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## Thursday, June 1, 2017

## Chair

**Mr. Dan Ruimy**

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● (0845)

[*English*]

**The Chair (Mr. Dan Ruimy (Pitt Meadows—Maple Ridge, Lib.)):** Welcome, everybody, to meeting number 64 of the Standing Committee on Industry, Science and Technology. Pursuant to Standing Order 108(2), we are starting our study on intellectual property and technology transfer.

We have witnesses with us. We have, as an individual, Michael Geist, Canada research chair in Internet and e-commerce law, professor of law, University of Ottawa. From Colleges and Institutes Canada, we have Christine Trauttmansdorff, vice-president, government relations and Canadian partnerships. With Niagara College, we have Marc Nantel, associate vice-president, research and innovation. From Ernst & Young, we have Jaipreet Bindra.

Mr. Geist, you have seven minutes.

**Dr. Michael Geist (Canada Research Chair in Internet and E-commerce Law, Professor of Law, University of Ottawa, As an Individual):** Thank you very much, and good morning.

As you heard, my name is Michael Geist. I'm a law professor at the University of Ottawa where I hold the Canada research chair in Internet and e-commerce law. My areas of specialty include digital policy, intellectual property, and privacy. I have appeared before this committee many times on IP issues and, as always, I appear in a personal capacity representing only my own views.

I'd like to start by welcoming this committee's study on an important aspect of intellectual property. However, I respectfully suggest that the name of the study gets it wrong. I understand the notion that tech transfer has taken hold in some discussions on how Canada can shift innovative research from Canadian campuses to exciting new commercialization opportunities. I'd like to suggest that the real goal is not tech transfer, but knowledge transfer.

Knowledge transfer encompasses a far broader set of policy goals that seek to take the knowledge that emerges from within our labs and classrooms and bring it out to the public, whether for commercialization, better public policies, or a more informed and engaged public. Knowledge transfer certainly includes tech transfer, but it also includes research papers, data trials, educational materials, and highly qualified students and personnel. Simply put, if the target is just IP and tech transfer, we miss out on many of the benefits that come from innovative post-secondary research and run the risk of establishing the wrong incentives within our policy framework.

Further, the potential emphasis on the U.S. Bayh-Dole approach, in my view, is misplaced. As you heard from department officials earlier, there is little evidence that the policies governing who owns IP rights have an overriding impact on the success of tech transfer as measured by volumes of patents and licences.

This should come as little surprise to anyone who has spent time on campuses with academic researchers. The metrics of success in the academic environment, such as publications, grants, tenure, chairs, and successful students, have little correlation with commercialization. Even for those with commercial interests, those are often achieved through consulting arrangements or other mechanisms where the business expertise is by and large left to business people.

I would argue that the emphasis on university-based patenting is misplaced. It can have a corrosive effect on universities, that forgo important publicly funded research in favour of potential licensing or patenting opportunities. With properly funded institutions, there is no need to chase licensing dollars. Instead, cutting-edge research ends up in the hands of businesses that can better leverage it for commercialization opportunities. This should not be viewed as lost revenue for universities or their researchers, but rather as a better return on the public's investment in post-secondary research.

From an IP strategy perspective, I'd like to focus on two broad issues. The first is open access publishing. If the currency of academics is publishing, not patents, then the challenge is how to ensure that the published research ends up as broadly distributed as possible. While it has captured limited attention outside educational circles, the Internet has facilitated the emergence of open access publishing of research, transforming the multi-billion dollar academic publishing industry and making millions of articles freely accessible to a global audience. The move toward open access means that global research is far more accessible to everyone: scientists, researchers, businesses, and the general public.

The three federal research-granting institutions, CIHR, NSERC, and SSHRC, have adopted open access mandates that require recipients of federal funding to make their published work available under open access. This helps foster greater collaboration between researchers and the business community, with improved access leading to commercialization opportunities that might otherwise be missed.

Further, openly available articles are already being incorporated into teaching materials, thereby replacing conventional textbooks and removing the need for copyright permissions and fees. As for government strategies, open access mandates should only be the beginning. Moving toward open trial data and open book publishing are the next steps in linking significant public funding to enhancing public access to their investment.

From an intellectual property legal barriers perspective, we should start by noting that Canada already meets or exceeds international standards on IP. A key concern, if we're looking to address it, is the abuse of IP rights that may inhibit innovation. The Canadian government could address the issue through an anti-IP abuse law.

There is no shortage of policy possibilities. We can talk about all three areas, but just to give patents as an example, countering patent trolls could include a prohibition against legal demands that are intentionally ambiguous or designed to induce a settlement without considering the merits of the claim. Other reforms could include requiring public disclosure of demand letters, reforming the Competition Act to give the Competition Bureau the power to target anti-competitive activity by patent trolls, and giving courts the power to issue injunctions to stop patent trolls from forum shopping.

● (0850)

There is also a need to address IP barriers that may limit the ability to take research from labs into the commercial world. For example, the federal government this year placed a big bet on becoming a world leader in artificial intelligence, AI, yet restrictive copyright rules may hamper the ability of companies and researchers to ultimately test and bring new AI services to market.

What does copyright have to do with AI? Making machines smart, whether engaging in automated translation, big data analytics, or new search capabilities, is dependent upon the data being fed into the system. Machines learn by scanning, reading, listening, or viewing human-created works. The better the input, the better the output. Copyright law crops up because restrictive rules may limit the datasets that can be used for machine learning purposes, resulting in fewer pictures to scan, videos to watch, or text to analyze.

Given the absence of a clear rule to permit machine learning in Canada, often called a text or data mining exception in copyright law, our legal framework trails behind other countries that have reduced the risks associated with using datasets in AI activities.

There are two ways to overcome the copyright AI barrier.

First, Canada could, and I would argue should, emulate the U.S. fair use model by making the current list of fair dealing purposes illustrative rather than exhaustive. The U.S. exception is open to any purpose, as striking a fair balance depends upon the use of the work, not the purpose of the copying. Since machine learning does not harm the primary purposes of the original work, most text and data mining will qualify as fair use.

Second, other countries have tried to address the issue by creating a specific exception for text and data mining or computer informational analysis. For example, Britain's exception allows copies of works to be made without permission of the copyright owner for the purposes of automated analytical techniques to analyze text and data for patterns, trends, and other information. We don't have a similar provision under Canadian copyright law, and as we seek to move from the lab into commercialization opportunities, that may inhibit the ability to do so.

I look forward to your questions.

● (0855)

**The Chair:** Thank you very much. That was right on time.

We're going to go to Colleges and Institutes Canada. I know that you have Niagara College with you as well, so we're going to split your 10 minutes. You get five minutes each.

**Ms. Christine Trauttmansdorff (Vice-President, Government Relations and Canadian Partnerships, Colleges and Institutes Canada):** Terrific. Thank you very much, Mr. Chair.

[*Translation*]

I am pleased to testify this morning on behalf of our large network of colleges, institutes, cegeps and polytechnics. The members of Colleges and Institutes Canada, CICan, serve 1.5 million learners from 3,000 urban, rural, and remote communities right across Canada.

[*English*]

We very much welcome the committee's study on IP and technology transfer and fully recognize the critical role our institutions can play in fostering and commercializing new innovations.

I'm pleased to be appearing today alongside Dr. Marc Nantel, who is from Niagara College in southern Ontario. I'm going to provide some general information about the policies and practices that are found in colleges and institutes across the country and then leave it to Marc to tell you about how it works in practice.

