

The Eighth Annual RE\$EARCH MONEY Conference

Going Global: Expanding the International Footprint of Canadian Technology Firms

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In collaboration with the Department of Foreign Affairs and International Trade

Conference Proceedings
prepared by Tim Lougheed

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MONEY

Welcome, and Opening Remarks:

Mark Henderson, managing editor, RESEARCH MONEY

Jeffrey Crelinsten, co-publisher, RESEARCH MONEY

Noting that this year's conference was remarkable for its partnership with the Department of Foreign Affairs and International Trade, Henderson suggested that the theme was particularly relevant to where Canada finds itself in 2009.

“Going global — expanding the international footprint of Canadian technology firms — strikes at the essence of what I think we must do as a nation if we are to succeed in a world in which talent and innovation are no longer the preserve of a select few. Some might think that such a theme is overly ambitious given the economic crisis that is unfolding around us, but I think you could argue the opposite might also be true. Succeeding in any tech-based industry has always been about thinking outside the box and staying ahead of the curve; looking for opportunities that might not be completely evidenced amidst the economic confusion.”

Henderson then introduced the Master of Ceremonies for the conference, Jeffrey Crelinsten, co-publisher of RESEARCH MONEY. By way of welcoming Minister Day, Crelinsten noted that while he currently represents constituents in British Columbia, he has lived in many parts of the country, including Barrie, Ontario, the Maritimes, Ottawa, Montreal, the Northwest Territories, the high arctic, and Alberta.

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The Honourable Stockwell Day

Minister of International Trade and Minister for the Asia-Pacific Gateway

The Minister began by noting how important it is for companies like those represented in the audience to be here today, as well as tomorrow. He outlined some of the steps the government has been taking to help the business community. “We have a goal — and we're on track with that goal — of having the best and most favourable R&D tax offerings of any country in the G7.” The larger objective, of course, is to maintain a high level of R&D in the country in comparison with other countries, expanding and retaining this investment here. With that in mind, he noted that Canadians have a 4.4 per cent share of the world's science and technology research papers.

Minister Day observed that his department has also supported international science and technology agreements to build productive relationships between people working in these fields in Canada and other countries. “It may be a particular product, or it may be a service that can have broad applications in one or more countries,” he explained. In fact, one of his first actions in his current portfolio was signing such an agreement with Brazil, establishing a collaborative R&D activities seeking results in the marketplace.

Such agreements spawn calls for proposals that the Minister described as highly encouraging.

Some 200 proposals were received following an agreement with China that focuses on the production of transponders used in traffic applications, welcome technology in traffic-intense places like that country. Some 30 contracts have since been signed, representing some \$30 million worth of research activity. “It’s hard to say how many further agreements, products, and services are going to expand from just that one particular agreement.”

Minister Day noted that these agreements can expand discussions on trade. “As you know, we don’t have a free trade agreement with Brazil. But when you sign a science and technology agreement, it begins to lever, to open up trade opportunities, which then lead to broader discussions on what sectors, what particular areas can we have agreement to reduce tariffs, to have regulatory harmonization, to compare tax regimes, and to look at the investment possibilities.

“So these S&T agreements do more than just build certain bridges between initial groups, academic or business. It tends to broaden into much more active, much more robust trade discussions that wind up benefitting everybody in the longer term.”

Further to Henderson’s opening comments, the Minister underlined the importance of taking this global approach at a time of economic downturn. The economic reality does create challenges, with companies and industrial sectors asking for protection from difficulties in the form of trade barriers. Since such barriers are actually counterproductive to economic growth, his government just this day passed free trade agreements with Norway, Iceland, Switzerland, and Liechtenstein, setting the stage for a general free trade agreement with the EU. Similar agreements with Peru and Colombia are in the offing. Likewise he is travelling to China to look for expanded opportunities there.

In this context, the Minister insisted that the current economic downturn should not necessarily inhibit the vitality of R&D. Referring to a similar state of affairs in the late 1990s, he recalled that this was the context in which the Blackberry emerged. “Things can happen if we’re ready and if the playing field is as clear as possible for businesses to do things.” For just this reason, he outlined the various ways in which his government is working to assist the research community in reaching its goals.

What can inhibit R&D, he added, is the reinforcement of a strictly pessimistic perspective. Without presuming to tell members of the media how to approach their work, he suggested that many of them have been too eager to paint a gloomy picture of our prospects, pounding the public with dark forebodings about the world’s economic future, while overlooking or ignoring the promise of our innovators, investors, and developers of ideas, products, and services. Such a reporting style gives prominent play to any negative news like a market drop, but only the most tepid or even skeptical play to any market rise.

By way of example, the Minister asked the audience what they had heard about Bombardier’s \$1.5 billion contract to sell 30 airplanes to German air carrier Lufthansa. He deemed the story

remarkable in many respects, from the economic optimism demonstrated by Lufthansa to the fact that a Canadian firm beat out international competition to win the deal. A member of the audience subsequently pointed out that the story was overshadowed in that day's paper by Chrysler's threat to shut down its operation unless bailout money is provided.

Asked about a global partnership initiative mentioned in his talk, called Going Global (http://www.infoexport.gc.ca/eng/science/going_global.jsp), the Minister outlined how the program could cover up to 75 per cent of a qualifying firm's costs in making international forays of one sort or another, such as setting up a meeting or attending an international conference.

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Opening Keynote: A Billion and Beyond

David Martin, Executive Chairman & Co-Founder, SMART Technologies

NSERC President Suzanne Fortier introduced Martin as an example of her agency's goal of "putting science to work", and his company is a valued long-term partner in its Network for Effective Collaboration Technologies (NECTAR).

Martin began by referring to the success of this collaboration through NECTAR, which had its conceptual roots in the early 1990s, just as the potential of network collaboration tools was starting to become apparent. NECTAR itself began formally in the early 2000s, eventually supporting some 160 researchers in six participating universities, all of whom are now publishing their work and many of whom are working for SMART. The company's capabilities have been accelerated by this cooperation: "We were able to do in weeks and months things that on a commercial scale hadn't been possible."

"If we're going to actually create companies that are sustainable, then that will sustain the knowledge-based economy, because those taxes will be paid for better education systems, more social programs, perhaps some longer term research projects like NECTAR. There's no specific direct tie to commercialized value, but there is an indirect benefit. And we need to think about that whole process as we move from a resource-based sector to a knowledge-based sector."

He began by discussing the importance of mid-sized companies, as opposed to the largest, most secure firms or the smallest innovative firms. "To create a sustainable model going forward, we need more medium sized companies." Using a SMART board to make notes on his slides, he presented a model of the relationship between sustainable businesses and the economy. The private sector component of this model consists of seeing a product through to its market-ready incarnation, while the public sector portion includes providing the necessary infrastructure (such as roads or communications grids) to make that happen.

With specific respect to SMART, he noted that since the company was created in 1987, it has used SR&D tax credits to create an offset of some \$18 million, while at the same time paying \$66 million in

taxes, while its workforce paid roughly twice that amount in income tax.

Recalling the company's origins, Martin noted that the company's first product only came to market in 1991, since the firm was refused financial support by no fewer than 42 potential investors who were approached. In fact, the company's launch was disrupted by the stock market crash of 1987, which caused much of its government-sponsored funding to disappear, and led them to start selling products on behalf of other companies. This enabled them to set up distribution channels, as well as putting the proceeds into developing their own market and eventually their own products for that market.

Today SMART Technologies is still privately held, and last year was the 19th largest technology company in Canada, a figure he expects to be 10th or 11th this year, and in the top three within the next three to five years. They now have about 1,300 employees worldwide, about 1,100 of those in Canada, ending this fiscal year with revenues upward of \$550 million. They have a 260,000 sq-ft manufacturing facility in Ottawa, and 70 per cent of their products are manufactured in Canada. In fact, the Ottawa plant is hiring people in order to increase its number of shifts.

Martin showed a picture of one of their most recent investments, a \$60 million R&D facility on the University of Calgary campus. Juxtaposing images of an individual using a traditional chalkboard with that of an individual using a SMART board, he introduced the notion of the evolution of this particular communications medium. "We're taking the 'chalk and talk' process that's been going on for many years — 1801 was the invention of the first chalkboard." As the chalkboard took hold in the marketplace very quickly, so too has the SMART board achieved momentum; the company took some 17 years to ship its first million boards, but just three years to ship the second million. "And that's because it's taken hold; it's the way in which teaching and learning will be done as we go forward."

Intel became an investor in 1991, and SMART is now one of just two firms in the world where Intel sits on the board of directors. Returning to the company's tempestuous beginning, Martin recalled pushing for a policy environment in Alberta that would give entrepreneurs access to the cash they need to proceed from week to week. "Cash for entrepreneurs is the most important thing. Not the promise of cash, not that good things will happen in the long run, but how do you make payroll, and how do you find your way through to long-term success?"

Martin presented a graph showing that SMART now has some 53 per cent of the world market share of interactive white boards. Their next largest competitor has a market share less than half as large. "The SMART Technologies story is inventing a market idea, creating a market from scratch that didn't exist before, and continuing after 23 years to be the market category share leader."

One remarkable feature of this story is that they had no pre-existing distribution channel for this product. "When you create a distribution channel, you can now get new ideas and move them through that distribution channel." Today, they sell their product in 175 countries in 44 languages through 65 distribution partners, a reach that is not surprising as they had always had

the intention of taking the product global.

