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Chair

Mr. Dan Ruimy

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● (0850)

[*English*]

The Chair (Mr. Dan Ruimy (Pitt Meadows—Maple Ridge, Lib.)): Welcome, everybody, to meeting number 68 of the Standing Committee on Industry, Science and Technology. Today we are continuing our study of intellectual property and technology transfer.

Today we have with us from Mistral Venture Partners, Code Cubitt, managing director. We have from North of 41, Jeff Musson, executive director. From Universities Canada, we have Pari Johnston, vice-president, policy and public affairs; and Wendy Therrien, director, research and policy.

We're going to get started with Mistral Venture Partners. You have up to 10 minutes.

Mr. Code Cubitt (Managing Director, Mistral Venture Partners): Thank you. I'll read my prepared remarks.

Thank you sincerely to the committee for inviting me to share my views today. The subject on the table, technology transfer, is an area where I have deep interest, many years of experience, and a strong desire to see improve.

I've been an entrepreneur and a technology industry participant for more than 25 years. I began my career at IBM in Toronto before moving to the United States in 1997. Since that time I've been a founder of three venture capital-backed technology companies as well as an investor in 38 other companies. In total, the companies I've been a part of have gone on to create more than $2.5 billion in enterprise value.

I moved back to Canada in 2013 with my family to settle here in Ottawa, and I'm currently the founder and managing director Mistral Venture Partners. Mistral is a Canada-based venture capital firm focused on making investments in early-stage Canadian companies, including a number that were developed, at least initially, at Canadian universities.

We currently manage a little over $50 million on behalf of more than 60 investors, and we've made 16 investments to date. One of the main reasons I moved back to Canada from California—beyond the weather, of course—was a personal desire to participate in the entrepreneurial ecosystem in my home country. After working for many years in the United States, it became increasingly clear to me that, for Canada to remain competitive globally, it would be critical that we embrace entrepreneurship and innovation.

Foundational technology developed by university-led research is one of the strongest assets we have to compete in this age of global innovation. Careful consideration of how best to spend public investment dollars should be a top priority for Canada to ensure we remain competitive and growing on the global stage.

In my view, the challenge we have—or better said, the opportunity—is that between $6 billion to $10 billion is spent annually for research initiatives at Canadian universities, while only about $60 million in IP licensing income is received. By contrast, the total licensing income related to technology transfer from universities in the United States in 2015 was $2.5 billion. That's nearly five times as much as Canada on a per capita basis.

The University of Utah was recently ranked the top technology transfer university in the United States by the Milken Institute based on a number of quantitative measures. The most interesting result in my opinion is that they have been able to average $136,000 in licensing revenue for every $1 million of investment over the past four years. I estimate Canada's equivalent metric to be between $8,000 and $10,000 per $1 million of investment spent.

In an effort to propose specific and concrete ideas on how we can improve our system here in Canada, I suggest the following list as a starting point:

One, legislate that a specific percentage of research dollars given to universities be directed solely to technology transfer activities. As a starting point, I would suggest between 0.5% and 1%.

Two, I would share licensing income with the professors and students in such proportion as to attract the brightest minds from a global pool.

Three, I would streamline technology transfer as much as possible across the country to minimize the friction, i.e., reduce the learning curve for market participants to find and buy technology. Specifically, I would create a standard equity template or royalty model and avoid one-off agreements that only seek to optimize returns that are perceived to be of higher value.

Four, I would weave tech transfer success metrics into the tenure decision process, the goal being to attract and retain world-class talent and to focus research on areas of commercial promise.

Five, and maybe this should be number one, measure and publish the results of university technology transfer across common metrics, normalized by the amount of research dollars spent. These metrics might include things like patents issued, IP licences contracted, or the number of start-up companies created. Over time, this market-driven force will more efficiently allocate research spending dollars. The competitiveness of Canadian universities can be measured by their output, patents, licences, and start-ups created relative to the input of research expenditures.

Public and private university research provides fertile soil from which foundational technology germinates. Efficiently nurturing these seeds of innovation is the key to fostering technology-based economic development. Other critical ingredients are necessary as well, including the creation of the highly trained human capital that industry desires, as well as the structures and methods by which innovation can move easily from the lab to the factory.

There are a myriad of ancillary and multiplier effects to foundational research, including the creation of middle- and high-skill jobs through commercialization and technology transfer. This is why your focus on this topic will provide real leverage for the Canadian economy.

Thank you very much.

● (0855)

The Chair: Thank you very much.

We're going to move to Mr. Musson from North of 41.

Mr. Jeff Musson (Executive Director, North of 41): Good morning.

First of all, I want to thank the committee for holding these hearings to address the important issue of intellectual property and tech transfer. As a tech entrepreneur, I can tell you this is long overdue. I appreciate being given the opportunity to speak here today.

In addition to being the executive director of North of 41, I'm also the president and CEO of a software company called Dynamite Network, based in Toronto. We build software for companies and focus on artificial intelligence. As a company, we've partnered with academic organizations and institutions over the years, including the University of Western Ontario, the University of Waterloo, and the University of Toronto. We've also partnered with colleges such as Niagara College and Sheridan.

We have received funding, both federally and provincially, so I feel that I have a unique perspective to bring to this committee because I have first-hand knowledge as to the positives and negatives in the area of IP and tech transfer.

As I said, in addition to running Dynamite, I'm also the executive director of North of 41, which is a tech-based organization with over 12,000 members. The organization's membership base is comprised of tech entrepreneurs like me, whose companies are in the hypergrowth phase of their business life cycle.

As part of the organization's mandate, North of 41 hosts programming for its members through various events, everything from tech-focused round tables to—and I see some familiar faces—hosting Tech Day here on Parliament Hill, which we did last May and will be doing again this October.

As part of that Tech Day initiative, North of 41 recently launched an online platform called the “Canadian innovation town hall” to encourage communication between all levels of government, bureaucrats, and tech entrepreneurs. The purpose of the online portal is to allow political stakeholders unfiltered access to tech entrepreneurs in an ad hoc industry advisory capacity.

This summer, North of 41 will also be releasing its research paper, “Innovation to Prosperity”, which discusses and provides recommendations in order to improve and support Canada's innovation policy.

There are five key areas that this committee has chosen to undertake. I'm here today to focus specifically on item number three, which was identifying incentives for researchers to register intellectual property, and item number four, incentives and practices for the private sector to identify and utilize post-secondary intellectual property.

I've been following the hearings closely, and I wanted to say I agree with one of the presenters who said a couple of weeks ago that we should “look at this as knowledge transfer as opposed to tech transfer”, because that's in essence what it is.

To give some current context in terms of the tech industry, in order for Canada to have a prosperous tech sector and to compete on the global stage as a country, we must have a robust and effective intellectual property program. It must allow for industry and academia to both achieve their objectives and at the same time increase the overall knowledge base of the tech sector. It's imperative for all stakeholders to be rowing the boat, as they say, in the same direction.

The size of Canada's tech sector is relatively small when compared to other jurisdictions around the world. Having said that, as a country, Canada punches above its weight class as it relates to the tech sector. To put it into context, I remind people that the entire population of Canada is equivalent to the total population of the State of California, yet despite our relatively small size, we've developed expertise in specific areas such as cybersecurity, artificial intelligence, fin tech, and biotech, just to name a few.

Being world leaders in these areas allows Canadian tech entrepreneurs to compete on the world stage. No longer is it Canadian tech entrepreneurs versus Canadian tech entrepreneurs. It's Canadian tech entrepreneurs versus the world. In this country, intellectual property can be considered the digital resource of the new Canadian economy. Just as Canada's natural resources are viewed as a national asset, so too should tech sector innovation.

Our North of 41 group has identified two areas we need to address. The first is cost as it relates to preparing patent applications. The second is a need to have a central registry for post-secondary R and D for industry entrepreneurs to access.

I'm a graduate of Osgoode Hall Law School. I'm considered a tech geek with a law degree, so I'm a unique individual.

● (0900)

I know I'm going to anger some of my former classmates when I say that the costs associated with filing for intellectual property protection have never been higher. This limits the filing of any IP protection to those with significant financial means, and it presents a problem because typically the entrepreneurs who are developing groundbreaking new technology do not have large sums of money to spend on IP protection.

I've filed a couple of patents myself, so I've gone through the entire process, and it is not an easy process. I think it would be made easier with some changes. Currently, when it comes to filing patents, most entrepreneurs are faced with the choice of spending financial resources on IP protection or taking those same resources to further their tech development. The general consensus among tech entrepreneurs in our North of 41 group is that technology changes so quickly that, by the time a patent is filed, reviewed, and issued, the technology in most cases is obsolete. Further, if a patent is in dispute, the cost and time to litigate far exceeds any monetary settlement. In order to encourage the filing of IP protection and therefore increasing the book value of innovation by Canadian tech entrepreneurs, the system of filing patents and adjudicating disputes must be streamlined.