As all of you know, the research that's carried out in colleges and institutes is virtually all applied and partner-driven research. Companies turn to the expertise, facilities, and equipment that we offer to solve problems, create prototypes, develop products, implement new technology, and improve services and processes. Our members offer over 400 specialized research centres and labs, including 49 college centres for the transfer of technology in Quebec, known as CCTTs, and 30 technology access centres, or TACs, across the country.

Colleges and institutes pride themselves on being able to respond quickly to business needs, which is particularly important for the small and medium-sized enterprises they work with most often. The majority of projects are completed in less than one year, and many are done in less than six months.

According to our most recent survey, more than 6,300 private sector firms utilized the R and D services offered by colleges and institutes last year, of which 85% were SMEs and microenterprises. In 90% of these partnerships, the industry partner reserved exclusive IP and commercialization rights. In cases where the college did retain the IP, it was almost always made available to the partners at no cost.

In regard to technology transfer more generally, colleges and institutes see students as the most effective means of moving the results and know-how associated with applied research to the private sector. Last year, our members were able to engage about 3% of their students in applied research projects, giving them the chance to work directly with a partner and gain hands-on experience in solving a real-world problem, and giving employers access to their skills and experience with the latest equipment and techniques.

This represents a very small portion of the students who would benefit from this kind of opportunity and does not come close to meeting the industry demand. We were therefore pleased to see the government's commitment in the federal budget to creating new work-integrated learning opportunities for post-secondary students through research internships.

Many private sector partners choose to work with colleges and institutes because of the access it gives them to highly skilled students, and because of their industry-friendly IP policies. These IP policies are well aligned with the general principle that commercial exploitation of IP is best achieved by the private sector. We see our role as helping firms develop and exploit IP so they are better prepared to compete in the global marketplace.

Let me give you an example of how this has worked at the CCTT located at the Cégep de Trois-Rivières. The CEGEP hosts the Quebec Metallurgy Center, which specializes in metal processing. They were approached by an entrepreneur from the Gaspé region who saw opportunities in the growing Canadian market for windmill maintenance. The goal was to provide a higher-performing, lower-cost emergency brake pad for the thousands of windmills that now operate in Canada.

With the help of the CCTT, the company reverse-engineered conventional components from Europe and optimized the process for fabricating higher-performing brake pads. The company retained all the rights to exploit the intellectual property. They opened their pilot plant in Gaspé, hired six local people, and started production on a product that performs better than the European alternative at a much lower price point.

I'm going to close with another example that's rather fitting this week as we watch the Stanley Cup finals.

The British Columbia Institute of Technology worked with a Penticton-based entrepreneur to develop a hockey skate that tracks various aspects of a player's stride, timing, coordination, and balance. Within six months, they had a prototype that was leveraged to generate funding for the next phase. They are now getting ready for production, with brand new technology that will have a great impact on ice sports. BCIT's industry-friendly IP policies, along with their equipment, facilities, and expertise, make them an ideal partner for a company at this stage of the commercialization process.

Mr. Chair, in closing, I want to convey our strong commitment to working with this committee, the government, and our partners in universities, industry, and communities to leverage the full potential of our institutions to contribute to Canada's innovation agenda. I look forward to the discussion and am pleased to take questions.

Thanks.

● (0900)

**The Chair:** Thank you.

Mr. Nantel.

[*Translation*]

**Dr. Marc Nantel (Associate Vice President, Research and Innovation, Niagara College):** Thank you very much.

Hello. My name is Marc Nantel.

[*English*]

I am the associate vice-president of research and innovation at Niagara College. I've been in this position for six years. Before that, I spent 13 years plus at the Ontario Centres of Excellence in dealing with IP and programs and all that. I'm currently the chair of heads of applied research in Ontario, and I sit on the national research advisory committee with CICan, so I think I can represent broadly the applied research professionals in the context of the Canadian colleges system.

I greatly appreciate the opportunity to speak with you today on this issue. I read the briefings you received from the folks at ISED, Mr. Schaan and Ms. McDermott, which focused mostly on university technology transfer. Although I was an adjunct professor at U of T in physics for 10 years and have patents, and I know that side of the equation, today I'm talking mostly about tech transfer and knowledge transfer in the college system.

It's important to understand the difference between colleges and universities here. The research conducted in the colleges is mostly in response to industry needs, and the companies typically contribute to the projects one to one, in cash and in kind. Any time there's a dollar coming down from the government, there is a dollar coming from industry, so they're actually invested in it.

[*Translation*]

The applied research conducted at colleges is much closer to commercialization. We are not looking for a cure for cancer or for the Higg's boson. We try instead to create prototypes, new products, new processes, new services that businesses can offer their clients.

[*English*]

College faculties are not hired to conduct research, unlike the typical and maybe mythical 40-40-20 model at universities, where 40% is supposed to be professors doing research. They must released from their teaching in order to work on projects. This means that the ideas for the project are typically not from the faculty, they're from the company. We typically at research offices and colleges match the industry problem or aspiration with the best prof and best students to do the job. The pursuit of knowledge is not the main thing here, it's about solving a problem for industry.

These companies sometimes come to us for IP guidance and we do our best to help them. Of course, we don't have much of a technology transfer office. Colleges don't have the benefits of the indirect cost of research, or as it's called now “the research support fund”, which generally supports that type of activity, but we do our best.

A key differentiator between colleges and universities lies in how they handle intellectual property and tech transfer. As my colleague said, mostly the IP generated in colleges is given back to the company. Although universities might have two different models—sometimes inventor-owned, sometimes university-owned, and any mix of these—we have a third way, which is to give it to the industry mostly.

Our projects are closer to commercialization generally, so much of the initiation and motivation for the project comes from the company. The industry partner contributes significantly to the funding of the project in cash and in kind, so they're into it, and we want the commercialization to happen as soon and as painlessly as possible. Colleges usually have a clear economic development mandate in their region and they want that to happen as much as possible. We want industry to create wealth and jobs for our students. Often they hire the student who worked on the project with them, so that's great for us, and the colleges don't want to carry a large IP portfolio generally. We just don't have the money to pay for that and we just want to make sure that it gets out there and generates jobs and wealth.

[*Translation*]

We try to eliminate as many barriers as possible between us and the commercialization of the product. Our ultimate objective is economic development.

● (0905)

[*English*]

We consider that it's essentially not the job of the college to do the commercialization. It's not the government's job. It's not the university's or the college's job. It's the company's job, and I think that they're the best people to do that. Government and post-secondary institutions can reduce barriers, de-risk, co-fund, serve as the research arm of the company, but in the end I still think that it's the company's job to actually take the IP and commercialize the thing. They are where the rubber hits the road.

One example—I have 457—is a machine shop in Niagara that mostly dealt with automotive and has now actually entered the racking industry for wineries, breweries and other beverage companies. They came to us and said, “we want to explore what we can do”. We did both the commercialization and the market study for them to make sure it was indeed a good idea economically. Then, of course, with our advanced manufacturing research we helped them design, build, prototype, test, do everything including stress tests for the metal in the structure. Now they're selling these across the province and are looking at B.C.

