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Educational and Immigration Aspects of Innovation: Educating the Innovators and Shaping Immigration Policy for High Tech Workers

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CANADIAN SPEAKER

*Robert Crow**

Thanks very much, Dan. Good morning. I am from Research in Motion (RIM), and I am not going to pitch patent reform or talk to you about our fourth quarter results, but this week – and, in fact, we hope to have some copies available of Jim Balsillie's testimony before a subcommittee of the House Judiciary Committee – just this Wednesday he laid out thoughts that are germane to some of the other topics that we have discussed here.⁷

What I would like to do today is four very quick things. I want to go through a rather bewildering slide deck that some of you picked up and are probably wondering “What is this guy doing giving a commercial for his company?” I want to use that to paint a picture of an innovative company that is very fast-growing and one that is right nearby and has many, many human resource needs. I want to move into three areas. I want to give you a perspective on growth and the importance of talent acquisition to that growth from the standpoint of the company. We will then talk about what we think an education-inspired immigration policy might look like, and offer some comments and suggestions on our experience that tie in to a number of themes that Scott will handle as an expert in the field.

Innovation at RIM starts with a market-oriented technical issue, and that is balancing the laws of physics with customer demands. We have customers; we are a business; we are here to create products and services that add value to the lives of people. The laws of physics are not kind in regard to the manner in which they would like those requirements met, and that has posed a long-term challenge to us that continues to be the focus of the technical innovation of the company, and also the business innovation: how we deliver those products and services to company.

You all know about Blackberry. Here it is. It is complete, secure, and integrated. Behind the scenes, Blackberry was once described to me as something like the Wizard of Oz. You see this device, but behind the curtains

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⁷ *Patent Quality Enhancement in the Information-Based Economy: Hearing Before the Subcomm. on Courts, the Internet, and Intellectual Property of the H. Comm. on the Judiciary, 109th Cong. 14-22 (2006)* (statement of James Balsillie, Chairman, Research in Motion, Ltd.).

there is a little person pulling levers, ringing bells and blowing whistles saying "I am Blackberry." That actually happens at our network operating center just across the lake in Waterloo, Ontario. The beauty of this design is that it has created a very strong product that gives our customers a superior user experience, long battery life, bandwidth efficiency, and all kinds of other technical innovations. You will find a large number of people for whom Blackberry has become an essential personal productivity tool. In addition, on the business side, innovative marketing and innovative approaches have allowed us to build a very strong Blackberry brand, and I would suggest that we also need to pay a lot of attention in our thoughts of innovation to the innovation that is required in the business side to do such things.

Forbes June 2005 issue has us as the number two hot brands.⁸ These are brands that are poised to challenge Coca-Cola in the United States. I think we are now the number three or four technology-brand among British women.⁹ We have hardly been in the UK for hardly more than two or three years,¹⁰ and so this Blackberry phenomenon is becoming synonymous with a kind of personal communication and something cool. There is a lot of innovation behind that as well.

We have been rewarded with strong subscriber growth. Results for the most recent quarter were announced Thursday, and we are now over five million subscribers from a standing start in 1999.¹¹ It took us about four years to get to the first million, about nine months to get to the second million, and now we are at five million. We see this trend continuing.¹² It is very, very welcoming to have this kind of support in the marketplace, and it is again coming from all over the world.

When you create a strong brand, you make lots of friends. Here they are, all the beautiful people that use Blackberry, and here are just some of the core competencies required in a company that does everything. We are a complete company. We are not a design firm that out-sources, "please-go-build-me-something" as others will do. We are not an inventor that just says,

⁸ Kurt Badenhausen and Maya Roney, *Next Generation*, FORBES, Jun. 2, 2005, at 115, available at http://www.forbes.com/free_forbes/2005/0620/115tab.html.

⁹ See Press Release, Research in Motion, Research in Motion and BT Callnet Sign Supply Agreement for the BlackBerry Wireless Email Solution (Feb. 26, 2001), available at http://www.rim.net/news/press/2001/pr-26_02_2001.shtml (indicating that BlackBerry was not on sale in the United Kingdom in 2001).

¹⁰ See generally *Mobile? That's Cool*, MOBILE MARKETING MAGAZINE, Nov. 7, 2005, http://www.mobilemarketingmagazine.co.uk/2005/11/mobile_thats_co_1.html (last visited Oct. 10, 2006) (arguing the BlackBerry is among the most popular brands for young Britons).

