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Chair

Mr. James Rajotte

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● (1110)

[*English*]

The Chair (Mr. James Rajotte (Edmonton—Leduc, CPC)): Order, please. I call meeting number 33 of the Standing Committee on Industry, Science and Technology to order.

Under the orders of the day, we are continuing our study of Canadian science and technology.

We have with us here today five witnesses, representing four organizations. First of all, from the Association of Canadian Community Colleges, we have Mr. James Knight, president and CEO; secondly, from the Canadian Institutes of Health Research, we have the acting president, Mr. Pierre Chartrand; from the Natural Sciences and Engineering Research Council of Canada, we have the executive vice-president, Mr. Nigel Lloyd; and from the Social Sciences and Humanities Research Council of Canada, I understand we have two individuals, Mr. Chad Gaffield, the president, and Carmen Charette.

Welcome to all of you.

We would like opening statements of up to about five minutes. I can be a little lenient on time, but if you can try to keep it to five minutes from each organization, then we will go immediately to questions from members.

Mr. Knight, we'll start with you and work our way across the table.

[*Translation*]

Mr. James Knight (President and Chief Executive Officer, Association of Canadian Community Colleges): Good morning, Mr. Chair.

Good morning, everyone. I am pleased to meet you this morning.

[*English*]

Canada's system of community colleges is an important part of our research and development capacity in Canada. I want to tell you a few things about it.

We represent 150 community colleges, CEGEPs, university colleges, and polytechnics from all parts of Canada. We have 1,000 campuses distributed from the far south to the far north, east and west. Most of these institutions were established in the 1960s. Importantly, with a very significant federal investment and with federal leadership, they were virtually all built in a four-year period. Of course we're very tightly linked to Canada's industrial and technical drivers and we're an important part of the innovation system.

The two things I want to focus on in my five minutes are Canada's skills crisis, which is present and critical, and enhancing our entrepreneurial advantage.

As I said, the skills crisis in many sectors is already critical. Most skills in high demand are the outputs of our institutions. I could name many sectors that are crying out for more graduates. So there is immense pressure on our institutions to meet the needs of employers, but unfortunately, literally thousands of qualified students are on long wait lists to get access, sometimes as long as three years, which is particularly unfortunate since we know these graduates will be employed immediately.

Most of our institutions have great success in getting employment for their graduates, and increasingly, university graduates are coming to community college to equip themselves to get jobs. So this is an important thing for you to keep in mind. With the background in federal participation in launching the system and given the skills crisis and its potential damage to the economy, we're going to have to initiate a conversation about recapitalizing these institutions, ensuring that they have the facilities they need, the equipment they need, and the faculty they need to continue to supply the skills that drive the economy.

I'll give you a quick statistic. The Canadian Federation of Independent Business recently reported that their members who need skilled workers have indicated that out of every seven they need, six will be graduates of community colleges.

So we have some very specific thoughts about recapitalizing our institutions, but I won't initiate a large discussion here. It's something we want to talk with you about in the coming months.

We do recommend specifically that you can contribute to our success by instituting a student internship program. We have traces of that, which would be similar to the NSERC university undergraduate industrial award program. Generally speaking, we think our institutions are competitive and should have equal access to a program of that nature. We would be arguing for a national college and institute scholarship program in science and technology, something we had historically. This would stimulate student interest in this area.

We would also suggest that we expand and renew the student connections program, which is a job placement program supported by the Government of Canada, to give students experience with small businesses, and also, importantly, we would argue for the reinvestment in international student mobility. We have to keep in touch with our competitors around the world.

Speaking briefly about enhancing the entrepreneurial advantage that Canada seeks to achieve, our institutions play a critical role in this activity. In response to market pull or the interests of local businesses, our institutions support and engage with small and medium businesses, in fact businesses of all sizes, to help them with their innovation needs, their technology needs, their process needs. We have now, for the first time, importantly, a very small federal program to support this activity. It's $48 million over five years. It will provide some support to about one-fifth of our institutions. This is something we could wrap up, particularly when we have some successes to demonstrate.

When talking about the research and development strengths of our institutions, I won't go into any examples, but in your brochure there's a really interesting report on the outcomes and outputs of our colleges. You would be amazed by what they do to support local businesses. I won't even cite one example; there are many there for you to look at.

It is time for Canada to look at its enormous investment in research and balance it more equitably between support for large-scale discovery research and support for college-institute-industry partnerships. That's basically our theme. NSERC invests more than $950 million every year on people, discovery, and innovations. Our institutions receive a very small fraction of that despite their capacities.

I could go on, but basically we're looking for some equity in the system, Mr. Chair. That's my five minutes. I look forward to answering your questions.

The Chair: Thank you, Mr. Knight.

We'll go to Mr. Chartrand, please.

● (1115)

Dr. Pierre Chartrand (Acting President, President's Office, Canadian Institutes of Health Research): Honourable members of Parliament,

[*Translation*]

I am very grateful to you for the opportunity to appear before you today to talk about Canada's science and technology policy in the context of health research.

[*English*]

I appreciate the opportunity to present to the members of this committee on how CIHR contributes to the government's vision for Canada to become a world leader in science and technology.

Let me start with a brief overview of CIHR. The Canadian Institutes of Health Research is the Government of Canada's agency to fund health research and training. Our mission is to create new scientific knowledge and to translate that knowledge into improved health outcomes, a stronger health care system, and economic and social benefits for Canadians.

[*Translation*]

Ms. Paule Brunelle (Trois-Rivières, BQ): Could you slow down, please? The interpreter is having a hard time keeping up with you.

[*English*]

Dr. Pierre Chartrand: Sure.

Composed of 13 virtual institutes headed by leading Canadian researchers in their respective disciplines, CIHR provides leadership and support to more than 11,000 health researchers and trainees across Canada.

[*Translation*]

CIHR was designed to address research challenges across the spectrum of health research. In addition, our unique Institute model enables CIHR to be "nimble and quick" to respond to emerging health research priorities.

For example, when the SARS outbreak occurred five years ago, CIHR moved very quickly in mobilizing a team of Canada's top health researchers at the University Health Network in Toronto to develop a treatment for SARS patients.

[*English*]

The outcomes of the CIHR model have been first to develop and attract the best minds. CIHR understands that a highly skilled research community is essential to Canada's ability to become a world leader in science and technology. We support the best and brightest trainees to ensure Canada has the best-educated and most-skilled human health workforce.

With our academic and public and private sector partners, we currently support 92 large post-graduate training centres and have invested $98 million in these centres between 2000 and 2007. Over the same period, we also invested more than $292 million in training awards to individual students, supporting, just for 2006-07 alone, 2,000 students. It is a priority for CIHR to promote Canada as being at the forefront of health research and training and to make Canada a destination of choice for top international researchers and students.

Budget 2008 provided a $20 million endowment to the Gairdner Foundation. This foundation has an international award program for outstanding biomedical research by an individual. This award is recognized as one of the most prestigious in this field in the world, and 70 out of the 288 Gairdner recipients have gone on to win the Nobel Prize in either medicine or chemistry. Just this week, the Gairdner Foundation announced the recipients of the awards for 2008. Two of the awardees are CIHR funder-researchers: Dr. Samuel Weiss from the University of Calgary, and Dr. Nahum Sonenberg from McGill University.

In terms of research results, if there is one message I would leave with you today, it is that health research is certainly one of Canada's strengths, and we are also leading in this area internationally. We have built over the years a system of health research and institutional excellence in our country that we need to grow and protect.

Let me mention recent leading-edge outcomes from CIHR-funded research. An example of health research successfully translating into application is the work of Dr. Tim Bryant's research team at Queen's University, which was supported through CIHR's proof of principle program. They contributed to the design of a new affordable, high-energy, and durable artificial limb, which is currently manufactured in St. Catherines, Ontario. This product is now available in Canada as well as in several countries, including El Salvador and Thailand, for landmine victims.