By way of continuing to lead the category share, then, Martin insists that they must become a \$1 billion a year company. “The market is growing at 30 per cent a year and we are growing at 30-40 per cent a year, so we’ll just need to keep doing that.” Such growth is premised on technical achievements that accompany the phrase “extraordinary made simple”, such as the board becoming actively available in less than one minute; next, they want it to start up in just six seconds.

Likewise, they are now looking at their intellectual property portfolio with respect to digital camera technology, which includes some 126 patents they have applied for. This resource has since yielded a deal with an Asian company that will be worth \$50 million over the next seven years. Another deal has been with Intel, which starting next year will be embedding a SMART software suite on millions of Classmate PCs, a low-cost laptop aimed at elementary school students.

With regard to lessons learned from his company’s experience, Martin began by arguing that the business model has to be correct. “We found a business model that made sense to allow us to recognize our market reality,” he said, noting that it took \$2 million in contributed equity in the company to generate \$400 million in revenue. “We didn’t need a lot of capital; we needed the right amount of capital.” With regard to public policy, he suggests that we should perhaps not spend so much on research without creating receptor organizations that can take an idea through the commercialization phase. He chaired an Alberta task force that came up with seven recommendations regarding commercialization. The Alberta government has since put \$178 million toward acting on these recommendations, which deal with matters such as building an effective capital market and instituting a SR&D tax credit system.

Looking specifically at SMART’s place in the economy, Martin noted that they are a “gnarly” competitor, for while Canadians are nice, you can only be a little bit nice in a competitive environment. With respect to R&D, then, he expected to increase their R&D budget by no less than 40 per cent. “When the recession is done, we want to have a suite of products that are second to none, and we’re in a financial position to be able to do that and we are going to do that.”

As for what Canada as a whole should be doing, he insists that the country should be creating global technology leaders, products that people want, and that will yield a sustainable model. In world-class businesses, a customer focus is more important than a technology focus.

Asked what further public policy recommendations he would make, he referred to the ones that had already been offered by the Alberta task force. “One of the most important things out of that was that we got a commitment from the government ministers that they would take a look to the year 2020. If we’re going to create in Alberta the longer term reality of what we need, which is an economy based other than on oil and gas, tourism, and agriculture, then technology needs to be cultivated over a long period of time through 2020.”

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Panel 1: International Collaborations — Do's and Don't's

Panelist: Karna Gupta, CEO, Certicom

Panelist: Mark Kershey, President, Spartan Bioscience

Panelist: Robert Orr, President & CEO, Ocean Nutrition Canada Ltd.

Moderator: Jeff Hauswirth, Managing Director Canada, Spencer Stuart

(For complete profiles, see Appendix 1)

Hauswirth had several questions which he posed to the panel individually, starting with what each of them regarded as the factors that led to their current level of success.

Orr commented that he was struck by Martin's check-list, which resembled a similar list of his own. By way of developing such a list, he credited his early experience working as a subsidiary of seafood giant Clearwater. While considering the problem of how to make use of leftover material from fish processing, they encountered the challenge of trying to carry out R&D activities and also generate revenue to support those activities. The presence of Clearwater was crucial in this regard, as was "patient capital" from places like the Nova Scotia government, the Atlantic Canada Opportunities Agency, the Atlantic Innovation Fund, and the Industrial Research Assistance Program, giving them the necessary time for ideas to come to commercial fruition.

*"If you do not improve quality and reduce cost simultaneously, you will not be globally competitive."
-Robert Orr, Ocean Nutrition Canada*

That said, Orr recalled taking two years to convince the company's board of directors that science and technology could differentiate the company's contribution to the market, simultaneously improving quality and reducing cost. He was often told simply to take advantage of patented processes, but Orr insists that this strategy does not create a globally competitive enterprise.

In addition, Orr argued that a sustainable competitive advantage was built on effective communication. Much of this latter process is common sense, but Canadians do not do this as well as they could.

Kershey, for his part, recalled his early work with Gennum and Doug Barber, who taught him to ask about the return on any investment that is made, especially if that investment originates in the public sector. The company that Kershey now runs has developed what is essentially a desktop DNA analyser, designed to identify problems such as infectious disease or malignancies associated with cancer. Having identified a business opportunity associated with this technology when the firm was founded in 2005, they have raised some \$4.5 million in capital and taken advantage of DFAIT's Going Global program. Likewise, they have also had a good partnership with NSERC, which supports all of their scientific staff, as well as a rewarding relationship with

NRC-IRAP.

They are already a global company, active in Spain, Norway, Australia, and Chile, where they are soon going to sign an R&D agreement. “And we have the interest of the global market,” he explained, referring to the forthcoming release of the next generation of their product. “Developing a product based on customer need is an absolute must.” And with this new product on the way in a matter of weeks, they have already received their first substantial order, one that will be the first significant revenue for the company.

*“Typically most companies go overseas just to save money, and if it’s just to save money then you’re kind of missing the boat. Each of these economies provided tremendous market depth and market opportunity that we can capitalize.”
-Karna Gupta, Certicom*

By way of example of how government can nurture an industrial base, he pointed to the way in which semiconductor manufacturing was established in

Taiwan. “The government decided to invest and create this industry, and they lead the world today in terms of semiconductor manufacturing. That kind of initiative here in Canada could really change the way we’re viewed in the world.”

Gupta recalled how he began working for a New Jersey-based company with established lines of business worth \$400 million, then went to Certicom, a Waterloo start-up that went public in the mid-1990s. The company was premised on powerful encryption technology that met the highest NSA standards, but its business activity was stalled on the verge of expanding into a global market. A key part of this move would call for the integration of various parts of the firm that would be located in different places, a managerial challenge that opens up prospects going well beyond cost optimization. At the same time, he pointed out, cultural distinctions must also be taken into account. Meeting people in India or China calls for extensive conversations, while in Tel Aviv business exchanges are much more direct and abrupt

*“We’re a very small nation, we’re a limited market size, we have to be global traders to be successful. There’s really no other way.”
-Karna Gupta, Certicom*

Initially, then, they moved into the US market, where they met with a good deal of success. Certicom also holds a large intellectual property portfolio, with upward of 500 patents applying to countries around the world. Nevertheless, it represents a major leap in strategy to turn that IP into specific products aimed at markets in each of those countries.

Gupta therefore summarized the company’s progress based on these three factors: understanding of the market, integration into a global arena, and drawing from an international talent pool.

A question to Kershey asked about how and why companies should work with Canadian universities. “Our partnerships with academia are strong, they are domestic and they are global.”

Following on the accomplishments of the human genome project, for example, is the search for genetic markers that his company's equipment will detect. He offered other examples of university partnerships that are critical to their success.

Orr added that education is one of his highest priorities. Citing well known statistics about the vast numbers of university graduates emerging in China, he asks about the extent to which we value our own educational system. "The Chinese as families and as a government value education as their number one priority. And I would challenge anybody to say that education is the number one priority of Canadian policy makers. If you're looking for policy, you've got to get real about creating smart people." Meanwhile, he encouraged universities to become more serious about their relationship with business. "You've got to get off of your holier-than-thou position and look at what Americans do and look at what Chinese do."

*"You build that brand by how you communicate — science, technology, and then you add the marketing component."
-Robert Orr, Ocean Nutrition Canada*

*"We have got to get serious about education. We are underfunding education so badly it's ridiculous. If you believe that education, that knowledge is the underpinning of value creation, then where are we on a globally competitive basis?
-Robert Orr, Ocean Nutrition Canada*

A second question went to Gupta, citing his comments on doing business in different parts of the world and asking what Canada can do to overcome the associated challenges. He replied that it is a matter of building strong cultural ties with each country, and Canada has a distinct advantage in this regard because of its significant immigrant population, which already has many of the necessary connections, including language capabilities and a more nuanced appreciation of a given nation. By way of example, his company employs a cryptographer from Japan, one of the markets they wanted to enter. Sending him to live there for just two months was sufficient to build relationships that enabled them to break into companies that had formerly been

inaccessible.

Gupta added that in the case of Japan, there was also Canadian government support for their effort, though that does not apply to all countries they would like to enter. "Brazil we have very little; Chile we have almost none; African countries we don't even touch, and my view is that over the next 20 years, African economies will start to come together and a significant amount of commercial assets will get exploited."

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Keynote: Perspectives on Going Global

Alan Barrell, Entrepreneur-in-Residence, Cambridge University

Dr. Barrell began by comparing and contrasting the meaning of “going global” with the more intricate day-to-day reality of “being global”, which reflects a two-way process that sees the global community coming to you even as you reach out to that same community. He asked the question “why go global”, implying that if it is such a de facto good thing to do, why aren’t more people doing so. The point is not without merit, and there may be reasons to hesitate, at the very least.

Barrell offered two telling quotes which precisely matched the current economic gloom-and-doom rhetoric, complete with descriptions of reckless bankers and families losing their homes. Only afterward, though, did he reveal that one was from Thomas Jefferson in 1778 and the other Cicero in 55 BC. His point was straightforward: these things have happened before, and they will happen again, and in the meantime we will get over it. Later he cited Charles Dicken’s classic opening of a *Tale of Two Cities*, which describes the simultaneous reality of the best of times and the worst of times. Moreover, the Chinese language has a single character that can mean “crisis” or “opportunity”, depending on the context, indicating an outlook that sees these two conditions as opposite sides of the same coin.

“So, let us not think gloom, but let us think boom. Many successful companies were started in a recession.”

Moreover, Barrell underscored the observation that Canada is showing signs of weathering the present economic downturn better than other countries. “All those things you’ve heard before, about going for it — you’re in a competitive advantage position as a nation.”