Another example is MADD Virgin Drinks. Mothers Against Drunk Driving have their brand on a bunch of products. They're non-alcoholic. They wanted a good-tasting lager that was non-alcoholic and these people came to us. With our brewery at Niagara College, we designed a beer, from an expert panel telling us what a lager should taste like, to brewing it, to magically making sure there's no alcohol in it—that's where the IP is—to having consumer tests. Now this beer is on the market across Walgreens in the United States, Shoppers Drug Marts in Canada, in thousands of outlets, and generating income and job creation for that company.

The examples are all over there, whether it's gluten-free pasta for Gabriella's Kitchen, red apple cider for Reinhart Foods, which is now available in LCBO—go and buy some—duck sausages for Black Angus Meats in Costco and food services everywhere. There's a HACCP food plant, a food safety plant, for Vij's at Home, the celebrity chef, who can now sell across Canada because we made their food plant safer. They didn't have that until we got there. Ten-tonne aluminum cranes, baseboard humidifiers.... There are a lot of different things, but they're mostly things and services that are ready to commercialize.

I'm asking that you consider the college model as you go through this study. You'll hear a lot about university IP and how universities handle IP. Please consider how we handle IP, too, because I think we have a different way that sometimes, because of how we work, actually works for us. There are both strengths and weaknesses in both types of models.

I thank you very much for the opportunity to be here today and I look forward to your questions.

**The Chair:** Thank you very much.

I would have thought you would have brought some samples of food with you.

**Dr. Marc Nantel:** I don't know if it would have gone through security.

**The Chair:** Mr. Bindra, for five minutes please.

**Mr. Jaipreet Bindra (Manager, Ernst & Young, As an Individual):** Good morning.

Thank you for giving me the opportunity to present here.

I come from a different background from the rest of my peers because I've worked in technology consulting for a number of years. In fact, sitting right here is the person who trained me initially. After that, I worked in technology commercialization with one of the largest networks in southern Ontario.

About a decade ago there was a mindset of putting consortiums together for technology commercialization. There was an advantage to those, because they allowed the pooling of resources across some of these universities and colleges that have limited resources, and they facilitated contact between colleges and universities.

The limitation was the lack of compatibility. There were bottlenecks because each of these institutions had 50- or 60-year-old policies that they were trying to change. Industry, especially looking at Ontario where there are primarily small and medium-sized enterprises, doesn't have that kind of bandwidth to wait for the universities and colleges to go ahead with pooling all the agreements.

The second thing is that some of the institutions have inventor-owned and others institution-owned policies. I've worked with both of those, inventor as well as institution. Where it's inventor-owned, they have more of an entrepreneurship mindset, because they go and talk with venture capitalists to see how a framework can be put together to test that initial prototype.

I've travelled across the world, in the U.S. as well as doing commercialization work in India, Southeast Asia, Singapore, and China. In Canada we can have the best technology, but our market is limited. We are great people, but we are only 30 million. Countries like India and Singapore have a lot in common with the Canadian system because the legal systems are based on British common law, so the ease of doing business is really there.

I have some successful examples where Canadian technologies have been commercialized in joint partnerships with companies in China and India. That's a good model to look at, where there are economies of scale due to the size of their population but they don't have that initial IP that's being developed at colleges and universities in Canada.

The other thing is that one needs specific milestones, because the researchers have a mindset of having that fund available, whether it's from the Tri-Council or an industry partner. After that, they fall through in terms of the specific milestones that should be met to get that initial product to market.

I've done several projects with institutions in the U.S. It's interesting because in Canada, researchers mostly get paid for the whole 12 months, whereas in a number of institutions in the U.S., academic researchers are paid for eight months. For four months they are forced to think outside the box and see how they can come up with more ideas. There is closer collaboration with industry over there. That may be another model one can explore here.

It's interesting, because in all the years that I was in technology commercialization, one technology that was developed by a group of mechanical engineers was for curling. There had been no innovation in that industry for over 20 years. Curling is a sport that is very popular across Canada. They came up with a new design for a broom. We worked out the business model, and there are over a million curlers across Canada. Each of these brooms is sold for anywhere between $30 and $35, so it's an annual recurring market of $30 million.

There are a number of these small technologies, especially coming from some of the colleges, but what is required is an incentive for industry. NSERC has a program called Idea to Innovation, but it's significantly underutilized because that program and Tri-Council are two silos that don't talk to each other.

Thank you.

● (0910)

**The Chair:** Thank you very much. Before we go on, I want to take a moment and thank the witnesses. You were called in on very short notice. We appreciate that you took the time to put together interesting presentations in such a short period of time. Thank you very much.

We'll move to Mr. Sheehan. You have seven minutes.

**Mr. Terry Sheehan (Sault Ste. Marie, Lib.):** Thank you. I'll be sharing my time with Lloyd.

Thank you very much for the presentation. It was very, very informative. No, I did not train Bindra, but I do curl. Before this life, I worked for the Ministry of Training, Colleges and Universities - Ontario and I worked with the colleges' community development officers, so I know the importance they play.

In Sault Ste. Marie, we have Sault College and Algoma University. We have a number of Ph.D.s. We have a number of research centres related to forestry, invasive species, and the Great Lakes. Per capita, we have some of the most. We have incubators. We have a number of things in place, a sort of microcosm of the country.

I've been talking with the universities and colleges about how we can improve taking the tech transfer to market, and commercializing. Taking Sault Ste. Marie as an example, what are some of the challenges that have been present in the country over the last while? Over the last five or 10 years, have they gotten better or worse? Perhaps also compare our processes to those in the United States. We're a border town, so we're always looking across the river.

I'll start in order of the presentations. Michael first and then everybody else can have a chance.

● (0915)

**Dr. Michael Geist:** I can start by saying that there clearly has been, over the last number of years, an increased emphasis in this area. Certainly, I feel it on my own campus at the University of Ottawa, and we see it through incubators that exist in a number of communities across the country or on individual campuses. I also think that we have recognized over time the need for real investment on the research side, and at times there has been increased focus on where some of those dollars are going, as well as an emphasis on the commercialization piece.

To bring back the cross-border issue that you referenced, I saw that during the last hearing there was some discussion about people often looking.... Bayh-Dole seems to be a model, and we just heard examples in the United States. I hadn't heard of the idea of eight and four, although the idea of not getting paid for four months sends a bit of a shiver down my spine. I also would suggest that it runs counter to the model that many have, at least on university campuses, where much of those eight months is dedicated to teaching and interaction with students, and much of the research takes place over that four-month period. The idea that we should shift away from that model where we have people having the time to do that is a bit concerning.

What we've seen in the United States, especially under Bayh-Dole, is that there are a couple of winners where at times universities have hit the golden ticket: Stanford and Google are always used as a classic example. The reality is that many universities haven't generated significant revenues out of this. We have hits and misses in Canada as well. All of this comes back to the point that I thought was fairly consistent from a number of panellists, that if we are looking solely at commercialization coming out of universities and colleges, we're looking in the wrong place. It's businesses that do this well. This can happen, as you've heard, by transferring this in students; by specific projects; through open access, OA; and through ensuring that we remove some of the IP impediments that I tried to highlight.

**Mr. Terry Sheehan:** I'll let Lloyd pick up from here, because I'm sharing my time, then you'll all have a chance to answer.

**Mr. Lloyd Longfield (Guelph, Lib.):** Thanks, Terry.

Thanks for great presentations. They give us a very good foundation for our study, because we are looking at the three levels of tech transfer through universities, colleges, and directly with businesses.