[*Translation*]

CIHR is aligned with the Government of Canada's Science and Technology Strategy. The strategy sets very important directions for CIHR and for our health research partners. The strategy sets out four principles to guide science and technology investments: in short form, they are excellence, partnerships, priorities, and accountability.

[*English*]

Let me emphasize the principle of excellence in health research. CIHR only funds research proposals that meet the highest international standards of excellence. This is achieved through a very rigorous process of evaluation done by peers, who volunteer their time and expertise to ensure the quality of the research that is supported by CIHR. Unfortunately, we can only fund about a third of the proposals that pass this rigorous process of peer review.

I would also like to say a few words about partnerships and knowledge translation. These concepts have always been central to how CIHR does its business, and I have placed personal emphasis on these as acting president. Our partners—provincial and territorial governments, the not-for-profit sector, and the private sector—not only provide additional resources, but even more importantly, they ensure the translation of knowledge to real-world applications.

In 2007-08, CIHR secured approximately $105 million in additional resources through partnerships and has entered into agreements with partners to ensure that the research results are used to the benefit of Canadians. For example, recently CIHR, in partnership with AstraZeneca, provided $5 million in funding to Dr. Manon Choinière at the Montreal Heart Institute, and James Henry at McMaster University, through the community alliances for health research and knowledge exchange on pain initiative, to engage active partnerships between research teams, public and private sectors, and community organizations in excellence research on pain, with an emphasis on its translation in health benefits.

As part of the science technology strategy, the Government of Canada has entrusted CIHR, SSHRC, NSERC, and CFI to manage Canada's envelope of support for higher education R and D in a comprehensive way. With our colleagues from these agencies, we have vigorously set out to do just that by implementing an extensive action plan.

● (1120)

The Chair: Can I get you to wrap up, Mr. Chartrand?

Dr. Pierre Chartrand: Okay.

We are fully endorsing the setting of priorities in health research in order to be accountable to Canadians.

In conclusion, translation of health research into health, social, and economic benefits in collaboration with academic, public, and private sector partners is critical to solving many of the health-related issues that are important to Canadians. In the area of the global knowledge economy, our success will depend on our ability to nurture young researchers, generate new knowledge, and translate that knowledge into social, health, and economic benefits.

Thank you.

The Chair: Thank you.

We'll go to Mr. Lloyd now, please.

Dr. Nigel Lloyd (Executive Vice-President, Natural Sciences and Engineering Research Council of Canada): Thank you for the invitation to meet with you today.

[*Translation*]

I am honoured to have this opportunity to talk to you about the National Sciences and Engineering Research Council of Canada and its role in the implementation of the Science and Technology Strategy.

[*English*]

I have submitted a prepared brief, but I would like to keep my remarks shorter than that to maximize the time for questions.

I have just three messages that I would like to give you. First, we are completely aligned with the government's S and T strategy. Second, we are delighted to be viewed as central to the government's role of solving Canada's economic and societal problems. And third, we're working very closely with our colleagues at CIHR, SSHRC and CFI, and indeed ACCC to optimize the government's investment in S and T.

Let me elaborate very briefly on each of these three messages.

NSERC's vision is to make Canada a nation of discoverers and innovators for the benefit of all Canadians. We do that by investing in people, discovery, and innovation, with the aim of advancing prosperity and quality of life in Canada. These three thrusts of people, discovery, and innovation align perfectly with the S and T strategy's three thrusts of people advantage, knowledge advantage, and entrepreneurial advantage. In addition, the strategic areas that we support align well with the strategy's priority areas of natural resources and energy, environmental science and technologies, information and communication technologies, and health and related sciences and technologies. We have adjusted our areas to be fully aligned with the strategy. The strategy talks about promoting world-class excellence, focusing on priorities, encouraging partnerships, and enhancing accountability. We are completely committed to these four principles. For example, we have just completed an international review of our largest program to ensure that it meets international standards of excellence, and we have changed our governance structure to enhance accountability.

Now for the second message. We are happy to help solve Canada's economic and societal problems. In the most recent budget, the government has asked us to help solve immediate problems in the automotive sector, manufacturing, forestry, and fisheries. We are busy designing initiatives to accomplish this goal. Another significant problem in Canada is the limited amount of R and D performed by Canadian industry. We are attacking this problem by increasing the number of partnerships between university researchers and industry and by doubling the number of young scientists and engineers that get trained in an industrial environment. Our approach to solving Canada's problems is to attract the best people, give them the resources and the tools to do their research, and encourage them to put their discoveries to good use for the benefit of Canada.

The third message. With respect to tri-council collaboration, this is happening at many levels. We are working to coordinate our programs, perhaps most importantly so that we can better encourage and respond to research proposals that cross council boundaries. We have a large number of working groups working on many different aspects of this. Indeed, we have already opened up our programs, as have our fellow councils, to applicants from outside our traditional mandates. We are also working to coordinate our processes, such as having a common CV for a community so researchers don't have to keep different versions of their CV for different agencies. We're also working towards a single point of contact for students applying for scholarships who may not be sure which council their area relates best to. We are also working collectively to improve our ability to measure and report on the impact of the investments we have made. All of this is being done with an enthusiastic spirit of cooperation from the presidents on down through the organization.

I think I'll stop there, Mr. Chairman. We are very pleased to be part of a very exciting time for S and T in Canada.

● (1125)

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

We'll go to Mr. Gaffield, please.

[*Translation*]

Dr. Chad Gaffield (President, Social Sciences and Humanities Research Council of Canada): Good morning, Mr. Chair, and thank you very much for this opportunity to appear before your committee with my colleagues and the Council's Executive Vice-President, Ms. Carmen Charette.

Your study on science and technology is very important and I am delighted to have the opportunity to contribute. I would like to highlight two topics today: the contribution of the human sciences to Canada's efforts in science and technology, and the Research Council's achievements in human sciences that contribute to Canada's success in the globalized XXI st century.

[*English*]

As you know, the Social Sciences and Humanities Research Council is the federal agency that promotes and supports research and training in the humanities and social sciences, and we are now playing a key role in implementing the new science and technology strategy to make Canada a global economic leader. Our investments in the development of research and talent have helped build a broad, strong foundation of Canadian innovation and expertise on social, economic, cultural, and political issues, as well as on the human dimension of technology, the natural sciences, and health sciences.

Let me give you one example of the projects we fund, as an illustration of the increasing importance of such research. Paul Messinger, a professor at the University of Alberta School of Business, has recently led a pan-Canadian study on e-commerce to explain why Canadian retailers were not keeping pace with Americans in Internet commerce. His analysis analyzed the best conditions for online success. Working with businesses, he led a team to help understand the vital importance of real-time tools for website navigation and decision-making. It proposed policy options to help Canada avoid the boom-bust cycle of Internet business, and now major Canadian retailers are putting these research results into action.

This example illustrates how our researchers help Canadians keep ahead of the changing times, a role that has become increasingly important since SSHRC was created in the late 1970s. As you know, Mr. Chair, we began operations in 1978. We are now celebrating our thirtieth anniversary, our pearl anniversary, so we are celebrating the pearls of wisdom our researchers contribute to Canadian society.

The goals of the new S and T strategy build on past achievements and are directly linked to SSHRC's current ambitions of quality, including the promotion of international excellence; connections across disciplines, between the campus and the community and between Canadian researchers and others around the world; and impact, ensuring that our knowledge and expertise contribute to our prosperity and quality of life. You have received our document called “Framing Our Direction”, which presents these ambitions in the current context.