In addition to cost, there's a need for industry to understand areas of R and D that the university and colleges are doing. I'm sure within the government setting there is a register, but it's not something that's easily accessible by industry.

Knowledge transfer is also a concept that must be embraced between industry and academia. Traditionally, academia has a strong track record of developing innovative technology, and conversely, a weak track record of commercializing it. One of industry's strengths, on the other hand, is commercializing and getting the technology to market. Having a free flow of knowledge transfer is critical for Canada's innovation economy to prosper. A patent is virtually worthless unless there is a path to commercialization. Job growth only occurs if technology is commercialized. Once that technology is commercialized, only then are companies able to scale it out, which in turn leads to job growth in the tech sector. There needs to be better communication between those who are creating technology and those individuals who are looking at commercializing opportunities.

In terms of the government's role, I believe the government's role is to bring the parties to the table, not to try to do the work of academia or industry. Instead, government must create an environment that will allow innovation to flourish. Government's role is not to pick the winners or losers; neither is it the role of academia or industry. In fact, this is the role of the marketplace. From a global perspective, Canada's tech industry has a very good reputation and has all the necessary attributes to compete on the global stage, but we must act now in order for it to continue to grow.

Those are my opening remarks. I look forward to answering any questions that you may have.

The Chair: Thank you very much.

We're going to move to Pari Johnston.

You have up to 10 minutes, please.

Ms. Pari Johnston (Vice-President, Policy and Public Affairs, Universities Canada): Thank you very much for the opportunity to be here today. I will also read from some prepared remarks.

[*Translation*]

On behalf of 96 Canadian universities, I am pleased to have the opportunity to participate in the committee's consideration of issues related to intellectual property and technology transfer in post-secondary education. We have submitted a brief to the committee in both official languages.

Universities stimulate knowledge mobilization by training talented graduates, publishing open access articles, creating and testing data stemming from public research, creating high-tech startups, and through new technologies and research solutions that benefit large and small businesses.

Our universities, here in Canada, conduct 41% of the country's research and development and are key partners in industrial innovation. They conduct over $1 billion in research for the private sector annually.

[*English*]

There is no single path for innovation and no magic bullet to achieve innovation. Each region and sector will require a unique mix of collaborations between universities, government, private and non-profit sectors. At the centre of this innovation ecosystem is federal support that facilitates dynamic partnerships with flexible IP arrangements. Since innovation takes many forms, Canada needs a policy ecosystem that is flexible and diverse.

Universities Canada welcomed the $950 million over seven years in budget 2017 for innovation superclusters and the requirement for industry partnership with post-secondary institutions.

● (0905)

[*Translation*]

Our country has long been able to bring together those two sectors through initiatives that benefit Canadians, such as the Consortium for Research and Innovation in Aerospace, or CRIAQ, a Quebec non-profit organization that includes 21 academic institutions and 57 companies. It provides an exceptional intellectual property agreement whereby industrial partners receive an exclusive royalty-free license. The organization estimates that companies see a $1 return on every 25¢ invested.

[*English*]

Other initiatives drive regional economies. The Centre for Hybrid Automotive Research and Green Energy is an industrial-scale research and development lab at the University of Windsor. It transfers electrified vehicle technology to local industry partners at globally competitive levels.

Our universities' willingness to share is a unique asset to help drive innovation. Open innovation provides the private sector with quick access to the results of federal investments in discovery science and can encourage its commercialization. The University of Toronto's structural genomics consortium, which includes nine major pharmaceutical companies and collaborators worldwide, freely discloses the results of its work to the international health care community, leading to the creation of many Canadian companies.

Canadian private sector investment in R and D continues to decline compared to that of other countries in the OECD. From 2006 to 2014, our global ranking in business expenditures in R and D dropped from 18th to 25th. Open science could be part of the solution to combat this trend and encourage Canada's private sector to pull more IP from universities.

Today, I'd like to make four recommendations to the committee that would help grow Canada's innovative capacity and strengthen our IP landscape.

First, Canada's research ecosystem is fertile ground for tomorrow's leading market innovations. Government action in budget 2018 on the recommendations of the April 2017 fundamental science review panel will be a critical next step in unlocking Canada's innovative potential for commercialization and knowledge mobilization. This panel of eminent Canadians, which includes some of our top business leaders, makes it clear that significant reinvestment in basic research is critical and foundational to driving innovation in this country.

Our second recommendation is to maintain space for universities to have flexible IP policies. Canadian universities use a range of IP policies, from creator-owned to institution-owned, with most adopting some hybrid of the two. There is no one best way to do innovation, and both types of policies can drive patents and commercialization. For example, the creator-owned policy at the University of Waterloo has helped make the region one of the most dynamic areas in Canada for start-ups and high-tech growth, while UBC's institution-owned policy recently allowed it to license a promising new treatment for prostate cancer to the pharmaceutical giant Roche.

Flexibility allows universities to modify their strategies, depending on regional, sectoral, and partners' needs. Fully harnessing the potential of university R and D to meet the diversity of business needs means our institutions must maintain policies that are open to risk and experimentation.

Our third recommendation concerns strategic funding. While the innovation activity produced by our universities continues to increase, its growth slowed considerably after the loss of the intellectual property mobilization program in 2009. This was a tri-council initiative designed to encourage the sharing of expertise between university tech transfer offices. It led to a number of enhancements in the Canadian IP ecosystem. Its termination resulted in a loss of technology transfer staff across Canada and a loss of substantial national expertise on university best practices related to IP.

Like other innovation nations in the OECD, Canada would benefit from a stand-alone fund dedicated to catalyzing knowledge mobilization from universities for economic and social benefit.

Finally, we recommend that the government catalyze the creation of a national IP concierge service. This national hub could coordinate tools and initiatives that promote knowledge mobilization from all sectors, including universities. Services could include a database of pro bono legal services with IP expertise and a suite of template agreements demonstrating best practices in university business negotiation, such as the Lambert Toolkit in the United Kingdom, or the Australian IP Toolkit for Collaboration.

● (0910)

[*Translation*]

In closing, I want the committee to know that we are interested in working with you to establish recommendations in order to leverage academic knowledge and foster innovation and economic growth. Universities, in partnership with the government, private and non-profit sectors, as well as international collaborators, have an important role to play in building a better Canada for all Canadians.

I look forward to discussing this with you soon.

[*English*]

Thank you very much.

The Chair: Thank you very much. It's very exciting testimony today.

We're going to move right into questions.

Mr. Arya, you have seven minutes.

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

I thank all the witnesses for appearing today. A special thanks to my friend Code Cubitt.

Code, I'll start with you. I think you mentioned that universities in the U.S. earn about $136,000 for every $1 million invested. The comparable number in Canadian universities is just $8,000 to $10,000 for every $1 million invested. Is that correct?

Mr. Code Cubitt: That's correct.

Mr. Chandra Arya: The technology transfer from universities to industry, how can it compare? Can it compare between the U.S. universities and the Canadian universities?

Mr. Code Cubitt: The simple answer is I'm not sure why you wouldn't compare. It's a global economy. Those universities are the same as ours. The University of Utah receives about $400 million a year in research spend—

Mr. Chandra Arya: My question is, how easy or how difficult is it for the U.S. universities to transfer technology to industry compared to Canadian universities?

Mr. Code Cubitt: I don't accept the premise. It's a university. This is Utah, right? We have the University of Toronto, in the fourth largest city in North America. Utah is in the middle of nowhere and they're able to produce $52 million a year in licensing income. We can do that as a country. Utah is number one and Stanford's number four, so there's a long way to go from here to there. I just don't see why they'd be any different at all.

Mr. Chandra Arya: Ms. Johnston, I have a question for you. How much do you think the Canadian universities are earning out of this technology transfer or licensing of IP rights?

Ms. Pari Johnston: I was listening to my colleague, who mentioned the number of $60 million. We'll confirm those numbers, but I don't have that, exactly, at the moment.

Mr. Chandra Arya: If you could, please send it to the clerk so that we'll get it.

Ms. Pari Johnston: Certainly, yes.

Mr. Chandra Arya: Thank you.

Ms. Johnston, the research and innovation done by universities, most of that is funded by taxpayers' dollars. Sometimes industry also participates in research and innovation. Whenever an industry is a participant in any innovation, why shouldn't we just transfer the intellectual property to that industry so that they can monetize it? Why should universities hold onto those IP rights?