¹¹ RIM Fast Facts, Research in Motion, <http://www.rim.net/newsroom/media/facts/index.shtml> (last visited Oct. 9, 2006).

¹² See Press Release, Research in Motion, Blackberry Subscribers Surge to Over Three Million (May 9, 2005), available at http://www.rim.com/news/press/2005/pr-09_05_2005-01.shtml.

well, let us go find some interesting parts off the floor. We are a technology company that attempts to predict where technology, consumer requirements, and consumer demand will be, and uses its industrial R&D and its partnerships with major players in the industry to try to anticipate those long trends.

Our founder, Mike Lazaridis¹³ says, if you are trying to design a computer, do not design it with today's parts; design it with the parts you think will be available two or three years down the road when you are actually making it. And that is one of the ways that we approach that kind of integration. Of course, we have these kinds of competencies in engineering, and because we build the devices. We are very brave. We build most Blackberries in Ontario.¹⁴ We also build them with an outsourcing partner in Europe and Mexico,¹⁵ but we have developed a great deal of expertise in specialized fields of manufacturing and have innovated in the way that one both manufactures for oneself, and works with partners in order to produce devices in a reliable and cost effective manner.

With that background, innovation at RIM can be thought of as many things: innovation in science and technology, innovation in the product itself, innovation in our processes, our business models, innovation in our business practices, and innovation in our organizational structure. We have co-CEOs and seemingly two of everything, which I might add is very handy if you are in a protracted legal struggle, so you have one CEO fighting the lawsuit, and the other one running the company. That is convenient.

But what has transpired at RIM is innovation with a purpose, as I mentioned. And the purpose of innovation is to build products and services that real people can use, that real people want, that people will pay for so that we can earn growth and money for employers and our shareholders, and we have been very successful in doing that. We are constantly reminded of companies that were as technically strong as RIM that managed to innovate right through the opportunity to make money. Classic examples are previous incarnations of Apple Computer and Xerox with a number of their innovations in the computer area that were so cool and so neat, they forgot to take them to market, and that is something we must bear in mind.¹⁶

RIM has been around since 1984 when three students founded RIM on a work term at the University of Waterloo.¹⁷ I first knew the company in the

¹³ Bio. of Mike Lazaridis, *Research in Motion Executive Biographies* (2006), <http://www.rim.net/investors/bios/index.shtml> [hereinafter Lazaridis Bio.] (last visited on Oct. 8, 2006).

¹⁴ Dalton McGuinty, *Ont. Premier, Remarks at Ontario Centres of Excellence Discovery 2006 Conference* (Feb. 7, 2006) available at <http://www.premier.gov.on.ca/news/Product.asp>.

¹⁵ Cf. Jennifer Rivkin, *The New Rules of Growth*, PROFIT, Nov. 2005, at 58.

¹⁶ See generally Virginia I. Postrel, *Creative Insecurity*, REASON, Jan. 1998, at 4, available at <http://reason.com/9801/ed.vp.shtml> (citing Apple as an example of a firm that failed to market its inventions properly).

¹⁷ Lazaridis Bio., *supra* note 13.

early 90s when I was with the Trade Association that looks after companies like RIM, and they were about 50 people. Today we are 5,000 people strong worldwide.¹⁸ Seventy or eighty percent of those people are in Canada.¹⁹ It is the founder's vision and the founder's strong will to keep as much of the company as possible clustered together in and around our headquarters, while bearing in mind that that's never going to work completely.

Today on a base of 5,000 employees, if you visit our careers Web site, there are 900 job openings at RIM. So that is a pretty good increase we are hoping to have. We have been orienting up to 50 people a week for most of the past the last year.