Specifically, we invest in the people advantage, which is emphasized in the S and T strategy, by supporting the very best and brightest minds. In addition to offering scholarships to students, we support professors who, through their research, inspire and mentor the next generation of Canadians. In the changing economy and society today, our graduates are becoming more important than ever across the private, public, and not-for-profit sectors.

Second, we foster the knowledge advantage by nurturing research excellence that builds understanding about people, community, institutions, and societies in the past and present with a view toward making it a better future. As is emphasized in the headlines of our newspapers every day, our research about people, what they think, how they behave and why, is crucial to our prospects in the 21st century.

Third, with respect to the entrepreneurial advantage, we support partnerships, connections, and knowledge sharing to bring the benefits of research to society. We foster innovative collaboration with community organizations, businesses, and government agencies, and we help Canadian experts lead international research networks. We are facilitating and enabling the mobilization of knowledge to enhance understanding and decision-making, in other words, to help build a stronger and stronger society.

● (1130)

[*Translation*]

Allow me to mention another example to illustrate my point. It is a research project by Mr. Réjean Landry at Laval University who has produced an exceptional body of research on innovation and knowledge transfer. He is particularly interested in ways to provide research results to the companies, governments and communities that need them. He works in partnership with a number of different networks, in health, in public administration, in natural sciences and in technology. In fact, his interdisciplinary approach, the results of his research and his practical recommendations have helped to establish this field of research on an international scale.

[*English*]

SSHRC has, through investments in research, enhanced significantly our capacity to address critical issues such as our aging population, immigration and diversity, the new economy, aboriginal life, and thanks to the additional support given in budget 2007, the research fields of management, business, and finance. The new funding for these fields will increase our understanding of topics such as innovation, entrepreneurship, labour markets, and sustainable economic development across multiple sectors and in the global context. More students, researchers, and partners are now focusing on key issues such as industrial and technological development, information technologies, environment and sustainability, and financial and monetary systems, and now, thanks to budget 2008, we will be able to increase our investments to further support research on the environment and the well-being of northern communities.

Let me also emphasize that at SSHRC we have made major strides to enhance accountability through renewed governance. Our council membership has been revised to be more inclusive of diverse sectors of society. Our organization has been restructured to make us more effective at moving knowledge into practical applications. And given the central importance of independent expert evaluation to ensure both excellence and non-partisan transparency, we are increasing the participation of international researchers in our peer review system in order to ensure that our practices meet the highest international standards.

Let me also emphasize that there has been concerted and enthusiastic collaboration, as described by my colleagues—

The Chair: I would ask you to conclude very briefly.

Dr. Chad Gaffield: Sure.

Among my colleagues at NSERC, CIHR, CFI, we implement the S and T strategy. The new investments in budget 2008 will help us further this work.

[*Translation*]

All this to say that the Social Sciences and Humanities Research Council is firmly committed to Canada's efforts in science and technology for the benefit of all Canadians.

Thank you very much for your attention.

[*English*]

The Chair: Thank you.

Thank you all for your presentations.

We'll start with members' questions, for six minutes.

Mr. Brison.

Hon. Scott Brison (Kings—Hants, Lib.): Thank you, Mr. Chair.

Thank you to each of you for appearing today.

My first question is for the Canadian Institutes of Health Research. What percentage of your funding applications do you have to turn down currently?

Dr. Pierre Chartrand: We can look at it in two ways. In terms of the applications we receive, the ones that are funded represent about 20% to 25%, depending on the competition. But the ones that pass what we call the funding level—that is, they are fundable applications—represent about one third.

● (1135)

Hon. Scott Brison: So a third of meritorious fundable applications you have to turn down.

Dr. Pierre Chartrand: Exactly.

Hon. Scott Brison: How does that compare with the U.S. NIAH, for instance?

Dr. Pierre Chartrand: Currently in the U.S. the success rate is very low. It has been extremely low over the last few years. I can give you the number of successful applications in terms of the overall applications. It would vary, but it is somewhere between 10% to 15%, depending on the panels.

I can't tell you in terms of fundable applications. I don't have those numbers.

Hon. Scott Brison: I appreciate that.

I have a question on commercialization. There's a perception that the environment for commercialization in Canada has generally not been as robust as that in the U.S. I'd really appreciate your views on that. And there may be some insight from the community college side, because there is a degree of practicality in community colleges that may be able to benefit commercialization.

When I was in investment banking, our firm did a lot of biotech commercialization work. We found that of all the Canadian provinces, Quebec had the best environment for research, development, and commercialization in health areas.

I'd appreciate your views, first of all, on the nature of commercialization and the environment in Canada and what we should be doing in terms of federal public policy to strengthen commercialization.

Dr. Pierre Chartrand: To start, I think the funding agencies can provide support mainly at the discovery stage, and also at the proof of principle stage. Beyond that, it would take much more investment and resources to be able to go—

Hon. Scott Brison: A lot of that investment has to be private sector venture capital investment.

Do you take time to consider public policy, for instance, around capital gains taxes and those kinds of areas that can have a role in attracting the capital here? Do you consider that? If you don't, that's a problem, because you have to be interested in helping us develop public policy that helps your discoveries become commercialized in Canada, and the capital markets are part of that.

I'd appreciate your views on that.

Dr. Chad Gaffield: I'll jump in because, as you know, commercialization is a subject in the social science humanities and we fund a lot of research on this. Thanks to the additional funding we received last year, I think we have been able to considerably ratchet up interest in this with the new funds in management business finance.

I think the issue has to be viewed from two perspectives. One is from the point of view of the university and the other from the point of view of the larger society. There's a commercialization aspect in terms of goods, and then there's what we call a social innovation aspect in terms of services. So how can we connect new research on campuses to the larger society, both in terms of businesses interested in goods and private-public sector interested in providing services? What we find, on both sides, is that there is a lot of learning to be done and a lot of new mechanisms to be developed in terms of making those links.

I think in the natural sciences and engineering side of things, some of the tech transfer offices that have been built up in recent years have worked on this. There are some different approaches there. On our side, we're developing new structures to facilitate what I was referring to earlier as social innovation—how to get new knowledge about the services side across.

But there's no doubt, I think both on the campus side and in terms of businesses and the public sector, we have a lot of learning to do on how to really maximize those connections.

Hon. Scott Brison: I want to ask a question specifically on what many believe to be the greatest opportunity in terms of commercialization over the next 10 to 20 years, and that's the whole area of clean technology and environment technologies, with the emerging energy demands of India, China, Brazil, and others.

Canada has a unique potential as an energy country to actually position itself as a clean energy country if we do the right research. B.C. firms like Kleiner Perkins and others are lining up and putting a lot of money in. Last year $150 billion was put in in terms of capital invested in clean technology.

What should we be doing to position ourselves singularly and to have a focus on making ourselves the best place in the world to research, develop, commercialize, and export clean technology and environmental technologies?

● (1140)

The Chair: Okay, I think we'll get Mr. Lloyd to answer this one.

Dr. Nigel Lloyd: Yes, perhaps I can take that one.

This of course aligns very well with one of the S and T strategy's priority areas of natural resources and energy, and we indeed have a strategic area on sustainable energy systems. So what we need to do is put more focus on research to try to bring out the best possible technologies that we can then transfer to the private sector. We are indeed putting much more emphasis on these areas right now.

The Chair: Thank you.

Mr. Knight.

Mr. James Knight: I really would invite the members to look at this brochure to understand the remarkable successes of commercialization in community colleges, institutes, polytechnics, CEGEPs, and so on. The examples are stunning. It is market pull. It is what the local businesses have identified as opportunities, and I think the success is quite notable. It's not just universities. This is our key message.

The Chair: Okay, thank you. Thank you, Mr. Brison.

We'll go to Madame Brunelle.

[*Translation*]

Ms. Paule Brunelle: Good morning, madam. Good morning, gentlemen.