Ms. Pari Johnston: As I was alluding to in my opening remarks, certainly our experience and that of our member institutions is that the flexibility to be able to be responsive to the various needs of different sectors and different regions requires an approach whereby, in some cases, the institution and the faculty maintain the IP rights, and in other cases—

Mr. Chandra Arya: Excuse me, they're not used by the industry. That's what we are hearing. Most of the IPs are not getting used by industries because they're getting hoarded by the universities. Why hoard it? Why don't you let the industry use it? After all, it's funded with public money.

Ms. Pari Johnston: I don't think it's a question of not letting industry use it. There are certainly many instances where there are university-owned IP rights—I was citing the example of the University of British Columbia, which has an institution-owned policy—but it's certainly working to license and engage with industry on a daily basis.

What we're saying is that the opportunity to have a range of approaches is, in fact, what's needed to promote innovation in different sectors and regions.

● (0915)

Mr. Chandra Arya: Obviously, it is not working right now.

I'll go back to you, Code. What is your experience in negotiating technology transfer agreements with universities in Canada, and how does that compare to the U.S.?

Mr. Code Cubitt: I've had three specific experiences with universities in Canada and none have been good. I can tell you that in our portfolio, our Canadian portfolio, which includes some U.S. companies, we have three university-led initiatives that we've licensed out of the universities in the United States.

The way I think about it is venture capital is a lot like the government spending money on universities. We invest in technology creators, and then we hold them accountable, and we expect a return on that investment. The Government of Canada should have the same philosophy when it's spending money on universities. There should be a measurement. There should be accountability.

Mr. Chandra Arya: That's good.

I think that in the fifth point in your presentation you mentioned the metrics that have to be there so that it is easy for us to track what is happening. Can you expand on that, please?

Mr. Code Cubitt: At the end of the day, the input into the universities from the government is cash. That cash is used to do fundamental research. I would allow that not all fundamental research should or could be commercialized. It's probably 10%, 15%, or 20%. The money is going in, but the question is how to measure the productivity of those universities and of that spend. Three simple metrics that I would suggest are the number of start-up companies created at each university, the number of licences consummated, and the dollar amount of those licences. That's a simple way of measuring, quantitatively and not qualitatively, across universities. You can normalize that by the number of dollars that go into each university.

Mr. Chandra Arya: Jeff, we have heard that small technology companies especially have problems in negotiating simultaneously with two or three different universities. They each have their own rules and their own guidelines. Many times the technology companies don't have the resources to be spent on negotiating these deals, and the universities have their technology transfer offices, which are different from the guys who are actually dealing with the technology in the industry. What has been your experience?

Mr. Jeff Musson: You're absolutely right. It has been a difficult process, not only from the entrepreneur's side—because your resources, timewise, are kind of limited—but there are so many hoops you have to go through when you end up having to negotiate —

Mr. Chandra Arya: What is the solution you suggest?

Mr. Jeff Musson: You have to streamline the process and standardize it across the board.

The second thing, and what I've done with my company, along with other entrepreneurs in our North of 41 group, is to partner with universities to do a beta concept, a proof of concept as it relates to technology. There may be a bit of IP, but nothing too drastic. What ends up happening, theoretically, is that when these people graduate, I hire them on internally. That's how we've continued to develop products.

Mr. Chandra Arya: Thank you.

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, Mr. Chair.

Thanks to all the witnesses for being here today.

It's certainly interesting to hear the discussions. For the last couple of weeks, we've had numerous people talk about different ways in which they feel the dollars and investments we have in universities, colleges, and polytechnics...how well that matches with the needs of the industry, and how closely that can come together with commercialization.

There has been discussion about how the superclusters are going to work. That hasn't really gained a great deal of traction with business. I think there are still some concerns about where that's going to go. Are we going to be looking at picking winners and losers? I believe at least two of you have mentioned how significant it is to make sure that we are focused in the right areas.

Mr. Cubitt, in your five points, you mentioned standardizing the way in which we look at technology transfer and streamlining it across the country. I think that's probably one of the key things that have been mentioned here. Sometimes even in the same city, we have three or four different ways in which universities are setting up their technology requirements and their licensing regime.

I wonder if you could give us an idea, from the business side, of what that streamlining would look like to an organization such as your own. Perhaps, Mr. Musson, you could add to that as well.

● (0920)

Mr. Code Cubitt: First of all, I'll echo some of Jeff's comments. I think standardization is an obvious lever, in the sense that, once you've gone through the process, you've been through the learning curve and you can do it again and again. That facilitates the industry's going back to that well of knowledge on an ongoing basis and hunting for IP.

It's not necessarily one standard policy writ large across the country, but certainly regional policies could be put in place—let's say in Ontario and Quebec—or three or four universities in a cluster can agree on a framework. Innovation and innovation commercialization are largely a regional activity that's been proven out. Having standard equity documents, standard royalty agreements....

One of the frustrations I had specifically was that the technology transfer manager felt that it was his duty to maximize the profit for his university. He negotiated extremely hard and ended up, I would argue, kind of sabotaging the deal for his own personal career growth. Having a standardized template and not trying to maximize every dollar would go a long way toward solving the problem.

Mr. Earl Dreeshen: Mr. Musson.

Mr. Jeff Musson: Yes, I echo a lot of those same comments.

What's interesting is you have industry and academia, both of which have certain objectives, and you have to figure out that common ground. Using that example. I had a similar situation with one of our projects, whereby the tech transfer individual was pushing hard to maximize those dollars. Is that what it's really about, or is it about getting that technology into the ecosystem and letting it grow? That becomes a key thing: to figure out how to have common objectives when you have two separate groups.

Mr. Earl Dreeshen: Ms. Johnston, we heard from representatives from the Intellectual Property Institute of Canada. They argued that the lack of national IP and tech transfer policy among our universities plays a role in creating low rates of commercialization. That was their position. However, others have described their national IP strategy for universities isn't particularly important for incentivizing this.

In your discussions, you get the think tanks together from each of the universities, and they're asking how they can make this happen, how they can make sure they're working at the speed of business rather than the speed of the bureaucracy associated with universities or government. What type of ideas do you think are going to come from the discussions your universities are having?

Ms. Pari Johnston: We certainly think the idea of having some standardized templates for negotiations would be quite helpful. Some models in the U.K. and Australia would be helpful for us to look at.

As part of the Business/Higher Education Roundtable, which includes 27 of our universities, colleges, CEOs, and the Business Council of Canada, some work is being done now on some standard research collaboration templates for that very reason. As my colleague said, and as I've noted, having a one-size IP policy, given regional and sectoral differences, is not necessarily the answer to drive commercialization, but having standard templates in best practice that can be learned from, we think would be very useful.

In terms of other initiatives that we think are important to help support the collaborative efforts between our institution and the private sector that leads to tech transfer, as I noted earlier we are concerned with the fact that right now we don't have a funding mechanism that supports knowledge mobilization out of universities. We think the clusters are a good step. They will support some important initiatives, including, we think, not just geographic clusters, but those that are networked in as well, in terms of specific expertise. Some support along the lines of what the U.K. has, a higher education innovation fund, which allows supports for business, universities, and other partners to work together, is one thing we think Canada should consider.

As well, perhaps look at whether there could be a new form of what existed, which was the intellectual property mobilization program through the tri-councils, which, as colleagues have said, helped strengthen and streamline the expertise within tech transfer offices to share best practices and to have expertise within our universities that is dedicated to getting the intellectual property and the technology out of the institutions. The loss of that program really did result in a decline of the capacity within our institutions to act on tech transfer objectives with their companies. We can share the statistics with the committee if you're interested.

I think we're seeing some novel IP frameworks within open science initiatives. The Montreal Neurological Institute launched an open science initiative last year. We think this is a new area where Canada is leading, and can result in some new ways to promote commercialization, and make the knowledge coming out of these research initiatives widely available.

● (0925)

Mr. Earl Dreeshen: Thank you.

The Chair: Thank you very much.

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

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

Thank you to our witnesses for being here today. I'll start with Ms. Johnston and go across the panel.

The common theme we've heard today is the standardization or some type of a base element. There doesn't seem to be a lot of time for those in the entrepreneurial sector to research all the universities, find those partners, know where they are, or even to know about the regional clusters. It's almost as though a portal is missing, and a lot of time and energy are wasted on that.

Your model is to continue to have some flexibility for the decision-making for those regions. I want to dig down further on that.

Would it be appropriate to set even a base percentage or a base expectation, and then with that, measurement models about what gets to market and what doesn't? The value of measurement is more important in many respects too, because just going to market is not always the end that it should be, depending upon what's being done.

Starting with you, Ms. Johnston, and then going across the panel, do you think there is enough of a common ground for us to find that so at least Canadians can look at that? An innovator in British Columbia could look at Ontario and find a cluster and see that it is actually doing some innovative stuff related to the farming industry, for example, and see that he or she has something that might actually cross-pollinate into that.