I want to pick up with Mr. Nantel in terms of our cluster strategy, where we're looking at some key sectors where IP will be stronger in some sectors than others, more opportunity in some sectors than others. In the area of precision agriculture, I know, Niagara College is working with the University of Guelph. It's also working with the Vineland research centre. I've seen machines developed in mushroom picking at Vineland, where you're using growing technology, picking technology, and smart machine technology.

Could you comment on how you work with the university and with business, and what role does the college play in that?

**Dr. Marc Nantel:** Interestingly, on the mushroom picking one, Vineland needed to have their machine learn how to pick the mushrooms, so we 3-D printed a bunch of mushrooms for them in plastic of different sizes and also different types of suction cups. For example, that's very close to material. We do that type of stuff, but it had to be figured out, simulated, and tested.

There is always a good way to work. People want to work with each other, that's clear, but we each have different ways or different parts of the problem we address. If I work with the University of Guelph on precision agriculture on wheat or corn, the professor at that university will want to look into the genomics of corn and how to make a better strain of corn. The professor will sequence all this, figure it out, and do big data, whereas the chair in precision agriculture at the college, funded by NSERC, will ask how can we make sure the company, the farmer, gets more out of the ground for less money put in—less fertilizer, fewer seeds. Farmers are business operators. If they figured out that they could make more money growing rocks, we'd be in trouble.

Part of what we do is to make sure the company can take the intellectual property and make money and create jobs from it.

**Mr. Lloyd Longfield:** Ernst & Young is making a bridge between.... How does business grab the strengths from colleges or universities, and what role can our policy play in helping that along?

**Mr. Jaipreet Bindra:** I am part of the technology incentives group within EY. A number of funding programs are out there, but companies are very unfamiliar with them. They are more involved with product development, so we have strategic discussions with them. We look at whether there is a technology that can fit into what they are developing and help increase their productivity or efficiency. I worked in technology commercialization, and I know a number of people in that field.

● (0920)

**Mr. Lloyd Longfield:** Thank you very much.

**The Chair:** Thank you very much.

We're going to move to Mr. Dreeshen. You have seven minutes.

**Mr. Earl Dreeshen (Red Deer—Mountain View, CPC):** Thank you very much, Mr. Chair.

Thanks to all our witnesses. For full disclosure, I was a math and physics teacher, but I also didn't work with Mr. Bindra. So we'll work our way down the line on that.

In my riding I have Red Deer College and Olds College. They do some amazing work with our local industry and then engage globally. These are critical things that are required, and each of us can tell fantastic stories about the great institutions we have.

There's a discussion on the agriculture side of things. Mr. Nantel, you brought it up, and Lloyd talked about it as well, You described your gluten-free pasta, and so on. We started looking at things that are market driven, not necessarily health driven. As we are aware, only 0.7% of the population has a problem with gluten, and if you can increase it to 3% or 4% for that market share, unfortunately, you're getting 2.3% of the population that isn't getting the benefit from gluten, which is what their body needs.

Not only do you have IT groups, but you also have marketing groups as well that tie into this. I think it's important. The reason I mention that is that we have the same issue on GMOs and so many other things where, exactly as you said, you can design, have the plants that can reduce the amount of chemical that you require, the precision agriculture that is needed, so you are using less energy and fewer pesticides, but that never gets through because other forces continue to speak to that. That was my soapbox. I appreciate that opportunity.

One of the key things we're looking at is how we find ways for the private sector to work with academic institutions. I'm looking at a report that we got from the Association of University Technology Managers. They looked at ideas like ease of contracting, the ownership of arising IP and the confidentiality associated with that. Are these issues that the colleges and universities discuss, and do you have some way of going forward with those types of programs?

**Dr. Marc Nantel:** Essentially, whenever a company comes to us we discuss with them their aspirations, their problem for that particular project. We make the scope of the project, but also we make sure that up front they know what their contribution is going to be to the project, in cash and in kind, and also what's going to happen to the intellectual property, from the beginning.

Most of the time—99% of the time—we know that it's going to go straight to the company, that we're not going to own it. The company knows that from the beginning, which also means that they're involving themselves more in the project.

We also don't take every project, because some of them suck.

**Some hon. members:** Oh, oh!

**Dr. Marc Nantel:** We are the stewards of the taxpayers' money through NSERC or provincial funding, so we don't take every project. Some of them are just stupid. We just want to make the good ones, those that will actually have a chance for, in our particular case, good training, good intellectual property, good economic development.

We make sure the company knows. They sign a whole slew of papers, including media releases. The students sign non-disclosure agreements and all this from the beginning, so they know what's going to happen to the IP before the project is even started.

**Mr. Earl Dreeshen:** Thank you.

Mr. Geist, I remember now where we have spoken before.

Privacy and open data is a critical part. One thing we look at—and that as an educator I understand—is the need to have material and information that can be readily given to students. I also have many people coming to talk about guaranteeing that their copyright and everything else is going to be assured.

One thing we heard when we were down in the U.S. had to do with patent trolls. You were the one who spoke of that issue and gave us some ideas as to how we can manage it, but I'm not sure everyone understands the significance of it in a Canadian context. Could you perhaps expand on that and give us some sort of insight as to what we should be preparing for, if that is to continue?

● (0925)

**Dr. Michael Geist:** I would just start by noting that I think everybody agrees that respect for copyright in educational institutions and respect for the creators is important. One really nice thing about open access, especially in many disciplines in which virtually everything now is published as open access, is that the author has given permission to use these works. We're not talking about it. Part of the frustration, I think, from within the educational community is that you have some groups demanding payment, in a sense, for works that the authors themselves have said effectively ought to be made available. Of course, the public has also paid for and funded them.

The issue of patent trolls is a significant issue for many businesses, certainly in the United States, but elsewhere as well. The reference is by and large to entities that scoop up patents. They are not themselves, in many instances, the inventor or the creator or the innovator; they are simply trying to acquire some of that innovation, that patent, and then use it in an aggressive manner, often to try to exact from various parties licensing terms or other sorts of payments.

If our goal within the patent system is to try to incentivize new kinds of innovation, patent trolls aren't doing that. They're not creating anything new; they are simply using the legal system, in a sense, to try to capture as much revenue as they can without any of that creativity.

We've seen in the United States, where patent awards are so large, that the threat from patent trolls is significant. There are real concerns that the same kind of thing can move up here. Of course, Canadian businesses operating in the United States have faced precisely this. Research in Motion is the classic example in the Canadian context. It faced this to the tune of hundreds of millions of dollars.

We haven't done much to try to address concerns about misuse or abuse of intellectual property in Canada. There are copyright elements here, there are trademark elements, and there are also patent elements. In my early remarks, I tried to touch on a number of different kinds of things that we could do that would seek to dissuade patent trolls from operating here in Canada. I know there have been some discussions already within the government around the necessity for this.

As we think about both an IP strategy and a copyright reform strategy, I think we ought to be mindful of some of the things the Supreme Court of Canada has said about the need for balance concerning intellectual property; that at times it may just as much mean ensuring that there is not misuse or abuse of that intellectual property as ensuring that people have the effective tools and rights that they need.

**Mr. Earl Dreeshen:** You spoke of the Competition Act.

Am I out of time?

**The Chair:** Yes, I'm sorry. We're going to move to Mr. Masse.

You have seven minutes.

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

I'll continue with that as well, because this is one of the concerns that I have.