In the light of what Mr. Brison said, one thing strikes me, Mr. Lloyd. You told us, among other things, that industry has little involvement in research. That involvement must be increased. This is not the first time that I have heard that said here at this committee.

As well, Mr. Knight, you mentioned community colleges. I tend to believe that, in science and technology, we should align education with the techniques of industry to a greater degree. I was wondering if we are looking for a tie-in with industry.

Do we have a good tie-in with industry and education, which might result in industry becoming interested in more advanced research? Are these sectors linked?

Mr. Gaffield, you were telling us that at Laval University, for example, Mr. Réjean Landry was bringing data from different sectors together. Should we not be coming up with new ways to ensure that we have students trained in the right areas of technology, that research is going in the right direction, and that we will be able to bring everyone together in the interests of getting things to market effectively?

Those are broad strokes, but that is the world we live in.

Dr. Nigel Lloyd: I can start. There are two things there.

As I said in my remarks, we plan to double the number of students receiving education in an industrial environment. The result can be a significant increase in people with industrial training. These links between the two fields are very important.

Ms. Paule Brunelle: How do you explain the fact that industry's involvement in research is so small?

Dr. Nigel Lloyd: That is really a question for industry. I think that there are a lot of problems.

[*English*]

Part of it is the fact that much of the research in some of the larger companies is done outside Canada. That's one factor. Part of it is the fact that we maybe haven't done as good a job as we can of demonstrating to industry the benefits of trained people in science and technology for their own businesses.

I think there are a lot of issues there.

[*Translation*]

Dr. Chad Gaffield: May I add something that we have noticed? In Canada, the number of business leaders with masters and doctoral degrees is smaller than in the United States, for example. It is something to think about.

Generally speaking, we do quite well in Canada with participation rates at undergraduate level in colleges and universities. But at graduate level, we are clearly weak, including in the human sciences and in industries whether large, medium or small. Perhaps that is a factor. We do not go to graduate level to a great extent.

The Canadian Council on Learning is studying this at the moment. It is a very good question to which we do not yet have all the answers.

● (1145)

[*English*]

The Chair: Mr. Knight.

Mr. James Knight: I would just briefly comment that in our sector overwhelmingly the investments are by the private sector. Many of the cases cited in our information involve significant private sector funding. I'm not saying that it's adequate or there shouldn't be much more, but I know that one of our institutions in eastern Canada, the Nova Scotia Community College, has a very large R and D program, which is overwhelmingly supported by private sector interests. Nova Scotia as a province has also contributed, but overwhelmingly the funding is from the private sector.

So there are prototypes and examples that I think are quite positive and that need to be examined.

[*Translation*]

Ms. Paule Brunelle: Is anything being done to attract women into science and technology?

Dr. Pierre Chartrand: Yes. The three councils, and I include the Canadian Foundation for Innovation, are making great efforts to put in place programs to encourage the development of careers for women in science, in research and in human sciences.

The issue is not necessarily about support at the beginning. We put our emphasis there in the past and we succeeded in making changes. In health research, the trend in recent years has really changed.

The number of women pursuing advanced studies has greatly increased. However, what we are noticing is that we have moved the problem to the middle stage, that is, beginning researchers making the transition into an established career. We still need to put mechanisms in place and they need a lot of involvement on the part of universities and institutions. The problem is not just in continuing to support research, which is a determining factor in a career path, but universities have to recognize that women need certain accommodations in order to pursue their career paths.

Ms. Paule Brunelle: Do I still have time left?

The Chair: You can ask a quick question.

Ms. Paule Brunelle: Mr. Chartrand, you said that we have to attract the brightest researchers, which costs astronomical amounts. It seems to me that we need an infrastructure that supports teams, since research work is often team work.

Is the federal government making enough effort in this area? Is Canada competitive with other countries in the world?

Dr. Pierre Chartrand: The programs that Canada has put in place in recent years make us competitive.

Before I joined CIHR, I had the privilege of setting up a new research institute at the Université de Montréal. Because of programs established quite recently, we were able to attract a number of teams from the United States and Europe. We even brought home a good number of researchers and their teams, which is essential for the continuity and the quality of the research. There has been enormous progress in this area.

Ms. Paule Brunelle: Thank you.

[*English*]

The Chair: Okay. *Merci*.

We'll go to Mr. Carrie, please.

Mr. Colin Carrie (Oshawa, CPC): Thank you very much, Mr. Chair.

I'm going to be very quick with my questions and allow you time to answer. The first question is more to the government witnesses.

How would you decide on which research project sectors you give money to, as far as the process is concerned? I wonder if you could comment on that.

I did want to give Mr. Knight a chance to comment. We hear over and over again that Canadians are really good at the theoretical research, but as my colleague was stating, there seems to be this big commercialization gap, and applied research is very critical for Canada's future. I was wondering whether you see that there's a bias in the system—I've heard this before—towards the universities as opposed to the community colleges.

With that, I'd like to be quiet and let you all respond to that. That should take my six minutes.

Dr. Nigel Lloyd: I'll start on how we decide which sectors to give money to.

We do that on a regular basis with a fairly comprehensive approach of consultation with obviously the research community, but with other government departments as well. We go out and say, "What are your most pressing issues at this time?" We have several months of consultation, and then we come to a conclusion as to what our priority areas for our strategic projects program should be. This was done, of course, before the S and T strategy, and it happened that there was very good coincidence with the priority areas in the strategy. We do that about every five years, or something like that, to make sure they stay up to date.

● (1150)

Dr. Pierre Chartrand: I would add a comment to that.

Certainly very important in health research and the other areas too is that we need to be in line with...because knowledge translation involves the application of the results. In health that is largely dependent on the provinces, so we really need to have strong consultation with the provinces and know their priorities in order to be able to respond to this, and so that there will be an up-taking of the results, because they'll be interested in them.

Another comment I would make, though, is that the enterprise, the research, is also based on the fact that we support the best ideas from the brightest minds. That means we do not necessarily solely focus on targeted areas, but give the possibility for the researchers to present their best ideas. It's very difficult to predict the ideas that will have made a difference in years to come.

Dr. Chad Gaffield: Could I follow that up? It's such an important issue.

The question is very interesting, because what we're basically faced with is trying to address and contribute to issues that are in the headlines and preoccupying us today, and at the same time trying to get ready for tomorrow and to prepare the way for our descendants and so on. It's always that balance in trying to do that. I often think about what I like to call the September 10, 2001, story, when we were financing work on the Middle East and the 15th, 16th, 17th, and 18th centuries, and all of sudden, the next day, it became crucial to our understanding of world events.

It's that balancing act. We work at that a lot with our expert committees and in interactions with our colleagues in government and across Canada. I think it's so far, so good—so far no issue has come up instantly where we can't turn and say, wow, we have some experts we can contribute. Then when it becomes important and we get additional investments—management, business, finance, environment, and so on—we can really ratchet that up, but we have that base to build on.

Dr. Pierre Chartrand: SARS is another example. We needed to have the preparedness, but we couldn't predict in advance that we'd have the problem.

Mr. Colin Carrie: Okay. Thank you very much.

Would you comment, Mr. Knight?

Mr. James Knight: Thank you very much for your question, which goes to the heart of our argument.

We strongly support investments in universities. We believe in discovery research, but indeed there is a more applied side of research, in which our institutions have developed a very great success. There's really very little investment there. There is a new program, as I mentioned, that will support some work in one in five or one in six of our institutions. We think that should be ramped up.

We also think that while we have access to a variety of federal funding sources, the criteria clearly are weighted in favour of universities. I think our colleagues from the Government of Canada have pretty well underlined that. We're not against that; it's just that there's this whole important component of ties with industry and commercialization that we're almost completely neglecting. It's a huge oversight on the part of the Government of Canada.