Ms. Pari Johnston: There is certainly merit in trying to have more publicly accessible places where, as you note, entrepreneurs or technology leaders can go to find out what is going on within the institutions or clusters of institutions. I think that is happening in some cases, and I would point to some of the work that the AI groups are doing within the Vector Institute and others in Montreal, where there has been a clustering of expertise. The public availability of that information is something that is going to be quite available through the Vector Institute.

I want to talk about the value of measurement to make sure that we're also talking about the broad ways in which institutions like ours support innovation. I think that while we're focusing on specifics around patents and the number of licences developed, it's really important to remember that institutions like ours, through their highly qualified graduates, through creating incubators and accelerators on campuses where small and medium-sized businesses can come for business solutions, are also part of creating Canada's innovative capacity.

My concern is that if we focus on very narrow measurements of outcome for what institutions are doing with their public research dollars, I think we're missing some of the ways in which institutions are supporting Canada's innovation.

Mr. Brian Masse: Mr. Musson, you mentioned something that I think is one of the most important aspects, which is actually hiring people out of the university. That's kind of the end product that I would like to see—production at the end of the day in Canada. We can argue that a university is getting a subsidy from the taxpayers, but you could also argue the fact that a SR and ED tax credit or some type of incentive for a public goal for research is also important.

What can we do better to get people into employment outside the university when they graduate that can actually lead to production in Canada?

Mr. Jeff Musson: It goes back to the theme that this is knowledge transfer instead of technology transfer, because in business, especially technology businesses, time equals money. If you can develop a product quickly and get it out into the marketplace, you'll get ahead of the competitor, because everyone is nipping at your heels.

As entrepreneurs, we don't know—I do because I'm plugged into what's happening in Waterloo, Western, Toronto, Ryerson, and a few others. In order to encourage hiring out of there, there should be a nationwide repository or database showing where clusters of technology are being developed. Obviously, the research is led by a professor or an associate professor. Those individuals who come graduating and who have been working on projects in a similar space are what I consider to be of high value to an entrepreneur, because their training has already been done in university, and they're ready to hit the ground running for whatever project, especially in areas like my software business, where we're working in artificial intelligence.

● (0930)

Mr. Brian Masse: Mr. Cubitt, can you add to that?

Mr. Code Cubitt: You touched on a number of things.

At the end of the day, it's a large ecosystem. Capturing the knowledge from the university graduates as they leave is really important, and obviously there's a brain drain problem. My view is that industry will always pick the best minds. If it's American companies picking our best minds, we need to have better companies that are able to capture them.

I'll go back to something else you said, which is really about consolidating all the IP created by universities. This is a three-pronged problem. The first one is to create awareness. You have to be aware that the IP exists and you have to be able to distill and evaluate it among all the rest, whether that's a single repository database that you search and say you need something on AI or whether it's a team of people who go around to industry and meet with every company in the country once a year to say, “Look, here's what's relevant to your business.” I'm not sure of the answer, but awareness is a big one.

Second, you need to reduce the friction for getting the IP out in the first place. We've talked about that at length.

The third is measuring the results of that, whether it's the Ph.D.s who stay in the country versus leave or whether it's IP licences granted, and so on, and then use that as a feedback mechanism, all the way back to the beginning.

My broader point is that historically, universities have been the bastion of knowledge. They've been the keepers of technology, innovation, and knowledge. That's no longer the case. Universities used to live in an ivory tower where they'd say they needed tenured professors who can research and create IP without fear of any retribution or any undue influence from industry. That's an antiquated notion. If our universities are going to compete with universities globally, they need to be better aligned and more closely affiliated with industry players, because industry is going faster than universities in a lot of cases. My thrust here is really to try to create connections between industry and university and break down the barriers, whatever they might be.

The Chair: Thank you very much. We were so enthralled by your answer.

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

Mr. Frank Baylis (Pierrefonds—Dollard, Lib.): I'd like to start by delving a little deeper into the concept of template contracts so that there's something there. Ms. Johnston, you mentioned the idea of the Lambert Toolkit in the U.K.

Let's say we do that, put together a template. How could we positively encourage universities to actually use that set of templates? Let's assume they exist and they can be tweaked, let's say, but they're grosso modo the same thing. When I've done a deal with university A in Ontario, I go to university B in Calgary and I'm expecting the same template. Maybe I have to argue about the royalty amounts and things such as that, or they have a little block they add.

How do I get the university to actually say they're going to use it? What levers do we as government have to help you do that?

Ms. Pari Johnston: It's a really important question. In part, working closely and supporting the tech transfer offices to be equipped to work with our faculty and understand the value for them, and on the faculty side, being able to have such a template, also makes things easier on the university side. There are several demands on university faculty. We spoke to that earlier. There is value added in having something that is already set and agreed to in terms of saving time.

I want to respond to the notion that universities are evolving. They are dynamic, responsive institutions in Canada that want to promote knowledge transfer and see themselves as important players in Canada's knowledge economy. The faculty who wants to make a contribution and see their technology go out to market are motivated to do so.

● (0935)

Mr. Frank Baylis: I don't doubt the motivation and the interest. I'm more saying that you have university A that asks why it should use the same template as university B in P.E.I. From the perspective of the company, that has huge value. However, from the perspective of the university, they might not see that value because they say, “Well, we've made a great set of templates. Why don't we just use ours? We know ours.”

How do we change that?

Ms. Pari Johnston: It partly comes down to the notion of the competitive marketplace. Institutions will be incentivized to use such things if the companies they want to work with are expecting that they're going to use them, and if they're not, they're going to go elsewhere. That is a motivator; institutions will respond in that case.

Mr. Frank Baylis: Thank you. I'll leave it at that, then.

The other aspect that's been mentioned is this concept of a database. Obviously, we talk about a database of IP, but as Mr. Musson mentioned, we should be talking about knowledge, not just IP, because there could be know-how, there could be expertise, and there could be IP as well.

Would you see value in having a database that was broader than just IP?

Mr. Jeff Musson: Absolutely, because what happens is IP is just the foundation, and it's all the knowledge that's been accumulated in order to create that IP. A perfect example would be artificial intelligence. That can be used in various factors. It can be used in the medical field. It can be used in the connected car space. Having it focus on what the project is, a little bit of a description, and the areas that it covers, yes, it would be better than just being IP statuses.

Mr. Frank Baylis: If we made a database, we should make sure that it is broader than just “this is the only patents that we have”, say, there's a professor who doesn't have a patent but he's a tremendous expert in making cheese, and I'm looking for that. We should somehow make sure that this information is readily available, too.

Mr. Jeff Musson: Exactly, because what ends up happening from the entrepreneur and CEO side, from a technology business, if I can shave off six months in development because someone already is up to speed on it, and already has something that we can license, hands down, we're going to try to strike a deal with that person which means that I can get to market faster. I can repay my venture capitalist who's invested his money, and I can get commercialized and get creating some jobs.

Mr. Frank Baylis: Mr. Cubitt, would you agree with that approach?

Mr. Code Cubitt: I think it might be a challenge, candidly.

Just by example, there's one thing we've done recently. We licensed some technology from Jet Propulsion Laboratory in southern California. The researchers who built it seven years ago had no interest in participating. They had no time. They're very busy doing what they want to do. What we did was we hired a Ph.D. with specific knowledge in that area, and that person had one afternoon meeting with the original developer of the IP. Then they went off and spent four months coming up to speed and recreating the original results. There was a bit of a time lag, but from a practical point of view, it's difficult to get the IP as well as a bit of coaching at the same time. If you can, that's great, but I don't know if—

Mr. Frank Baylis: I'd like to expand a bit more on that, because you touched on the differences. You said you had a hard time dealing with Canadian universities, a much easier time.... In my previous life, I was a businessman. I still am. I found the same thing. As we say in business, you want to be easy to do business with. People do business with those who are easy to do business with.

Can you elaborate? You said you had difficulties with Canadians, and I see it differently from you. You said that someone was trying to maximize the profit. What I've seen often is that they're afraid of failure, that no deal is better than a bad deal, so, do you know what? I'm just going to be so difficult or demand so much because if nothing happens, I'm not punished, but if, by God, I license a cure for cancer and I don't get enough money, I'll never hear the end of it.

Have you seen that willingness to take a chance more in the United States versus Canada? Is that part of the issue?

Mr. Code Cubitt: There's no question there's a cultural disparity between Canada and the U.S. I don't think that's a secret to anybody. Yes, we had a situation like that where the professor didn't want to give up the IP, and he had a say, and he was blocking the university from licensing it. I think that was an ego issue, at the end of the day, which was unfortunate.

I think it comes back to rewards versus behaviour. You're trying to motivate. If you're paying the professors market rates that are comparable to their U.S. peers or international peers, and you're compensating the universities fairly, I think it creates the right incentive.