He launched the next section of his talk with a mosaic of faces from around the world. “At the end of the day, it’s people that are going to make the difference.” That difference is becoming more significant as people are moving around more than ever. When he attended his alma mater Cambridge, he recalled, the ethnic minority population was two per cent; now it is 20 per cent. He regards this growing cultural diversity as a valuable source of innovation.

One of the leading and best known effects has been the migration of manufacturing sectors to India and China. In Europe, upward of 70 per cent of all jobs are service oriented, often as sophisticated, innovative enterprises that are being closely watched by everyone. Despite the recent downturn in manufacturing taking place in Asia, this trend is unlikely to be reversed. “So if we really want to be a great nation, whether it’s the UK or Canada, in the future we’ve got to take account of how the world’s becoming more competitive.”

“We are going to pull our socks up and we are going to have a future. The world is not coming to an end.”

In addition, sources of competition are changing. In the past, Barrell observed, wealth and competitive capacity were gauged by tangible assets, such as factories or workforces. Today, strategic knowledge represents the most valuable competitive

asset. “Today’s peacock could be tomorrow’s feather duster,” he said, showing a cartoon to that effect. “Even if you are not a company that is affected by the recession, watch out. The next technology may be right at your rear end and waiting to bite you.”

Barrell presented other telling statistics on globalization: as many international phone calls were made on an average day in 2003 as in the whole year of 1971; likewise, an average day in 2003 saw as many people flying as the whole of 1975. “We can’t stay at home in this world.”

Using a series of Venn diagrams, he examined the interface that occurs between rapidly evolving areas such as information technology, biotechnology, and nanotechnology to produce disruptive innovations such as biosensors. Similarly, where R&D, education, and practical applications overlap, the resulting impact can be profound. This has been an important transition, which he personally recalled from the early 1960s at Cambridge University, which rejected a group of enthusiastic entrepreneurs who wanted to spin off some of the research taking place there.

Barrell offers the example of Christopher Columbus, who did not really know where he was going, or where he had been. “The message is: without that spirit of enterprise and innovation and discovery, we don’t get far. New knowledge and new things do not get found out.” He also quoted Einstein’s respect for this spirit: “Imagination is more important than knowledge. Imagination circles the world.”

Barrell notes that Einstein was forgiving of mistakes, which come with trying anything new. “We can’t be too conservative about stuff, can we?” He finds George Bernard Shaw to be even more passionate, when responding to a younger colleague: “You look at things and ask, why? But I dream of things that never were and ask, why not?” Following up with a picture of the founders of Microsoft in the late 1970s, he reminded the audience that this company, too, started in a recession.

Barrell underscored the importance of what he dubbed “world think”. This includes considering the perspective of other cultures as legitimate, and adapting one’s work practices to accommodate this reality. Barrell then went to give a brief history of digital equipment designer ARM Holdings, a most unlikely success story by traditional standards. Starting with the remnants of the failed Acorn Computers, the company became an intermediary for manufacturers elsewhere. “It is a wonderful example of what you can do. A rejected technology brought forth a design company, not a manufacturing company, not even a fabless chip company. ARM Holdings doesn’t make anything,” he said, showing a slide full of dozens of major firms that rely on the company’s services. “ARM Holdings is 20 years old. Its market cap exceeds \$10 billion. There are more ARM-designed chips in the world today than human arms.”

He then recounted his own experience with a similar success story, Willett International, which became a leading player in the field of making equipment for variable output in the packaging and printing industries. As international regulatory standards for coding and labeling of information became more detailed and stringent, demand mounted for machinery that could cope with these changes. This kind of printing was not desktop, but high performance industrial

category, where ink flowed by the gallon. The company was founded in 1986, eventually operating in 100 countries, and ultimately sold in 2004 for £60 million.

Yet the start was anything but auspicious: “We were the last to market. We had no IP. We had no technology advantage. We had the worst products. We had five global competitors.”

Nevertheless, the company remained independent and entrepreneurial as it established its own global outposts, and took great advantage of R&D tax credits and other incentives, such as receiving significant government support to set up shop in a region that had been devastated by economic downturn. Moreover, the company bootstrapped itself, rather than relying on venture capital, which he regards as the most expensive way to build up an enterprise.

The key to the company’s growth, however, was simple marketing — positioning themselves as a broadly based coding firm, rather than just a printer manufacturer. This was accompanied by extensive engineering support, so that regardless of the actual quality of the installed equipment, clients would never suffer the consequences of its shortcomings. Similarly, the company also focused heavily on the training of staff. “We worked very hard to give people the best tools to compete.”

The company founder was aggressive about setting up subsidiaries all over the world, often being the first to arrive in an emerging market. This created the challenge of having a majority of employees working in other countries, sometimes under dramatically different labour laws. Currency fluctuations can also be a major factor in balancing the books, adding the complexity of managing the entire operation. On the other hand, the management became adept at identifying talented local entrepreneurs who would work ever more closely with the company, eventually selling the whole business at some mutually beneficial time. This process depended on dedicating resources to visiting these prospective partners and reviewing their capabilities in advance, then treating them like any other part of the overall firm. It took about two years for one of these subsidiaries to become profitable.

According to Barrell, the initial head office attitude toward the subsidiaries was that the people running these places were all crooks. When he asked if the company was taking the time to train them, he was told no one did so because they were charged £1,000 a week for the privilege. By taking more of an interest in these individuals, however, and giving them a better deal within the company, international sales went from less than £1 million to more than £12 million in four years.

Barrell wrapped up by showing a picture of Charles Darwin. “It’s often thought that Darwin’s theory was that only the biggest and the strongest survive. Not true. Darwin’s theory of natural selection is that those who can adapt are those that survive.” This notion prompted him to consider the concept of symbiosis, mutual dependence leading to survival and success. “There are times when we are looking to go global with our businesses that we ought to think about symbiosis.” By way of example, he pointed to a firm that seeks out bioinformatics technology from universities around the world, bringing it to a pharmaceutical clientele that is happy to have it; the company’s equity is provided exclusively by its customer base, and it does not have a

single customer in its home country.

He closed with a few key points:

- “The financial situation clearly demands an innovative response as we look ahead.”
- Entrepreneurship yields better results than bluster and bullying.
- Protectionism simply does not work. “Battening down the hatches may bring survival, but do you really want to survive, or do you want to succeed? There is a difference.”
- “Where markets are limited, as they are in Canada, it’s a global imperative. Those who world-think will be aiming at bigger opportunities.”
- “Who dares, wins”, the motto of the UK Special Air Service. “But daring can be planned. Daring doesn’t mean jumping off the cliff without a parachute.”
- “There are wonderful ways that the fiscal environment can improve.” For example, the European Commission has invested €2 million in a project to open international markets for small, innovative firms. French President Nicolas Sarkozy transformed that country’s punitive wealth tax into a mechanism for investing in early stage companies anywhere in the EU. Last year this strategy converted €935 million from tax revenue to venture capital, this year becoming €1.5 billion, all going to small firms identified by business angels. “The process has transformed people’s thinking about cross-border angel investing in the whole of Europe. It does show what one simple, bold fiscal move by a government public policy organization can make to a whole area. And you know what? It doesn’t make much difference to the French treasury budget. So, policy makers, if there are any treasury people here — behold. You may not have a wealth tax, but you have other taxes that you could give relief on.
- And his parting shot: “If we’re aiming at excellence, we’d better start caring, risking, dreaming, and expecting more than other people do. Because if we do that, we might achieve it.”

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Panel 2: Global Capital

Panelist: Suresh Madan, Executive Vice-President & Portfolio Manager, Excalibur Capital Management Inc.

Panelist: Daniel Mothersill, President, National Angel Capital Organization

Panelist: Frank Pho, Vice-President, Fund Investments Group, BDC

Moderator: Sunil Sharma, International Director, Canada’s Venture Capital and Private Equity Association; Senior Trade Commissioner, Venture Capital, Department of Foreign Affairs and International Trade

(For complete profiles, see Appendix 1)

Sharma began by indicating that the climate for venture capital and private equity around the world has become extremely challenging. “What we’re seeing in Canada is that venture capital disbursements are now at their lowest level in 12 years.” This has been highlighted by a 36 per cent decrease just since last year. “It’s a considerable issue for us and one that we have to take seriously,” he said, noting that this country has about one-thirtieth of the amount of such investment in comparison with the United States. “What we’re seeing happening is that the Canadian venture funds are starting to close down offices, lay off partners, and essentially in

some cases stop doing business.” He added that a bad situation may in fact start to get worse, as institutional investors like pension funds now find their investments overweighted toward venture as a result of a precipitous decline in the value of all their investments.

Pho amended Sharma’s comments by pointing to pockets of increase in venture capital investment, including places such as China and Israel. This is important from the perspective of Canada, where we develop the foundation of many technological solutions, but we do not sell these things. Entrepreneurs in a country like China, by comparison, wait for a product to come along then adapt it for their own market. Pho also makes a distinction between international trade, referring to directed exchanges between nations, and global trade, which is much more broadly dispersed. Moreover, that adaptation is not necessarily premised on specific products, but on providing solutions related to products.

“We have to look at where the market is, not try to tell them how good our technology is. This is a given; everyone knows that we have strong technology. Now the question is how we can adapt our product to address a larger market.”
-Frank Pho, BDC

Mothersill concluded that there is no shortage of innovative energy and ideas in Canada. “In this country we are awash in innovation. We have it coming out of our ears. Unfortunately our universities are becoming warehouses for this innovation.” The challenge does not relate to the level of funding that goes to these institutions or the researchers, but a complete lack of understanding as to how to commercialize it.