My job is to persuade you that there's another side of the coin that is very important to Canada's future economic prospects.

Mr. Colin Carrie: When I looked at your statistics, I saw six to one. When we did our manufacturing study, we went across Canada and we heard repeatedly about the need for human resources and how the whole system isn't getting that in there. Is there another way we can help to get this kick-started, do you think?

Mr. James Knight: My argument in the long term is that we need to recapitalize these institutions. They were all built—not all, but an overwhelmingly number—in the 1960s. They haven't been adequately recapitalized or supported over time with additional resources. In fact, in some jurisdictions they're losing resources. Despite an effort on the part of the Government of Canada in some cases to increase resources, they're in fact declining.

The system is not entirely smooth, and there are regional differences, but fundamentally.... Let me just tell you about one institution, Red River College. There are about three applicants for every position in the college. Everybody gets a job right away; employers fight over the outputs, and they have a job fair that's totally oversubscribed. Wouldn't it be sensible to make an investment in that institution that would allow it to increase its outputs? That's on the skill side.

● (1155)

Mr. Colin Carrie: With the provinces, are you seeing some leadership in this issue?

Mr. James Knight: Certainly. I'm not being negative about the provincial effort. In some cases I could be, but there are clearly successes. We're facing a national skills shortage, a crisis of significant proportions, and I could list the industries that are pleading for more graduates from our institutions. Yet we don't have the means to produce them. In my judgment, this is a national issue that requires national leadership.

The Chair: Thank you, and thank you, Mr. Carrie.

We go now to Mr. Murphy.

Mr. Brian Murphy (Moncton—Riverview—Dieppe, Lib.): Thank you, Mr. Chair, and thank you, witnesses.

Mr. Knight, you and I have pasts that collide in the municipal area. I come to Parliament with a municipal background. Municipal backgrounds invariably lead to discussions of infrastructure—bricks and mortar and all that sort of thing. I notice in your submission you talk about institutions that are four decades old and were intended to last 40 years, so I did the math and figured that was pretty much the same, so you're facing an infrastructure crisis, essentially, at the community college level, a capitalization crisis.

I've talked to numerous university presidents in Atlantic Canada, and to students on the street whom we meet with quite frequently as parliamentarians, and we've come to learn there is a tuition crisis. University tuition is very high, and university presidents smartly say that part of this, at least in Atlantic Canada, which has an awful lot of older universities and declining populations as well, has to do with lack of recapitalization of their assets.

So, true to my background, I would like to know—and maybe flesh out a little more from you and the other members—what you see as adequate recapitalization in the community college context. Perhaps we can speak to it generally, rather than just about buildings, science and technology infrastructure. All members of the panel would be interested in speaking to it, I think.

Mr. James Knight: Thank you for that.

Indeed, it's more than bricks and mortar. We're talking about equipment. That's really important. If we don't have the latest, we can't train the students in the highest and most current technologies.

Also, we're facing a really big challenge with human resources in faculty infrastructure. As you can see from the time span we've been operating as institutions, we're going to lose huge numbers of people. I can't put a dollar figure in front of this. I can't tell you specifically where to make these investments, but I think we have to take a very serious look at this.

One of my recommendations is that our sector establish an advisory group or a think group involving different governments and different institutions to really try to get our thoughts around this and come up with some specific suggestions. If we fail, many industries are going to seriously slow down—the construction industry, health services. Most health professionals come out of community colleges—nurses, technicians of many kinds. The railways are crying for people to run them, and they want us to double our outputs of railway technicians. There isn't a sector that doesn't have a problem, and this becomes a national issue.

We have to get our heads around this and we have to make some investments. If we fail to do that, the country will pay a big price in its economic prospects.

Dr. Nigel Lloyd: On the research infrastructure for universities, of course the big player in that is the Canada Foundation for Innovation. Since the arrival of the CFI on the scene 10 or 11 years ago, there's been a dramatic and very positive transformation of our research infrastructure in the universities. That has completely changed the climate. Because of that we've gone from a situation where people were leaving Canada because they didn't have access to top-class equipment to being a magnet now for talent from around the world. It's going to be really important to sustain that.

● (1200)

Dr. Chad Gaffield: One quick point I'd like to make is that these questions are pointing to the many pieces of this puzzle in terms of the post-secondary university research landscape and the different players in it. I think there are some encouraging signs. For example, we like to say at all the councils that excellence has no fixed address. We welcome proposals from across the country. One of the most interesting ones has been an initiative out of Yukon College related to the north and so on. I think there are some promising signs that we're beginning to connect across and think of better ways to help ourselves in a pan-Canadian sense, but as has been suggested, we also have a way to go.

Mr. Brian Murphy: Mr. Knight, with respect to the weight tilted in favour of universities, you danced around it fairly nicely, but in my own province community colleges are more into applied studies, as you put it. I would be more apt to describe them as adaptable. Would you agree that community colleges are best at adapting to provincial skills needs?

Mr. James Knight: They're rooted in their communities, which is why they call them community colleges. They have boards made up of local business leaders. They have advisory groups on the various areas that define the needs and the teaching. That's their greatest strength. They can change gears relatively quickly and meet changing market conditions in local communities. They have the mechanisms to ensure that this is done. I think that's their greatest strength.

The Chair: Thank you, Mr. Murphy.

Mr. Stanton.

Mr. Bruce Stanton (Simcoe North, CPC): Thank you, Mr. Chair.

Mr. Knight, I would like to carry along in a similar vein, just so that I'm clear on where you see the barriers to expanding your capacity to get some of these needs dealt with. Is this about funding for community college programs—capacity, infrastructure, and resources to put programs in place? Or are you talking about funds for research and technology advancement?

Mr. James Knight: I touched on both. I admitted that we have to work at increasing our knowledge of the problems surrounding infrastructure and output capacity. We need to do some profound research to understand these matters.

I won't say it's come upon us quickly, but we're rather taken aback by the number of applicants for courses. We're surprised by the large number of university students who now want to go to college. That's putting a huge strain on the system. There are opportunities we would recommend in research and development, commercialization, and innovation.

We have a small innovation program dealing with colleges and communities. I think we should look at making it bigger. It's very tiny. It can support only one in five or six institutions. We would like to see a more independent and flexible program.

We also put forward the notion of a national advisory committee for infrastructure and innovation in small and medium enterprises. We work closely with the Canadian Federation of Independent Business.

Mr. Bruce Stanton: When you're faced with excess demand, one response is to bring in the backbone of your community colleges. I agree that it's the right thing to do. You commented favourably about the response of the provinces. We understand that for community colleges the decisions are made mainly at the provincial and territorial level. In budget 2007, the federal government increased the post-secondary transfer by some $850 million, with 3% accelerated each year. I hope your association continues to make this situation known.

I have a general question to the granting council representatives. Mr. Gaffield, you mentioned that there are enough undergraduates in the system. I wonder if Canada is doing as well as other countries in fuelling the pool of science and technology graduates coming up through the system. Are we doing enough at the introductory levels of science to get the people we need? We want to get the best and brightest from the world, but the world needs these people too. Are we doing enough to get our own people up to PhD level?

● (1205)

Dr. Chad Gaffield: I have one quick qualification. There's no doubt that the demand for people with undergraduate degrees is increasing in our knowledge economy. Even though, internationally speaking, we're competitive, everybody is moving up on that score.

We are behind at the graduate level. That's why we were so pleased to see the addition of the Vanier scholarships and more resources coming from the Canada graduate scholarships. The key for us is the role of these graduates across the public, private, and non-for-profit sectors. The expectation and hope is that folks with graduate degrees will be able to help Canada move forward. Our people in the social sciences are getting jobs soon after graduation.

Dr. Pierre Chartrand: I think it is very important to foster the interest at the secondary level and even before that.

