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Tuesday, June 10, 2008

Chair

Mr. James Rajotte

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● (1135)

[*English*]

The Chair (Mr. James Rajotte (Edmonton—Leduc, CPC)): I call to order the 45th meeting of the Standing Committee on Industry, Science and Technology pursuant to Standing Order 108 (2), a continuation of our study of Canadian science and technology.

First of all, I apologize to the witnesses for the delay on the start of the committee, but we had a vote we had to attend to. We have four organizations with us here today.

From the Advanced Foods and Materials Network, we have the scientific director, Mr. Rickey Yada.

Secondly, from AUTO21, we have a witness who has appeared before us before, the CEO and scientific director, Mr. Peter Frise.

From the Juvenile Diabetes Research Foundation, we have two witnesses: the president and CEO, Mr. Andrew McKee; and a board member, Mr. Robert Hindle.

The fourth organization is Research Canada: An Alliance for Health Discovery. We have the president and CEO, Ms. Deborah Gordon-El-Bihbety; and the chair, Michael Julius.

We will have five minutes for each organization, and we'll present in that order.

We'll start with the Advanced Foods and Materials Network.

Mr. Rickey Yada (Scientific Director, Advanced Foods and Materials Network): Thank you, Mr. Chair.

Thank you to the members of this committee for allowing us to present some of the research we do as part of the networks of centres of excellence.

Just to remind members, the networks of centres of excellence is a program that is about 20 years old. It's a federally funded initiative supported by the tri-council funding agencies NSERC, CIHR, and SSHRC. Its mission is to mobilize Canada's research talent in the academic, private, and public sectors and apply it to developing the economy and improving the quality of life of Canadians. So as NCEs, we're charged with that onerous task.

The Advanced Foods and Materials Network is the only national network dealing with food and bio-materials. It is unique in the world, with a range of expertise ranging from food science, physics, and nutrition to ethics and consumer attitude. Our focus is really on food and health, and I'll be addressing that a little later.

Presently we're funded at a level of $5.4 million a year, and this represents research that we support at 25 universities with 75 researchers. One of our strongest applications is our students, and we train about 150 of them. We fund 25 multidisciplinary projects, and like all networks of centres of excellence, we're charged with leverage and doing complementary research based on active dialogue with industry and government to help us define the research agenda.

The network is one that turns challenges into opportunities, and hopefully in this brief presentation I'll talk about the challenges and opportunities we see as a network. I'm glad that my colleague Peter is here from AUTO21. I'm sure you'll hear similar messages.

As I indicated, we are charged with looking at food and health, so we feel that Canadians must be empowered to play a responsible role in their own health management. AFMNet supports research that is key to empowering our population, preserving health in Canada, and preventing an overwhelming health care demand by promoting preventative health care. I understand that members visited the St. Boniface facility and saw some of the research there on flax, so I won't reiterate that. But we look at such chronic diseases as type 2 diabetes and cardiovascular disease, which are in epidemic proportions these days. We're hoping to use food as a preventative means for keeping the health of Canadians at a good status.

One of the challenges in the research agenda is commercialization. As members may appreciate, taking something from the bench to a product or a technology is a challenge in an academic environment. We've worked closely here with industry and the government to identify the research agenda, but we've also supported our researchers in “proof of concept” funding.

In our discussions with industry, it's very difficult for industry to participate in anything that's pre-commercialization. We felt that as a network we needed to support this, and a really strong aspect of our network is that industry is able put their hands around some of the products and technology. Our role is really to get to enabling knowledge and technology. It also gives our students a real look at life in the commercial world and helps them transition into the real world.

We also have a challenge with the regulatory system in Canada, and it's not due to a lack of effort with our collaborators from the Canadian Public Health Institute, Health Canada, or Agriculture Canada. We're working closely with our colleagues in these agencies to identify the science and technology we need to improve our regulatory system. AFMNet provides a resource of expertise and knowledge regarding regulatory issues.

On communication, one of the challenges as an academic entity is translating science and research into language that the public and consumer can understand. We think we've made great gains here. In their packages before them, members have a copy of *Advance* magazine. It takes some of the stories and research we do as part of our network and puts it into language that the public and consumers can understand. It's been a wonderful thing because it has also allowed our students to be trained in science journalism. This magazine is produced wholly by students in the network. If it had been left up to professors, I don't think we would have come out with such a good product.

● (1140)

Finally, on training, we have a strong commitment to the training of our students. That ranges from undergraduate students all the way through to post-doctoral fellows. This is really the training of the next generation of scientists and regulators. We offer them a multidisciplinary training experience by moving them around the country in various disciplines. It's not unusual for a physics student or a food science student to spend time in an economics lab or an ethics lab.

The Chair: Mr. Yada, we're well over time, so I'd ask you to wrap up.

Mr. Rickey Yada: This allows our students to be market ready.

Thank you, Mr. Chair.

The Chair: Thank you.

We'll go to Mr. Frise, please.

Dr. Peter Frise (Chief Executive Officer and Scientific Director, AUTO21 Network of Centres of Excellence, Auto 21 Inc.): Thank you very much.

I won't reiterate the mission of the NCE program, I'll just get right into it.

The challenges facing AUTO21 are the same as those facing Canada's automotive sector. We have to figure out how to maximize innovation within the available budget to keep our country competitive and keep people employed, and we have to figure out how to do this quickly enough to respond to very rapidly changing market forces and conditions.

To accomplish this goal, AUTO21 is working as hard as it can with its industry and NGO partners to address their research issues and provide them with the best possible human resources so that their businesses can make progress and create higher-value products as rapidly as possible to meet the needs of the global market. This is the mission of an NCE, and we're doing our best to accomplish it.

The need for innovation is very well known in Canada. One of the fundamental weaknesses of Canada's economy and overall economic picture is an under-investment in innovation by the private sector. In my view, one of the most important things that Canada's public sector can do is provide an environment in which private sector investments can make sense and can bring research to Canada.

The other thing that needs to be said is that this job will never be done, and the effort must be sustained. We have to determine what the most strategic sectors are for Canada and resolutely stick with them, because that's what the nations with which we compete are doing.

In my remarks today I'm going to describe how AUTO21 is contributing to the three thrusts of Canada's innovation strategy.

In terms of the knowledge advantage, we are providing support to 54 separate projects in our present program. These are all a reflection of the needs of the automotive sector for innovation in all areas of technology and practice. Our projects are chosen and judged against a set of priorities or vectors that drive product development in the auto industry around the world.

There is a need for continual progress on health and safety issues, so the first vector is safety.

There is the need for continual progress on reducing the energy footprint of the car, not just in its on-road use, but in its creation, manufacture, and disposal.

The next vector is the value vector, and that's a bit subtle. It's too easy, and it would be incorrect to say that Canada must decrease costs. We are simply not a low-cost country, and I don't think we really want to be, because that would imply a serious deterioration in our social fabric. We must strive for higher value—value being the ratio of performance divided by cost. We must continue to strive to lower cost, but we must increase the performance of our products so that they can command a premium in the market.