“If you want to know where our economic crisis is now, go into the universities. That’s where it is, because the innovation isn’t getting out.”
-Daniel Mothersill, National Angel Capital Organization

Whereas Sharma suggested that the problem may stem from a lack of follow-on venture capital, Mothersill insisted that it is actually the seed capital that is crucial. This problem emerges from a lack of formal relationships with key centres like universities, where even competent

administrators and researchers will confess their ignorance in this regard. Money we might use to bail out Chrysler, he suggested, could better find its way to the innovations found in our universities instead.

Madan recounted how investors that never used to call him are now doing so, and regularly demanding why they should continue to remain invested in a marketplace that does not appear to be delivering value. He tells them that this is precisely the time to stay the course, when fortunes are in fact made. After describing their approach to tackling some of the world’s most promising growth markets, he noted the competing pressures of protectionism and the calls for greater regulation of markets, at national as well as international levels.

“The net-sum value of a killer technology, of breakthrough science, is zero, unless you can turn it into a real business — a profitable, sustainable, growing global business. We don’t get it.”
-Daniel Mothersill, NACO

When asked by Sharma about the kinds of market successes Canada has been able to achieve, Pho indicated that we do have many promising enterprises, but they stumbled significantly when they tried to run beyond North America. They therefore turned to partners in various countries who could help them enter those other markets. “What we need now are people who can help them, people who can understand the culture, the technology, and who can speak the language of Asia, the business culture.” Moreover, many of those people are already here, thanks to immigrants from many of these same places. “That is our natural resource. But we have not been able to really harvest those resources properly.”

Mothersill described how angel investors have increasingly stepped in as venture capital has become more scarce. Many of these investors are facing similar problems, no matter where they happen to be located, and so they are now pooling their resources to ensure that some companies get off the ground. This process has begun to call for high levels of trust and personal interaction, a “high touch” process that places a premium on face-to-face meetings. With few exceptions, too, these individuals are themselves entrepreneurs, rather than individuals who come from money. They will invest anywhere from \$25,000 to \$350,000, sophisticated investors with a certain net worth that allows them to engage in this kind of activity.

Pho observed that at a time when IPOs and mergers are less common or nonexistent, investors have to remain committed much longer than they had planned to do. Life is further complicated for many firms right now if they are facing repayment of funds at a time when the market is in such poor shape, and this must be taken into account when deciding what to do with venture capital funds. He also clarified comparisons with the United States, where the venture capital industry goes back some 60 years, while here in Canada it is less than half as old, and correspondingly immature in its ability to act.

When asked if international research collaborations would create a potential larger market for innovations, Mothersill replied that Canada’s problem is more systemic than having a relatively small market by global standards. That problem amounts to questions surrounding who owns what, and who knows how to turn research findings into commercial products. We need to come up with a more effective model that will achieve this end; nor is it necessarily difficult to do.

“It ain’t rocket science, and by the way, it’s not the toughest stuff. Nanotechnology, some of the advances made in medical science — that’s the tough stuff. Commercializing it ain’t rocket science, but we’re also not doing it. We do the tough stuff really well. The easier stuff — oh well, that’s somebody else’s job. No, I’m sorry, it’s all our jobs — as investors, as universities, as policymakers, as governments. It is all our jobs.”

-Daniel Mothersill, NACO

* * *

Keynote: Why Going Global Matters More than Ever

Andrea Mandel-Campbell, author, *Why Mexicans Don't Drink Molson*

Mandel-Campbell began by presenting an entertaining quiz that revealed various biases in our knowledge of corporate brands and Canadian corporate history. This began with a clarification of the popular notion of Canada as a “trading nation”, as opposed to a trade-dependent nation, the distinction being our lack of outreach in cultivating new trade prospects. A second question examined the Canadian level of investment in China, which is dwarfed by our investment in the Cayman Islands. Presenting a list of well known Canadian-created companies, she noted that all of them were founded by Americans; from another list, she noted that only two (Dalsa and RIM) have a Canadian-born CEO. Another question examined a variety of business sectors, only one of which (bookstores) did not have government restrictions on ownership.

Following lists of famous multinational firms associated with various countries around the

“I found this to be rather shocking. Whether we are a trading nation or a trading-reliant nation, we are hugely important in terms of international trade. How can it be that people don't think of us in that way? People don't think of us as being economically extremely relevant.”

world, as well as key products exported by those countries, she presented a list of key Canadian products, such as maple syrup. Then she asked for the name of a famous brand of maple syrup. Likewise, a list of beer-producing nations each has an international brand, except for Canada. In fact, when she once asked members of a European conference about their most prominent image of Canada, they replied that it was an image of wildlife, specifically that this is a place where one can see bears in the wild.

Perhaps even more significantly, when she asked members of that same conference if they thought of Canada as an economic powerhouse, none of them

agreed with that perception.

Mandel-Campbell emphasized that the larger point is that if people do think of Canada as a haven for wild animals, it is important that they do not therefore think of the place as an economic backwater. She added that she has heard similarly oblique criticisms from American business people, who regard their Canadian counterparts as being well equipped but lacking in coordinated strategy for enterprise.

By way of example, she recounted the history of the manufacturer of the extremely successful molded plastic shoes called Crocs. Although the business began in Quebec and manufacturing subsequently spread overseas, last year this founding operation was closed. Such stories are echoed by the more comprehensive findings of a Rotman School of Business study of Canadian biotech firms, which tend to avoid growing markets in developing countries because of a lack of competitive business intelligence in these markets. “In other words, even though they may have had the technology, they didn't have a clue about how to do business in other countries and cultures, where business is done differently.” Nor is such caution unwarranted, given some of the

examples of dramatic failures amongst international ventures, including one company that spent two years on two separate attempts to set up operations in China, losing some \$6 million in the process.

Such experiences make Canadian entrepreneurs more inclined to stick closer to home, or at least the American market, which offers more secure prospects. Unfortunately, she suggested that those prospects are waning. “Our exports to the US declined almost eight per cent last year. And this is part of a longer term trend.” Some observers, such as John Ralston Saul, argue that this trend represents the decline of globalization, but Mandel-Campbell remains unconvinced. “What you’re seeing in some instances is quite the opposite: because of the economic crisis, there is this real huge push to cut costs.” One case in point is Canadian pharmaceutical production, which has been steadily withdrawn and may be on the verge of disappearing altogether. The question, for her, is whether government should have a hand in saving this sector. That observation led her back to the closing of the Crocs manufacturing facility in Quebec, where the government did try to help but was rebuffed by the company’s indifference to that help. Interestingly enough, after that business was closed, the former owners of the plant have been attempting to re-open it with support from various government departments.

Regardless of what conclusions one can draw from this instance, Mandel-Campbell sees talk of government assistance as a distraction from a more fundamental point. “We’re not getting at what is the real root of the problem, which is why this company either didn’t see the opportunity that its technology offered or it didn’t have the skills to turn that technology into a marketable product.”

Citing Columbia Business School Professor Amar Bhidé in his book *The Venturesome Economy*, she maintained that “It’s the application of innovation to meet the needs of consumers that creates the most economic value.” This observation extends to the way in which managers at American companies make use of foreign technology to create such applications. “He says that in fact it’s managers and marketers that are as important to American technological development as scientists, as engineers.” The conclusion she draws from this is that Canadian concerns over where we invest our money in science and technology are unimportant if we do not likewise cultivate managers and marketers who can take the products of this work to the commercial stage. Testifying to the extent that Canadian business managers do understand these principles, when she asked one about what he would like to see government do for his company, part of his reply included support for local marketing and sales resources in foreign countries. Moreover, in a BNN/Globe & Mail survey of how companies were responding to the recent economic downturn, high on the list was cutting their marketing costs.

Given the absence of any outstanding Canadian corporate brand, Mandel-Campbell nevertheless insisted that Canada itself has a very positive image in the world, one that evokes the kind of initial trust necessary as the foundation of any positive business activity. She related conversations she has had with business people to suggest that the government could provide some sort of official “Canadian seal of approval” to certain businesses to enhance their prospects in the global arena. This proposal is fraught with challenges, she conceded, but still worth considering.

All that being said, she offered several broad themes that reflect the realities of Canada’s efforts to move more fully into the international economy. “We need trade to maintain our standard of living. To me, that’s something that needs to pervade all parts of government, not just DFAIT.” She contrasted the way in which Australia processes work visas for foreign nations — premised on how it might increase the country’s business competitiveness and enhance trading opportunities — versus Canada’s criteria, which pertain primarily to helping the labour market, a much more narrow consideration. “It’s not to me reflective of how a trading nation thinks.”

“Right now we have a lot of governing boards and agencies that are entirely within government purview. We need to start sharing that with business. When I talk about the fact that we need to put emphasis on marketing, we need to put emphasis on management, we need to put emphasis on application, that has to apply to government, too; how government runs itself. And the best way to know whether you’re doing it properly is to ask your customers. Even if you think you have great ideas, if you’re customers don’t, then it really doesn’t matter.”

Mandel-Campbell maintains that government should carry out a greater consultation with the business community on its strategies, overcoming what she often perceives as the distance between government policy and the operating realities of many businesses. “They are the customers. That’s something that a lot of other countries seem to get, but not always us. And no company in the world would survive if it didn’t have its customers’ interests front and centre. The government needs to function in the same way. They need to see business as not only customers and partners, but in many cases, the prime movers.” She posed the National Networks of Centres of Excellence program as an example of where more business input should be placed into government initiatives. The UK Technology Strategy Board, by comparison, is a similar government undertaking that is almost entirely run by businesses.

