



**“Are Canada’s Business R&D Incentives Working?”
The Sixth Annual RESEARCH MONEY Conference
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Conference Proceedings

Prepared by Tim Lougheed

Panel 2: Incentives for Established Firms

Panelist: Garth Issett, VP, Manufacturing Development Operations, IBM Canada Ltd.

Panelist: Dave Jaworsky, Director, Government and University Relations, Research in Motion

Panelist: John Wood, Senior Advisor, Science and Technology, General Motors Canada

Moderator: Lynda Leonard, Senior VP, ITAC

Leonard began by noting that while the companies the panelists represent are quite well known, the depth and scope of the research activities each of these firms has committed to Canada is less known. She invited each of them outline their respective work in this regard.

Issett explained that IBM has invested \$3 billion in R&D in Canada over the course of the last decade, and amount that grew year by year. IBM is in fact the sixth largest R&D enterprise in Canada, and second in terms of foreign-owned subsidiaries. Most of this work deals with software development for commercial products sold everywhere, and the number of people employed in this work has doubled over the last 25 years, with the main operation in Markham, Ontario being the company’s third largest lab in the world. The other major investment the company has is its semiconductor packaging facility in Bromont, Quebec, which is more than 20 years old, an investment of more than \$1 billion that is among the top five plants of its kind owned by any company. Interestingly, it may also be the only plant that builds chips for all three of the major gaming consoles. Last year IBM spent \$25 million to move a mission from New York State into Quebec.

Jaworsky provided some history of RIM’s development since it was created in 1984. Early on RIM received some assistance from the Ontario government, from NRC-IRAP, and from Technology Partnerships Canada. Now RIM has three locations in Ontario, in Waterloo, Ottawa, and Mississauga, about 5,000 employees worldwide, some 1,500 of them researchers.

“The comment was made earlier that the R&D tax credits could be looked at as a nice cheque at the end of the year. But it could also be looked at as an incentive to

stay local, to stay in town and work with universities. Through OCE and NSERC and programs that foster those relationships, that's something that I would highlight as being a key to RIM's future growth."— Dave Jaworsky, Research in Motion

Wood said that people are regularly surprised by the fact that a company like GM, which is almost 100 years old, continues to evolve. In particular, he pointed to the most recent evolution from a multinational firm into one that is truly global in scope, setting up shop in places around the world where it makes the most sense to do so. In this respect, Canada brings a considerable array of resources to the company, so that now the engineering centre in Oshawa is doing complete vehicle design. Another major change has been the design cycle, which has shrunk from five years to about 18 months, and promises to become even shorter. This kind of progress means they have to be similarly dedicated to bringing this work to Canada, to keep plants operating and turning out new products. According to Wood, the company settled on a public-private partnership to make this happen, taking advantage of Ontario and federal government support to introduce new features like flexible manufacturing in the Oshawa facility. He reminded the audience that competition also exists within GM, so that business cases must regularly be put forward to keep these operations in Canada. The latest move in this regard has been to incorporate changes in the supply chain into improving the overall process, drawing on the ideas of people working at companies outside of GM itself. The company also worked with public partners such as OCE and NSERC to bring in these suppliers as partners as well. Similarly, they have become directly involved with several universities in their engineering design programs, encouraging the education and training of highly qualified people who will help to keep this work in Canada, rather than see it go offshore.

Leonard then asked specifically about why each of these firms has focused so significantly on Canada, and what role incentives have played in that decision.

Wood observed that while the auto industry may not be changing at the frenetic pace of consumer electronics, the current rate of change has been unprecedented. In such an environment, other countries are moving equally quickly to position themselves in the marketplace; he offered the example of India, which is launching its own version of SR&ED tax credits. That puts the pressure on people like him to keep this work in Canada. In fact, while we talk about scrapping such incentives here, he suggests it is crucial to giving Canada a competitive advantage. Analysing projects on a strictly scientific basis will undercut that advantage, reducing productivity and the potential for growth in Canada.

Issett compared IBM's situation to the one Wood described.