Finally, there is the need to improve the flexibility of our production environment in Canada. This goes for virtually all products that are made in Canada, beyond cars. The world is becoming a very fragmented market. Any given production asset must be as flexible as possible so that it can produce as wide a range of products as possible and change quickly from one to the other to respond to market forces.

Just to give you an example, 10 or 15 years ago there were between 80 and 100 car models on the market. Now there are around 400 car models on the market, and sales have not grown very much at all. The number of cars of an individual type that are being sold has shrunk from 300,000 or 400,000 units per vehicle to 40,000 to 80,000 units per vehicle. That means we need to develop new kinds of materials, new production processes, and new design methodologies so that we can create desirable products more rapidly at lower cost and then tool them up in our factories at lower cost so that we can remain profitable with smaller production runs.

This industry-led, needs-driven, flexible, and agile approach is what has made AUTO21 such a success—and this view doesn't come entirely from within Canada. Our international scientific advisory committee has said that AUTO21 is an exemplar of how to initiate, facilitate, manage, and coordinate a very large multi-disciplinary research network that brings academics together with industrialists and high-impact partnerships. This, we feel, is a very important aspect of the network, and we applaud our international scientific advisory committee for that view. We thank them very much for it as well.

● (1145)

I'd just like to close with a few words on how Canada can improve its performance. I think the key thing is to provide a balance between curiosity-driven research and needs-driven research. The NCEs provide that key balance, and I think it's important that they be supported and be as strong a set of organizations as possible.

I can give you some statistics. AUTO21 is funded at $5.8 million per year. We leverage around $6 million per year from the auto industry. That is a strong ratio, in my view, especially given the times in the auto industry. Currently we have 315 researchers at 43 universities. At this time we are training nearly 500 students. We have completed the training of around 1,200 students in the past. The number of industrial partners we work with is more than 240.

Thank you very much.

The Chair: Thank you, Mr. Frise.

We'll go now to Mr. McKee.

Mr. Andrew McKee (President and Chief Executive Officer, Juvenile Diabetes Research Foundation): Mr. Chair, members of the committee, on behalf of the Juvenile Diabetes Research Foundation I want to thank you for the opportunity to speak to you as part of the consultation on the importance of science and technology in Canada. JDRF commends you for embarking on this timely study.

I'm particularly pleased to speak to you as part of the study theme of partnerships and networks, as JDRF is trying to establish a clinical trial network for type 1 diabetes that would inspire scientific innovation across a Canada-wide platform. The clinical trial network would be formed through a partnership with the Canadian Institutes of Health Research.

Given our history of research excellence, JDRF is uniquely positioned to comment on the importance of partnerships and how they can advance Canadian health science. We are recommending that the Government of Canada fund a 10-year strategic partnership between JDRF and the CIHR. The funding partnership would be phased in over five years, with the objective of creating a CIHR clinical trial network with JDRF as its first project.

I would note that JDRF's research management policies are founded on a sound business model that brings with it expertise not available elsewhere in the world. The business model calls for regular evaluations, and there is a detailed proposal that will show a tangible and measurable return on investment for the Government of Canada.

Clinical trial network is a well-known phrase used to describe a wider spectrum in which research moves from basic discovery stage to commercialization of a therapy. This network will attract and retain world-class researchers to Canada and will also advance the research at Canadian hospitals and universities as it will entice institutions to partner with JDRF and CIHR to leverage government investments.

JDRF is the lead charitable funder and advocate of type 1 diabetes research worldwide. This year JDRF surpassed the United States government in diabetes funding. The mission of JDRF is simple: to find a cure for diabetes and its complications through the support of research.

Type 1 diabetes is an autoimmune disease that is the most severe form of diabetes, striking infants, children, and young adults, and leaving them dependent on insulin for life. This is different from type 2 diabetes, commonly known as adult onset, because it develops later in life and can often be controlled through diet and exercise.

Partnerships are a key component of JDRF's approach to research. Based on a basic research discovery by JDRF-funded scientists, JDRF in September 2006 partnered with Transition Therapeutics Inc. to develop a beta cell regeneration product. In November 2007, JDRF entered into its first pharmaceutical partnership with Eli Lilly and Company, whereby Eli Lilly partnered to fund research to identify beta cell biomarkers. In March 2008, JDRF announced the new partnership that it had brokered to pursue to commercialization of the drug called gastrin among JDRF, Transition Therapeutics, and Eli Lilly.

This deal represents the largest pharmaceutical investment in Canada in diabetes commercialized scientific research for which the research and development intellectual property rights actually remain in Canada. The partnership among JDRF, Transition Therapeutics, and Eli Lilly is a clear and concrete example of what would constitute a measurable return on investment by government.

One of Canada's great research strengths is in the area of diabetes. Whether it is the discovery of insulin almost 90 years ago or the Edmonton Protocol in 2000, Canadian researchers have been world leaders in fighting this disease. Diabetes research is a proven winner and a cornerstone of Canadian research excellence.

We are not requesting direct government funding. Rather, we seek to partner with the government and combine our expertise to advance scientific research. We recently negotiated an agreement in principle between JDRF and CIHR to create a clinical trial network for type 1 diabetes. This partnership would promote world-class research excellence in the area of type 1 diabetes, focus on children's health, and make improving the lives of Canadian youth a priority.

It will require government investment, and we will be seeking a recommendation from this committee to that effect. There is considerable support within the government for the clinical trial network we are trying to create. General recommendation three in the finance committee's 2008 pre-budget report states:

> The federal government create a specialized fund for medical research for children's health. In this regard priority should be given to the establishment of a partnership with the Juvenile Diabetes Research Foundation of Canada.

Additionally, the report *Reach for the Top: A Report by the Advisor on Healthy Children & Youth* by Dr. Kellie Leitch made recommendations related to children and diabetes. JDRF applauds these recommendations and continues to identify areas of synergy with the federal government.

While governments can do a lot, they cannot do everything. Given the demands on government budgets, it is increasingly important to partner with private sector companies and non-profit organizations that can provide the finances, resources, and expertise needed to undertake research that will improve Canadian lives.

At JDRF, we believe in strategic partnerships as a means of leveraging the best of public and private sector worlds. We have included the details of the proposed partnership with CIHR as well as our request of the government in a brief that was submitted to this committee. Therefore, I will not take the time to go over that information now. However, the proposed partnership between JDRF and CIHR conforms to the Government of Canada's science and technology strategy, which encourages partnerships. In fact, the proposal is consistent with all four principles of the science and technology strategy: promoting world-class research, focusing on priorities, encouraging partnership, and enhancing accountability.

● (1150)

Type 1 diabetes is one of the most devastating chronic diseases that impact children and youth. Research is the only avenue for addressing this disease. We therefore respectfully request the Standing Committee on Industry, Science and Technology support the proposed partnership between JDRF and CIHR, and the creation of a clinical trial network for type 1 diabetes research.