We have a program called Synapse. It's a mentoring program; the researchers in particular are very keen in doing that part of the mentoring. I think we need to tap into these people for help, because they are the ones who will foster a career in research among younger people.

Mr. Bruce Stanton: Thank you.

The Chair: Thank you, Mr. Stanton.

We'll go to Mr. Vincent.

[*Translation*]

Mr. Robert Vincent (Shefford, BQ): Thank you, Mr. Chair.

Good morning, everyone. I have one question that I just have to ask. You say that there is a terrible lack of investment on the part of the federal government, but do you get anything in return for the money you invest in people? Is your investment paying off?

Dr. Chad Gaffield: This is a great time to once more stress what I call the three key concrete outcomes of our investments. It brings up the question that has already been mentioned today: the development of talent. We invest in the future, in Canadian society and in the people who are going to help us move forward.

The investments allow us to understand our present reality and the world around us.

The investments also help us to understand future reality and the world as it will be in the years to come.

I feel that these investments provide us with understanding, with knowledge, and that forms the basis of what is going to protect us from the future. They allow us to mobilize people, to develop talent and to build knowledge and understanding both for today and tomorrow.

Dr. Pierre Chartrand: In the area of health, I would say that there are clear economic benefits. Think of the development of biotechnology and the pharmaceutical industry in Canada. Those are what I would categorize as classic economic impacts. In commercialization, the health sector is very active.

I also feel that we do not sufficiently emphasize the fact that quality of care and quality of life are also benefits. Reducing mortality and morbidity rates allows us to be much more productive as a people. Remarkable progress has been made in many areas on quality of life, on quality of care and, as a result, on everyone's ability to be productive.

Mr. Robert Vincent: I would like to explore that question, Mr. Chartrand. I know that you have a study that suggests a link between prematurity and autism, that you are looking at women working in situations that endanger their lives, and that researchers have identified the gene responsible for Lou Gehrig's disease. This research is a form of intellectual property. You share it without getting money or anything at all in return to help with your funding. You are always short of money, because the government does not provide sufficient funding for your chairs.

Could you not get something for the intellectual property in the work your researchers do?

● (1210)

Dr. Pierre Chartrand: Actually, the returns linked to intellectual property go to the institutions. The universities, which for the most part are public institutions, are the ones who benefit from the discoveries or the research.

Dr. Chad Gaffield: I would say that they help society move forward. As a result, society supports us as we move to the next step. I feel that Canadians benefit from the research and therefore decide to invest more at the next stage.

Mr. Robert Vincent: Continuing along the same lines, let us take the example of Lou Gehrig's disease, autism, or something like that. If one of your people discovers a product, a pill, a vaccine, or whatever, and it goes to a company that makes medications, do you also turn over your intellectual property? They use it to manufacture and market the product, but, at that point, do you get any financial benefits?

Dr. Pierre Chartrand: As Dr. Gaffield mentioned, for us, the process goes in a cycle. Researchers are encouraged to make discoveries and the institutes seek to protect the intellectual property associated with those discoveries. Any benefits from that will have economic effects on the population that in turn will be able to decide to continue the process by reinvesting in research bodies.

Mr. Robert Vincent: Do I understand correctly that you are not-for-profit organizations?

Dr. Pierre Chartrand: We are not-for-profit organizations.

Mr. Robert Vincent: OK.

Mr. Knight, you said that there is a shortage of railway technicians. Has anyone contacted the railway companies to get them to invest in your organization so that you can train people? Can a partnership be set up between industry and your institute?

[*English*]

Mr. James Knight: Absolutely. We are actively discussing this issue with the Railway Association of Canada. They have come to us.

We are also discussing the shortage of IT graduates with Microsoft and Cisco Systems. So we do have quite a strong engagement with the private sector.

The degree of their investments would depend upon the urgency of their need, I suppose, and the costs associated with their particular type of training. Obviously they make an effort to keep their investment within a reasonable framework.

[*Translation*]

The Chair: Thank you, Mr. Vincent.

[*English*]

We'll go now to Monsieur Arthur.

[*Translation*]

Mr. André Arthur (Portneuf—Jacques-Cartier, Ind.): Thank you.

I am very struck by the similarity between young Canadian scientists hoping one day to win a Nobel prize, and young Canadian athletes one day hoping to win an Olympic gold medal. In both cases, we are talking about extremely competitive, devoted and intense young Canadians, sometimes brilliant, but generally doomed to failure. They will not get an Olympic medal.

The Canadian government, the sport federations, the universities and a host of scientists seem to have difficulty identifying those who are going to bring us honour and investing taxpayers' money in them. We seem to be destined to finish 17 th in the Olympics and to send people without the slightest hope of getting on the podium who come back saying that they did their best and got a better result than they usually do.

In medicine, physics and chemistry, only five Canadians who studied in Canada have won a Nobel prize. France has ten times that number.

Are we really to believe that you have found a way to identify young scientists with a future, the stars, the geniuses, and to invest in them? Or have you in science not just adopted the same culture of mediocrity that the sport federations have adopted?

● (1215)

[*English*]

The Chair: Who wants to lead off?

Monsieur Chartrand.

[*Translation*]

Dr. Pierre Chartrand: I am sorry to tell you that I have a great fear of accepting the notion of Canadian mediocrity in research. All our indicators show that our research performance is very high, both in the number of discoveries and in their impact.

I agree about the number of Nobel prizes won by Canadians, but there are many other things in research than a Nobel prize. The Nobel prize is one form of recognition. I mentioned the Gairdners. Forty Canadians have won this international prize. From 288 nominations, we have 40 Canadian winners. There are a number of factors other than excellence that come into play when Nobel prizes are awarded, including political factors.

Mr. André Arthur: Political factors?

So you are telling me the same thing as the presidents of the sport federations would tell me. They say that all their athletes are good and they have no need to choose the best. They think that everyone will be successful and, if they are not, it is because everyone else is on drugs.

Are you telling me that you think the same way as the presidents of our sport federations who are very satisfied with their efforts and who do not want to find more productive ways to pick those who have a future?

Dr. Chad Gaffield: May I answer, because it is a good question. In my view, we are not talking about individual awards, we are talking about societal awards.

Every time that we read rankings of countries around the world, we see how well Canada ranks as a society. How is it that a small country, a colony until quite recently, is now on the international stage and that its society is seen from outside as one of the best in the world?

Together, we in Canada have a starting point from which our society can move forward, but not necessarily as individuals. There are 8,000 researchers outside Canada who are studying us in order to understand how our society has succeeded in facing all manner of challenges up to now, and remarkably well at that.

I do not know. In my view, you have to see Canada as a society. You cannot base a ranking on a small group of individuals.

Mr. André Arthur: So, science is not like sport: winning the silver medal is not just being the best loser!

The Chair: Thank you, Mr. Arthur.

Dr. Chad Gaffield: Not for the country, perhaps.

Mr. André Arthur: Thank you, Mr. Gaffield.

[*English*]

The Chair: *Merci, monsieur Arthur.*

We have Mr. Brison and Mr. Van Kesteren. We'll switch for now. We're locating Mr. Brison, so we'll go with you, Mr. Van Kesteren.

Mr. Dave Van Kesteren (Chatham-Kent—Essex, CPC): Thank you, Mr. Chair.

Thank you, panel, for coming. It's been very enlightening.

Mr. Knight, what are the eight industries or areas? You mentioned that there are eight that are in demand. They are looking for graduates. Could you just tell us what they are?

Mr. James Knight: I don't recall giving a specific number.

● (1220)

Mr. Dave Van Kesteren: I thought you said eight. I'm sorry.