“We talked earlier about Friedman and the world is flat. Inside a globally integrated enterprise like ourselves, it's flat and it's frictionless. We could be out of

business with a keystroke on a Blackberry, that's how fragile the missions are in a global business like ourselves.”— Garth Issett, IBM

Issett cited four factors that have allowed the company to maintain the growth of its investment in R&D in Canada. By far the most important of these is human capital. A relatively small operation started some 20 years ago has consistently attracted high calibre people, which combined with good management has allowed them to compete effectively on the world stage and achieve the critical mass they enjoy today. For this reason, this facility might be somewhat more protected from the vagaries of the changing world economy than company operations elsewhere. Issett also credited the low dollar with providing some advantage, an advantage that is now all but gone. What has continued, however, is the company's robust relationship with universities, especially in the software laboratory. There IBM has a highly successful internship program for graduate students and professors; the result has not only been a good deal of collaborative work, but a pipeline to emerging talent. Finally, a fourth factor has been the support of local governments, specifically from the town of Markham and the province of Quebec, and to a lesser extent from NSERC and other organizations associated with the internship program. Interestingly enough the highly touted SR&ED, which might be valuable to others, is not relevant to IBM, since domestic tax benefits are wiped out by foreign tax credit calculations.

In contrast, Jaworsky portrayed the SR&ED credit as being absolutely vital to RIM. “Every dollar of that is a real dollar to us — that justifies everything,” he said. And given how fast the company is growing right now, he added, it is vital to keep in touch with all parts of the company in real time, which means a high degree of geographic proximity. They have acquired some companies in other countries, but this remains a small — but expanding — portion of their overall activity. “It's a home-grown company, and a home-grown mentality that we'd like to keep.” With specific reference to management expertise, he also indicated that they do look worldwide for such talent, and many of their executives are in fact from the US.

Leonard asked Jaworsky what is working and not working within Canada, whether the economic environment here is capable of spawning next RIM-like innovative enterprise.

Jaworsky noted that while many investors emphasize the availability of an exit strategy, some government programs, such as Technology Partnerships Canada, forced the company to draft a growth strategy, a much more useful exercise. He credits this for at least some of RIM's success, as well as the success of many smaller companies that have been brought into the RIM fold and thus kept in Canada. “Flying to California all the time is not an option; looking locally, and growing your company locally is a heck of a lot more appealing.”

Wood suggested that there are actually far too many incentive programs available to a company like GM — 192 by one count. In some cases, the process posed by these programs takes far too long, including such elements as two-year request for proposal cycles. Likewise, fundamental

research programs are worthwhile, but they are entirely distinct from any kind of commercialization effort.

“You get what you measure and you get what you reward. If we really want commercialization, we really have to start thinking about looking at programs that can actually help support some of those engineering activities up front. Product development, tied with the research in Canada, can create the manufacturing opportunities when it’s all localized. Without that, not only will you manufacture it overseas, you will design it overseas as well.”— John Wood, General Motors

For Issett, when IBM looks to jurisdictions elsewhere, what is missing from the Canadian environment is a focus. He was referring to an articulation of this country’s defined strengths, and a description of where we want to take ourselves economically. More specifically, he recommended changing the SR&ED credit to make it more applicable to a firm like his. In addition, he endorsed the conclusions of the Standing Committee on Industry, Science and Technology, which were articulated in a report issued in February, entitled “Manufacturing: Moving Forward – Rising to the Challenge”. In particular he pointed to the educational trend away from engineering and math-oriented disciplines, which will be where they will hope to draw the new talent necessary to keep their R&D investment in Canada. Further to that observation, he noted a decline in multi-disciplinary skills, which are going to be the most promising base for keeping work from migrating to lower-cost regimes elsewhere. “The work that will stay is the work that’s tied to innovation and problem solving,” he said, suggesting that IBM would be eager to help universities cultivate those skills here. Moreover, a significant proportion of the jobs in Canada — especially new jobs — lie in the service sector, leading him to call for studies that consider “service science”. Finally, he would like to see government support collaborative, consortium-based research projects that contribute to economic development and growth of our strategic objectives. By way of example, he offered IBM’s participation in the National Centre for Medical Device Development, which is to bring the first National Research Council laboratory into the Greater Toronto Area, where it would collaborate with York University, University of Waterloo, and the University of Western Ontario, as well as small medical device manufacturers in the region. “We think we can unlock just fantastic value for those companies, giving them access to university and NRC research in a more comprehensive fashion and unlock that value for the economy.”

Before opening up the floor to questions, Leonard asked each of the panelists to comment on the role of major enterprises like theirs in Canada’s economic landscape and the prospect if external forces required them to change their commitment to this country.