Thank you.

The Chair: Thank you, Mr. McKee.

Who will be presenting for Research Canada? Mr. Julius.

Mr. Michael Julius (Chair, Research Canada: An Alliance for Health Discovery): Thank you very much, Mr. Chair and members of the committee.

My name is Michael Julius. I'm the chair of Research Canada and vice-president of research for Sunnybrook Health Sciences Centre in Toronto, Ontario. It's a pleasure for Deborah Gordon-El-Bihbety, president and CEO of Research Canada, and me to be here with you today.

I'll begin with a few words about Research Canada. We're an alliance for health discovery, which is a national not-for-profit voluntary organization whose members are dedicated to advancing health research in Canada and ensuring that Canadian health innovation achieves its fullest potential on the global stage.

We represent a broad base of stakeholders in this arena: research hospitals; universities; health charities; regional health authorities; professional associations; and possibly most importantly, industry. As such, we play a unique and necessary role within the Canadian health research endeavour. We are a unified voice speaking on behalf of a broad base of stakeholder organizations delivering a common message to you folks, our government.

Our philosophy is simple. Health research is a shared benefit and a shared responsibility. All Canadians are its stewards; therefore, we serve all Canadians in our efforts to improve their health and prosperity by making Canada a global leader in health research.

Research Canada has applauded the launch of this government's science and technology strategy. It provides a rational foundation that contemplates a well-aligned, systems-based approach to strengthening Canada's knowledge-based economy through innovation and commercialization.

The strategy recognizes that Canada's system of innovation is one—

● (1155)

The Chair: I'm sorry, Mr. Julius, this is being translated at the same time. Could we have you slow down?

Mr. Michael Julius: Our chair is so draconian. I'm sensing the hook coming from the front of the table in a moment.

We're a system out of balance and failing to capitalize on the innovation advantage afforded by federal investments in world-class research, people, and facilities. Indeed, these investments have been material, and we have not capitalized on their fruits. Our system of innovation is not integrated. We're cherry-picking; we're picking pieces, as opposed to supporting the continuum of innovation from creative impulse and response to a market need to delivery of product.

Here are some cases in point: how did we respond to SARS, and how are we going to respond to the next scourge? In fact, this virus was first sequenced in Canada; we dropped the ball. Canada was not prepared to capitalize on the products of the human genome project; we're playing catch-up. Could Canada, in the absence of an integrated approach, support the development of the next Silicon Valley?

Our submission to this committee represents the culmination of an extensive national consultation and response to the four major themes outlined in this committee's study on Canadian science and technology. We propose a model of an integrated, functional innovation system, a framework providing a road map for strategic investment, one that will enable us to capitalize on our health research investments. The model considers the full breadth of function of an innovation system, highlighting the key success factors that enable the translation of discovery and concepts into health and economic impact.

Fundamental to its success is achieving a critical balance of activity within each stage and among the stages of the innovation cycle. Put simply, while rooted in the market, the success of a functional innovation system is underpinned by the government's commitment to support excellence in knowledge creation, effective vehicles for knowledge translation, mitigation of risks assumed by private sector investment in R and D, and the creation of the appropriate policies and policy frameworks that ensure new technologies are made available to Canadians and, indeed, the world.

The model traces the trajectory of activities from creative impulse and discovery through to delivery of product. At its core, the model is predicated on the balance between the push of knowledge creation and the fostering of an environment that enables the pull of innovation to application, whether it be, importantly, not only a new product or widget but also an improved medical practice or a health system policy reform. Each stage of the cycle is defined by specific prerequisites for push-pull balance and by discrete metrics enabling measurement of success.

As well, as we highlight in the model, it contemplates the complementary contributions of each of the stakeholders involved in this enterprise—what we call the GAIN spectrum of government, which is academia, industry, and the non-governmental organizations or private sector—and further, how the contributions from each of the members of the GAIN spectrum differ throughout the innovation cycle.

A work in progress, the goal of the model is the provision of a framework that will guide strategic long-term investments and, through this investment road map, provide a dynamic policy instrument that can be adapted to the full continuum of Canadian innovation. It is a long-term vision, one that could position Canada as a global leader in science and technology. Our innovation system, while chugging along, has predominantly failed to provide the results that you need and that the country demands.

Therefore, on behalf of Research Canada, we make the following two recommendations to this body: that the Government of Canada implement a systemic approach to Canadian innovation through the adoption of a comprehensive, integrated framework that supports the key success factors enabling the translation of discovery into health and economic impact, and that it do so in collaboration with all stakeholders—academic, voluntary, the private sector, and of course the provincial governments.

As a country, we can make a quantum advance in the understanding, design, and execution of an innovation system, one that will surely result in the flexibility to meet new opportunities and one that will deliver increased international competitiveness.

Thank you.

● (1200)

The Chair: Thank you.

We'll go to questions from members.

Go ahead, Mr. McTeague.

Hon. Dan McTeague (Pickering—Scarborough East, Lib.): Thank you, Mr. Chair.

I thank all the witnesses for being here.

Perhaps I'll begin with you, Mr. Julius. We have seen a brief you submitted to the committee back in April. We thank you for that. In that brief you mentioned that you are comparing best practices with those of a host of other nations, including the United States. I'm wondering if you have any particular perspectives from what you've learned from this inquiry or investigation or comparison that you've undertaken.

Mr. Michael Julius: That, of course, is an excellent question. And just to manage your expectations, the model is contemplating doing precisely that exercise. That exercise has not been completed.

The model right now is a descriptive model, and our goal is to make it a prescriptive model—and it is precisely that research that needs to be done. So we're not quite there yet, but the goal is first to create a catalogue within Canada of all the funding agencies that are supporting the health research agenda and to understand how they interact one with another and, then, throughout the discovery and execution continuum all the way to delivery of product.

We already appreciate that other countries across the globe have entered the cycle, as we've described it, at very different points and have had some enormous success in various quadrants. For example, Ireland has focused mainly on quadrant numbers two and three in the cycle and has dedicated itself to becoming the country that facilitates the production and execution of industrial findings provided to the globe. They have been extraordinarily successful in transforming their economy, and with that transformation came the economic rewards; and those economic rewards, interestingly, are now being applied to making that cycle full. So they're now starting to invest, if you will, in the discovery side and, eventually, in the policy side as well.

Hon. Dan McTeague: If I could turn to you, Mr. Frise, there's certainly a perception that Canada is not at the head or lead, and doesn't even find itself somewhere in the middle, as far as industrial research and development are concerned in OECD countries. I'm wondering if you could explain to us why that is the case.

Dr. Peter Frise: Well, I think there are a number of reasons. One is that Canada's industry does not have the scale of many of the other larger countries. But that argument begins to fall apart when you start looking at a country like Sweden, for instance, which is a much smaller country than Canada, and yet Swedish companies typically invest much more heavily in research and development than ours do.