Returning to the theme of businesses as the government’s customers, she also observed that many of these customers do not always know exactly who to approach, so diverse and numerous are the various government portals for information and assistance.

* * *

Panel 3: International Best Practices

Panelist: Paul Kedrosky, Senior Fellow, Kauffman Foundation

Panelist: Randy Mitchell, International Trade Strategist for Private Equity, US Department of Commerce; United States Representative to the OECD Working Party on Entrepreneurship

Panelist: Paul Thoppil, Director General, Global Business Opportunities Bureau, Department of Foreign Affairs and International Trade

Moderator: Andrea Mandel-Campbell, author, *Why Mexicans Don't Drink Molson*

(For complete profiles, see Appendix 1)

Mitchell was asked to start off by explaining the nature of his position and his mandate. Based on the assumption that everyone in the world is better off when business in more successful anywhere in the world, his job is to share best practices of entrepreneurship to create a hospitable environment for it everywhere. As a secondary objective, his work is intended to enhance the competitiveness of the venture capital sector in the United States, such as increasing the exports of such capital. He therefore serves as an advocate in government for this particular sector. “We do whatever we can do to help the venture capital community achieve important policy objectives that they lay out; we help them navigate through government to accomplish what it is they’re seeking to do.”

“In the United States, federal agencies have procurement needs that they express through various mechanisms to innovators — entrepreneurs, inventors, mad scientists, whatever the case may be. Our government has a venturesome relationship with small and medium sized enterprises, with entrepreneurs, to address the procurement needs of the government.”
-Randy Mitchell, US Department of Commerce

He expanded the concept of *The Venturesome Economy* to consider the possibility of “venturesome government”. Referring to Martin’s presentation about the development of SMART Technologies, the launch of these products in 1991 was followed by major sales to the US government in 1995, and sales to the Canadian government only coming much later.

On the matter of balancing taxpayers’ interests with a desire to motivate industry, Kedrosky suggested that tackling an area such as venture capital was among the more convenient ways of going about this process. His organization, the Kauffman Foundation, therefore actively tries to distinguish entrepreneurship and venture capital within the context of government policy. Creating pools of capital is much easier to oversee than the more complex task of trying to manage entrepreneurs. “The latter question is one of the hardest things in the world; the former — writing cheques — is what governments are really good at.” It is important to ensure policymakers understand the

Government is essentially public relations for entrepreneurs.”
- Paul Kedrosky, Kauffman Foundation

distinction between these two goals, which have different types of risk and accountability. “That’s not to say that venture capital is unimportant. It’s just really important to put it in its place from a policy standpoint.” And just as important, he added, can be getting out of the way of entrepreneurs who already know what they want to do, for whom venture capital may not be a top priority. In those cases, adapting various types of regulations may be more significant.

Mitchell acknowledged that he would agree with this perspective, but added that the relative economic impact of venture-backed firms was huge and did deserve attention. Returning to the idea of “getting out of the way” of entrepreneurs, his department does review the impact of regulation on small business, with an eye toward minimizing any negative effects. Thoppil added that the Canadian government has also set this as

a priority in its policy framework, called Advantage Canada. “It really was based on the fact that government was an inhibitor, and there was a lot you could do to promote and foster the growth of Canadian companies. Industry Canada was tasked with being the focal point for examining regulatory burden and its impact on small business.” Other initiatives have included such measures as reducing the amount of necessary paper, reviewing foreign investment restrictions, and lowering corporate tax rates. He noted that there is no specific office dedicated to this kind of activity, though the concept is now ingrained in all aspects of policy development.

Discussing impediments to entrepreneurs, Kedrosky recalled a meeting in South Africa, where he encountered a debate between “lifestyle entrepreneurs” — university researchers pursuing the development of an idea — and “survival entrepreneurs” — people with few other economic options. The latter were motivated primarily by role models, people who had succeeded without help, leading him to believe that these individuals and their organizations should be promoted more formally. His organization does just that, helping to overcome many of the negative attitudes that hinder the success of entrepreneurs by showcasing the success of others just like them, stressing the need to find role models who are neither too modest nor too ambitious, outlining the lessons of any failures along with their accomplishments.

Thoppil pointed out that Canada does do some of these things, presenting successful executives to potential foreign investors as a way of inspiring confidence in this market. When sector-specific trade

“You really need to play that up and really take advantage of it and focus your attention on the United States, because it is a very large market and you’ve got a natural welcome right there.”

*-Randy Mitchell, US
Department of Commerce*

“There’s a problem of holding up a few of these examples of companies that have been wildly successful and forgetting that even in those institutions, those few successes were complete accidents. It’s led to this idea that we can be IP farmers, grabbing these huge pieces of IP that we know in advance will be successful, when history tells us that we don’t know in advance which ones will be successful. We should be trying to be the Wal-Marts of technology IP and if anything focus on the other end of that continuum.”

*- Paul Kedrosky, Kauffman
Foundation*

missions go abroad, for instance, valuable networks emerge not only between the foreign and Canadian business communities, but also among the various Canadian participants. Likewise, DFAIT distributes a Canadian innovators brochure, highlighting clusters of innovation success across the country.

In the United States, Mitchell attributed some of this activity to the Small Business Administration Office of Technology's Small Business Innovation Research Program, one of the specific mechanisms for linking up innovative firms with government needs. The motivation for this activity came from the government's own desire to expose itself to the potential contribution of the best small businesses, rather than promoting the interests of small business per se. "What we're trying to do is create a hospitable environment for our entrepreneurs globally." This can include working with representatives of other countries, ensuring that their regulatory environment can allow for seamless investment from the United States. He has taken part in task forces that have examined how to get venture capital funds into Brazil, for example, or Mexico.

Thoppil said much the same attitude is adopted by everyone working at Canadian foreign missions around the world. Looking more specifically at venture capital, DFAIT has participated in the development of the North American Venture Capital Forum, a conference that has evolved from a get-together for Canadian investors to a much larger affair that draws in venture capitalists from 33 countries. These gatherings also include presentations by government officials discussing government regulations related to venture capital. In light of the significant amount of stimulus money that governments are now providing, DFAIT has established a task force to consider what opportunities are available for investing it. Working with its network of offices in Canada and around the world, DFAIT is also adopting a client-centred approach to this work, directly enlisting private sector partners to identify crucial areas for investment.

Kedrosky suggested that while stimulus capital will play a role in economic growth, this kind of investment is secondary to the interests of most of the entrepreneurs he encounters.

With specific reference to the high profile criticism of the "Buy American" aspect of the US bailout package, Mitchell pointed out that US government agencies are still actively combing the world for powerful innovations that can be adopted and commercialized at home.

*"Very few university faculty members will ever be entrepreneurs, and that doesn't make them bad people."
-Randy Mitchell, US
Department of Commerce*

Kedrosky narrowed this point further to consider universities, where administrators often wed themselves to a vision of innovative spin-offs as major revenue generators for their institutions, which with a very few exceptions is totally inaccurate. In the long run, this outlook is counter-productive for everyone concerned.

A questioner presented the need to tailor policy fairly precisely to suit the unique challenges of specific geographic regions, so rooted is the nature of economic development in local matters. Nor can entrepreneurial talent be extracted from individuals and institutions that are not already

motivated in that way, such as scientists and universities. The result of intervening in these situations can be confusing, leading the questioner to wonder how people in these regions perceive these efforts.

Kedrosky acknowledged the problem of expecting researchers to become entrepreneurs. Researchers do not have to carry out this part of the process. Instead, it is worth exposing entrepreneurs directly to the research environment, so they can consider for themselves which nascent technologies might be worth commercializing.

Thoppil suggested that all provinces now have a better grasp of how globalization works, and the tremendous push for R&D that is taking place in the developing world. Provincial governments, for their part, have been mounting an ever increasing range of programs to allow entrepreneurs to tap into this new economic environment. The government's science and technology strategy likewise acknowledges the problem that scientists are not inclined to become entrepreneurs, so that partnerships are promoted through programs aimed at goals like marrying up universities and entrepreneurs in this country with their counterparts elsewhere.

Another question referred to the possibility that companies may not "go global", but be "born global", i.e. target a global market from their inception. Mitchell suggested that many governments are encouraging this approach, though with an emphasis on getting to the American market first and foremost. In that light, Canada has a tremendous advantage in this respect, given its close proximity to the US and the mutual respect that Canada receives.

"I think Canada has a natural advantage relative to any other country in the world with regards to tech people going global, which is the fact that we are one of the most multicultural communities in the world. We have a high percentage of our multicultural communities in this country embedded in our R&D ecosystem."

-Paul Thoppil, DFAIT

Thoppit noted that Industry Canada has launched programs that encourage entrepreneurs to embrace a global perspective from the outset.

* * *

Closing Keynote: Global Technology Integration: A Canadian Perspective

David Fung, Chairman and CEO, ACDEG Group; National Chair, Canadian Manufacturers and Exporters

Fung recounted his earliest entrepreneurial achievements in marketing sulphuric acid, despite its less-than-standard market qualities, and doing so more effectively than major companies such as Dupont. After giving a brief review of his own career as a scientist turned business person, highlighted by building chemical plants on six continents, Fung began by pointing out that entrepreneurs need real friends, and their best friend is innovation. He equated it with a knight riding a horse, remembering that without the horse, the knight will not survive, an analogy he extends to Nortel, a research-intensive firm that has essentially failed in this respect.