Wood was blunt: “It’s not a pretty picture,” he admitted, referring to the possibility that if GM alters the amount of work it does in Canada, the effects are felt throughout the far-flung chain of suppliers to the company, and even competitors who also rely on the well-being of those same suppliers.

“It’s not investment. We’re talking about the development of highly qualified people, the development of the tacit skills of managing technology ventures, managing R&D activity. That goes away as well.”— Lynda Leonard, ITAC

Jaworsky conceded that as celebrated as RIM has been in Canada, on the larger world stage the company remains generally small and unknown, which creates some uncertainty about its ultimate prospects.

“As a start-up, as a growing company, as a multinational — the policies must be in place to nurture companies along the way, so that the good things stay. I’ve had that happen to me before, with a good government programs in Ontario that we enjoyed and that went away because the government thought they weren’t doing what they were intended. RIM was a great beneficiary of that program, it had great incentives for us, unfortunately, we forgot to thank the government for the good work that they were doing.”— Dave Jaworsky, Research in Motion

Jaworsky underscored the importance of making sure that policymakers understand what is in fact working and who benefits from these programs, so that successful strategies are not discarded. As for RIM, if the company were to change its emphasis in Canada, the effects might be felt in places like universities, where RIM works closely to promote an interest in engineering. There may be other companies doing similar work, he said, but there are actually few major enterprises in this country in a position to do so.

For his part, Issett noted that while IBM Canada was not set up to serve as a type of business school, where people learn how to create their own enterprises, it is a place to nurture some of the skills essential to that ambition. He also said that the flattening of the world economy has meant that the risk of Canada losing even large-scale operations like his to other countries has never been higher. And if such an operation were ever to leave, he estimated that it would take no less than two decades to replace it. Such replacement is also more difficult than it has ever been before, since there is so much new investment taking place elsewhere, in countries that are far better placed to compete with Canada in this regard. Above all, he foresaw a “trade surplus” in talented graduates from our universities, who would be unable to find work matching their abilities here.

By way of setting the stage for questions, Leonard asked each panelist to suggest one thing for the forthcoming federal budget and science and technology strategy.

Wood recommended a better commercialization focus, and not just more research funding, but in fact both. Issett recommended that over the long term, there should be an articulation of Canada’s core strengths and a commitment to excellence in those areas; he also suggested

revising SR&ED to encourage global companies to bring R&D to Canada, as well as implementing the report of the Standing Committee on Industry, Science and Technology. Jaworsky recommended continuing investment in encouraging Canadian companies to work closely with universities and researchers.

A questioner from public works noted how frustrating it could be for companies to develop technology that has no market, and asked the panel for their perception of the role of public procurement as a demand management tool.

Wood noted that this very issue came up in GM's discussions with the Conference Board of Canada's Leaders' Roundtable on Commercialization, which in April 2006 resulted in the report, *Picking a Path to Prosperity: A Strategy for Global-Best Commerce*. GM needs to buy extremely large volumes of commodities, making it difficult for them to work with small-scale start-ups, although such firms may be able to help others within the various tiers of their suppliers. He noted that strategic government procurement could help some of these smaller firms get that first essential contract.

Issett reiterated this point, suggesting that the degree of outsourcing by provincial and federal government departments tends to be quite low. That means there is good potential for precisely this kind of encouragement to firms with valuable goods or services to provide.

Another questioner asked about how Canadians should change their attitudes in order to strengthen the country's ability to compete.

Jaworsky suggested that Canadians appear to enjoy witnessing failures or difficulties, while successes are only rarely being highlighted. Wood extended this observation by saying we are too risk averse, and Issett further noted that we tend not to celebrate our heroes. Issett added that we tend to overlook our strong ability to collaborate, suggesting a valuable government policy might be to find ways of bringing together pockets of promising talent and resources that might otherwise remain isolated.

A final questioner asked Issett specifically about the health care sector. Issett responded that this is the leading area of opportunity for transformation over the next decade. "Health care, if you look at the percentage of the GDP in any of the G8 nations, is approaching a crisis point in terms of spending and budgets." We are so close to the tipping point for a major calamity, he added, that this signals a major change that needs to happen, which can be assisted by information technology among other technical innovations and administrative changes.