From my experience travelling around the world and talking to colleagues in other countries, I think it's really the environment in which research is done in those other countries. The companies that work there perceive doing research as a high-value activity, and they use the public sector resources, the universities, to leverage their own resources and their own efforts. I think that Canada perhaps has a history of starting and stopping things too quickly before they can really take root well enough. I think we sometimes don't set our priorities and stick with them. So I think there are quite a number of factors that have contributed to this.

I'm always reminded of the president of a large Canadian auto parts company, who said in a CAPC meeting one day that his company had an R and D budget of about $24 million a year and that much of it was spent in Germany because the German institutions could get things done.

Hon. Dan McTeague: I thank you for that, Dr. Frise.

Perhaps I could turn to you, Mr. McKee. You suggested in your submission that you're looking for a government investment. Apart from how many research facilities you have—with McGill and Alberta, etc.—I'm wondering what you would envision that investment to be. Could you categorize for us what kind of funding you're seeking from the federal government? We're somewhat familiar with this, but I think it would be better to put on the record here now.

Mr. Andrew McKee: Absolutely, I'd be delighted to do that.

In our current ask for the 10-year partnership agreement that we've signed with CIHR, we're asking that funding to the tune of $125 million be provided to the CIHR, dedicated to the clinical trials network. In turn, JDRF is going to match that funding with $50 million of our money over the first five years. So it would be an average of a $25 million investment a year over five years, matched by $10 million a year by JDRF.

● (1205)

Hon. Dan McTeague: Assuming funding comes forward and research is done, do you have much control over the outcome of the publication of the results of any research that might emanate from this investment or partnership—both your own and the one you're anticipating from doing to a greater extent with the government?

Mr. Andrew McKee: Absolutely, the very model on which JDRF was founded and the business approach we take towards research set hurdles and benchmarks that have to be attained by all our researchers through the research exercise. So we set those milestones right at the inception. If at any point those are not met, then funding ceases at that point in time. So it encourages a constant iterative process to ensure that progress is being made and that results are being achieved.

In fact, when CIHR was founded, they copied the JDRF research funding model in doing that very thing.

Hon. Dan McTeague: How many student scientists do you have working in your research centres in Alberta and Montreal right now?

Mr. Andrew McKee: At present, I don't know the exact number off the top of my head, but there are over 40 JDRF-funded researchers today in Canada.

Hon. Dan McTeague: Are they clinical or basic?

Mr. Andrew McKee: Right now the vast majority of those are basic funded researchers. We do have several clinical trials running in Canada right now, and as part of broader global clinical trials, there are a number of Canadian researchers participating in those as well.

Hon. Dan McTeague: I want to thank Eleanor Fast as well for some of those good questions.

Some hon. members: Oh, oh!

Hon. Dan McTeague: Thank you.

The Chair: Thank you, Mr. McTeague.

Thank you, Eleanor.

We'll go to Madame Brunelle.

[*Translation*]

Ms. Paule Brunelle (Trois-Rivières, BQ): Thank you, Mr. Chair.

Good morning, madam, gentlemen. Thank you for coming before the committee.

We are very interested in the auto sector, which is your area. You are on everyone's mind at the moment, mostly because of the price of gasoline, which is a concern for us, and because of the massive layoffs at GM.

As well, for science and technology, automobile engineering and research are not priority research areas here. In places like Europe, for example, they are much further ahead; they have had small cars for a long time. It is taking a long time to develop electric or hydrogen cars. Research takes time, it seems. So, you can perhaps see my question coming.

Do we lack vision in Canada? Are we investing too little in automobile research? Does the industry stand in the way of new products?

You also told us just now that there are 400 different car models. Why is research not sufficiently developed to come up with small cars and especially to get Canadians to accept them? Do you have a lot of work to do, a responsibility to fulfill in automobile research?

[*English*]

Dr. Peter Frise: Thank you very much for the question.

Yes, indeed, we are working on energy-efficient solutions for the automobile. One of the most important ways of decreasing the energy consumption of a car is to decrease the weight of a car. AUTO21 has a very large portfolio of work on lightweight materials. Much of it is actually happening in Quebec. So we are very much working on those kinds of issues.

I won't be commenting on the current events of the auto sector—that's really not the role of a research organization, in my view—but one thing that needs to be appreciated is that the auto industry is a very large global, integrated industry. It's important to realize that there really isn't a boundary around Canada where a different set of rules applies. First of all, we're not a large enough consumer of automobiles to do that. Canada produces between 2.3 million and 2.8 million cars per year. We buy around 1.6 million cars per year. So we actually produce far more vehicles and parts here than we consume.

In addition, about 85% of what we make is exported. A large number of the cars that are bought here are not made in Canada, and a large number of the cars that are made in Canada are exported elsewhere, chiefly to the United States.

The automotive market is very integrated. What we have tried to do in AUTO21 is work with our industry partners to find R and D mandates for Canadian researchers that leverage our skills and our capabilities with their needs. We've been very successful at doing that. Some kinds of research will probably never be done in Canada—when they're being done elsewhere, it doesn't make sense to duplicate—but the products of those research activities will come to the Canadian market when the market demands them.

The other thing to appreciate about the auto industry, I would say, is that a lot of the market forces that you see today are the result of extremely rapid changes. Just to give you some perspective, when we put the AUTO21 proposal together in the fall of 2000, the price of oil was $21 a barrel. It was $23 a barrel when the 9/11 attacks took place. It's $135 a barrel now. It's six times as much. That's a massive increase. In fact, it's gone up by 60% in just a few months.

I'm not defending them, but there's no way the auto industry could meaningfully respond to a change that's this rapid. You just couldn't do that. It costs several billion dollars to develop a new kind of car, so the production capacity and the types of vehicles being made will always lag whenever there's a massive change, and a rapid change, like that.

I hope I've answered your question.

● (1210)

[*Translation*]

Ms. Paule Brunelle: Yes, your answer was very good. Your point of view is very interesting. It is not that we lack vision, clearly, it is that things have evolved much too rapidly.

Mr. Julius, you will have the opportunity to speak at your leisure. It will be fine. In your brief, you mention a more effective deployment of health care resources. You rightly said that you would be shocked if health care costs can go down. Then add the aging population. There will be more and more calls on the system. There are a number of needs, whether for medical personnel or for new technologies to reduce the length of hospital stays. That is what you are saying. You are saying that new technologies should allow us to better use our scarce resources, to reduce hospital stays, to allow self-treatment, and so on.

I think that view is extremely important. It seems to me that we have been talking about it for years. We can see that there are more and more day surgeries, and the situation seems to be improving.

The Chair: Ms. Brunelle, ask a question, please.

Ms. Paule Brunelle: Do you think that we invest enough in Canada that we can expect really spectacular advances in this area?

[*English*]

Mr. Michael Julius: No.

[*Translation*]

Ms. Paule Brunelle: How much more should we invest? What do you suggest?

[*English*]

Mr. Michael Julius: At this juncture I would not recommend investing more money without a plan and a framework within which to invest that money. I think that's the challenge we have been enjoying over the last decade.