Furthermore, one of the questions asked earlier was, what does the government do? Well, the government writes the cheques. When I don't see the behaviour I want out of one of my companies, I stop writing cheques, and they listen pretty quickly.

● (0940)

Mr. Frank Baylis: Do you think we might be able to lever some of the money we give to the universities?

Mr. Code Cubitt: Well, I think so, absolutely. There are two things, and they're in my recommendations. One is to tie a specific percentage of your research dollars into technology transfer. Call it half a per cent.

Mr. Frank Baylis: So if it's not happening, maybe you're not going to get that?

Mr. Code Cubitt: Well, yes, that's the second piece. In other words, now let's measure you, and if your results aren't up to par and up to the industry standard or improving or some other KPI, then the dollars are going to flow to this university that is making a difference, that is licensing more technology. That's the feedback loop. You write the cheques, you call the shots.

The Chair: Thank you.

We're going to move to Mr. Nuttall for five minutes.

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

Thank you to the presenters for taking the time to join us today and for providing, obviously, some great testimony to this point.

I'd like to start with Code, if that's okay. Frank and others have started down this road already. One of the things that we talk a lot about around this committee is the lack of measurables within government, whether it's within our own budgets or when we're investing in a plethora of projects. Just to help us, can you outline for the committee what measurables you put in place when you're looking at projects you're investing in right now?

Mr. Code Cubitt: That's a great question.

Within the first 30 days after we make an investment, we create a road map for the next 12 months. We do that because, with our seed investment, the company needs to raise a much larger amount within 12 months or they die. It's that simple. They run out of money and the company goes out of business. We take it very seriously. Essentially, we create a dashboard of what's important and what metrics need to be achieved within a time frame that matters. That's the high-level dashboard we create within 30 days. Then we fill in underneath that what the tactical steps are that they're going to take to achieve those metrics. I think the same strategy applies here.

Mr. Alexander Nuttall: I'm a banker by trade.

When you're looking at your measurables, and definitely in terms of raising capital, is that through commercialization, as well as other seed capital? Is it through government grants? Do you put measurables on what money is coming from where?

Mr. Code Cubitt: It's less about that than about tangible business milestones that need to be achieved. There are two simple ones: what's your revenue today and what's it going to be tomorrow, and what's the delta between those? What's your growth rate and what is the revenue that you're at?

In the venture capital industry, there are clearly delineated milestones between stages, and there are clear goal posts, if you will, or brackets, around what metrics you need to have in order to deserve the next round of funding. That's how we do it.

Mr. Alexander Nuttall: One of the things that was in this year's budget—and this is for everyone—was $950 million over five years for superclusters, which really ties into, quite frankly, the entire conversation we're having here.

Is there a better way to spend those dollars than through the strategy that's been outlined to date? Is there a more direct route to do it, or do all of you endorse the current plan?

Mr. Code Cubitt: That's scary ground. I don't know if I want to touch that.

Mr. Alexander Nuttall: I will comment on this point.

I'm actually pretty upset that MaRS isn't here today. I know it's not your fault. Quite frankly, they helped craft the entire policy. They're probably going to reap hundreds of millions of dollars out of it, and then they can't show up at the committee.

I will leave it to you because I can't ask MaRS.

Mr. Code Cubitt: I will say—sorry to interrupt if there are other comments—I'm involved with one supercluster, or one proposal, that's being put together. While I believe in their cause, there's no question that behind closed doors there's a lot of scrambling and finding ways to spend the money. That frustrates me as a kind of market-driven player. Maybe the time line is a bit rushed, and maybe it feels like if we inject a whole bunch of money we get political credit for that. Maybe that's as far as I'll go.

● (0945)

Mr. Jeff Musson: What's interesting is that you can't regulate or force innovation. That is kind of talking across the board.

The government's role, I think, is to support it. I think you have to have a favourable tax rate to encourage innovation. When you look at entrepreneurs and government, entrepreneurs in the tech sector as it relates to risk have a different threshold for risk than government does. It's great that you have these superclusters, and I understand what you're trying to achieve, but just throwing money at a problem and trying to spend it is not going to develop innovation.

The government's role is to really set the parameters to allow for this to happen and to bring the people to the table.

Ms. Pari Johnston: As part of the science review and the innovation agenda review we welcomed the opportunity for clusters to be created, but with some broad principles underpinning that. One is that there would be an open, competitive process, that it wouldn't be picking winners, but through an open, competitive process the best would be chosen, and that institutions such as universities, colleges, and polytechnics would need to be partners because they bring a lot to the clusters that are being developed.

From what I understand there are a number being developed that are not only geographically clustered, but are drawing in expertise from across the country because geographically we need to be able to have a network approach to excellence when it comes to particular areas like agrifood and advanced manufacturing.

Our members have been quite interested in being partners in the superclusters initiative and are really getting behind specific proposals.

What I would add, though, is that it's a tool in the innovation ecosystem. I go back to my earlier comments that we also need to be investing at the front end of the pipeline. There's the Naylor report that came out in April, which talks about the need to reinvest in discovery research to fuel what is now our strong expertise in artificial intelligence. Thirty years ago Geoff Hinton at U of T was toiling away, through NSERC grants, and that was part of what led to what we have now in terms of Canada's global expertise in AI.

For us, the superclusters are an important element, but not without being in a broader context of well-resourced discovery research and some of the other programs we've talked about today.

The Chair: Thank you very much.

We're going to move to Mr. Longfield, for five minutes.

Mr. Lloyd Longfield (Guelph, Lib.): Thanks, Mr. Chair.

Thanks to all of you for being here. What a great discussion we're having this morning. I always wish we had more time.

In the interests of time, I want to zero in on the intellectual property management program that was discontinued in 2009 because the previous government, I think rightly, looked at that as something that was going into a lot of overhead without results, and possibly the measurables weren't in place as effectively as they could have been.

If we look at that and ask what types of measurables.... Previously, the tech transfer officers were trying to get research dollars into the universities. That was their goal, so they only dealt with businesses with lots of money to give to the universities versus small businesses or start-ups, or businesses with risk attached to them.

Mr. Cubitt, looking at the measurables, the number of patents released or the number of licensing dollars that businesses create as measurables, how could we pivot the IPM program to be more effective if we looked at reintroducing money into that stream?

Mr. Code Cubitt: There are a few motivators I might propose.

One is I would think of technology transfer offices like miniature venture capital funds, if you will. They have a budget and they have clear milestones associated with what it is they do. It's not about bringing dollars into the university; it's about licensing out IP. I might tie remuneration to results. Perhaps there is equity. I get paid when I produce results; otherwise I don't get paid. Maybe in having a bit more of an industry slant on that you'll attract higher-quality technology transfer office personnel, and with a longer-term view to success. It's not this year's bonus one is after, it's five years from now when that IP produces huge royalties and then one really gets paid and there is an upside. Again, it's just taking a page from industry and applying it.

● (0950)

Mr. Lloyd Longfield: I've spent most of my life in business. I was involved with setting up Innovation Guelph, and looking at how we mobilize innovation into our business community. Would that also go as far as saying that if you don't hit those goals, you don't get funded?

Mr. Code Cubitt: Yes, I think that's the feedback mechanism—

Mr. Lloyd Longfield: Yes.

Mr. Code Cubitt: —whether it's implied or implicit.

Mr. Lloyd Longfield: Thank you.

Mr. Musson, looking at the small business or the start-up network you work within, do you see this as an opportunity to have businesses drive superclusters versus it being another government program with lots of money looking to find a home? That is, the businesses would say, "No, this is what we need out of this and this is what we'll invest in if the government can support us."

Mr. Jeff Musson: Yes, like my earlier comment, you can't force innovation, but if you bring smart people together and, as I always say, row the boat in the same direction, very innovative and cool things end up happening. As entrepreneurs you need that support system, especially at the beginning to get out of the starting gate. That support is financial, but non-financial, too, so with those superclusters the whole idea and the concept, and it's fair, is to bring experts and the entire community together for a greater good.

Mr. Lloyd Longfield: It should be driven by business, not government—

Mr. Jeff Musson: Absolutely.

Mr. Lloyd Longfield: Thanks.

Ms. Johnston, it's great to have you here.

Looking at the different streams of innovation, our science minister is saying research funding isn't innovation funding, it's research for research's sake; innovation may come out of it, but the primary purpose is pure science. On the separation of research funding from innovation funding, do you have a comment?

Ms. Pari Johnston: We put submissions in to both the innovation agenda and the science review, and very much tried to make those connections. We very much hope the broad ecosystem recognizes the continuum in the pipeline across.... You're right that much investment in discovery research is not going to lead to direct commercialization technology transfer, nor should it, because there are social outcomes, social innovations, and solutions to social problems that come out of university research as well, which we haven't talked too much about here, but those are part of knowledge transfer.

