



**“Are Canada’s Business R&D Incentives Working?”
The Sixth Annual RESEARCH MONEY Conference
8 March 2007, National Arts Centre, Ottawa, Ontario**

Conference Proceedings

Prepared by Tim Lougheed

Panel 1: Incentives for Start-up Firms

Panelist: Lisa Crossley, President & CEO, Nysa Membrane Technologies

Panelist: Molly Shoichet, President & Founder, Matregen Corp; Professor, University of Toronto

Panelist: Dan Trépanier, Strategy Officer, AMCC

Moderator: Mark Romoff, President and CEO, Ontario Centres of Excellence

Romoff set the tone for the panel by asking whether or not incentives helpful to entrepreneurs at the early stage of development of their companies can help firms grow to the next level. He suggested that the panelists’ experiences should be instructive in this regard, and asked each of them to describe their interaction with incentives and what they did for their respective firms.

Shoichet briefly outlined the establishment of Matregen Corp., a company dedicated to drug delivery technology that spun off in 2002 from her work in biomedical engineering at the University of Toronto. Seed funding of \$1 million from Genesis Capital Corp. was critical to getting this business off the ground and hiring a team, which now consists of five employees. They also worked through the Ontario Centres of Excellence, as well as the NRC Industrial Research Assistance Program, both of which helped them move ahead in determining the strategic focus of the company. They also worked with NSERC and CIHR, which enabled them to find support for hiring skilled employees and begin to address intellectual property issues. She continues to work with NRC-IRAP, which she said is distinguished from these other organizations by the fact that it will direct funds to the company, rather than the affiliated research institutions. For small companies, this represents a key advantage.

Crossley contrasted her perspective on incentives from that of Shoichet, noting that the university research she spun into her current biotech startup, Nysa Membrane Technologies, actually came from a department other than the one where she was working. With the commercial potential of that work identified, she drew up a business plan and was able to quickly raise \$2 million in seed financing from MDF Capital and BDC in 2005. They are now closing in on a \$12 million series A round of financing.

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“I’ve only used research incentives for the same reason people climb mountains — because they’re there.”— Lisa Crossley, Nysa Membrane Technologies

She therefore leveraged some of these incentives in order to keep potential investors on side, but she does not include them in her budget, nor does she count on them in any way to move products toward commercialization. “Certainly we take advantage of SR&ED,” she said, “because it’s nice to get a couple of hundred thousand back at the end of the year.” They also took advantage of NRC-IRAP to help hire a starting employee, as well as to support work on a higher risk project. However, most of their money comes from venture capital, which she regards as the easiest and fastest way to get money, and the best way to guarantee a shared goal with the people paying you, i.e. full commercialization of the technology as quickly as possible. She even turned down a particular NSERC grant because it would have required them to work in an academic setting, which would have slowed down this progress too much by limiting her control over the research. She concluded that while she enjoys the tax credits, she would not pursue any of the other programs except that potential investors expected her to do so.

Trépanier recalled his first interaction with a government business incentive, \$2000 the Ontario government provided for him to start a business when he was 15. This initial taste of entrepreneurship lasted for life. Later, working for Quake Technologies during the peak of the tech boom in the 1990s, he did not worry about having to find funding in this way. With the collapse of that boom, he admitted, government incentives suddenly became interesting again and they enabled them to withstand the collapse and retain a good position in the market. Although they did have some positive experiences with the Ontario Centres of Excellence and NSERC, he found NRC-IRAP to be too slow a process, since by the time they were done filling out the application, the market would have shifted and their business case would be different.

Romoff found these widely varying views and experiences to be remarkable. He asked the panelists to state what might account for these differences.

Shoichet acknowledged that she tends to view most things in a positive light, but added that she did find working with NRC-IRAP to be a highly bureaucratic experience. By way of comparison, her first million dollars of venture capital funding took six months, and it took nine months to close on \$150,000 from NRC-IRAP. Nevertheless, the program has been beneficial to them.

Trépanier echoed this view, with private funding far overshadowing the time-frame and amount of any NRC-IRAP contribution. Crossley also agreed, suggesting a similar shortcoming was responsible for her turning down NSERC support. Crossley also pointed out that Shoichet’s company was at an earlier stage of development when it was making the most of NRC-IRAP funding, and it was also heavily integrated into academic activities. “When you’re really intensively trying to get to market, when you’ve already defined your product, and timing is a really big issue, it’s just not worth the time lag.”