Investments into the health research enterprise over the last 15 years in Canada have been in the tens of billions of dollars, and they have brought us to a juncture where we are out of balance. We have some of the brightest faculties and brightest minds in the world working in our research enterprise, and we have some of the finest infrastructure on the globe with which to execute our research. I don't want to use an auto analogy, but we're in these magnificent research enterprises, we're all driving Ferraris, and when we drive up to the gas station there is no gas. Operating dollars are critical.

I would like the opportunity to make another point. When we read many documents emanating from the Government of Canada that look at research and development investment in the health research enterprise, they talk about universities where teaching and research eventually occur. I think it's important for this committee to appreciate that close to 80% of health research actually happens at hospital-based research enterprises. Virtually 100% of clinical research education happens at research-intensive hospitals, and about 80% of those in graduate post-secondary education in health research—tomorrow's research—are trained in research-intensive hospitals.

The scientists—

● (1215)

The Chair: Mr. Julius, I'm sorry, we're way over time. I apologize for that.

Mr. Michael Julius: Can I just finish the sentence, Mr. Chair?

The Chair: Okay.

Mr. Michael Julius: The scientists at research-intensive hospitals are paid for by philanthropy.

The Chair: Thank you.

We'll go to Mr. Carrie, please.

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

My question today is for Mr. Frise.

I want to say how pleased I am to have you here today. With all the work I've done with the auto industry in the last four years, I've been very impressed with AUTO21 and your leadership in AUTO21. We hear a lot about commercialization and innovation, but from the statistics I have on the number of research projects you're doing and the actual patents and copyrights you've filed, you're actually doing it. As an example for other institutions, you're getting the job done.

In your opinion, how can Canada develop a culture of innovation? When you're answering, I'd like you to take a couple of things into account. We've heard about intellectual property. Could you comment on federal scientists working in federal labs? If they're doing research and they come up with an innovative project, who should control the IP? Sometimes it's 100% government, sometimes it's 100% scientists, and sometimes it's 50-50.

In our last budget we brought up $250 million for the automotive innovation fund. Are we on the right track? You mentioned how other countries in Europe do it. Could you give us a comment? We really want to put in policies that are going to get the job done even better than we're doing now.

Dr. Peter Frise: Thank you very much, Mr. Carrie.

In a nutshell, when we started AUTO21, we took a very straightforward view. I'm an engineer. I believe in simple models because they generally work best. We as a group—there were a large number of industry people, including some folks from General Motors and the other OEMs, the major parts companies, as well as Canada's leading universities—took an approach right off the bat that the role of a university is to create knowledge and educate people. Universities don't make cars. They don't make car parts. Neither does the National Research Council or any other government public science organization. Industry's job is to take new knowledge and turn it into a product that should create jobs and wealth for the country.

Essentially, if people stick to their knitting, which is an old English Canadian expression that means you do your work that you're intended to do and I'll do my work that I'm intended to do, the whole enterprise can move ahead well. That's what, frankly, I see in countries that have a more successful innovation system.

It's absolutely the norm in the United Kingdom, Germany, France, Sweden, Norway, Denmark, places like that, for people at universities to be working on applied projects with industrial partners. It's just the norm—not in every discipline and not all the time, but for the large majority, it's generally how they do it. So they know they're working on the right things, they know the knowledge they're going to create has a path to the market—in AUTO21 we call that a knowledge receptor—and they know that the students who graduate from those programs will likely be able to find jobs, because they'll have already worked on industrially relevant problems and they'll be the people who have the knowledge.

That's how our model works, and we build those knowledge receptors right into the projects at the very outset in the proposal stage.

There was an article in *The Globe and Mail* last week about how the social sciences and humanities folks had a huge conference in Vancouver on how their work can become more relevant. AUTO21 has a very large component of SSHRC researchers and we're very proud of their work. The knowledge receptors for our vehicle-related crime project were the Winnipeg police force and the RCMP, and our research has actually cut auto theft in Winnipeg by, I think, up to 50% now, over the course of 2007.

The point is that university academic research and government research can be very useful and very strategically important to the country if everybody figures out a good model.

Who owns the IP? AUTO21 does not take an ownership position on IP. We don't own the IP. There are enough fingers in that pie already. The inventors should own the IP. But I think it's important to remember that it's not so important who owns IP; it's who gets to use it and under what circumstances and under what arrangements. So we have taken a very hands-off approach to the IP generation. The universities work it out with their industrial partners, and that has created no problems for seven and a half years. We have never spent a nickel on an IP lawyer, and I think that's the best way to have it.

As you point out, we've filed 39 patents, quite a number of licence negotiations are under way, and a number of licences have been granted. I just got an e-mail, while walking here today, from one of our researchers at UBC who said that his industrial partner just put another $200,000 into his project. So this works.

In regard to the $250 million fund, it's hard for me to comment directly on that one, because that is the fund that will be directed to industry, and over five years. I think it's a really good start. It's the right kind of thing to do, because it will help our factories become more flexible, become more energy efficient, and hopefully become safer places to work—not that they're not safe now, because the auto plant of today is a very good place to work—and they will address the value proposition as well. So they will hit the four vectors that I think we need to hit.

I'd also like to thank you for your input to our work. You've been very helpful to AUTO21. We really appreciate having such a knowledgeable and committed person in the government to help us. So thank you very much.

● (1220)

The Chair: Thank you, Mr. Carrie.

We'll go to Ms. Nash, please.

Ms. Peggy Nash (Parkdale—High Park, NDP): Thank you.

Thank you to all the witnesses for your presentations.

Mr. Frise, I want to follow up with you. You have described the global nature of the auto industry, which is absolutely true. There's production all over the world. I'd like you to address the issue of industrial R and D. While we have many auto parts producers based in Canada, all the major auto companies, except ZENN, are based outside of Canada. So head office decisions are made in Seoul, Japan, Detroit, or elsewhere.

In your view, what impact does that have on the industrial research, whether it's fuel efficiency or new production methods, the fact that these companies are based elsewhere?

Dr. Peter Frise: I think that's a very good question, Ms. Nash. In my experience and in my view, the auto companies are really global enterprises and they go wherever they can find the best knowledge. That's why Canadian researchers have developed such a strong reputation in certain kinds of technologies and certain kinds of research. In my experience, the auto companies don't pay too much attention to national boundaries on issues like that; at least, most of them don't. They just seek the best possible knowledge.

I think the key thing to do is to make sure our best people have the best possible tools available so they have the strongest capability, and that will bring work here.

● (1225)

Ms. Peggy Nash: But that's not the case today. For the most part, the auto industry does not do most of its R and D here.

Dr. Peter Frise: They don't do most of their R and D here, but they certainly do some here. I think they've recognized that there are certain researchers with certain capabilities that are very strong, and they put work where they can get the best work done.

Ms. Peggy Nash: Can you give us some examples?