Mr. Lloyd Longfield: They're very important.

Ms. Pari Johnston: We very much hope that the initiatives Minister Duncan is championing so well and the investments in budget 2017 and the innovation agenda are not siloed, and that there is a sense that investments in discovery research can and do lead to innovation outcomes—

Mr. Lloyd Longfield: University-driven IP is coming out in one direction, which might have a set of parameters around it and separate agreements, compared to business-driven IP.

Ms. Pari Johnston: I want to go back as well. Investing in a healthy research ecosystem also ensures that our students are taught and given experiences in a research-enriched environment. That is also critical for creating innovative capacity and a culture of entrepreneurship and innovation. I think we've said a couple of times today, and I know many business leaders have, that the best knowledge transfer coming out of our institutions is our graduates. If we can find ways to ensure that they are being hired, that they are being given work-integrated learning opportunities, that they are being given research internships into our small, medium, and larger companies, that is going to be a very important part of our knowledge transfer.

Mr. Lloyd Longfield: That could be another metric.

The Chair: Thank you very much.

We're going to move to Mr. Lobb, for five minutes.

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

My first question is for Universities Canada. Billions go into research each and every year. I don't know that these numbers have been presented to the committee yet. I'm just wondering, if we look at the total amount that's invested each and every year, do you guys have a breakdown as to how much goes into overhead, how much goes into administration, etc., and how much actually goes into the actual research on the ground? Is there a breakdown that you could generally say—

Ms. Pari Johnston: Is that in terms of the research dollars going to Canadian universities, or is it their broader operating funds?

Mr. Ben Lobb: The numbers we see from Statistics Canada and what have you, are $7 billion directly from the government into this. So, of the $7 billion that all governments invest, is $1 billion going to research or is $6.5 billion going to research and the rest is overhead? How does it break down?

● (0955)

Ms. Pari Johnston: We can certainly get back to you with the specific breakdown.

I will say that with respect to overhead and the institutional costs of research, in fact, Canada does not invest at the same levels as other countries do, so it was actually quite a strong recommendation from the science review panel that relative to other countries like the United States and the European Union, universities, particularly those that are larger research-intensive universities, which get a percentage of the institutional cost of research for every research grant dollar they get—

Mr. Ben Lobb: —but you know what I mean. If you go to a charity, it will say that less than 10% goes to administration and 90% actually goes to helping the people or helping the cause. Does Universities Canada work on numbers like that so the government can say, "That's great. Most of the money goes to the people doing the work"?

Ms. Pari Johnston: Again, we're very happy to get back to you on the numbers.

Certainly I can say with confidence that the majority of the funding is going directly to the direct costs of research and the faculty and the graduate students who are leading that research. In fact, the government investment in the institutional costs or the overhead costs of research is actually very low relative to what other countries invest. In fact, part of the challenge we're finding is that to continue to drive the research agenda at Canadian universities, we're having to transfer funding from other parts of the institutions—the teaching and learning agenda—to support research, given the costs, particularly the costs of research that is highly capital intensive or highly expensive, if you look at certain fields.

Mr. Ben Lobb: We had some comments at the last meeting we had that there's research being done—and I'm not trying to be critical here—at universities for which the solution is already there. They find they're working away in their little silo and there's already technology in the marketplace that's ahead of what they're doing.

Is that something that Canada tracks or the universities are tracking, trying to make sure that, of the money we're investing in research, we're not wasting that money right from the beginning?

Ms. Pari Johnston: Certainly, we don't have statistics at the national level, but what I can say is that all of our institutions have developed strategic research plans, and they are working to ensure that the faculty within their institutions, given of course that we support the principle of faculty driving their own curiosity-driven research, are broadly supported by the university in those thematic areas.

Many of our institutions have made important choices about where they're going to direct their strategic research dollars and where they're not being responsive to the needs in Canada and globally or to the signals from government.

Mr. Ben Lobb: My last question is for Code and Jeff.

Both individuals from business who were here at our last meeting said one of their beefs was that these researchers working in universities come up with an idea, and then they own the IP. One guy was from Nortel. He said that when he worked at Nortel, he did patents, and Nortel owned them. The guy said, “We put our money in, the government puts their money in, this researcher gets the IP, then we have to go buy it from him and make an arrangement.” He said, “It's ridiculous that we have to pay twice.” Those were their words, not mine.

Do you guys have any thoughts on that? It would be a change. Should we look at changing the way we do business?

Mr. Jeff Musson: Absolutely. Don't get me wrong, I'm not saying that the researcher doesn't.... He should be able to have some success in what's been created; however, I know there are certain instances where they can't be the roadblock either.

Again, what's the entire goal? Is the goal for universities to turn a profit on technology that's been developed or is to foster some other kind of metrics? You're absolutely right. That does happen and for a variety of reasons. That professor may have an ego and wants to be known for this, but has no way to commercialize it. But absolutely, something has to be changed.

The Chair: We're out of time, but do you want to answer?

Mr. Code Cubitt: I'll be good.

The Chair: We're going to move to Mr. Sheehan, for five minutes.

Mr. Terry Sheehan (Sault Ste. Marie, Lib.): Thank you very much.

We appreciate the presentations today. They're quite helpful for this study.

Code, you mentioned in your presentation that you had three bad experiences with universities. Later in the testimony, you mentioned one experience, and I believe ego was just talked about by Jeff. I understand that and the culture. The two other experiences, were they the same issue or were there different issues? Could you expand on that?

● (1000)

Mr. Code Cubitt: One was a difficult time dealing with a tech transfer office. It was a regionalized tech transfer office, and we just couldn't get time from them. It was difficult to get documents moving and flowing back and forth. We're no longer involved with that company, but I think they were successful three years later.

I don't remember the details of the third one off the top of my head, but it was similar.

Mr. Terry Sheehan: It begs the question. You're involved in the United States and Canada. Talk about your best experiences in the United States and why they were best.

Mr. Code Cubitt: One that pops to mind is an MIT experience where the professor, if I remember the structure correctly, was paid, the university was paid. It was a template of how to do it: yes, we welcome your interest in this technology. The whole thing took about four months, which was quite reasonable. Then I think the royalty expectations were, I'm going to say *de minimis*, less than 5%, and then 3% after five years or something like that. It was refreshing to have a process and a person at the other end of that process who knew what they were doing and had done it numerous times. That's anecdotal.

Mr. Terry Sheehan: Four months was significantly less time. What do you attribute four months to?

Mr. Code Cubitt: I think it was the research professor who had a vested interest in getting it out. He wanted to see his work in the market.

Mr. Terry Sheehan: That's good to understand.

Jeff, you mentioned that you're involved with bringing together entrepreneurs and different people in the tech world. I come from Sault Ste. Marie in northern Ontario. We have some great little things happening up there in research, whether it is related to forestry or invasive species. We also have the Ontario Lottery and Gaming Corporation, so there's a lot of spin-off of IT businesses related to the gaming industry, and there are a lot of neat things happening.

How is it that rural Canada—and I'll call it rural for lack of a better term, since it's really outside of the urban centres—could get more involved and more engaged, so that people like Code find them? You mentioned hunting and finding them. Maybe both of you could comment on that sort of thing.

Mr. Jeff Musson: The good news is there's never been a better time than in today's society, where you have Internet connectivity and video conferencing, and wish to have the rural areas....

I'm originally from southwestern Ontario, and that's another area that—if you're outside of Kitchener-Waterloo, Toronto, Ottawa, and the key sectors—you have to be able to plug in. What happens in the case of Sault Ste. Marie is that you guys are known for forestry. You have some mining. The beauty is that technology is weaving its way through all these industries today.

One problem entrepreneurs have is looking for beta customers to try out technology. If you have willing participants in these areas, now again you start forming informal clusters, and that will allow innovation to take place.

The other great thing is it is very costly in Toronto's real estate market to be renting facilities for businesses, office space, and what have you. I have to tell you, if you're able to develop technology outside of the GTA or outside of Silicon Valley, and locate those companies in Sault Ste. Marie, in Chatham or wherever, that's a big incentive as well to be able to still plug in.

Mr. Terry Sheehan: That's great.

Code.

Mr. Code Cubitt: I would just add pure business development. One of the things you'll hear from me as a VC is that universities need to be a bit more business oriented. Your tech transfer office could have BD—corporate development people who run around doing business development.

I distinctly remember in California a woman from Ireland who was pitching Irish technology, and I saw her everywhere. She developed relationships, and she was moving technology from Ireland to the United States. I think it's shoe leather; it's rolling up your sleeves.

● (1005)

Mr. Jeff Musson: One final point on that is that people like doing business with people they know, and it's a relationship—I'm sure Code would agree—that develops over time. That's all part and parcel of it as well.