That said, he explained that the concept innovation is regularly misunderstood. “The idea of having a university professor come out with one patent and somehow that gets turned into a business is unrealistic. That may be only one screw in a very big machine.” In fact, successful enterprises depend on a range of different technologies. In this way, though, a rudimentary operation can be transformed by sophisticated technology only when the goal is that of generating value. It is therefore essential to search the globe for the various pieces of this puzzle, taking advantage of the various strengths to be found everywhere.

“The technology does not have to be in Canada. Our job as Canadians is not to commercialize Canadian technology. Our job as Canadians is to go and grab any value we can from anywhere in the world in any market in the world. And our universities train our people so that they have that capability to go and capture value from anywhere in the world.”

Meanwhile, we often miss inefficiencies in our own businesses that are being exploited by entrepreneurs elsewhere. Fung gave the example of the pulp and paper industry, which leaves behind as much as 85 per cent of cut trees because they do not properly fit the automated processing equipment. Those that are used go to mills that are located in remote settings, near the trees but far from markets. In contrast, China has created a network of pulp and paper plants on its coast, taking in cheap wood fibre now coming from places like Brazil — not to mention our own waste paper — and processing it close to markets and shipping points, becoming one of the world’s leading manufacturers of paper products.

Another misconception has to do with the high taxes and high costs of doing business in Canada, which are thought to make it difficult to compete with developing economies like China’s. Fung offered statistics showing that the world’s leading exporting nation is none other than Germany, a high tax and high cost venue in its own right. “They are able to be the biggest exporters in the world because they focus on generating value.”

“My emphasis is on value generation. We’re not here to do R&D, we’re not here to create new science, we are here to create innovations that would translate knowledge into value.”

He reiterated that staying at home is not an option. When Mexico bid to expand its economic output through NAFTA, its global advantage peaked around 2000, but since then has lost ground to places like China and India. Canadians are likewise prone to look to the US as their primary market, even though that market may be saturated or stagnant, and there are more promising prospects elsewhere. “That is the price of staying home. We need our executives to get on a plane and understand that there’s a world out there. The United States market is important to us, but it’s not the only market and with the empty containers going back, we can ship auto parts from Hamilton to Shanghai cheaper than we can ship it to Milwaukee.”

Likewise, we are proud of our international trade gateway projects, like the container shipping port at Prince Rupert, but this effort is dwarfed by similar installations around the world. Nor did even last year’s major spikes in fuel costs — which have since been reversed — make a major impact in the overall price of high value products, such as television sets. “Let’s not start dreaming that this fabrication will come back to North America.”

“I also say global vision is just as important as market plays.”

He noted, however, that these exports coming from China do not necessarily represent Chinese businesses. That country’s top exporting firm is actually Toyota, followed by General Electric and Caterpillar heavy equipment. “The issue is not us competing with the Chinese. It’s a case of whether we have abrogated our responsibility to go and learn to manage the Chinese. The Chinese and Indians are no more than tools that are available for us to use. And if you don’t use them, then let’s not complain about somebody else using them.” Acting without this understanding can even be counter-productive, as with proposed trade tariffs that will end up harming domestic firms such as Caterpillar, leaving them unable to compete with companies in places like Japan.

Fung argued that as knowledge is turned into value, we become more removed from the direct process of manufacturing, so that most of the people in any given enterprise do not ever touch the product. As a case in point, he discussed Hong Kong, which might be regarded as a service economy since some 90 per cent of all its businesses deliver some sort of service. However, the reality is that most of these services amount to running tens of thousands of factories elsewhere in China. “Without those factories, maybe half of Hong Kong’s population would be unemployed. Hong Kong is the epitome of the manufacturing economy is: you take the high value portion, and let somebody else do the low value portion.”

“If we start talking about policies in order to punish our trading partners, it may have unintended consequences. And our policymakers must understand those issues before they start proposing policies that may be shooting ourselves in the foot.”

“If you take your Blackberry out and take a hammer to it, that’s 50 cents of material — and you’ve paid \$600 for that. And on top of that, you’ve signed a multi-year

contract, and continue to pay forever to use it. That is value generation. That is our job. You take 50 cents of material and turn it into another Blackberry. Moving the 50 cents of material is not our future. Turning the 50 cents of material into high value products and services is very much our future.”

Likewise, air cargo out of Hong Kong represents 1.3 per cent of the world’s trading volume, but 33.5 per cent of value. With a population no larger than that of Alberta and BC, and no natural resources at all — not even fresh water — this colony has surpassed Canada’s per capita GDP. In this way, global value chains are driving how we work and technology is determining what else is possible.

Where Canada will sit in these value chains will depend on how we nurture that vision. This will be necessary, for instance, since the whole country has only 180,000 qualified engineers, while China is graduating 500,000 of its own every year. Even if most of these engineers turn out to be mediocre or even incompetent, these numbers will overshadow any effort to compete directly. “I can’t take on 40 Chinese engineers by myself, but I can manage 4,000 Chinese engineers very easily. And that’s exactly what Toyota has done, what GE has done, and what Caterpillar has done.” As this process continues, we must also be aware of the ability of the Chinese to influence standards, and know what those standards are.

Returning to the Chinese use of Canadian waste paper in their pulp processing mills, they have been doing so because so many containers would otherwise go back to China empty after delivering goods here. By way of adding value to the return trip, they have been filling the containers with paper, so much that it has begun competing with our own paper production. “We have to put something more valuable into those containers.”

All this being said, the Chinese have their own set of problems, many of them related to population and maintaining social stability. “But you know what? The problems of the Chinese are opportunities for us, if we get off our butts and go after it.”

Unfortunately, our past performance often dictates our future policy, which can sometimes be disastrous. The market drives innovation and technology development, not discoveries made in university laboratories. If the market does not need the innovation, nothing can force its acceptance. Nor does this mean the only research to be conducted is applied research. Pure research nurtures the expertise that creates highly qualified people, who go on to become valuable members of successful enterprises. These will be the people who know how to identify and adopt the best technology found in Canada as well as other parts of the world. He has organized and acted with such people through International Science and Technology Partnerships Can, helping them manage the necessary risks associated with innovation and value generation.

A questioner asked Fung about the difficulty of accepting professionals with foreign qualifications, which results in the stereotype of immigrant doctors or engineers driving taxi cabs. He responded by describing a pilot program that the Canadian Manufacturers and

Exporters has initiated in British Columbia to place foreign trained engineers who are not certified in Canada into manufacturing plants, under the supervision of a certified engineer. Over a period of three to five years, each of these individuals would thereby be able to obtain certification.

As a follow-up, he noted how accessible business air travel had become and how rewarding it could be. “Staying home is the worst option that you can choose. It’s important for us not to say, ‘I’m waiting for the country to do something for us’. My company doesn’t take a penny of the government’s money. Because it takes too much time for me to write applications. I can make more money doing it myself.”

Fung observed that he is the first non-Caucasian president of the Canadian Manufacturers and Exporters, just 60 years after this country imposed a head tax on Chinese immigrants. Nevertheless, Canada made a conscious decision to reject such measures, touting itself as an open, welcoming economy that remains attractive to immigrants from around the world. “But in the end it is up to us to take those opportunities, and not wait for somebody else to put it on a silver platter to present to us.”

Another question dealt with the implications of tariffs that make it difficult to enter the Chinese market. Fung suggested that if you are already operating in that country, the local employees and managers — as well as government authorities — have a vested interest in seeing its operation continue. One way of ensuring that continuation is to change the bureaucratic classification of your product line. A good lawyer should be able to help you reinterpret the definition of your product, reducing the duty on it. Similarly, if your product is not an end-user commodity but an intermediary product, you should be able to set up arrangements with domestic manufacturers that will enable you to change the classification of your business.

A final question examined the fuzzy distinction between traditional perception of manufacturing activities and the earning potential of services. Major firms like IBM or CAE have a foot in either world. “The definition of manufacturing is creating and delivering value through tangible goods. Too often we stick with the old conception that I need to sell somebody something solid. But the world doesn’t work that way anymore. The Chinese cannot deliver the kind of value-added service that we can provide.” In this way, Fung explained, goods become wrapped up in services, so that customers cannot acquire one without the other, nor will those customers ultimately care about who makes what. Nor are suggestions about a “service economy” realistic, though he acknowledged that he fights with his economist colleagues about this point. A final questioner underscored this point with the example of software, which has a tenuous physical existence but robust economic value.

Fung concluded by examining how research is encouraged in Canada’s universities, subsidizing the creation of intellectual property that is being acquired by savvy corporate investors from other countries. “We are subsidizing the technological development of Japan and Korea. We need to recognize that some of our policies are well-intentioned, but not generating the results that we want.” Comparing our prospects with the success demonstrated by the much smaller

Finnish economy, we need to revise how we go about transferring technology. “It is time for us to look forward to R&D commercialization, not forcing one technology into the marketplace but bringing in a structure where you need to get people to look at the different types of technology, so we can pick the ones that we need and leave the other ones behind. Somebody else, with a different background, may see different market opportunities, and they’ll take a different tactic. But commercializing single technologies is a very tough job, and I hope that we don’t keep on banging our head against the wall.”

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Conference Close

Ron Freedman, Co-publisher, RE\$EARCH MONEY

Freedman concluded with a bad news/good news outlook, starting with the disconnect between the wealth of ideas presented and the actual policy adopted by the federal government. “If anybody had cared to listen to today’s proceedings, there was a billion dollars worth of value in the advice that was circulating in this room. From large companies, from entrepreneurs, from business people — when I think about the elements that we have here for developing a real industrial strategy, a real S&T strategy for Canada — compared to what we actually have as an industrial strategy and an S&T strategy — we have a long way to go.”