Dr. Peter Frise: Sure. One of the best metal-forming research groups in the world is at the University of Waterloo. One of the best diesel engine research groups in the world is at the University of Windsor. The auto theft project at the University of Manitoba is a very strong group of researchers who have a much stronger understanding of youth auto crime than is generally the case in social science research around the world. Some of the vehicle telecommunications work at the University of Sherbrooke, at the University of British Columbia, is really top notch, and people recognize that around the world.

So I think we need to build on those strengths.

Ms. Peggy Nash: Yes, last week we were in Vancouver and we saw the hydrogen fuel cell production out there, which of course has attracted investment by the auto industry.

What would you recommend to this committee and to the federal government to attract more investment in auto? Something top of mind these days is certainly fuel efficiency. Is there something in particular that we should be recommending to attract more investment?

Dr. Peter Frise: Well, again, I think it's important that we recognize the scale of the auto industry and the kind of investment that is going to actually make an impact. If I may, to be candid, the general scale of Canadian research activities on this kind of thing is actually pretty small beans on the world scale. So ramping up the scale would be very helpful, making sure that our efforts are well informed, making sure we build the best possible connection to the automotive sector, recognizing what kind of work makes sense to do here and what kind of work is just not going to happen here, and then finding the best possible people who have that capability and making sure they have what they need to do it.

Ms. Peggy Nash: One of the recommendations we had last week was that the country should develop a national hydrogen strategy in terms of hydrogen fuel cells. They're working on a hydrogen highway as a demonstration project for the Olympics. Do you think that's something worth pursuing and making recommendation on by this committee?

Dr. Peter Frise: The technical problems around hydrogen are daunting. They're being worked on in many locales around the world. I think Canada has a contribution to make on that score, and I think that many of our efforts to date have been laudable. I must admit that it's going to be a very long-term battle. There's a lot of ground to cover before we're there.

Ms. Peggy Nash: Thank you.

Do I have any more time?

I'll ask a big question and see who wants to answer. It's around the balance between basic research that may take decades and the practical application of research. You are all here talking about specific commercialization and networks of excellence, but I'd like your views on the balance today and what the balance should be between big research, basic research, which may not have a commercial application ever, or maybe in decades, and the commercial application of research.

Does anybody want to answer that?

The Chair: Mr. Yada.

Dr. Rickey Yada: That's a challenge, Ms. Nash.

What we've tried to do is identify opportunities for our researchers. As you know, researchers' first passion is research. To be honest, some of them wouldn't know a good idea if it hit them on the head. It really needs us to identify those opportunities. You can do good fundamental research, but I think you need to have a target in mind. Even if you can't identify that specific target, as long as you're moving toward that goal I think you can support that good fundamental research.

The worst thing we can do, I think, in networks of centres of excellence—Peter, I'd like to hear your comments—is support research that is really curiosity-driven, kind of science for science's sake. There are funding agencies that do that kind of thing. Networks of centres of excellence are different in that they are targeted. They have that onerous goal of actually having applications.

So I think that's how I would do it. We try to do workshops with our students and our researchers to identify those opportunities and discuss issues such as intellectual property, the steps you need to do when you spin out a company, and things like that.

● (1230)

The Chair: I'm sorry, Mr. Yada.

I'll just explain to all the witnesses—I thought this was clear—that each member has an allotted amount of time. If some members don't get to ask questions, I'm the one who gets an earful. I'm trying to get everybody on the list here.

Thank you, Ms. Nash.

We'll go to Mr. Simard, please.

Hon. Raymond Simard (Saint Boniface, Lib.): Thank you very much, Mr. Chair.

Thank you for being here this afternoon.

Mr. Chair, one topic that has come up is the fact that Canada is a branch plant economy. I'm not sure if we'll have witnesses in to talk to us about that, but the impact of that on our innovation agenda and our research agenda might be interesting.

To Mr. Frise and Mr. Julius, I think both of you spoke to Canada's weaknesses in investment and innovation.

Mr. Julius, you spoke about our developing a new strategy on research. Some of the witnesses have recommended to us that we pick six or seven winning sectors, if you will, and focus on them and support them all the way through.

I'm wondering if you like that idea. And if you do, what happens to numbers eight and nine?

Dr. Michael Julius: I think we have to build on where we already have capacity. And I think you've nutted it; we find ourselves in a situation where we are a mile wide and an inch deep and, as a consequence, not making hay in any arena.

Discovery research is the pipeline. All of the good stuff we already have on board has been out-licensed everywhere else. If Canada has the pretense of evolving into a knowledge-based society, it is fundamentally based in discovery with no known potential application. It is the fabric of the culture. It is what has taken over Singapore. It is what has taken over Israel. It is where Ireland is going at this juncture as well.

So I quite agree; I think Canada's innovation system has to be put in place. I hope I'm not misunderstood: it is the framework that is critical, and that framework can be applied to any arena once we decide on the arenas that eventually we have capacity in. Health research is one.

Dr. Peter Frise: Thank you very much for the question, Mr. Simard.

I'm going to say something a little bit controversial that will probably have me under attack: I'm not sure we need more money in the innovation system; I think we need to target what we do more carefully.

Essentially, Canada's innovation system is a responsive system. I'm being a bit colloquial here, but they simply wait until a proposal comes in and then they evaluate that proposal. If it gets a good peer review, then it may be funded.

What I've seen from other countries is that they sit down and say, okay, what's important for our country? What really counts? Where do the jobs come from? Where does the wealth come from? How does our country get along in the world? I call that the pie chart method. They do a pie chart—I'm being simplistic, and I recognize that—of where the jobs are and where the GDP in the country comes from. Then they overlay that with a pie chart of where their innovation system is.

In my respectful submission, our pie charts don't match very well. I think one of the reasons the Canadian private sector doesn't invest in innovation is that they don't get the help they need. It's one of the reasons why our country....

I'm looking at the S and T strategy, and it says right on page 25 that Canada has a relatively poor performance in high-quality patents, in investment in machinery and equipment, and so on—all the things this committee is about. Last year you did a big study on the manufacturing industry. I think that's—

● (1235)

Hon. Raymond Simard: Thank you for the comments.

Mr. Frise, you indicated that things evolve very rapidly, and it's hard to keep up with it. But how do we make sure that our industry is going in the right direction? For instance, when Japan is exploring the hybrid and the Prius and Yaris and we're developing SUVs, it seems to me that these people had it figured out 10 years ago, and we're starting to look at this stuff now. How do we make sure our people are focusing on the right things?

Dr. Peter Frise: Well, I guess you have to define who “our people” are. I'm not in charge of what they develop. Each of the auto companies has its own particular market strategy and the products they believe are going to sell well for them. That's not something I can really affect.

I think what's important is that we recognize which way the world is trending, and the auto industry will follow those trends. Then we need to make sure our best researchers have the capabilities to make contributions towards those trends. Again, they are safety, energy, value, and flexibility.

Hon. Raymond Simard: Mr. McKee, I have one quick question for you.

