portions. Number one was protecting our patents, and the second part was protecting our patents in U.S. jurisdictions where it seems as though there's some unfavourable processes. I guess that would be the best way to describe it.

You identified that there are some opportunities coming up in NAFTA. I as an elected official believe that the government shouldn't be in the business of picking winners and losers but that we should be in the business of creating an environment in which business can actually be successful. It can't be successful if it can't protect its assets. How do we best approach that?

Mr. Chris Plunkett: I think the number one and the easiest thing to do is to increase education for earlier-stage companies across the country, whether in Atlantic Canada or elsewhere.

I think Communitech has been fortunate to have Jim Hinton, who has helped us do that with our companies, but I don't think many other areas have the same level.

I think that's the number one easiest thing to do. It costs money, because this type of advice isn't free.

The other piece is to recognize that the game is international, and that's where you start to get into some more difficult areas that I'm really not qualified to get into the details of, things such as patent collectives. One thing we found very intriguing is the idea of a patent defence fund so that there's a fund that helps Canadian companies defend their patents in the U.S. or other jurisdictions when they're taken to court. That might be less complicated than a patent collective but provide some of the same benefits and some of the negotiation points as well.

Mr. Alexander Nuttall: Thank you.

The Chair: Mr. Masse, you have two minutes.

Mr. Brian Masse: I have one question to both, and we'll start from the east coast. With regard to the defence fund for patents, I'm wondering whether or not there is a way, especially with the superclusters.... One of our best strategies might be to somehow create an embodiment of that or whatever that could be tapped into.

That might be a way of at least having a stick out there. We can't fight every battle, but would it be advantageous—for those trolling in ideas—that Canada actually have a response to some of the patent trolls?

Sorry, the votes are cutting our things short, but we'll start with you, and thank you.

● (1015)

Dr. Jacqueline Walsh: I think having a patent defence fund would be very useful as a deterrent perhaps. I think it would very challenging to decide who you would and wouldn't support and who you would defend and who you wouldn't. You'd have to figure out the merits of the case. I think the money would be better spent on education, teaching companies about IP management and building IP portfolios, and getting away from this idea that everything should be open source. Teach them how to be competitive in the global market so they can defend themselves with their patent portfolios.

Mr. Brian Masse: Thank you.

Mr. Chris Plunkett: I would agree. I think a patent defence fund would be difficult. I think it's something worth looking into. The challenges and a deterrent would probably be one of the strongest pieces to it, but there would be a lot to work through. So I don't think it's an easy thing that can be done tomorrow, whereas I would agree that education probably is. In think the important part about the education is that it's really IP strategy, especially when you're talking about a software company that you represent. Often you don't want to put a patent; you don't want to go for IP, because you're then revealing your source code and you're revealing some of your competitive advantages, but at a certain point, you have to do it. I think you heard from Jeremy Auger from D2L that their entire strategy is defensive. They have patents strictly to prevent another lawsuit from coming at them. It's getting that expertise and that ability in Canada and having it available to earlier-stage companies so they don't make mistakes early on. That's really important.

Mr. Brian Masse: Thank you.

Thank you, Mr. Chair.

The Chair: Thank you very much.

Thank you, witnesses, for your patience. We'd love to spend more time with you but unfortunately we don't have it.

The meeting is adjourned.