



Tech Futures:
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By [Michael Volker](#)

A better model for commercializing IP and how you, too, can cash in!

In this month's column, I'm going to suggest a new, holistic approach for technology commercialization. The current emphasis placed on pushing intellectual property (IP) out into the marketplace is not effective. There's a better way and it's one that you, too, can participate in.

In technology circles, hardly a meeting goes by without some talk about commercializing the intellectual property (IP) that's developed in our publicly-funded research labs. The Federal government, the country's primary source for research money, loves to talk about its "innovation strategy" and how to get more IP into the marketplace.

The Federal government spends more than \$4 billion/year on R&D by sponsoring research in federal labs and universities. But what are the returns from this investment?

In the past two decades, technology transfer offices have been established in universities and labs across the country. This has been fueled, in part, by measures in the U.S. to license government-sponsored inventions to the private sector. There's an on-going debate about whether or not Canada should adopt a U.S. style Bayh-Dole Act to assert ownership and commercialization rights over intellectual property developed under federal funding support.

Virtually all universities and other R&D institutions boast an office dedicated to the task of finding commercial recipients for patents and technology developed by their researchers. Although ownership policies and revenue-sharing arrangements vary greatly from one university to the next, all are keen to license their IP or – what's an increasingly popular trend – start a new business venture to exploit same.

The financial returns have not been great. Indeed, on average, royalties and gains from equity divestments, seem to run in the low-single digit range as a percentage of total R&D expenditures.

Data from a recent **AUTM (Association of University Technology Managers)** survey show that Canada's top 20 universities received only \$17K per \$1M in research expenditures (2002 numbers).

Performance by government labs is even worse. The royalties received by federal labs on licensed technology amount to less than 1% of the more than \$2 billion spent annually.

Occasionally, though, there are some notable winners: the bulk of the **University of British Columbia's** \$13 million annual royalty income stems from a licensing agreement with **QLT Inc.** – a spin off enterprise created in 1981 - and the licensing of **ACELP Speech Compression Technology** by the **Université de Sherbrooke** to a total of 72 companies worldwide accounts for roughly \$10M per annum in revenue.

Getting one of these big winners is what most technology transfer offices dream about. The reality is that direct commercialization returns, on average, pale in comparison to the

expenditures on research and development.

There are many successful technology ventures that, although they did not get started by acquiring technology from a university, nonetheless had some connection with one. Excellent examples of this are **Research in Motion (RIM)** in Waterloo and **Air Games Wireless Inc. (AirG)**, a promising startup, in Burnaby. Both were formed by student entrepreneurs who got their inspirations while studying at the **University of Waterloo** and **Simon Fraser University**.

The growth of technology companies like RIM is hugely dependent on the graduates from our academic institutions. These organizations supply the talent and, arguably, the intellectual property that keeps companies competitive. Put another way, while the public investment in R&D produces only a marginal direct return to specific institutions, these grads and their inherent intellectual properties are producing economic benefits in a broader context - i.e. an increase in the tax base through increased economic activity.

In fact, **Mike Lazaridis**, RIM's founder, has commented that the commercialization system works just fine as it is because it is the students that transfer new knowledge gleaned from their research-oriented professors out into industry.

While this may work in principle, it assumes that the government of the day will recycle newly found tax dollars to continue - and hopefully increase - its support for R&D.

On the other hand, it wouldn't hurt to get some direct payback into the pockets of the institutions where the research work is performed. This would increase their R&D capability and it would allow them to invest in more post-R&D yet pre-commercial activity such as prototype funding, patenting, and business opportunity assessments. So, how can this be accomplished?

Technology transfer offices should complement their emphasis on technology and the process of managing IP with a more holistic approach that emphasizes and supports entrepreneurship. This could produce greater overall returns - not only through increased new venture creation but also by participating in the ownership of these companies through considerations other than the traditional licensing of technology.