I recently had an experience in which a small business T-shirt maker was being sued by Duke University for the letter “D” variation they have on a T-shirt for the Detroit Tigers. It's a home business, and I'm sure he's making some money from this, but a variation of the letter “D” is now something he's in the court process defending. He feels that he's going to be successful, but Duke University, if anyone knows their alumni association as well, is set to be able to go to court at any time.

There is a case in which the “notice and notice” issue is emerging, and as well in a court case that will be going on, I guess, if Rogers has to decide whether they appeal.

Can you highlight for the committee and for the general public what's going on with that and what the minister could do to eliminate patent trolling in that aspect?

**Dr. Michael Geist:** That highlights another area of IP abuse, in this case really copyright abuse. As many of you may remember, the 2012 copyright reforms, which will be the subject of much discussion with the copyright review that starts later this year, included a fairly innovative approach known as “notice and notice” in terms of trying to find a mechanism to ensure that rights holders had a mechanism to address allegations of infringement online while at the same time trying to safeguard the privacy and free speech interests of Internet users, trying to find a way to balance. While in places like the United States we've seen a takedown system that is often referred to as a “shoot first and aim later” approach, where often legitimate content is taken down without any court oversight, our approach instead involves Internet service providers like Rogers and Bell and others. Rights holders who believe their copyright has been infringed can send a notification to the ISP, who is obligated to forward that notification along to their subscriber, but not to disclose the identity of the subscriber.

Two things have emerged in the last number of years since that took place that have been problematic. One, people are using that system to send demand notices to settle. That's something that was never envisioned. What it means is that you get literally thousands, in some instances hundreds of thousands, of Canadians who receive notifications, don't know much about copyright, get immediately really scared about the notice, and pay when there is no obligation to do so.

The system was never designed...or it was not even thought that it would function in this fashion. Part of the problem was that the then government, the Conservative government, was supposed to introduce regulations as part of this. Those regulations never came. We simply put the law into place.

There is an easy fix. It's the regulations that are missing that would preclude or prohibit the ability to include those kinds of settlement demands in the notices. That was never really envisioned as part of the system.

The other problem that's come up, which you highlighted in the Rogers case, is that we've started to see, in a sense, IP trolls try to identify the individuals themselves, and using the court system, in a sense, to try to force ISPs to disclose the identity of their subscribers. They are doing this en masse, affecting thousands of people. Again, it's something that I don't think was ever envisioned. Indeed, in the off-loading of this, what it means is that there are major costs that are ultimately now being borne by subscribers themselves, because the ISPs are being forced to bear this, and they are undoubtedly passing it along to their customers.

● (0930)

**Mr. Brian Masse:** The connection to what I'm worried about is with the legitimate new copyrights emerging and then, similar to the customs revenue agency, we as MPs have seen offshore companies even use that brand to shake down Canadians because they get scared about basically being sued by the real thing. It's to the point where in my community and in many others—I work with the police on this—people actually go out in the middle of the night to buy credit cards for people who are shaking them down as part of the settlement. That's how intricate the system is. CRA has a whole fraud division related to this.

I'm worried about it going to the next level with this type of thing. There are legitimate companies—well, “legitimate” being companies who use it under the law, and some would say “under” the law.

Mr. Chair, how much time do I have left?

**The Chair:** You have two and a half minutes.

**Mr. Brian Masse:** Okay.

I want to move on to another topic. I worry about some of the research we have on subsidization. Subsidization comes from not just the taxpayers helping a student get to university or college. Some will never afford that opportunity. The gate is right there at the get-go. There's a gate for those who can't afford it. Then there's a potential gate, if you have projects that have a corporate sponsor or research geared to that, where they would have more access to service and distribution networks.

Mr. Nantel, you described certain ideas that you find stupid and so forth. There's a gate there as well.

I guess what I worry about in research and innovation, not only with regard to things for the market, is the loss in pure science, and also in this science, of the ability to fail. That's actually led to some of the greatest innovations of humankind, everything from solving diseases to giving us French fries and potato chips and other things. I worry about that in all of this.

I'm sorry I took so much time. I'll turn it over now to Mr. Nantel and then quickly across.

**Dr. Marc Nantel:** We're perfectly happy to fail.

**Voices:** Oh, oh!

**Dr. Marc Nantel:** The thing is that it's more the potential of the idea that we evaluate. If it succeeds, will it have a chance to create jobs, good economic development, good training for the students? In some projects, we try our best and they don't actually achieve the desired output. That's cool. It means we're trying hard enough. If we never fail, we're not trying hard enough. We're not being innovative enough.

When I was being a bit candid and saying that sometimes we don't do a project because it's—

**Mr. Brian Masse:** It was funny, I mean—

**Dr. Marc Nantel:** We look at the potential of that project, should it be successful. Sometimes the potential is really tantalizing, but it's a riskier project and sometimes they don't work.

**Ms. Christine Trauttmansdorff:** I might just add to this that the footprint of the applied research that's going on in colleges is a very small portion of the overall investment that Canadians make in research. The investment on fundamental research is in the order of between $2 billion and $3 billion a year in post-secondary. We have something in the order of $50 million or $75 million of that coming into the college system, so we don't feel as though rejecting a project is putting that entire system at risk.

● (0935)

**The Chair:** Thank you very much.

Mr. Jowhari, you have seven minutes.

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

Welcome to all the presenters. It's great to see all of you for the first time. I guess that answers the question, Mr. Bindra.

We talked about IP and tech transfer probably using a relatively new terminology and knowledge transfer within the domestic context. I would like to take it to the international context. I'd like to start with Professor Geist.

Internationally, do you think we have a balance when it comes to technology transfer?

**Dr. Michael Geist:** I'm not sure what you mean by—

**Mr. Majid Jowhari:** Do we have a balance or an imbalance in IP and tech transfer internationally?

**Dr. Michael Geist:** Do you mean Canada, as compared internationally?

**Mr. Majid Jowhari:** Yes.

**Dr. Michael Geist:** I think we have success stories, but I think there are lessons to be learned from other countries as well.

As an example, I'm just back from Israel where I teach a course between my University of Ottawa and the University of Haifa. Its focus is on global technology policy. One of the focal points was talking a lot about cyber and cybersecurity there. As you probably know, Israel has been an incubator for some of the leading technologies and some of the leading companies.

One of the things that was most interesting about it was that we met with a number of councils and a number of companies focused on this. Much of the technology and the cutting-edge IP comes out of the military, unsurprisingly, and the people who are doing this are kids who are coming out of the military. There is a particular unit focused on some of these cyber issues and they quickly move from the military into developing some of these companies that are now world leaders, in many instances.

The question came up, “Well, what does the military do about the intellectual property?” The answer was nothing. What it wants to do is to ensure that this gets out. They actually believe that the development of companies in the private sector and better technologies will also help from a security perspective, not just those companies, but it will help society more broadly. There is an interest in ensuring that happens.

My point here is that, in some ways, the military functions much like our educational institutions, or like universities and colleges ought to function. The focus is not on how we hoard our IP or commercialize our IP. It is rather on how we do our best to transfer that knowledge, so that there are broader benefits. That can come from a number of different ways. If our primary metric is patents, licences, or revenue, coming back to these institutions, then we're measuring the wrong thing.

**Mr. Majid Jowhari:** I'm going to go back to an article that you had published. I'm going to refer to your website.

You had indicated that Canada is a net importer of IP and has a net loss, as it concerns domestic technology transfer. What do you think we should do, as a country, to make sure that we change that trend?