On a more positive note, Freedman noted four key points that were worth learning:

- 1) The importance of embracing China and India as tools for our own economic development.
- 2) Regarding Chrysler’s “blackmailing” of the Canadian government, if we reconsider how to invest billions of dollars in government money, would it be better spent on new ideas, new companies, new ways of doing things, rather than rescuing outmoded industries that have failed to keep pace?
- 3) Freedman was struck by the metaphor of universities as technology warehouses, an observation supported by many people in industry. Nor should this be surprising, given the significant emphasis on universities that government policy has adopted. “As if, because we give the universities more money, those things are going to find their way to market automatically and we’re going to earn more money as a society. Well, it’s not working. We’ve got to rethink the model.”
- 4) Referring to a conversation he had with a member of Statistics Canada, the metrics necessary to take stock of the world economy have changed in recent years, yet our method of collecting and analysing them have not changed since the 1960s.

APPENDIX 1

Speakers, Panelists and Moderators

Alan Barrell

Entrepreneur-in-Residence, Cambridge University

Professor Alan Barrell was educated as a Biologist and worked for six years in National Health Service Hospitals as a Haematologist before spending 20 years in a variety of management positions in the International Healthcare Industry. He was CEO of Baxter Healthcare UK and Europe until moving into the Electronics Industry sector in 1985. As CEO of two leading Industrial Ink Jet Printing Companies, Professor Barrell travelled the world and established businesses in more than 100 countries Domino Printing Sciences plc and Willett International both grew into global businesses with sales, in Domino's case now beyond \$600 millions.

Professor Barrell then spent four years as Managing Partner – Cambridge Gateway Fund, a \$75 millions early stage technology venture fund, before concentrating on work in the educational and Entrepreneur support fields. He is now Entrepreneur in Residence, University of Cambridge, Visiting Professor of Enterprise, University of Bedfordshire, Visiting Professor of Entrepreneurship, University of Xiamen, Fujian Province China Senior Enterprise Fellow University of Essex and International Fellow, Laurea University of Applied Sciences, Helsinki, Finland. He has made a special study of the impact of technology and cluster development on regional economic growth and development and contributed to research on this subject in the Cambridge sub-region and elsewhere. In 2005 Professor Barrell was honoured by Queen Elizabeth II – who Awarded him The Queen's Award for Enterprise Promotion. He is one of only eleven recipients of this Award. In 2006 he was appointed Special International Advisor – Youth Business China.

Alan Barrell is Executive Chairman of NHS Innovations East, the Health Enterprise Hub supported by EEDA.

Suzanne Fortier

President, NSERC

Dr. Suzanne Fortier has served as President of the Natural Sciences and Engineering Research Council of Canada (NSERC) since January 2006. Before her appointment to this position, Dr. Fortier held a number of senior research and administrative positions at Queen's University. Dr. Fortier is a crystallographer by training, specializing in the development of mathematical and artificial intelligence methodologies for protein structure determination. During her time as an active researcher, she was a member of the Protein Engineering Network of Centres of Excellence (PENCE), the Institute for Robotics and Intelligent Systems (IRIS) and Communications and Information Technology Ontario (CITO). She has received the Clara

Benson Award for a distinguished contribution to chemistry by a woman (1997), the Entrepreneurship Award from Communications and Information Technology Ontario (1997), and the Queen's University Distinguished Service Award (2005). Most recently, she received an Honorary Doctor of Letters degree from Thompson Rivers University in British Columbia (June 2006). A native of St-Timothée, Quebec, she attended McGill University, where she received a B.Sc. (1972) and Ph.D. (1976).

David Fung
Chairman & CEO, ACDEG Group

Dr. Fung is the Chairman and CEO of the ACDEG Group of companies. He has partnerships in forest products, biomass energy, chemicals, electrical power cogeneration, agric-foods, marine equipment, OEM parts manufacturing and packaging wastes recycling in North America, Europe and Asia. He obtained his Bachelor, Master and Doctorate degrees in chemical engineering from McGill University in Montreal and completed the senior business executive program at Queen's University in Kingston, Ontario. Dr. Fung was a member of the ministerial strategy advisory group of the Canadian Minister of International Trade (2006-8). He is currently chair of the national board of directors of the Canadian Manufacturers and Exporters, a Member of the Canada Foundation for Innovation and the Strategy Advisory Committee of NSERC, senior fellow of the Asia Pacific Foundation and past president of the Canadian Society for Chemical Engineering. He is also a member of the national board of directors of the Canada China Business Council (executive committee), Canadian Green Chemistry & Engineering Network, International Science and Technology Partnership Canada (chair of China Sub-committee), CentrePort Canada Inc. and the Western Canadian Transportation System Strategy Group.

Karna Gupta
CEO, Certicom

In January 2008, Karna Gupta was named CEO and a member of the Board of Directors of Certicom. Mr. Gupta brings with him 27 years of high-tech experience both in public and private companies. Prior to his appointment at Certicom, Mr. Gupta held the role of President for the Real-Time Billing Division of Comverse Technologies in New Jersey. In this role, he had the responsibility for the setting the strategic direction of the Billing Division and managing a globally-distributed workforce and serving a global customer base. His previous role in Comverse was Chief Marketing Officer for Comverse Americas. Mr. Gupta also held several executive leadership positions with Bell Canada, including Vice President, Product Development and Management. He holds a Bachelor of Commerce degree and a Master of Business Administration degree in Marketing and Finance from Concordia University in Montreal, Quebec. He has also attended executive development programs at Duke University, Harvard/MIT and the University of Western Ontario.

Jeff Hauswirth
Managing Director Canada, Spencer Stuart

Jeff Hauswirth is a member of Spencer Stuart's global CEO and Technology, Communications and Media (TCM) Practices. He has been pivotal in the strategic planning of the firm's technology and communications initiatives and is one of Spencer Stuart's most experienced recruiters of CEOs, directors and senior executives. Jeff has led important projects in all of the TCM sectors including telecommunications, computing technology, software, and IT. He also founded Spencer Stuart's international Bridge Project, which advances the firm's global reach and coordinates its international activities on behalf of clients. Jeff is also the managing partner of the Montreal, Toronto and Calgary offices as well as a member of the firm's global Board of Directors. Before turning his focus to executive search in 1994, He demonstrated an entrepreneurial spirit, co-founding a unique valet laundry service business and an electronic B2B real estate-based offering, provided to select clientele. He has been a guest speaker on topics ranging from executive leadership and succession to recruiting within a global talent pool. He has been interviewed by a number of international publications and has authored studies on leadership in the high technology and real estate sectors. Jeff sits on the Board of Upopolis, which is a private social utility that connects young patients in hospitals with community, friends and family around them. A graduate of the Canadian Junior College in Lausanne, Switzerland, Jeff holds a B.A. in Economics from the University of Guelph.

Paul Kedrosky
Senior Fellow, Kauffman Foundation

Paul Kedrosky advises the Kauffman Foundation as a senior fellow. In this capacity, he uses his experience as a technology entrepreneur, venture capitalist and academic to explore new programming opportunities for Kauffman in the areas of entrepreneurship, innovation, and capital markets. Most recently, Kedrosky has been the executive director of the William J. von Liebig Center in San Diego, California. Using an innovative seed capital program, the Center catalyzes the commercialization of technologies from the internationally ranked University of California, San Diego. Kedrosky is a venture capitalist, media personality, and entrepreneur. He is a sought-after speaker; an analyst for CNBC television; a columnist for TheStreet/RealMoney; the editor of one of the best known business blogs on the Internet; and he is frequently quoted in major publications around the world. He has published more than 300 articles in academic and non-academic publications. Kedrosky obtained his undergraduate degree in engineering from Carleton University, his MBA from Queen's University, and his Ph.D. from the University of Western Ontario.

Mark Kershey
President, Spartan Bioscience Inc.

Mark has prepared Spartan for rapid growth by raising financing and recruiting key members of the executive team. He is now responsible for building out Spartan's capabilities in sales and marketing and spearheading the globalization of Spartan through strategic partnerships. Mark has 28 years experience in high-technology engineering, sales, marketing, and senior management. Prior to joining Spartan, he was founder of Magnitude Capital Partners, where he provided management consulting and fundraising assistance to early-stage companies. Past positions include Managing Director, Global Sales & Marketing at Nortel Semiconductor and VP Business Development at MOSAID Technologies.

Suresh Madan
Executive Vice President & Portfolio Manager, Excalibur Capital Management Inc.

Suresh Madan is Executive Vice President and Portfolio Manager with Excalibur Capital Management Inc. He manages equity portfolio focused in US and Canadian markets. Previously, Suresh managed money for multi-billion dollars Reichmann family for nearly ten years. He is a Chartered Financial Analyst (CFA) and a Canadian Investment Manager (CIM) with over 25 years of international experience. Suresh was a consistent gold medalist during his academic career, which earned him a Bachelor of Science degree, an MBA from the Indian Institute of Management, Ahmedabad, as well as a graduate degree in Industrial Engineering. His previous work experience includes management consulting with SB Billiomoria (now Deloitte and Touche) in India and financial consulting in Saudi Arabia . Suresh is the Chapter Vice President of TiE Toronto and Chair of TiEQuest Business Venture Competition. Suresh is a frequent speaker on issues relating to financing for early stage companies and alternative public strategies.