Romoff then asked the panelists to discuss how they perceive the challenges of growing a company in Canada and keeping it here, as well as the role that incentives could play in this process.

Crossley recalled how she found most of her investor funding in the US, and that several of the companies she was considering would have required her to move operations to that country. Fortunately, they were able to resist pressure to move or sell because they also had Canadian-based BDC on their side, which she described as being more altruistic and patient than many venture capital firms, “and is really interested in making something out of a Canadian company.” The more serious challenge she identified is a lack of management skills, finding someone at the senior level to run a company who has both the experience and the market insight. You need someone who can take your company all the way into the market, but sometimes this proves difficult enough that it is tempting just to sell the firm once the product is ready for market.

Romoff asked if universities could meet the challenge of providing this kind of talent, training the next generation of senior managers. Crossley noted that in her dealings with Waterloo, she found the university to be very efficient and “company friendly”, as opposed to places like McMaster and University of Toronto, which have difficulty in doing things like providing a day-long turnaround on contracts or letting the company retain IP rights. It should not be that difficult, with stipulations such as having a university representative on the company board.

“What universities can do, rather than training people to become business leaders, is to nurture the transition of technologies from the university to the private sector.”— Lisa Crossley, Nysa Membrane Technologies

Trépanier had a specific perspective on this issue, since he just six months ago sold his company Quake to a US firm. He regards this issue as being very complicated. He knew a good number of gifted Canadian business people, but he learned what he knows now by working in the US. Having said that, though, he insisted that RIM, Newbridge, Mitel, and Nortel are not flukes. Moreover, these successes were built on having ready access to the markets they were serving here in Canada, not travelling elsewhere to do so.

“It’s about ecosystems. It’s about more than just R&D grants. It’s about building the whole food chain of suppliers and customers near your business, and you need that critical mass to build that virtuous circle.”— Dan Trépanier, AMCC

In this context, Trépanier concluded that R&D grants can help, but what helps even more is to keep looking for the most sizeable markets to serve.

Shoichet has considered how she will continue growing the company in Canada, with a specific understanding that what most people look for in biotechnology is an exit strategy, and that often that strategy is considered successful if it means selling to an American firm. Nevertheless, she

suggested that there are many things that could be done here in Canada, such as taking advantage of the higher salaries that can be paid to research staff in the private sector in order to keep those researchers in Canada, as opposed to the lower salaries they would have in academia. Moreover, she points to incentives in the US that encourage physical construction and expansion, something that is substantially different from the simple tax credits and which results in room for growth.

As a final point for the panel to weigh, Romoff asked what Canada could do to increase research intensity and attract more R&D intensive firms into Canada.

Crossley suggested that intensity alone is insufficient, but rather a question of better targeting the current intensity. Instead of just funding projects that look interesting — fundamental research that already garners a great deal of support — she argued that we should be more selective about the projects that we fund in order to take new technology to the marketplace, carefully vetting the commercial value of this technology, the size of its market, and the nature of any existing competition. Then and only then could projects come up for funding, rather than everything and anything heading to market getting a little bit of funding. The latter is a huge waste of time and money, meaning this could be a way of getting more value out of the public dollars invested in R&D.

Shoichet noted that there are now a number of programs that allow university researchers to do directed work in conjunction with a firm. She suggested that this translates into the kind of focused effort Crossley is suggesting, although it would be hard to imagine Canada having the resources to conduct the broad array of commercialization efforts that is found in the US. Although a major part of the difference is money, she argued that another leading factor was a culture in the US that reconciled itself with failure, allowing good people to bounce back from mistakes or untoward circumstances.

“Until recently, a lot of the venture capital community in Canada hasn’t really been venture capital. Not like it is in the United States, where they do take a lot more shots on goal. Part of the reason they take a lot more shots on goal is probably because they have more money, and then also it’s just a different culture of willingness to make mistakes and not being afraid of making those mistakes.”—
Molly Shoichet, Matregen Corp

Trépanier agreed with the virtue of research intensity, but added that this intensity has to start somewhere. That means nurturing small companies, with all their problems, and helping them to grow.

In light of all the comments about the need for agile companies and skilled managers, a questioner asked if there were anything the business schools could do to help out this situation.

According to Crossley, who herself takes business school courses, such education is worthwhile but it will not necessarily reach every future leader. The real solution will likely come from the private sector, which has to create a culture of innovation, a culture of entrepreneurship, a culture of business skills and acumen. Nor is this an easy thing to do, but one way to start is to examine the success enjoyed by places like San Francisco, Boston, or Research Triangle Park in creating just such a culture. “Just look at what they’ve done and see if there’s a way we can mimic that model in Canada. But I just can’t see that coming from the universities, even from the business schools.”