**Dr. Michael Geist:** I don't recall the particular post. I write a lot of posts.

It may well have come within the context of copyright, to bring back Mr. Masse's point around some of the copyright issues.

**Mr. Majid Jowhari:** It came in the context of trade, which leads me to the next question.

**Dr. Michael Geist:** A lot of the trade and a lot of the IP where the imbalance comes from, from a Canadian perspective.... There are really two sources. One is on the copyright side and that can be attributed to things like Hollywood movies and stuff like that. On that front, my argument, and I believe many would agree, is that we need to continue to ensure that Canadian copyright policies reflect Canadian national interests. Notice and notice is an example of how we say that we need to ensure that Canadian rules best apply in this context.

The other challenge we face, and people like Jim Balsillie have focused a lot on this, is that many of the largest technology companies in the country are branches of foreign players. When we start taking a look at the numbers, part of this stems from the fact that some of the biggest players are really U.S. players or international players that have Canadian branches here. We do some really innovative stuff here, but ultimately, when you take a look at where some of that transfer is taking place, we become a net importer rather than an exporter.

**Mr. Majid Jowhari:** As a bit of a preface, I believe there are international IP provisions that some nations adhere to that are simply not in Canada's best interest to adopt.

Do you think that other countries impose IP protection regimes in Canada that they themselves do not permit in their own jurisdiction? I'd like to talk about some of the changes coming in CETA, and potentially the TPP. I'd like to know your point of view on that.

**Dr. Michael Geist:** As you may know, I've been critical of the provisions in the trans-Pacific partnership around copyright and of some of the patent provisions that we see in CETA. Part of it stems from the fact that the bargain we've been sold in some of these areas simply hasn't sorted out.

Take pharmaceuticals: almost two decades ago, Canada instituted changes in our patent rules to increase our level of patent protection in return for clear commitment in terms the amount of R and D that the large pharmaceutical companies would be making in Canada to try to address some of the imbalance that you just highlighted. That hasn't happened. In fact, the amount of R and D taking place in Canada has steadily declined.

Despite that fact, through CETA we are actually extending the amount of patent protection that we grant to pharmaceutical companies. As part of the TPP, if the TPP gets revived on the issue of biologics, next-generation pharmaceuticals, in many instances we're locking into levels of protection that will have significant impacts on health care costs and really not serve the national interest in the way that we ought to when it comes to IP policy.

That's not to say that we need to ignore international standards. I started some of my comments by noting that Canada meets its international standards. However, we are often the target of intense lobbying campaigns from some of our largest trading partners who see their national interests, and in a sense, try to take their rules and off-load them into Canada.

We need to remain strong. We need to remain strong in representing that Canadian interest, both when we engage in domestic policies, which I would argue will happen as part of the copyright review later this year, and when it comes to some of the international trade negotiations, notably the NAFTA renegotiation that's scheduled to restart, where it's very clear that some of the same kinds of provisions that we saw within the TPP will resurface within those NAFTA talks.

● (0940)

**Mr. Majid Jowhari:** Great. Thank you.

**The Chair:** We're going to move to Mr. Lobb, for five minutes, please.

**Mr. Ben Lobb (Huron—Bruce, CPC):** Thanks for being here on short notice.

With the transfer, whether it's an idea that started at a university, or wherever, in partnership with a business to try to commercialize it, or whether it's a business that has worked with a university and comes up with a great idea or a new twist to their technology and takes it to market, obviously there is some of that taking place in this country. Some of it is a huge success.

My question to you, though, is one that I've brought up at other committee meetings. Once the little company that has a great idea with the university just gets it off the ground and has 10 or 15 employees and has made a couple of sales to the United States, bang, here comes a patent lawsuit in the United States and Texas. What can we do here? Is it through NAFTA that we need to do something in our renegotiations to be firm in order to do this?

**Dr. Michael Geist:** That's a terrific point. It's one that Balsillie has made quite frequently as well.

It points to the fact that, with all respect, the trade negotiations around intellectual property in Canada have been almost entirely defensive. It comes back to the question we had earlier. It has been all about trying to fend off, in a sense, some of the pressures we faced from other jurisdictions. It's primarily from the United States, and of course, within the CETA context, from the Europeans.

I think it's worth noting that some of our other trade deals, with South Korea, for example, haven't featured some of those same kinds of pressures. Those are countries that recognize that Canada meets its international standards, and they are content to allow countries to sort out their rules in an appropriate fashion.

One of the things we haven't done but I believe we ought to be doing is to be more aggressive about representing those Canadian interests in the trade negotiations. Balsillie has talked specifically about this. The patent troll use, particularly out of the Texas courts, the eastern district, which represents an enormous risks for all businesses, obviously including Canadian ones, is something that we ought to address, because the use of the patent system as sword out of the United States represents a significant threat from a Canadian perspective.

It's not even just patents. I'll give you an example. There was a Burlington-based company, called Skylink, that made a universal garage door opener. People have multiple garage doors that are sometimes made by different companies. The idea was for a universal remote. They were sued in multiple U.S. courts on the basis of copyright infringement, citing the digital lock rules, the anti-circumvention rules that we implemented in 2012.

If you're a small company that's taken before the U.S. international trade tribunal on multiple levels, as well as the U.S. courts, that's a cost that you can barely afford. Therefore, one of the things we need to be cognizant of is the use of that as a very aggressive sword, particularly out of the United States, which tends to be more litigious in the IP area; in a sense, an opportunity to either shut down the Canadian business or force it to sell out for pennies on the dollar because it can't afford the litigation.

● (0945)

**Mr. Ben Lobb:** To me, this is the non-starter in negotiations.

My former employer, Desire2Learn, which I believe is your LMS at Ottawa U, was sued by Blackboard in Lufkin, Texas. I was working there at the time they were sued.

The system is so flawed because you're appearing in front of a jury of regular, everyday Texans, at a time when they look at it as a Canadian company stealing American jobs, in high-tech language with high-tech terminology—some high, some low.

They were sued for infringing on the word “user”. When you have to go and spend millions of dollars that you're trying to spend to build your company on lawsuits in Texas, it is not at all a system to make the world a better place, or in this case, to make education a better place.

I hope that through our negotiations... but how do you get through the court system in the U.S.? Is there a way to get through that in NAFTA?

**Dr. Michael Geist:** I think there are a number of ways you can try to address it.

I agree with you; the problem in Texas is enormous. It's the reason you have companies like Samsung sponsoring and paying for hockey rinks in Texas, quite literally, in that eastern district. They appear so often before those courts that they want the potential jury pool to be familiar with and think nicely of a company like Samsung. Small Canadian companies simply aren't about to do that, so there's an enormous disadvantage.

I think there are things we can take a look at, both in terms of the enforceability of judgments here, but also how this represents a trade barrier.

The U.S. is fond of identifying areas they describe as trade barriers from the Canadian perspective, and then pressuring Canadian politicians and policy-makers to make adjustments. We see it in the copyright area.

Mr. Dreeshen earlier mentioned references to publishing and copyright. The reality is that Canadian institutions are spending millions of dollars, still today, on access to various licensing materials, often through intermediaries.

One of the things we ought to note is that the U.S. is even more flexible than the Canadian system, and yet they're pressuring us and claiming that somehow this is a trade barrier.