By stimulating entrepreneurship through the provision of increased support services - business mentoring, incubation, access to angel investors, legal and accounting experts, courses, seminars and workshops - universities would be able to take equity interests and realize the benefits when the next RIM emerges, even if it's not a spin-off in the normal sense (i.e. based on institutionally-owned IP).

Because companies like RIM and AirG did not use anything other than their own ideas and IP to get started, their respective universities have no rights in any event. But, by going the extra mile to support them - even invest in them (eg prototyping, equipment, labs) - they, too, could realize some upside, just like the entrepreneurial co-founders.

Doing so will require only a modest investment - miniscule in comparison to an institution's total R&D funding. Adding the facilities and resources required to provide this kind of infrastructure, while not prohibitive to the sponsor, can have a profound impact on a cash-starved start up. When I compare the luxuries of a research environment - the generous direct project funding coupled with the facilities and resources surrounding it, I can't help but contrast it with the struggling entrepreneur working in a leaky condo with garage-sale furnishings. Parting with a 5 or 10% paper interest at this stage in return for decent digs and resources could be the ultimate win-win for both parties.

The resources I'm referring to can range from "resident" experts such as patent and IP attorneys, business lawyers, accountants, and accomplished entrepreneurs to covering the

various pre-startup costs such as prototyping, proof-of-concept demonstrations, patenting and pre-patent expenses such as extensive prior art searches.

Institutions don't need to do it all. They can leverage their resources by engaging their respective communities. An excellent example of this in B.C. is the [Telus New Ventures BC](#) business competition for early stage technology ventures. **Simon Fraser University** and the **University of British Columbia**, together with industry support, launched this four-year old program that has enhanced new company formation. One of the first participants (and winners) was AirG. Now, the founders of AirG are back as contributors to the competition. The success of this is largely due to the emphasis on mentoring. Indeed, mentoring is a key factor in building solid companies and there's a huge appetite among nascent entrepreneurs for mentorship.

The [Vantec Angel Network](#) is yet another example of the type of resource that entrepreneurs need. It, too, was started by a group of angels that meets monthly at Simon Fraser.

At the **University of Waterloo**, the [Centre for Business, Entrepreneurship and Technology \(CBET\)](#), has been established specifically to encourage and educate technology entrepreneurs using its strong industry ties. It's all about giving engineers the tools they need to build companies once they've built their products.

And this is where *you* can participate - by getting involved with these various programs that support new ventures - in whatever role you're most comfortable, be it an investor, mentor or employee of one of these firms. But don't saddle them with high salaries or fees - why not take some of it in stock? Where to start? You can begin by attending some of the events hosted by the aforementioned groups (check their websites)?

On the investment front, you can also invest in many of the new companies through one of the recently formed start-up funds - e.g. The [BC Advantage Funds](#) or the [Western Universities Technology Innovation Fund](#). Although you may not get the 100X return that a lucky angel investor may get, the risk is lower and you're more likely to come out ahead. Compare it to a casino - you can bet with a player and win (or lose) big but you're more likely to get a positive return by betting on the house!

By the way, the universities played a critical role in getting these funds started and seeding them - another example of doing more than flogging IP.

There's another way that you can get involved. This pertains to a new **Industry Canada** program that is supposed to improve the flow of research to the marketplace. The government wants to see new "boards" formed with strong private sector representation. That's *your* call for action.

The 2004 federal [budget](#) set aside \$75 million over the next five years for two pilot competitive commercialization funds to be managed by Industry Canada. \$50 million will be allocated to strengthen the commercialization capacity of universities and research hospitals and \$25 million will encourage the commercialization of research from federal government laboratories.

This funding could support the types of initiatives that I've been talking about. Although they may be a good start, much more can be done. I'm a little concerned, though, that the emphasis will still be on IP - not on mentoring and business development.

To access these funds, organizations will be required to create **Commercialization Management Boards (CMB)** or work with existing organizations that could function as CMBs. These CMBs must be made up of a majority of representatives from the private sector, as well as representatives from the participating institutions. They will be charged

with developing a Strategic Commercialization Plan that will create long lasting linkages between the institutions and the private sector. Industry Canada, with the help of a selection committee, will select and fund (over 5 years) those CMBs that have submitted the best plans.