Andrea Mandel-Campbell
author, Why Mexicans Don't Drink Molson

Andrea Mandel-Campbell is a veteran journalist, author and sought-after public speaker. She is currently an anchor at CTV's Business News Network and is the author of the celebrated book, Why Mexicans Don't Drink Molson, which takes a penetrating and unapologetic look at why Canadian companies fail to go global and why they must. As a public speaker, Andrea regularly travels the country to speak with government, companies and industry associations about the challenges and opportunities globalization offers and what Canadians need to do to be more competitive both from a private and public policy perspective. A foreign correspondent in Latin America for close to a decade, Andrea was the Mexico bureau chief for London's Financial Times as well as correspondent in Argentina for Business Week Magazine. Andrea is on the

board of directors of the Canadian Council for the Americas and sits on the editorial board of Export Development Canada's quarterly magazine, ExportWise.

David Martin
Executive Chairman & Co-Founder, SMART Technologies

Mr. David Martin is responsible for establishing and communicating the strategic direction of the company, as well as creating and maintaining corporate alliances and partnerships. Mr. Martin is an industry leader with over 30 years' experience in high-technology management and development. He is recognized worldwide as an expert in distance collaboration and is the author of a number of articles and papers on the subject of working and learning at a distance. He has a degree in applied mathematics, and is a founding member of the Calgary Council of Advanced Technologies (CCAT). He is also a member of the Society of Information Displays. Mr. Martin is the named inventor on a number of U.S. patents and patent applications pending in the U.S. and around the world. He recently received the 2004 Canadian Advanced Technology Alliance (CATAAlliance) Award for Private Sector and Leadership in Advanced Technology in recognition of his outstanding technological innovation and corporate leadership. He received the Outstanding Achievement award from the British Educational Suppliers Association (BESA) for the invention of the interactive whiteboard. In 2006 he served as the Conference Co-chair of the ACM conference on Computer Supported Cooperative Work. He also received the annual Pace Award from TeleSpan recognizing the contribution he has made to the teleconferencing industry for over a decade. Mr. Martin was the Chair of the Alberta Value-Added and Technology Commercialization Task Force and has served as a member of the expert panel on Canada's Role on International Science and Technology. He has been a member of the Leaders' Forum on Innovation and Commercialization organized by the Conference Board of Canada. He is also a member of the Board of Management of the Alberta Economic Development Authority.

Randy Mitchell
International Trade Strategist for Private Equity, US Department of Commerce ; United States Representative to the OECD Working Party on Entrepreneurship

Randy Mitchell joined the International Trade Administration in June 2001, from the private sector where he had a history of entrepreneurial development in Russia, Japan, and the United States. From 1997-2001 he was founder of a start-up e-commerce company exporting U.S. consumer goods to the Japanese. In that position he built a management team that included former Fortune 500 executives including the former Chairman, CEO and President of Avon Japan. Along with his team he raised \$3.5 million in venture capital financing and built strategic partnerships with some of the largest companies in Japan and the United States. Mr. Mitchell resided in Russia from 1992 through 1996, where he built distribution networks in Moscow and St. Petersburg for U.S. and Scandinavian food and beverage brands such as Nestle (Findus), Sara

Lee, Anheuser-Busch, Tyson, Subway, Campbell Soup, and others. This included working with Russian entrepreneurs in distribution, retail, and food service. He is an alumnus of the 2005 Venture Capital Institute and currently represents the International Trade Administration on the Board of Advisors to the Latin American Venture Capital Association (LAVCA). Mr. Mitchell has also served as U.S. Secretary on bilateral venture capital working groups with the governments of Brazil, Australia and the European Union. Mr. Mitchell, a speaker of Russian, has traveled to 38 countries. At the International Trade Administration, Mr. Mitchell is responsible for supporting foreign investments of U.S. private equity / venture capital firms, increasing the exports of U.S. private equity and venture capital and enhancing the competitiveness of the U.S. private equity venture capital sector.

Daniel Mothersill
President, National Angel Capital Organization

Daniel Mothersill is a serial entrepreneur and a serial Angel investor. In the last decade, he has founded and financed seven companies and spun off three of these as profitable enterprises. He is founder and chair of the Ciris Group of Companies and president and founding member of the National Angel Capital Organization. Daniel created and heads the Angel Network Program for Ontario's Ministry of Research and Innovation dedicated to developing core standards for Angel investments in the province and seeding the formation and expansion of formal Angel groups. Daniel is chair of the Angel stream for the Canadian Venture Forum, strategic advisor to the Banff Venture Forum, advisor to the New Brunswick Securities Commission on the commercialization of innovation, guest lecturer to the MBA program at Ivey, founder of and facilitator to several Angel groups, and board member of the CEO Fusion Centre. On behalf of the TSX Venture Exchange, he has presented the benefits of the CPC program to Angels and entrepreneurs in major Canadian cities. Prior to forming Ciris in 1991, Daniel was head of investor relations for Nortel. Daniel also founded the go-to-market boot-camp paradigm for the Toronto Venture Group. At more than 100 boot camps, Daniel has trained some 2,500 SME executives through his proprietary presentation preparation program. These entrepreneurs have gone on to capture more than \$2.4 billion in seed and angel capital. Daniel studied at York University, The Wharton School, University of Pennsylvania, Humber College and the Royal Conservatory of Music in Toronto.

Robert Orr
President & CEO, Ocean Nutrition Canada Ltd.

Since 1997, Robert has expertly managed the startup, financing and growth of Ocean Nutrition Canada. His 20 years of senior management experience in the Natural Product, Marine Biotech, Food Retailing, Wholesaling and Advertising industries have helped make us Canada's fastest-growing marine biotechnology and natural product ingredients company. This experience

includes the creation and management of several startup companies, and responsibility for large multinational corporate division operations. It has also allowed Robert to assemble a sizeable, extremely accomplished, multidisciplinary team – the cornerstone of our business strategy, and a major contributing factor to our revenue growth.

Frank Pho
Vice-President, Fund Investments Group, BDC

Frank is Head of the Fund Investments Group which currently has commitments to 18 Canadian private capital funds. Within his new role, Frank will also promote our portfolio companies in Asia, helping them to take advantage of these large markets. In his capacity as the Asia liaison for the Venture Capital division, Frank leads Technology missions to introduce Canadian companies and to help them commercialize their products in Asia. He also advises portfolio companies in their go to Asia market strategy. Frank was responsible for Venture Capital investments in Information Technology at BDC Capital. Before BDC Capital he was with the Corporate Finance Group at CP Rail. Prior to CP Rail, he was with Ernst & Young (E&Y), involved in planning, design and implementation of Strategic Information Technology plan and Systems Conversion. Frank had been a guest lecturer at SFU for the Executive MBA program and MBA Information Technology. He is the current Chair of Monte Jade Science Technology Association (2008-2010). Monte Jade is an international organization with 15 chapters in North America and Asia with the mission of promoting the commercialization of Technology companies. Frank Pho holds a Bachelor of Commerce, a Diploma of Accountancy (graduate degree) from Concordia University and is a member of the Institute of Chartered Accountants of British Columbia.

Sunil Sharma
International Director, Canada's Venture Capital and Private Equity Association; Senior Trade Commissioner, Venture Capital, Department of Foreign Affairs and International Trade

Sunil Sharma is a rotational Foreign Service officer with Canada's Department of Foreign Affairs and International Trade. He is currently in the midst of a 3-year assignment with Canada's Venture Capital and Private Equity Association (CVCA) where his mandate is to build strategic relationships with risk capital communities across the world. Sunil has recently concluded his 4-year posting as Consul and Trade Commissioner (Head of Consulate) in San Diego, California and was responsible for opening one of Canada's newest diplomatic missions. Previously, Sunil was Chief, Legislative, Regulatory and Policy Affairs at the Canadian Intellectual Property Office (CIPO) and served as Canada's representative to the United Nations World Intellectual Property Organization's General Assemblies in Geneva and was elected Vice-Chair of a key technical committee. Prior to his work at CIPO, Sunil served as a Senior

Investment Analyst for Technology Partnerships Canada, an investment arm of the Government of Canada. Earlier, Sunil served as Manager, Industrial Development at the Canadian Space Agency (CSA) in Montreal, Quebec where he assisted many of Canada's space technology companies in various areas of business development and international partnership. Sunil holds a Bachelor of Arts degree in Economics from the University of Victoria and a Master's of Industrial Relations degree from the University of Toronto.

Paul Thoppil
Director General, Global Business Opportunities Bureau, Department of Foreign Affairs and International Trade

Paul Thoppil was appointed Director General for the Global Business Opportunities Bureau at the Department of Foreign Affairs and International Trade on September 15th, 2008. He is responsible for the development of proactive integrative trade strategies for various business sectors, the facilitation of international opportunities for Canadian business generated by Canada's missions abroad, the provision of advice on the global competitiveness of Canadian firms, the establishment of links between Canada's innovation community and its foreign counterparts, and various grant and contribution programs in support of the above. Between May 2004 and August 2008, Paul worked in a number of positions in the Department of Foreign Affairs and International Trade. Previously, Mr. Thoppil was the Chief Financial Officer and V.P. Risk and Financial Services of Canadian Commercial Corporation (CCC), Canada's export Contracting agency. In this position, on behalf of the Government of Canada, he established the Government's first overseas investment fund, the Canada Investment for Africa. Mr. Thoppil commenced his tenure at CCC as a senior business development officer negotiating export contracts for Canadian companies and leading sectoral trade missions to other countries. Mr. Thoppil joined the federal civil service in 1991 as a policy analyst with the Treasury Board Secretariat and the Department of Finance. Mr. Thoppil holds a Bachelor of Commerce from the University of Ottawa (1989). Paul is also a Chartered Accountant (1990). He articulated at Price Waterhouse Coopers (PWC) and was a consultant to government and various small and medium sized businesses in audit, tax, and financing matters during his tenure at PWC.