Mr. Terry Sheehan: Thank you. That was great.

The Chair: Thank you very much.

We go back to Mr. Masse for two minutes.

Mr. Brian Masse: Thank you.

How would you rate Export Development Canada and others in terms of getting some of the things to market, and in terms of assistance for that? At the end of the day, I don't want to be a part of it if the end result is to help create products and services that then put Canadians out of work.

I'll start with Code and go across. I don't know if the universities have had any, but in terms of Export Development Canada and access to capital to expand what has been the general experience?

Mr. Code Cubitt: I'll take a stab at it from this direction.

Our investment strategy is based on a statistic. You can tell I'm a pretty numerical guy, but it turns out that fewer than 10% of Canadian start-ups get capital from outside of Canada. Of all the exits, 33% of the exits and 40% of the profit go to those 10%. It's a bit of a winner's bias there, but it's pretty intuitive that if you run out of money, you run out of time.

Our premise as a firm is to find really interesting Canadian technology and bring U.S. investors into our companies. The criticism we heard early on—to some extent, anyway—was, “Yeah, but now you're going to be taking our great companies, shipping them to California, and draining our talent and our knowledge”, and so on and so forth.

I have a different view, which is that the more technology we create and the better brand we create for creating technology, the more people will be attracted to us. Yes, we're going to have to shed some initially. It's almost like a good faith donation, a loss leader.

Specific to your question, I think EDC understands that. They understand that it's a global marketplace, it's a global knowledge repository, and the world is globally competitive. Jeff mentioned that the Internet enables all businesses everywhere to compete. If we don't have a global view and recognize and leverage global assets, we're going to be isolated and suffering.

The Chair: Thank you very much.

We have time for a question on each side for six minutes, so we're going to jump to Mr. Longfield, for six minutes.

Mr. Lloyd Longfield: Thank you, and I'd like to split the time with Frank.

What a great discussion.

Something that's come out of the testimony we've had so far has been business owning more IP. I'm also looking at the universities needing to own IP in terms of long-term research. I'm thinking of crop science and pharmaceuticals, for which there's considerable overhead from the university side.

Code, have you seen any examples of two-directional IP being driven by business having one set of agreements, and IP being driven by universities having another set of agreements? Is that a model we could be pursuing?

Mr. Code Cubitt: Just to clarify, you mean that the businesses create contracts a certain way and that the universities do it a different way.

Mr. Lloyd Longfield: I'm thinking that the University of Guelph has developed a protein spray for cardboard. It went through a lot of research to do that. Businesses didn't ask for that, but, wait a minute, if I'm packaging breakfast cereal and I don't have to include bags in my cereal box, that would be very valuable for me, so I could pay the university a licensing fee for that. That's versus if I'm in the cereal box business, and I ask you to develop a protein spray for me and I will pay for the IP for that to be developed.

Mr. Code Cubitt: I see. I think it's a combination of both of those. I think the collision between academia and industry is a powerful one, because academia can have a much longer-term view and go much deeper on the research side. Industry, obviously, has a much more near-term focus on products and development, so I think there's a serendipity of long-term research, the curiosity of some professor, and then there's a practical notion. If you bring them together and industry says, “Look, here's my shopping list of these five things”, maybe there's a professor who says, “Hey, I know about that.” But at the same time there are four others who are doing something else that won't come to fruition—Geoff Hinton is a great example—for 30 years. We need to support both.

Mr. Lloyd Longfield: Right, so flexibility is key.

Mr. Code Cubitt: I think that's true.

Mr. Lloyd Longfield: Thank you.

Mr. Baylis.

● (1010)

Mr. Frank Baylis: We touched on the question of pushing versus pulling. That came up in a previous discussion with technology transfer officers. As opposed to just sitting in their office and hoping someone picks up the phone and calls them, the successful ones say they were going out there pushing the technology onto universities. I think one of you mentioned this Irish person. Was it you—

Mr. Code Cubitt: That was me.

Mr. Frank Baylis: Would that be something we should look at for our technology transfer officers, something to incentivize them to go out into the world, as opposed to sitting and hoping the phone rings?

Maybe you could start, Code, and then Ms. Johnston.

Mr. Code Cubitt: I think that's a tactically specific thing within the broader context.

My view is that we should enable universities to essentially do it however they find works best. By that I mean specifically take 1% of research dollars, of the $7 billion that goes into universities—so $70 million—and earmark that for that job, for technology transfer and business development, and let the universities decide whether that means an outbound BD person or a raft of people sitting by the phone waiting for inbound calls. I would leave it to the universities to figure out what works best for them, as long as you're measuring it on the back end and then feeding that loop back.

Mr. Jeff Musson: I just want to pipe in very quickly.

I've been very fortunate as an entrepreneur, as have a lot of our members. We've leveraged the trade commissioner offices and the consular offices around North America and around the world. The key is that those trade commissioners are already kind of on the ground, with the boots on the ground, and you never hear the universities come up in discussion. If the university is connected with the trade commission which is already established, that's a great entry to be promoting this technology.

Ms. Pari Johnston: I have a couple of comments.

Starting with what you were saying, Jeff, it is probably more fair to say there are a lot of institutions that are very globally connected that are working with the trade commissioner service. We are very plugged into that group and have been having similar conversations with those who are setting up the invest in Canada hub around foreign direct investment, wanting to ensure that as they make their plans for what their officers are going to be doing on the ground, they understand the university assets as they promote foreign direct investment in Canada.

To your point, obviously, those who are good at what they're doing, in terms of tech transfer offices, should be getting out and doing the push factor, both in Canada and globally. To me, that is an obvious part of the job description that should be happening. Particularly in this day and age, you can't just be sitting in your office waiting for phone calls.

There is one interesting model, which we talked about in our paper, we are seeing in the United States. Dalhousie University has brought us the ICORE initiative, which is an opportunity to do some work with faculty and grad students to help train them, and those who support them, on how best to work with industry and how best to commercialize. That is something Dalhousie is starting. I would really love to see that being picked up as a broader initiative in Canada, because it is about equipping people with the right skills. What faculty does best is delve down and drill down deeply, as we've talked about, but many of them want to make sure that what they're developing is out in the marketplace. Sometimes, it is helping build the skills, both through the tech transfer office and the ICORE initiative, where they're also paired with grad students who are trained in this expertise, who maybe have more time than the faculty member does.

I want to spend one second on global connections, because I think that is a really important point. From our perspective, universities are under-leveraged assets in terms of our global relations. When we look at the CETA with the European Union, we have incredibly deep research partnerships with European institutions. Right now, they are looking to us in a way that has never been higher, with Brexit. I would say the same for China. We are being highly sought after for our research expertise and can help be part of the team Canada approach to promoting Canadian expertise abroad. I wanted to make sure that point was made.

The Chair: Thank you very much.

We're going to move to Mr. Dreeshen.

Mr. Earl Dreeshen: Thank you very much. I just have a couple of comments. They do tie into some of the things that have been mentioned.

As I have indicated in this committee before, I had the opportunity to be with the science minister in Germany. They told us that, as far as the Canadian taxpayer is concerned, they are giving the same amount of money per GDP and per population for research and development. So, when we hear suggestions that Canadian taxpayers are not doing their part, we should discuss it.

A 2014 Government of Canada report said:

> Canada ranks first among G7 nations for investments in R&D in universities and colleges relative to the size of our economy.
>
> Canada's researchers produce more scientific publications per capita than most industrialized countries. In fact, with less than 0.5 percent of the world's population, Canada produces more than 4 percent of the world's research papers and nearly 5 percent of the world's most cited papers.
>
> Canada's post-secondary institutions have leading-edge research programs and infrastructure that facilitate and stimulate collaborations and networks.
>
> Universitas 21, an international network of universities, continues year after year to recognize Canada's higher education system as one of the best in the world.

We have a lot to be proud of, but it does get a little frustrating when we say we are not putting taxpayer dollars in. What we are getting to, and that is why we are having this discussion, is how we then tie business in, and how business is able to get into part of that. That is where I think we are in the discussion.

I just wanted to make that point again when we are talking about leveraging trade commissions. That's what we did when we were talking about how to make sure things were going to happen. That is just a comment I wanted to make.

I'll leave the rest of the time for Mr. Nuttall to continue with his questions.

● (1015)

Mr. Alexander Nuttall: Thank you.

I would like to go back to the theme of measurables, and maybe tie it into the latter part of my previous question. We have a major funding announcement, the largest funding announcement for innovation that we have seen in a very long time, probably ever, quite frankly. What are the measurables that we should be looking at with relation to this $950 million?