Mr. James Knight: I've mentioned health care. There's the medical doctor, but then there is a whole range of professions that support the doctor. I mentioned the railway industry. Aerospace also is an important employer in Canada. Did I mention construction? That's a very important area. Small business in general is our largest creator of wealth—in terms of new jobs, I should say—and needs IT support and support with innovation from colleges. I hope I haven't left any out.

I would turn to my colleague here. Oh yes, there's energy, big time. Energy is huge, naturally, with the growth of the industry. Environmental technology, broadly, is very big. We're implementing a lot of new technologies, and these must be supported.

Mr. Dave Van Kesteren: There's the old expression that necessity is the mother of invention. We saw in the last study we did that we missed the mark in the past, for instance, in forestry. The Norwegians took the initiative, and they now seem to be the leader in that industry.

First of all, are we doing the right things with taxes? It's one thing to try to encourage people and provide research. It's quite another when we have this incredible advantage—the dollar advantage we had in the past—and we just let that opportunity slip. Are we doing enough with taxes, first of all, so that industries will focus on innovation?

It's just a quick question.

Mr. James Knight: I'll mention one tax area that I know a lot about. I'm rather new in this sector, so I won't give you a detailed answer to the whole question.

We continue to pay GST at our educational institutions, and municipalities don't. So we'd like not to pay GST. That would be very helpful. It comes to about $100 million, I think.

The Chair: You have two minutes, Mr. Van Kesteren.

Mr. Dave Van Kesteren: Very quickly then, tell me a bit about the centres of excellence for commercialization and research and the business-led networks of centres of excellence. Does somebody want to jump in there about the difference? Do we have a good coalition between the two? Is there good communication?

Dr. Pierre Chartrand: Absolutely. Actually, they're programs that are managed by the same steering committee. Of the committees reviewing the proposals, one of them is the same for both. So they are really aligned one with another.

Mr. Dave Van Kesteren: I want to go back to that first question. I just hope we're not driving direction. I know that in this country, if we look at where we're successful, we're successful in banking, we're successful in telemarketing...in telecommunications, rather; possibly telemarketing too.

When we direct the funds, are we taking enough time to really identify that this is what we're good at? Energy, for instance, is obviously one. I know that we have the pillars, but I hope we're taking enough time to make sure we're actually putting the money where we need to put the money.

Dr. Nigel Lloyd: The Council of Canadian Academies did a study looking at our strengths across the country, and that led to the priority areas in the S and T strategy.

I think your point's a very good one. It's really important that we are able to maintain strength across a wide range of areas so that we're ready for the next wave of innovation, wherever that may come up. We don't know necessarily where the next wave will come from, but we have to be prepared and have people trained in those areas as well.

Mr. Dave Van Kesteren: As independent arm's-length organizations, how do you ensure accountability in terms of the funds provided to your organizations?

Dr. Chad Gaffield: Perhaps I could jump in here.

We've made some significant changes to our governance, for example. Now our 22 council members are really a wonderful reflection of the diversity and richness of Canadian society. I think that's one of the key ways we've really helped ensure that we have those good links to the larger society and that the way we operate is really in keeping with the best of Canadian values and standards.

Mrs. Carmen Charette (Executive Vice-President, Social Sciences and Humanities Research Council of Canada): We also are subject to the same reporting requirements in terms of Treasury Board. The Auditor General audits all of our books. So in the case of SSHRC, we produce, I think, 130-some reports every year for all of those organizations to ensure transparency and accountability.

● (1225)

The Chair: Thank you.

Thank you, Mr. Van Kesteren.

We'll go to Ms. Keeper, please.

Ms. Tina Keeper (Churchill, Lib.): Thank you.

I'm really pleased to have this opportunity to be here today, as I'm not normally on this committee. I thank you for your presentations.

I represent a riding that's about two-thirds of the province of Manitoba. We have a startling situation, I find, in terms of the growth of the mining industry, the growth of the labour demands, and growth of the research demands. As well, we're seeing in the north the requirement for so much work around the environment and environmental studies, and then the need to develop the labour market.

I have a question for Mr. Knight and Mr. Lloyd in particular. We have such a large aboriginal population in northern Manitoba, and we really need to make linkages between the investments. I'd like to get your comments on that.

Mr. James Knight: Thank you for that question. I really appreciate it, because just a few weeks ago I was at Red River College. I was touring with the president, and I asked him what all these semi-trailers were doing parked in their yard. He told me they were not semi-trailers, they were in fact like RVs; they expanded and became classrooms. He said to me, “Jim, we take them up to northern communities in Manitoba, we situate them in the reserve or the town, we invite local people who are looking for a job in either mining or hydroelectric development”—which is your other big driver in the north—“and we train these people for six months. Then we take the classroom on to the next community, we train them there, and the students go on to do some apprenticeship work with various employers.”

I have to say that I found that really very creative. I was quite taken with the innovation being demonstrated by this particular college. I guess it's precisely in your riding. These are relatively new, I think. I don't know how many seasons they've been operating, but the trailers appeared to be new.

So this may be one response to the challenges you face in your riding.

Ms. Tina Keeper: We have the University College of the North as well, and they have 17 satellite centres. So there is a real demand for the funding.

Dr. Nigel Lloyd: This is a really important area. Our program of undergraduate student research awards has already been referred to. In the program we try to encourage undergraduate students to get interested in research, and they do a little 16-week term in a lab. Many then go on to graduate school.

We pay special attention to aboriginal students. Any aboriginal student who meets the quality requirements automatically is awarded one of those. We're just launching this year a program of aboriginal ambassadors whereby, for those aboriginal students who do get one of those awards, we give them extra money to go back into their communities and try to encourage some of their fellow students to do the same thing.

The Chair: You have a few minutes, Ms. Keeper, if you want to add something.

Ms. Tina Keeper: No, go on.

The Chair: Okay.

Mr. Brison.

Hon. Scott Brison: Thank you.

Here are just a couple of further questions relative to commercialization. I'm very interested in the Nova Scotia Community College example in terms of commercialization. I'd be interested in what policy lessons we can learn in terms of approaches that could be expanded on nationally. For companies like Ocean Nutrition, Clearwater Fine Foods, or Oxford Frozen Foods—companies that have grown to be international successes—a lot of their competitive advantage has been gained from research in their communities. It strikes me that community colleges are well positioned in that regard.

So I'd appreciate your view as to how we can better move federal policies to capitalize on that possibility.

Mr. James Knight: I don't want to be too simplistic here, but it does come down to investment. As I mentioned, the investment by the Government of Canada in commercialization involving our institutions is really very small, with only one in five of the institutions having access to this very small fund. I think there's an opportunity to ramp that up somewhat. These investments support industry-college partnerships for innovation and commercialization. We could do more of that. There's a good opportunity.

Also, I mentioned that you will find an article by Joan McArthur-Blair, as the president of that institution, who explains carefully that current federal sources are accessible by colleges in theory, but the criteria seem to be structured in a way that excludes them.

I hope that's helpful.

● (1230)

Hon. Scott Brison: Mr. Chair, I have a quick question.

The Chair: You're over time, but....

Hon. Scott Brison: Here is one quick question. One idea for improving commercialization would be better integration between universities' business schools and their schools of science. What are you doing to encourage that in Canada? Why isn't that being pushed as a priority?

The Chair: Unfortunately, we'll only have one person answer this. Who would you like to answer?

Hon. Scott Brison: Whoever is most passionate and has the best idea to address this pressing need.

Dr. Chad Gaffield: I think in our recent competition we had a special call for management business finance and we had some extra money we could invest in it. We met with business schools across the country. We're now financing a number of projects on this whole question of innovation and commercialization. So my sense, at least, is that we have some indications of what might work, but there's no doubt that we have to keep focusing on this, and we're not there yet.

Hon. Scott Brison: Thank you.

The Chair: Thank you.