You indicated that you would match $10 million of the government's $25 million. Is that new money or is that money you're already spending?

Mr. Andrew McKee: That's new money dedicated to clinical trials. We are already spending, based on last year, $8 million a year on research in Canada, but with this new clinical trials network, we expect there to be additional moneys coming into that.

Hon. Raymond Simard: It's additional moneys.

Thank you very much.

The Chair: Thank you, Mr. Simard.

We'll go to Mr. Stanton.

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

Good afternoon, witnesses. Those were excellent presentations. There's a lot of material there to contemplate.

I want to direct my first question to Mr. McKee.

On the whole issue and study of juvenile diabetes, over the last almost 40 years you've spent almost $1.2 billion on research for various projects. How much of that $1.2 billion was from the public sector?

Mr. Andrew McKee: I might ask Mr. Hindle to help with that. He has a better context for what some of the U.S. research spending has been.

Mr. Robert Hindle (Board Member, Juvenile Diabetes Research Foundation): The figure you're talking about is the JDRF spending on research?

Mr. Bruce Stanton: Yes, I mean global spending.

Mr. Robert Hindle: None of it is from the public sector.

Mr. Bruce Stanton: Okay, good.

There's been obviously a lot of work done. Do you have any indication of where we are? What's the status of this analysis now? Do you see a light at the end of the tunnel? Are we getting closer? Where does the project sit right now?

Mr. Andrew McKee: Research into curing chronic disease is obviously a very challenging area. Probably the best example I can give of progress towards a cure for a disease is the very nature of clinical trials. Clinical trials obviously are evidence of the progress towards commercialization of a cure, therapy, or drug, or whatever the case may be. In 2002, JDRF was funding three clinical trials globally. As of last year, we're funding 42 clinical trials globally, each of which is now approaching phase two or phase three of the clinical trials network. So there's great hope and opportunity there that we are moving towards a cure for the disease. When exactly that will occur, I can't say.

Mr. Bruce Stanton: Hence your interest in keeping the ball rolling.

Mr. Andrew McKee: Absolutely.

Mr. Bruce Stanton: Good. Thank you very much.

Today we have two NCEs here, which is really appropriate.

I'll go to you, Mr. Yada. Your network is essentially bringing various partners together. One of the partners that both you and Mr. Frise referred to was non-profit organizations. Could you give us a couple of examples of the kinds of not-for-profit organizations those are?

Mr. Rickey Yada: Sure. We're partnering with such organizations as the Canadian Medical Association. We partner with them on a communiqué within their health magazine, which goes out to all members, on using food as a means of preventative health care and on some other research. We also partner with organizations such as the Heart and Stroke Foundation.

Mr. Bruce Stanton: I notice that even though the NCEs generally are trying to bring the various partners together—government, universities, industry—you didn't include colleges in that list. We've learned that colleges have a big role to play in applied science and, in fact, in helping at the post-discovery stage of moving a potential product along.

Could you comment on what the role of colleges is in your network and/or on what they could be?

● (1240)

Mr. Rickey Yada: Yes. In fact, that's a timely question.

We're partnering with George Brown College in Toronto, with their culinary expertise. We feel that we can create foods, but if they aren't attractive to the consumer, then they may not be taken up by the consumer, so we're working on various recipes to incorporate some of the bioactives. I think members were out to St. Boniface, as I indicated, to talk to the researchers there on the whole concept of nutraceuticals and functional foods. We're trying to develop recipes that include those entities.

Mr. Bruce Stanton: Could I ask the same question of Dr. Frise in regard to colleges?

Dr. Peter Frise: Yes, we also have a partnership with George Brown, and they've contributed very strongly on the design of the new car seat that is now on the market. Magna started a new division called Magna Marque. That product is on the market. There's actually a whole new line of car seats coming out based on AUTO21 research, which George Brown contributed to. In addition, we work with St. Clair College in Windsor and with Georgian College in Barrie, Ontario. We're always looking for new partners and areas where they can contribute and so on.

One of the things that have to be said is that not all of the colleges have the correct kinds of accounting systems to be able to receive grant money. They're all eligible for it; they just don't have the internal infrastructure to do it.

Mr. Bruce Stanton: Could you explain that a little further?

Dr. Peter Frise: It's a bit of an administrative issue. I don't think we need to make too much of it here, sir, but although the colleges are all eligible to receive research grants from federal government organizations like AUTO21 and AFMNet, they sometimes don't have the internal structures. They need a research ethics committee to review anything to do with human subjects, they have to have certain kinds of accounting systems to receive the grants, and so on. It's been our experience that some of the colleges just don't have those internal structures in place, and so the researchers have.... We've gotten around it; they've just become adjunct professors at the local university, and we grant them the money there. It works okay, but it has been a barrier at one point or another.

I don't know if you've found that, Rickey, but—

The Chair: Thank you.

Thank you, Mr. Stanton.

We'll go to Monsieur Vincent.

[*Translation*]

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

My first question is for you, Dr. Frise. I read on your website that you have registered and been granted more than 30 patents. Who owns the intellectual property for those patents? When a product is brought to market, does the money go back to AUTO21?

● (1245)

[*English*]

Dr. Peter Frise: No, sir. We don't take an ownership of the intellectual property. That's a choice we made at the outset. Any royalties would be paid to the respective universities where the research is actually accomplished, so the inventors own the intellectual property.

We've found that model works very well. It returns to the public sector the investment that has been made in those projects.

The other thing to keep in mind is that one of the key products of a network of centres of excellence or any academically based research project is the young people who graduate from the research with their master's or their PhD. Those people go on to become employees of companies or hospitals or wherever, and they contribute back to our economy in that way as well.

[*Translation*]

Mr. Robert Vincent: Let us take a concrete example. Magna International develops a child seat. Is there a way in which the contract to produce that seat can require it to be manufactured in Canada?

[*English*]

Dr. Peter Frise: That really would be something between the researcher and the company. That's not something that AUTO21 has taken a role in. We decided at the outset that it would be better to leave that with the researcher and the respective universities or institutions involved.

[*Translation*]

Mr. Robert Vincent: If the federal government invests in research and a company invests in a product developed by your researchers but manufactures it somewhere else, there is no return to Canada in that case.

When the research and development of a product has been done in Canada, the product should also be produced here. Are there no provisions to that effect?

[*English*]

Dr. Peter Frise: In my experience, it's very difficult to force companies to do things like that. Magna has been a very good partner of ours and a very good partner of many Canadian researchers. I think it's really up to all of us, as Canadians, to build the best possible business case to ensure that products are made here.

In fact, I would just say that the auto industry actually produces far more here in Canada than is sold here in general. Now, where a particular product is made is a different issue, and that's not something we really would be able to affect, I don't think, in a realistic way.

[*Translation*]

Mr. Robert Vincent: Okay.

Earlier, Mr. Julius talked about the knowledge society. How can we keep our good students and prevent a brain drain? How can we get them interested in staying in Canada? Do you have a solution?