The background of our work force is quite interesting because the main RIM campus is immediately adjacent to the University of Waterloo, which is among Canada's finest universities by many measures. One would assume that a very, very high proportion of our technical talent comes from that institution, and that is partially true. When I joined the company five years ago – and I work in the R & D area – I was asked by one of the engineers “which department did you attend at Waterloo?” I replied that I had attended many fine universities, but not the University of Waterloo. Being a data guy, I got the actual data, and discovered that about 30 percent of the credentials in the RIM HR database were, indeed, from the University of Waterloo. Another ten percent were from McMaster University down the road in Hamilton, Ontario. It was almost a perfect gravity model if you have ever fit one with the exception of a few interesting stories such as four institutions from China being in the top 20 contributors to the RIM technical talent pool. It turned out that post-doctorates of the University of Waterloo, McMaster University, and the University of Toronto, had come to RIM and brought friends and family and professors and so forth into our organization. But all in all, more than 300 colleges and universities at that time had contributed to an R&D work force worldwide.²⁰

So the reality here is that countries that want to have innovative economies need to have a lot of companies like RIM. Companies that want to innovate like RIM need access to great people, and not just great people in science and technology, but great people in every part of the business. So the country – if we look at education and immigration policy – the country has

¹⁸ Cf. RESEARCH IN MOTION, 2006 ANNUAL REPORT 6 (2006) available at http://www.rim.com/investors/pdf/2006rim_ar.pdf (stating that RIM has 4,700 employees worldwide).

¹⁹ See generally Government of Canada, *Innovation in Canada: Case 7 – Research in Motion Limited*, <http://innovation.gc.ca/gol/innovation/site.nsf/en/in04212.html> (last visited Oct. 9, 2006) (indicated that Canada is home to the vast majority of Research in Motion's employees).

²⁰ See generally S&E Indicators 2006, *S&T: The Global Picture*, Nat'l Sci. Found., <http://www.nsf.gov/statistics/seind06/c0/c0s1.htm> (last visited Oct. 11, 2006); E.g. *Lazaridis Bio.*, *supra* note 13.

the opportunity to make or acquire. Make via education, and acquire via admitting educated newcomers. For the company, of course, we have a third option, and that is to perform work elsewhere, either under our own banner or by having certain work performed by another firm through an outsourcing type of arrangement. Now, we have done very, very little of that at RIM. We tend to in-source everything and use, as we will see in a moment, strategic acquisitions as a manner of acquiring both people and technology business practices that are important to the business.

So, I am going to talk a little bit about acquiring core innovators at RIM, and I guess there is an important caveat because I am going to use kind of a surrogate measure of core innovators and talk about core innovators as if those possessing science, technology and business degrees, particularly Masters and Ph.D.s in those fields, are roughly equivalent to the stock of core innovators that you require.

The reality, of course, is there are plenty of people with Masters and Ph.D.s who are not particularly innovative, but can be solid contributors. Furthermore, there are some wonderfully celebrated examples of people without advanced degrees or, indeed, degrees of any kind, other than perhaps honorary, who are tremendous innovators, technically and otherwise.

Bill Gates of Microsoft and Mike Lazaridis of RIM indeed are gentlemen who did not quite finish their Bachelor's Degree.²¹ They got side tracked by building companies, but they have done rather well. Interestingly, neither could have immigrated to the other's country under our skilled immigrant law requirements, but that's a whole other story.

So how are we doing?

Yesterday we had a good picture painted of the United States situation by Richard Rosen, so I won't go through those data again. But, suffice to say, on the United States side, he did not paint a very pretty picture of where the United States stands, particularly in science and technology, graduates and enrollments, and so forth. The business education picture in the United States situation is far more robust, and I would say something that stands the United States in good stead on innovation from that standpoint.

In Canada, to be honest, we are not a lot better, notwithstanding the fact if you go to the OECD and to my good friends at Industry Canada, they will be very quick to tell you that Canada leads the G-8, or the OECD in the proportion of the work force with post-secondary education.²²

And furthermore, Roger Martin of Rotman School of Business at the University of Toronto, referred to yesterday, studies the Ontario economy, and

²¹ Lazaridis Bio., *supra* note 13.

²² EDUCATION AT A GLANCE 2006, DRAFT OECD BRIEFING NOTE FOR CANADA (Sept. 12, 2006), available at <http://www.oecd.org/dataoecd/52/1/37392733.pdf>.

points out that the production of scientific and technology personnel in Canada exceeds that of the United States by a rather significant margin.²³

In one sense, comparing Canada to the United States is a little bit bogus because both countries are getting beaten up very badly by other countries in the area of education and immigration policy, and in particular education.²⁴ We can spend hours talking about that, but more importantly, I think further when I look at our own country, and we dig deeper into the Canadian stats, we find Canada's numbers are skewed upward by something that is unique in the world.