It is so difficult to gauge success. The worry for me on this fund specifically is if this billion-dollar investment creates a certain number of jobs, a certain amount of economic output, start-ups, moving into commercialization, creating jobs in Canada, etc., that is great, but it is difficult to measure. Also, it sounds as if all three of you will somehow be integrated into this. What is it you're looking for, to measure success?

Mr. Code Cubitt: It's tough. I don't envy you your job, honestly. My job is much easier. I get a dollar, I have to give back three. It's very clear.

In my experience so far on this subject, a lot of statistical wrangling goes on. We created these jobs, we're claiming attribution for this, and so the IRR calculation is very fuzzy. I don't have a clear answer, other than putting emphasis on the process, and auditing that process at the end of the day.

Mr. Jeff Musson: The hard reality is you're not going to know if you're successful for five or seven years, and that becomes a problem. You're betting the chips on something that you're not going to know if it was successful or not for seven years. In the meantime, it doesn't mean you can't have various markers on which to start measuring that success. It could be job creation, licensing, whatever, but the honest truth is you're not going to know for a while down the road.

Ms. Pari Johnston: I'd underscore what my colleagues have said. I think it is taking a long-term view. As I look at the last report to Minister Morneau of the Advisory Council on Economic Growth, where Dominic Barton and his colleagues put out some of the early recommendations that led to the superclusters initiative, with particular identification of the agrifood sector as one where Canada can be the best in food, they did articulate some long-term goals and targets that should be met as part of this kind of investment. I think that's also something to look at. But I think we have to understand these are investments over the longer term in some cases. We see this with investments in research. I would agree that some of the measurables around job creation and others are going to be early ones to start with, but we have to understand the longer-term impact of results.

Mr. Alexander Nuttall: Government has the luxury to look long term, but start-ups don't. There seems to be a disconnect here. From a different perspective, if $1 billion was sitting on the table, what would you do with it to help with knowledge transfer or ramping up start-up businesses if you had a blank slate?

● (1020)

Mr. Code Cubitt: I'll give you a flippant answer, and then maybe a more thoughtful one.

I would create high-speed rail between Montreal and Toronto.

Mr. Brian Masse: No, Windsor.

Mr. Code Cubitt: Windsor? Okay.

That connects people. I was in China recently, and 10 years ago the fastest train in China went at 46 kilometres an hour. Today, they have 22,000 kilometres of high-speed rail, at 500 kilometres an hour. That enables people in rural China to commute to downtown Shanghai and work, 400 kilometres each way. It's a 45-minute commute. If I had a big blank chequebook, that's what I would do: I would connect people.

If you force me to divvy it up between a bunch of constituents, I think the supercluster idea is a thoughtful one because you're marrying industry with academia. I understand there's covenance around matching funds, which I think drives some good behaviour. It's that scale. A couple hundred million dollars, $250 million, is enough to do some damage. I think the quality of submissions are reasonable, and they'll make an impact.

The Chair: Thank you.

Mr. Jeff Musson: Adding to infrastructure, it's having high-speed Internet connectivity too. That becomes key. It ties in the rural, everything like that, and that's critical too.

The Chair: Okay, thank you very much.

Let's keep on track.

Mr. Alexander Nuttall: We can put the infrastructure under the rail.

The Chair: There you go.

Ms. Pari Johnston: I would implement the recommendations of the Advisory Panel for the Review of Federal Support for Fundamental Science.

The Chair: Thank you.

Mr. Masse, you have the final six minutes.

Mr. Brian Masse: Thank you.

I'm going to pivot a little. You came back from the United States. I look at these superclusters that are taking place. I also look at the fact that 80% of the Canadian population lives within a few hours of the U.S. border. In developing those personal relationships, it's one of our biggest markets, obviously. Despite the fact that we're growing in other areas, it's the predominant one. There are 40,000 vehicles per day—10,000 trucks and 30,000 cars—that go along two miles of the border, three kilometres on the Canadian side and two miles on the American side.

The opportunity is there, but how can we best access it? I don't see this competition. I know they have different laws. We have British common law as our basis, but how do we take advantage? I'm from Windsor. I know the University of Windsor has a common law society program for Canadian and American law.

Why don't we start building on some of those assets to drive some Canadian innovation into their markets as opposed to shipping the stuff out and then getting it back? What can we do better to drive it out there? There was mention of Sault Ste. Marie. We have a whole bunch of medium-sized cities, and south of the border.... I don't think we're utilizing that. I just put that out there. How can we use that as the doorstep of the United States instead of...? The assumption is that we get washed over.

I know in the community I come from, there are no prouder Canadians, but we're also integrated with the United States, and we actually use that to a competitive advantage, sending 10,000 nurses and doctors per day over to the United States because they're better educated, better trained, and they can out-compete.

I'll start with Ms. Johnston and go across the board here.

Ms. Pari Johnston: I really appreciate your raising that, because I think the University of Windsor is a great example of an institution that has really been innovative in the collaborative programs that touch on cross-border issues and partnerships with their counterparts across the border.

There is one initiative that is starting to ramp up. We're looking at, with our colleagues at the Association of Public Land-Grant Universities in the United States and our Mexican counterparts—I'm including more of a NAFTA context—whether we can start building a common research platform that brings in industry partners around some specific areas of common interest. We're looking at things like the energy file, climate change, and other common issues that will be important for us to tackle from building those partnerships, and then bringing in industry partners to help us think through what kind of research programs we need to build.

I also think that getting our students moving back and forth is really a critical part of this so that they're building an understanding of what's going on in each other's countries. We've had a lot of American students, particularly since the election, very interested in coming to Canada and studying here over the longer term. We also feel it's really important to ensure our Canadian students are getting out for some experience, more in the short term, to be exposed to the different citizen, business, political, and other cultures to understand how best to work with American partners.

Those are just a couple of thoughts.

● (1025)

Mr. Jeff Musson: I agree. One thing that has to happen in the overall tech community here, and it's great.... We're at close proximity to the U.S., but we also have to be cognizant of looking at other tech ecosystems, such as in Israel. One thing that happens with Israel is they focus on one or two things, and they're really good at it. That allows them to be out there to compete in the global marketplace.

In the case of the Windsor-Detroit area, what would be perfect down there? One thing I could never understand, and maybe it will happen some day, is that there isn't—and there should be—a centre of global security excellence down there. You're on a border. You have assets on both sides. You could tie in cybersecurity as part of this and really leverage what is in that area, no different than....

I'm not from Sault Ste. Marie, but where you have the mines and forestry and whatever, that becomes a natural fit. For us in Canada, we have to look at what we have here that makes a natural fit with the U.S. and run with it.

Mr. Code Cubitt: I'll pull on a thread that Jeff mentioned, and that is, after spending 20 years in the U.S. and the rest of my career in Canada, one thing I noticed is that Canadians love to compete with Canadians, but they're afraid of that imaginary border just south of us, and I find that ironic.

It happens a lot where I'll meet an entrepreneur in Canada and he'll say, “Oh, you're from Silicon Valley. The streets are paved with gold. It's amazing.” Well, it's not, and I can tell you that it's no different there than it is here. I hear the common refrain that it's easy to get funding. Well, it isn't, it really isn't. The laws of supply and demand make that the case.

Having said that, I think the border is artificial, and we do need to leverage relationships, proximity, culture, and language, etc. I think we need to get over ourselves. We need to be less conservative and a little bit more sort of intellectually honest with the facts.

As a firm, we do that all day long. For every dollar we put out, I think the average right now is $8 or $9 U.S. that come into our companies, and we're absolutely taking advantage of that fact.

Mr. Brian Masse: That's it.

The Chair: What a great session today.

Some hon. members: Hear, hear!

The Chair: Thank you very much.

Mr. Jeff Musson: We appreciate the invite.

The Chair: We touched on a couple of things.

Mr. Lobb asked if you could present the breakdown to us. If you could send that to the clerk, that would be great. We have online submissions until July 31, so if you have anything along the lines of measurables or anything you want to add, please feel free to submit them before July 31.

Did you have a question, Mr. Masse?

Mr. Brian Masse: Yes. I know MaRS was invited here today. Do we know what—

The Chair: He was sick.

Mr. Brian Masse: That's unfortunate. I just thought it was important to get that on the record, and then they can also make submissions. I just thought that was important because it was raised.

Mr. Earl Dreeshen: On the same issue, Mr. Musson mentioned the significance of broadband. That also is a study we're dealing with.

Perhaps if you have something that you'd like to contribute there, we also have a time frame this summer to get briefs. If you wouldn't mind—

Mr. Jeff Musson: Absolutely.

The Chair: We are actually accepting briefs for broadband as well.

I want to thank everybody for the great testimony. We're going to suspend for a very quick two minutes to say goodbye to everybody, but we're limited on time. We have a few things to take care of. Thank you.

[*Proceedings continue in camera*]