Trépanier pointed to programs such as Junior Achievers, which brings together groups of high school students to start business, as many as 20 or 30 of them and gets them to measure their performance. Carleton and Ottawa U also have programs to promote entrepreneurship amongst business students. Any one of these things may be small, but together they are helping to build that culture of entrepreneurship.

Shoichet agreed, noting that Queen’s had similar programs as part of its MBA. She also suggested incentives could encourage large companies to embrace small companies, which could open up markets to the entry of new, promising market.

Romoff also suggested that business schools could do more, pointing to programs at McMaster and Waterloo that are graduating students with master’s degrees who have been required to start up a company. The Ontario Centres of Excellence is therefore investing in these companies, providing them with seed money. Even so, this kind of approach has to become far more common if it is to make a difference.

A second questioner asked how we cope with the relatively small number of entrepreneurs and entrepreneurial firms, how can we accelerate the process of moving past this limitation.

Crossley noted that she sits on the board of the Canadian Advanced Technology Alliance’s Women in Technology initiative, which has taken on a mentoring mandate, linking up recent graduates with more senior entrepreneurs. She regards this kind of mentoring as being critical to the success of these individuals and their ventures.

Trépanier stated that he was not qualified to make policy pronouncements, but pointed to the Province of Ontario’s position as one of the world’s single largest purchaser of medical equipment. Since health care costs are a concern around the world, he recommended a commitment to making the province’s medical infrastructure the most modern in the world, with the best administrative organization to be found anywhere. Once the model is up and running and proven, he said, sell it worldwide. Likewise with Kyoto, we can drive innovation to help meet the goals of this agreement.

Shoichet said that the idea of picking winners was antithetical to the traditional Canadian approach of spreading the support around. Romoff looked ahead to the afternoon session with

Alastair Glass, suggesting that because Ontario is currently drafting its own innovation strategy, it would be useful to revisit this question with him at that time. From his own perspective, however, Romoff cited \$46 million set aside in the last Ontario budget for a Market Readiness Program, which asked Ontario Centres of Excellence and the Medical and Related Sciences (MaRS) Centre to take responsibility for delivering this program. The funding had two components, one aimed at start-up firms and the other aimed at mentorship and business development.

Shoichet added that while we do a good job at starting companies, we do not do so well when it comes to growing them. This is a matter of considering what will become of these firms once they get large enough and have used up their seed funding, and helping them to proceed to the next level.

A third questioner asked for further clarification about exactly what could be done to nurture business talent in this country. Shoichet replied that in the US, business schools admit students who already have a good track record in business, whose skills will actually be improved by the university experience.

Crossley agreed that this kind of strategy speaks to an outlook that does not reflect the realities of the business community. Instead of hoping that everything can succeed at once, you must in fact pick those things that you expect to succeed.

Trépanier suggested that different business schools have different tiers of people, with different types of talent and experience. Moreover, referring back to Shoichet's comment about the US tolerance for failure, he suggested that the calibre of our own business community would improve if such a tolerance could be cultivated here. "We need to change that mind set," he said. "Failure is okay."

A final questioner raised the question about picking the best paths for particular enterprises, but also noted that entrepreneurs are themselves following specific passions. By singling out these passions, we might do better. If we are to pick paths, though, how would we do so?

Shoichet suggested that you have to create an environment where the winners will in fact be able to succeed. And in addition, you do not need to narrow down the area of interest, which might be quite broad in scope. However, it is crucial to promote the success of the participants.

Trépanier said the best way of picking and choosing was to figure out where the biggest economic gains could be made — "follow the money". Unfortunately, as he recalled with Quake, that meant flying back and forth constantly to California, when he would rather have been driving somewhere nearby from Toronto.

Crossley insisted that you need to look to the leaders in specific industries to determine what should be chosen.

“It’s great to have thought leaders set priorities for fundamental R&D, but if you’re really looking to set the paths you’re going to go on, you need to look at people who have gotten to the other end of the path and been successful, and let them advise the government on where we should be going.”— Lisa Crossley, Nysa Membrane Technologies

Crelinsten, in wrapping up the panel, pointed out that we have a number of government sponsored incentive programs to get young people interested in science and technology. Entrepreneurs like the panelists could likewise be brought in to provide similar incentives to encourage the next generation of business leaders in this country.