Perhaps when Canada comes to the table, it ought to be not just about preserving what we have and identifying areas that get a lot of attention, like softwood lumber and the like, in terms of trying to sort out those issues. If we truly believe that IP really is going to be one of the core engines of our economy in the future, we have to ensure that this agreement reflects our national IP interests as well.

**The Chair:** Thank you.

We're going to move to Mr. Baylis. You have five minutes.

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

I would like to explore the discussion that was brought up quite nicely by Mr. Nantel, that colleges are about solving a problem for industry, whereas universities are about the pursuit of knowledge. I would agree with that. I'm looking for ways they might be able to come together. Jaipreet, whom I did have the pleasure of working with in a previous life, touched on that as well.

Maybe we can start with you. You said that you had seen attempts to do that with clusters and that it didn't quite work. Maybe you could explain what didn't work, and if you have ideas of what might actually work to bridge that, where colleges can do their job of bringing technology and working with industry, and universities can do their pursuit of knowledge, their more purist pursuit. Is there a way we can make that flow?

**Mr. Jaipreet Bindra:** I worked with Marc with the Ontario Centres of Excellence. Traditionally—and Marc can correct me—they used to have more funding and collaboration with the universities, but now it's increasingly with the colleges as well. I think one thing is to look at where there is collaboration.

I think a small industry can be a good collaborator with that university and the college, because there might be some interesting IP that's been developed at the university, but the company might not have those in-house resources to prototype it and test it. That's where a college can do that well. I've done degrees at universities, and I've done courses at colleges as well. They're more hands-on, so that can reduce the time to market. That would be one way.

I think in a lot of places it is possible. Geographically, they are mostly fairly close to one another, in most major cities. That could be one way to look at it.

[*Translation*]

**Mr. Frank Baylis:** Could you elaborate on that, Mr. Nantel?

**Dr. Marc Nantel:** Yes. It is usually people who work together rather that institutions working together.

● (0950)

[*English*]

Most of the time it's this researcher who knows he or she wants to solve this problem or create new knowledge and then needs the other person at the other place.

I'm not a big fan of shotgun weddings as it sometimes happens that funding agencies want to force this, but having the availability of working together is great. An example of that is with FedDev Ontario, our regional economic development agency in southwest Ontario. We had a project from Niagara College, Sheridan College, and Mohawk College called SONAMI, the Southern Ontario Network for Advanced Manufacturing Innovation. We were putting ourselves up for FedDev, saying we were going to help SMEs in advanced manufacturing and all these technologies.

The folks at McMaster University also had a proposal in front of them and in the end they came to me and said, Marc, we really like some of what McMaster is putting forward, but not all of it, so could you take that bit and make it part of your project and then we'll fund you—it wasn't said quite like that—and it was great. We've had a great collaboration with McMaster University on advanced manufacturing, and these things happen all the time. Universities do come to us and we do go to them.

If I can be candid, often universities don't necessarily know what colleges can do, so they don't automatically have as a reflex, I need this done, where am I going to get it? I'll go to a college.

**Mr. Frank Baylis:** Maybe moving on to you, Christine, you talked about the TAC. Could you elaborate on this? Would that be an opportunity where we could somehow bring, as Jaipreet said, geographically close universities and colleges together through the TAC? Is that an opportunity?

**Ms. Christine Trauttmansdorff:** I think they offer a terrific opportunity. In general, any applied research centre in a college or a polytechnic across the country has that potential. As you pointed out, geographically, they're co-located. People move around constantly.

Marc is a good example of where his career trajectory has taken him. We see that all the time, people who have moved in and out of the system, know a lot of people, have worked in the private sector, and when they look for a solution to a problem they look to the people they know and they bring it together.

Sometimes the funding structures and the way that our system is set up doesn't allow those things to happen as naturally and organically as we would like.

**Mr. Frank Baylis:** You would look to facilitate that and maybe use it in colleges and universities?

**Ms. Christine Trauttmansdorff:** I think the cluster competition is going to be a really interesting experiment in how this unfolds. We're seeing a lot of our members—and I think Marc is an example—being involved in these discussions already.

**Mr. Frank Baylis:** Do you look at mini clusters, if I could say, like that concept?

**Ms. Christine Trauttmansdorff:** Because colleges are naturally responsive to what the local economy needs, they're not making it up themselves and then going out to pitch it. They're working with the employers and the industry in the region and responding. It's only going to be a natural outcome of this that they're going to be working in the areas of strength of that region. So they're very well prepared in many cases to contribute to the cluster competition discussions.

Who knows that they're there and what they're doing? Small business know they're there and what they're doing. Sometimes the universities and the really big anchor firms may not be as aware, because it's through their supply chain that the colleges are working.

**The Chair:** Thank you.

We're going to move to Mr. Nuttall.

**Mr. Alexander Nuttall (Barrie—Springwater—Oro-Medonte, CPC):** Thank you, Mr. Chair, and thank you to our guests for joining us today.

One of the questions I've had is about—and I'm going to bring in some government policy changes in the budget that tie into this—a $800-million fund that is specifically for clusters and innovation centres and it appears at this point it's going to be in a major urban centre. I don't need to go through what those are, you guys know what those are.

I'm in an interesting riding. It's in Barrie, Ontario, and we have Georgian College, Lakehead University, York, University of Michigan, I believe, and one New York university there as well. We've been struggling because we do not have a centre for innovation where the goal is to build clusters and to work with local industry to expand, but some of this has happened by itself. We have a lot of data centres, etc., coming to town.

My question relates back to the item that's on the floor that while it might be easy for these types of clusters to expand in major urban centres, there's a gap in our mid-tier cities. How do we take somebody who's come up with a piece of software or an innovation in a place like Barrie and actually help them approach the point of commercialization and help them get to a point where they're going to be successful? There have been some successes locally, but it takes years compared to what should take months in a major urban centre.

● (0955)

**Dr. Marc Nantel:** I can speak to Ontario. There are regional innovation centres are across the province in every region. It's a good place for a start-up, a new company, or even a company that has a new product line to go and find help, either market intelligence or connection to funding, venture capital angels, or just connections to other parts of the supply chain. One of the recommendations I would give to a person with a new product is to connect through their regional innovation centre. In other provinces, there might have other similar types of means.

I feel your pain to a certain degree because Niagara is a little bit over there, right? It is Hamilton that's blocking the way and all that. It's harder, but in the end it's a question of does the region...? You can have clusters within regions. You don't necessarily have to have superclusters. In Barrie, there's a cluster of something that's going on, essentially. In Niagara, manufacturing is a big thing. Of course, agrifood is a big thing. They self-organize as businesses, and we, Brock University, and Niagara College, as the only two post-secondary institutions in the region, tend to help lubricate this, if you want.

I hope the supercluster thing takes into consideration regional, not just big city, contributions to the whole enterprise because you have a lot of great worth in the regions.

**Ms. Christine Trauttmansdorff:** I could just make a quick addition to that. Mr. Baylis mentioned the technology access centres, the TACs across the country. They are networked through a group that helps to support exchange of best practices and whatnot, but increasingly a network like that is going to be able to have.... Marc has two of the TACs at Niagara College. He's part of that network group. They can pass work back and forth to one another if there's another TAC somewhere that can do a job more easily or respond to a cluster.

Clusters are going to be largely local, urban, and regional, but you can reach into a lot of the smaller centres for a particular type of expertise that might not be available in that major centre.