Perhaps only Germany does something close to the extent that Canada does, and that is produce the equivalent of many, many post secondary graduates with what Americans would call associate degrees, two and three-year applied programs at community colleges.²⁵ These degrees are clearly important to the functioning and running of an economy, but rarely are such graduates seen to be core innovators.

If we were to factor these folks out, in whole or in part, Canada's labor force would look much more modest by any standard of comparison. Now, Canadians do not like to hear this, but the reality is that we have simply too few people with advanced degrees. Our educational institutions are financially and structurally incapable, frankly, to do much about it at this point, and it seems that in many critical fields, we also have what Roger Martin likes to call an "aspiration deficit."²⁶

We Canadians like to equip our people with just enough education to get a start but, unfortunately, not enough education to have a sustaining, long-term contributing career at the highest level, and I think that poses a great problem.

Well, so what do we do? Let's go back to those 900 positions at RIM and think about them for a moment. Many of those positions – even 700 or 800 of those positions of the 900 that are open – will be filled without a great deal

²³ See Roger Martin, SCIENCE AND TECHNOLOGY: DON'T ASK VOODOO TO SOLVE OUR PRODUCTIVITY PROBLEM, GLOBE AND MAIL, Jan. 9, 2006, <http://www.rotman.utoronto.ca/rogermartin/dontAskVoodoo.pdf>.

²⁴ See generally U.S. STUDENT AND ADULT PERFORMANCE ON INTERNATIONAL ASSESSMENTS OF EDUCATIONAL ACHIEVEMENT 6, NAT'L CTR. FOR EDUC. STAT., U.S. DEPT. OF EDUC. (2006), <http://nces.ed.gov/pubs2006/2006073.pdf>.

²⁵ See generally FED. MINISTRY OF EDUC. & RESEARCH, GERMANY, EDUCATION AT A GLANCE (2004) available at <http://www.bmbf.de/en/5074.php> (last visited Oct. 10, 2006) (describing the high percentage of the young workforce in Germany with a secondary level II school certificate).

²⁶ See ROGER L. MARTIN, INST. FOR COMPETITIVENESS & PROSPERITY, REALIZING CANADA'S PROSPERITY POTENTIAL, available at <http://www.competeprosper.ca/public/dav05.pdf> (discussing the importance of Canadians realizing their aspirations for higher education).

of difficulty in Canada or abroad, and this is because most of them are not core innovators,

In my experience, the actual exotic talent that is required to drive innovation at all these levels, even in an innovative company like RIM, comprises a rather modest percentage of the company. A good 10 or 15 percent of core innovators who are terrific can lead the rest of us – who are mere mortals – through rather incredible challenges.

To find that exotic talent, that 10 or 15 percent, we really have two options as a company: global search, which I will speak about in a moment, and the opportunity of merger and acquisition. At my time at RIM, which is five years, we have acquired only five or six small firms. Most recently we acquired a firm based in California called Ascendant Systems that comes with some great technology, 35 or 40 terrific technical staff, a wonderful marketing group, and a sales office in Boston.

All of a sudden we made an addition that was a perfect graft onto RIM's core technical competency, but with it also came the addition of great individuals. We do a little bit of this kind of acquisition. We do not do this for immediate revenue growth. We do this to extend the technical competency of the firm and the technology that we have at our disposal, but really the big deal is global search.

As many authors have described the search for global talent, truly outstanding talent is not always available. In some cases, it is because it is not available in certain places at any price, and in other cases, it is because there simply is not enough talent of this kind to go around.

When we are talking about global search – and we have quite a good search engine going for at RIM – the trick is to, of course, find and then convince the candidate to move to a place. We must present a complete package, a complete experience. And here, of course, is where our immigration systems sink or swim.

We have established a global mobility team with outside counsel to assist in the process. Our experience is generally that as long as we can convince people to come to Canada, we have a relatively easy time with our immigration folks in getting temporary work-permits. In Canada we only require a labor force availability check off and have no overall quotas.

This is a feature of the Canadian temporary work and permanent immigration system. We do not have a fixed number of visas of one kind or another to give out.²⁷ In fact, we consistently under-perform our targets in per-

²⁷ See generally Colin R. Singer, *Info. Tech. Workers Program*, <http://www.immigration.ca/tempent-faq-faq.asp> (last visited Oct. 10, 2006) (discussing Information Technology Workers Program and that there are no limits on number of persons that can enter through this program).

manent residency.²⁸ We also find we are able to get pretty reasonable access to people who want to become permanent residents or immigrants to Canada.²⁹

They can complete the paperwork process, although they need to shuffle off to Buffalo, as we say, to complete the process and ultimately enter Canada. In the United States, we find this more difficult, and I will leave it to Scott to talk a little bit more about this, but there have been lengthy delays and a lot of security concerns.