As the chair, I'm going to take the prerogative to ask a couple of questions.

I was at a session with the University of Alberta's president, Indira Samarasekera, and she gave a wonderful presentation. Then a politician stood up—not I—and asked her a very tough question. He was going to put her in her place. He talked about how she had mentioned all these wonderful topics over a 30-minute talk, and he then asked her to define for him in one sentence what a good university is, because she kept talking about “a good university”. She looked him in the eye, and she said “an institution where the students are lining up to attend and the professors are lining up to teach and do research.” I thought she knocked it out of the park.

So I'm going to put the same challenge to you and ask that you define for me in one sentence, from your perspective, either success or failure.

We'll start with Mr. Knight, and we can go down.

Mr. James Knight: Thank you.

I think the university president got it right. If the students are lining up and the professors are engaged, that's marvellous. But in the institutions I've visited in my sector, there's a sense of excitement, a sense of progress and self-fulfilment. I think that's an important ingredient of success.

The Chair: Mr. Chartrand.

Dr. Pierre Chartrand: The capacity to capture the excellence is the most crucial criterion, because at the end of the day, if we're talking about research and training, it's all about people. So our capacity to capture that excellence is critical.

Dr. Nigel Lloyd: For us, it would be that we have succeeded in achieving our vision of making Canada a nation of discoverers and innovators for the benefit of all Canadians, which means we have a culture of innovation in the country.

Dr. Chad Gaffield: Our descendants would look back on us and say that we did everything we could to advance knowledge, develop talent, and try to make a better world.

The Chair: I appreciate those answers, and that sort of leads into my second question. It's a very challenging question for me, as a parliamentarian. I think it's very challenging for any government.

The federal government funds S and T in many ways. You have the human resources side; you have the granting councils; you have Canada research chairs; you have community college funding; you have funding for post-secondary education; you have capital infrastructure; you have the CFI; you have the indirect costs, which are now called the institutional costs of research; you have big science projects, as well as their operational costs; you have the whole commercialization aspect; you get into things like IRAP, further down the innovation continuum; you have Networks of Centres of Excellence; you have centres like AUTO21; and you have the National Research Council. You have all of these excellent agencies and programs and institutions that all come to the government and say, "Here's what we're doing an excellent job in", and they're right.

I think what Mr. Chartrand said to Mr. Brison was that we could be funding many more researchers here in Canada. I think that's probably true of every granting council or every institution. The challenge for our government is how to define the ratio—how much for human resources, how much for capital infrastructure, how much for institutional costs, how much for commercialization?

You can give me an answer today or you can think about it and get back to us, but as an overall broad policy, would you put 40% into human resources, 40% into infrastructure, and the rest into indirect and operational costs? What ratio would you use if you were the minister or the Prime Minister or the Clerk of the Privy Council?

Maybe we'll start the other way, with Mr. Gaffield.

● (1235)

Dr. Chad Gaffield: This is a question we've been thinking a lot about, and in fact we're doing some studies on it now. We're meeting with vice-presidents of research at universities, we're talking with partners, and so on. My sense is that we're not going to end up with a simple formula, a cookie cutter that we can use.

I think the approach that's been taken—and I think it is working well—is to have a multiplicity of tools, a multiplicity of instruments, and it's going to be an ongoing question of increasing or keeping stable, and so on, across a whole diversity and multiplicity of instruments such as you've described.

Dr. Pierre Chartrand: I would add that I think one critical element that is really now starting to gel is our working together. This is essential, because actually the balance will come from our working together and ensuring that the resources are put in the right place.

The Chair: Mr. Knight.

Mr. James Knight: For our institutions, I would say, within a broad framework, let them manage themselves. They do it extremely well.

The Chair: Thank you.

Mr. Lloyd, do you want to comment further?

Dr. Nigel Lloyd: No.

The Chair: Okay. It's still a perplexing question. I look forward to further discussion.

Thank you, witnesses, for your comments and questions here today. Especially with respect to any recommendations you want the committee members to consider, we'd look forward to any further documentation from any of you.

I want to thank you for your time here today.

We do have a motion from Madame Brunelle to deal with, so we are going to suspend for a couple of minutes, and then we'll go to Madame Brunelle's motion.

Thank you.

● _____ (Pause) _____ ●

● (1240)

The Chair: I will ask members to take their seats, please.

We do have a motion to deal with under committee business. We will not be going in camera. It's a motion, so we'll be continuing in public.

Ladies and gentlemen, I did want to make an announcement. I was informed by Ms. Nash's office that unfortunately her father passed away yesterday. I'd just like to pass that along. If members could, I think an e-mail or a note from you would be very much appreciated. That is why she has not been here this week. I thought I would pass that along from her office.

We do have a motion, and I'm hoping we can deal with this and finish it off today.

Madame Brunelle, perhaps you want to speak to your motion. I think everyone has a copy of the motion.

[*Translation*]

Ms. Paule Brunelle: This motion asks the Minister of Industry to stand firmly by his decision under the Investment Canada Act to not allow the sale of aerospace assets, including RADARSAT, by MDA to ATK.

So we worked on this file and we were satisfied with the minister's decision. We also know that the company has 30 days to come back and reopen discussions. This would be a statement of the will of this committee that the sale not take place. The motion simply asks the minister to stand firmly by his decision.

This is about sending a clear signal to the minister, and I think that all parties could agree on the motion.

[*English*]

The Chair: *Merci, madame Brunelle.*

I have Mr. Carrie.

Mr. Colin Carrie: I have a quick comment, Mr. Chair, and then we're okay if you want to call the vote.

I just wonder strategically why the Bloc would bring this up in five different committees. We own it here and we've been studying it here. I just see it as more or less a waste of Parliament's time. We could be having more committee work done. Why would you bring it up at five different committees?

[*Translation*]

Ms. Paule Brunelle: I can answer. Because of the Investment Canada Act, the Minister of Industrywas involved. But the matter also affects foreign affairs and they are debating it now. RADARSAT also has a major impact on natural resources because the data used by the Department of Natural Resources are important.

This is not to waste time, because it is only a matter of five minutes in each of the committees. But it would nevertheless show the extent to which RADARSAT is an important technological tool and that our concern extends to the environment, to natural resources, to foreign affairs and to security. It is therefore a concern for all our committees, and it has been brought to us by our members who are the critics for those departments.

[*English*]

The Chair: Mr. Carrie.

Mr. Colin Carrie: Maybe it would only take five minutes, but really we do have to book off half an hour during each committee for two and a half hours.

Thank you very much for your response.

If you'd like to call the question, just to let you know, we will be abstaining from this.

The Chair: I think I have Mr. Murphy on the list.

Mr. Brian Murphy: No, I just want to correct it. That's all.

The Chair: Okay, there is just one correction.

I'll just perhaps point out to members that if this is reported to the House it can go for a concurrence motion in the House. I think that's one of the points behind Mr. Carrie's statement. I guess this could take up to 15 hours of debate in the House. I sense there is support for this motion on the committee.

Monsieur Vincent, you wanted to speak to the motion.

● (1245)

[*Translation*]

Mr. Robert Vincent: I really would like to come back to what Mr. Carrie told us earlier, that tabling this motion in five different committees would waste Parliament's time.

I would like to point out to Mr. Carrie that, if anything wasted Parliament's time, it was his filibusters in three different committees to the extent that they could not function. I do not think that he is in any position to talk about wasting time.

Thank you.

[*English*]

The Chair: I would point out that we haven't had a filibuster at this committee—including from Mr. Carrie—for some time, which I am very appreciative of as your chair.

If no one else wants to speak, we will call the question.

(Motion agreed to [See *Minutes of Proceedings*])

The Chair: I have no other business for the committee today. Thank you, ladies and gentlemen.

The meeting is adjourned.

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