I read in an article in the *Journal de Montréal* that scholarships and salaries to study in the United States are $75,000 per year, free air fare home, cutting edge research equipment, 24 hour room service and all kinds of other perks.

How can we encourage people to keep studying and doing their research in Canada, and stop them leaving for the United States or for other parts of the world?

[*English*]

Dr. Michael Julius: Thank you for the question, Mr. Vincent. It's a very important one.

I think we have made, as a country, an excellent start. We have created salary programs, the Canada research chair program; we have provided magnificent laboratory facilities for those individuals we actually train here; and we are subsidizing their trainings in our universities, in our hospital-based research enterprises. So we now are regaining the capacity to recruit globally, from south of the border, and to retain those individuals we have educated here in Canada. But at the end of the day, if there isn't enough money for them to do their experiments, they will go where there is.

We've made a good start.

● (1250)

[*Translation*]

Mr. Robert Vincent: That is it?

The Chair: Yes, that is it. Thank you, Mr. Vincent.

[*English*]

We'll go to Mr. Van Kesteren.

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

Mr. Julius, when the question was raised, I think to Mr. Yada, about pure science, you looked as if you really wanted to respond. Without elaborating or going too long, do you agree with that statement?

Dr. Michael Julius: I don't agree with this statement out of context.

Mr. Dave Van Kesteren: We're hearing witnesses, and somebody mentioned Sweden, and then often we talk about Finland and about how these countries have been successful. But this is an extremely difficult country to govern. We have so many—so many—people and groups of people pulling. When I look at the S and T strategy, we've included health, life sciences, environmental sciences, and natural resources.

Let me just throw you a ball. Would you think that we'd be better off to give science a little more licence to develop more pure science and maybe focus on the areas where we're strong, like natural resources? Should we be helping our industries in forestry, for instance, and mining and oil exploration?

Dr. Michael Julius: In short, I have a two-pronged response. I think we need a framework for this investment. We can't be jumping up to lobbying groups, and there are many mouths coming forward to committees like this to make the appropriate asks. We as a country have to understand the role that each one plays and how they align with the priorities in which we have capacity.

So I think we have to turn to the brightest minds in the country to understand where the future is coming from. Our role here is, in my view, to invest in ideas, in the smartest individuals, and yes, I think we have to be building tomorrow's capacity. Natural resources will not be here with us for much longer. So it's tomorrow's industries that we need to be focusing on.

Mr. Dave Van Kesteren: Mr. McKee, speaking of groups that are vying for government dollars—and you have a very worthwhile cause—I'm curious. How is your work done on the worldwide scene, the research? Do you compete for it or do you apply? Is there a little bit of collaboration, say, with the Americans, who obviously spend a lot more than we spend?

Mr. Andrew McKee: Absolutely. Our research review process is a peer review, labour review based process. It all goes through one central group globally so that we know we are investing in the best research anywhere in the world at any given time.

The history of JDRF's research funding in Canada is such that, because Canadians have excellent diabetes research, we've actually funded more research in Canada than Canadians have raised towards the cost. We've been a net beneficiary of dollars historically in terms of funding research within Canada. But it is one central group that evaluates global research, and it is through application by researchers that the research funding gets allocated.

Mr. Dave Van Kesteren: I may get back to you if I have time, but I want to ask Mr. Frise a question about AUTO21.

On AUTO21, talking about where our strengths are, do you do any work with trucks? We have a huge trucking industry in this country, and we have a vast continent. Are we doing any work there?

Dr. Peter Frise: At the present time we don't have a specific project on heavy trucks, but quite a number of our researchers do a great deal of work with the truck industry.

A good deal of the work of the diesel engine researcher at Windsor I mentioned earlier is funded by International Truck and Engine. There's a great deal of crossover between heavy trucks and light vehicles as well in diesel, and also in hybrid technologies and so on.

The heavy truck industry is quite different from the auto industry per se because of the size of the production runs—5,000 trucks is a lot of trucks, 5,000 cars is three days' production. It's peanuts. So it's not a complete match, but I expect we will be doing some work with the heavy truck industry in the coming years.

Mr. Dave Van Kesteren: I can testify to the fact that you've been very successful with International. That's my riding as well. You've done a good job, but I would suggest that you might want to look at some possible lightening up on the truck. Those are industries that we could divert into the Canadian economy.

Dr. Peter Frise: Right. We're stretched pretty tight. Our budget's stretched like a rubber band.

Mr. Dave Van Kesteren: You've done a good job, and they are the leading truck manufacturer now, so I commend you for that work as well.

Thank you, Mr. Chair.

The Chair: Thank you, Mr. Van Kesteren.

We'll finish with Mr. Brison, please.

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

I have a question.

Peter, I enjoyed my visit to AUTO21 and I was very impressed with what you're doing on the ground there.

We're increasingly seeing collaboration between auto manufacturers where one will focus on one type of engine technology and another will focus on, for instance, hybrids; some are focused on cleaner diesel. It's inevitable that we're going to see a lot more cross-pollination and collaboration within the auto sector, and at the same time we're seeing the rise of the whole clean tech industry and the venture capital around that. Is it possible, in your opinion, for a General Motors or Chrysler or Ford to potentially work together and spin off a specific unit that does nothing but engine research and finance it externally through clean tech?

Ultimately there has to be a lot of collaboration. It strikes me as a way that they could work with people like you and finance it at the same time without it having to come from their current balance sheets. Is that something that you see the automakers having any potential interest in? There's a huge amount of private sector capital pent up to invest in clean tech and there are not a whole lot who want to invest in the North American auto sector right now, and it seems like an interesting way to position it.

Dr. Peter Frise: That's a very good question.

I would have to say this. The auto companies generally see the powertrain as a core technology that is part of their competitive edge. So they don't collaborate too much on engine technology per se, but they're doing a lot on transmissions and hybrid drive systems.

One of the most interesting and quite surprising partnerships is actually between General Motors, Chrysler, BMW, and Mercedes. They're developing what's called a two-mode hybrid transmission for rear-wheel-drive vehicles. I believe the R and D centre for that is in Troy, Michigan, and it actually has four separate sections, one for each of the companies. There are common areas where they meet and try things and talk, and other areas where it's verboten for the other guys to go.

An hon member: Kind of like Parliament.

Dr. Peter Frise: I would hesitate to comment, sir.

So I think there are some issues on which they will collaborate and some issues on which they won't. I think if the seeds were right for Canadian participation in some of that...we already work with all those companies separately on many issues, but it's not easy to get them together around a common table because they compete in the marketplace.

The Chair: Thank you, Mr. Brison.

Witnesses, I want to thank all of you for your presentations, your submissions, both prior to this and here today, and your responses to questions. We appreciate it very much. If you have anything further to submit to the committee, please do so either through me or through the clerk. We'll ensure that all members get it.

Members, we will suspend for a minute or two and then we will go in camera to adopt the services sector report. So we will suspend for one or two minutes.

[*Proceedings continue in camera*]

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