We have had situations where there have been identically qualified Canadians and one has been accepted, and one has been denied, even with the same assessor looking at credentials. So it has become a bit of a crap shoot, and it has been very difficult to move people into our United States areas in some cases.

I will close by saying that in the long run we are going to solve or not solve this dilemma through education policy, and, of course, there are strong calls on both sides of the border for measures to turn around the current situation. Our founder, Mike Lazaridis, is especially passionate about this. You may have seen him in an American Express commercial talking with a blackboard, saying that an idea can occur almost anywhere, out in the corn field and so forth.

He is a great believer in the freedom that is associated with basic research and freedom of inquiry. He has a model that runs something like this: Investment in basic research leads to the attraction of the best researchers. The best researchers attract the best students. The best students graduate and go into society and leaven it with the latest in techniques. They create wealth, which gives us the capacity to reinvest in basic research.³⁰

So, basic research becomes a fundamental. If this is coupled with efforts to stimulate interest by our young and science technology and entrepreneurship in business, I think we have a formula for success. Time will tell whether we are going to be able to act on it in either of our countries.

Can we do it? Of course. Let me close by telling you the story I like to tell our politicians in Canada. This is the story of a Scandinavian company that fifteen years ago was noted for its snow tires, its rubber boots, and its toilet

²⁸ *Contra* CITIZENSHIP & IMMIGRATION CANADA, CANADA, IMMIGRATION OVERVIEW: PERMANENT AND TEMPORARY RESIDENTS (2005), <http://www.cic.gc.ca/english/pub/facts2005/index.html> (last visited Oct. 10, 2006) (listing the targeted permanent resident immigration levels and actual permanent immigration levels from 1996 to 2005).

²⁹ *See generally* James Travers, *Merely More Immigrants Not the Answer*, THE TORONTO STAR, Oct. 1, 2005, at F02 (stating that Canada's immigration system is one of the world's most open).

³⁰ *See generally* Mike Lazaridis, Research in Motion Ltd, The Importance of Basic Research, Keynote Address at the Fourth Annual Research Money Conference (2004), available at <http://www.cou.on.ca/content/objects/Lazaridis%20Speech%202004.pdf>.

paper. Today it is the global leader in cell-phone handsets, a technological tour de force and global brand called Nokia.

Nokia today has 50,000 employees in the world.³¹ 25,000 of those employees are in Finland, half in R&D, and half running the company. Finland, by the way, has a population about the size of Toronto.³² So we are talking from the long-term standpoint, the question of acquiring the political will, and making the public investments necessary, and on that count, I thank you.

UNITED STATES SPEAKER

Scott F. Cooper[†]

Good morning. You know, Bob, I did not look at my Blackberry one time during that presentation. That was out of respect.

My objective today is to kind of overview United States immigration law impacts, and I will make some comments about technology workers and innovation relative to our education system, although I think Bob covered that fairly well, so I do not need to spend a lot of time on that.

There is some background here, just to bring you up to date. All of this goes on around you, but sometimes you don't see it in the context of how it really impacts our innovativeness and our ability to obtain the individuals that we need to supplement our work force. We didn't worry much about it.

In the late 1990s, we were horrified that Y2K was around the corner, and anybody we could ship into the United States to help with that problem, we were more than happy to have them in.³³ There was a growth of the dotcoms

³¹ See generally ABOUT NOKIA (2006), available at http://www.nokia.com/NOKIA_COM_1/About_Nokia/Sidebars_new_concept/About_Nokia_broschure/nokia_about_eng.pdf (discussing general company statistics).

³² See generally OECD STATISTICS, <http://stats.oecd.org/WBOS/ViewHTML.aspx?> (last visited Oct. 10, 2006) (provides basic statistics on Finland, including population density).

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³³ See generally S. Mitra Kalita, *As a Government Cap on Work Visas Rises, So Does Confusion*, WASH. POST, Apr. 8, 2005, at E01 (discussing the tech boom after Y2k and the