Industry Canada has established a set of principles to guide CMB applicants. These should:

- bring market pull activities to the technology push actions of research institutions by supporting market activities
- integrate business expertise and perspectives into the commercialization process by involving the private sector in the planning and decision making
- recruit experienced business experts to support the commercialization process
- build relationships to take advantage of the value of proximity by supporting networks which bring together the private sector, business interests, venture capitalists, angel investors, universities, research hospitals and government labs
- allow the flexibility to use the funding to support a commercialization strategy and enable a decision making process that seizes opportunities
- focus available funding on a small number of initiatives that are able to produce significant results
- support initiatives that have highly qualified people and have the greatest potential for success
- take a business approach to managing the Program by holding the networks accountable for producing results
- pass on the best practices and lessons learned of the program

Nowhere in this list is entrepreneurship mentioned. There's also no mention of students. It sounds a little too institutional and too process-oriented. I do like the fourth point, in particular, about the relationships. If we could expand this to include entrepreneurs (e.g. entrepreneurs-in-residence as some universities are calling them) and students (from the technical and business faculties), we'd really have something. I always remember **Doug Wright's** (former President of the University of Waterloo) comment that the best tool for technology transfer is a pair of shoes!

Don't get me wrong, it's great that there is support for these commercialization activities but I think we should go much deeper and take a more holistic approach.

Successful commercialization doesn't start with the technology – it starts with the people behind it and their ability to turn that technology into products. That's what we need to support and encourage if we want to accelerate the commercialization process. IP is only a slice of the whole commercialization pie.

SRED Stuff

While looking at Research and Development expenditures in Canada (\$22.4 Billion total by all sectors in 2002), on the Innovation in Canada [website](#), I was trying to getting a handle on how much we are really spending on R&D and where we're spending it.

What appears to be missing in the data are the **SRED** (Scientific Research & Experimental Development) tax credits available to companies performing R&D. Companies get over \$2Bn/year in refundable tax credits under SRED. I suspect that it shows as a reduction in corporate R&D costs (corporate R&D nets out at 44% of the total). If anyone has some facts on this, I'd love to hear from you. We, as Canadians, may have been tough on ourselves by claiming a low **GERD/GDP** ratio relative to other countries (GERD/GDP = Gross Expenditures on R&D/Gross Domestic Product). It's low because the GERD may be excluding the SRED component.

Business Centre for non-downtowners

If you don't have a **Vancouver** "office" but find yourself downtown occasionally without a "home", you are invited to use **SFU's TIME Business Centre**.

TIME is an acronym for **Technology, Innovation, Management, and Entrepreneurship**. The Business Centre (looks like an airport business lounge) is open to technology entrepreneurs and business people to use as a drop-in downtown office facility. Need to plug-in? Make some calls? Do some work? Hold a meeting? There are some great facilities for holding your company's AGM. Why hang out at MacDonald's when you can work productively at the TIME Centre? Drop by and check it out! It is located at SFU's downtown campus at 515 West Hastings St. You won't believe the price!

If you're an entrepreneur looking for a place to get your company started, there's some great office space available at the **TIME Centre**. There's also access to various resources, e.g. tech advisors, access to capital (e.g the **VANTEC Angel Network**), mentors, etc. Worried about the high cost of being downtown? Well, not to worry - some payments can be in the form of equity. Check www.sfu.ca/time for contact info.

WUTIF...you wanted to invest in a tech startup? The **Western Universities Technology Innovation Fund** (WUTIF), is an "angel fund" catering to tech startups based in BC (not limited only to universities). **WUTIF Capital** is a VCC that offers investors a 30% BC refundable tax credit. If you're keen to co-invest with angels in up and coming companies, this is a good way to get started. Check www.wutif.ca for details. Pooling and risk-sharing is the way to go!

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