**Dr. Michael Geist:** If I could have 30 seconds, I'll note that not every place can be a cluster. One of the reasons I tried to emphasize the issue of knowledge transfer is to recognize that the way we grow in communities can't always be through a cluster, and so by ensuring, for example, that the research and the information that is developed within some of these institutions is accessible to all, benefits accrue to all.

It's similar in terms of talent transfer of students. We have students from Barrie who come to our university, as do many institutions. They go back to those communities and bring with them the knowledge and the training.

I think, if we are focused just on trying to replicate clusters big and small and superclusters, once again we are missing one of the real opportunities and benefits that come from developing real strength and expertise in a wide range of different places and from encouraging people to go back and develop back in their own home communities.

**Mr. Alexander Nuttall:** The only response to that is that I'm hearing from these businesses on the ground or start-ups that they don't have access. Maybe it's a communication problem, but that's what they are saying.

**The Chair:** Thank you.

We're going to move to Mr. Arya. You have five minutes.

**Mr. Chandra Arya (Nepean, Lib.):** Thank you, Mr. Chair.

Mr. Geist, you rightly mentioned that they pride themselves as the knowledge transfer...not the technology transfer. In your opening remarks, I thought you emphasized mostly the coded knowledge or the codified knowledge, but not the tacit knowledge.

The knowledge transfer that takes place in the Israeli military is, I think, the best example of knowledge transfer where they don't hold back the patents, and they allow the military personnel to take that knowledge to the industry, allowing both the codified knowledge and the tacit knowledge to go together so it can be successful.

On what Mr. Bindra mentioned, what happens in the U.S. universities where the researchers are paid for eight months a year, for the remaining four months maybe they go to industry. There the knowledge transfer can be both codified knowledge and the tacit knowledge that goes along with the researchers to the industry.

That is a model I hope the Parliamentary Secretary to the Minister of Science has noted and can explore further here.

Christine, welcome back. I have a question.

Is there a lack of knowledge within industry of the kinds of patents and inventions that are available in the post-secondary education institutions, such that the industry is not aware of those things that can be commercialized?

● (1000)

**Ms. Christine Trauttmansdorff:** I think that in general the colleges are probably still in a bit of a start-up mode in relation to having their capacity in applied research well known and well understood. We've been in the applied research business formally for about 10 years now. It's still, as I mentioned earlier, a very small portion of the federal investment in academic R and D or post-secondary R and D. It's an area of huge potential for the students and for the local economies, but the ability to really promote that to small business and medium-sized business, to the larger business world, is still extremely limited.

Mr. Sheehan spoke earlier about challenges. I'd like to think about them as opportunities. I think we've passed the proof-of-concept stage in terms of what colleges are capable of doing. Starting to think about how we scale up, what you're hearing about from us today would be an area of tremendous opportunity.

**Mr. Chandra Arya:** I have a question for you, Mr. Bindra and Mr. Geist. What are the one or two major hurdles currently that prevent the complete transfer of knowledge from universities to industry?

**Mr. Jaipreet Bindra:** For one thing, as you've seen, even here this discussion is around IP. The mindset has to be changed. When the researchers think about IP, just as having another publication, they just want to have another patent. Industry looks at patents as helping them secure what they've developed, helping them secure their products, right? It helps them have a competitive advantage in the market. I think they're different.

**Dr. Michael Geist:** I'll pick up on that and argue that in some ways that's a feature, not a bug.

**Voices:** Oh, oh!

**Dr. Michael Geist:** One of the issues we have is the reality that the incentives and the culture in universities and colleges are different from the culture you have on the business side. That isn't something where we need to say that we're going to clear that out and find a way to ensure that we create an entrepreneurial, business-focused research community with academic institutions, any more than we ought to say that we want businesses to be focused on primary research and the academic benefits of what they're doing.

I think both are playing their role. Part of our problem is that, in a sense, we are trying to take these two and ask why they can't be more alike. They're not necessarily alike. The goal, then, is how you ensure that the real benefits are taking place within universities and within colleges. That's why I'm focused on taking that knowledge transfer so that it goes out to the businesses.

**Mr. Chandra Arya:** I have very limited time. I have a last question for you. You talked about how universities should be open in what they publish so the benefit is available to everybody. Does "everybody" includes the Chinese companies?

**Dr. Michael Geist:** Yes, absolutely.

**Mr. Chandra Arya:** Why should we invest in our universities when the knowledge goes freely to companies in China?

**Dr. Michael Geist:** What we're seeing is that this is happening on a global basis, and that the knowledge that comes out of the core publications is not where the commercialization takes place. In a sense, that's part of the problem here. We're mistaking research for asking, "How come you haven't commercialized?"

The ingenuity, the entrepreneurial spirit, and the innovation that come from Canadian businesses can build upon that research, and we can build upon not just our own but that of others. The secret sauce isn't found in the articles; what the articles do allow is to have businesses, researchers, and others build upon that, ensuring that they have best-of-breed, cutting-edge work.

**Mr. Chandra Arya:** I'm saying that the businesses and researchers based in China can build upon that. Is that what you're saying?

**Dr. Michael Geist:** I'm saying that we compete in a global marketplace. If we think we can compete globally by locking down our knowledge, we aren't going to win anything.

**The Chair:** Thank you very much.

For the final two minutes, we have Mr. Masse.

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

Thanks to all the witnesses who are here today.

There's one thing that's come up in this, and I want to drill down a bit on it. It seems that Canada.... I know that in the automotive sector in terms of automotive development, we've always treated NAFTA as this principled rule of our relationship. It was the free market society of the United States that we competed against, and the fact of the matter is that their greenfield strategy for the securing of auto plants was basically cash at hand and building roads, infrastructure, housing and so forth, to win over those jobs at our expense. We would be the boy scouts, so to speak, and say, "Oh no, NAFTA is...". Since that time, we haven't had a greenfield plant in the auto sector in I think about 15 years, and it goes back even further for other developments.

The reason I use that example is one of the things you've mentioned, Mr. Geist, which I do want to talk about and leave the last couple of minutes for. That is patent issues, and then some of the protection not being.... You mentioned the drug industry, where there was a commitment for 10%. That was the whole deal that was cut. The fact of the matter is that there can be non-tariff barriers for preventing Canadian innovation with regard to some of the patent trolling and the limitations. How does that affect Canadian ideas getting forward?

● (1005)

**Dr. Michael Geist:** I think this highlights the examples we had earlier about Canadian businesses that either face litigation in the United States or face the prospect of patent thickets or other mechanisms that restrict the ability to innovate or, even more, bring to market. It represents a significant problem.

We need to develop a culture within many of our businesses to ensure that they come to the battlefield prepared. Sometimes that means they have some of their own patent portfolios. Sometimes it means they are sufficiently aware of different ways of protecting their IP. Sometimes it's through trade secrets. And sometimes it's recognizing that you have to do more than battle on the IP field. Much success is attributable to being first to market, being the most innovative, and being aggressive and entrepreneurial with your business model and not waiting for the full panoply of IP rights to coalesce.

Sometimes it's those who are most aggressive...I assume you have seen this in the Internet space. We get a lot of businesses whose philosophy is growth, rapid growth. Rather than worry about what their patent portfolio looks like, they concentrate on developing global market share as quickly as possible.

**The Chair:** Thank you very much.

It was a very interesting hour, and we're looking forward to getting more into this study of ours.

We are going to suspend for a quick two minutes, and then we'll come back in camera for committee business.

Thank you very much.

[*Proceedings continue in camera*]