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Oct 14, 2010 by Paul Wells

Science and technology minister Gary Goodyear was at the MaRS Discovery District in Toronto to fulfill a commitment the feds made in their most recent budget: he [launched a review of Canada's policies](#) regarding business R&D. As [David Akin points out in his Sun Media column today](#), the problem is simple enough: Canadian researchers are far better at producing new ideas than Canadian businesses are at implementing them. (Here's [a column I wrote](#) in which John Manley expounds on similar themes.) Far too much effort has gone in recent years into fine-tuning (read "fiddling clumsily with") the research that goes on in university laboratories. This review attempts to get things right: it looks at the very substantial federal aid on offer to businesses that want to engage in R&D, and asks why so little of that assistance is taken up and why it hasn't produced a culture of constant innovation.

My very strong hunch is that Canadian industry doesn't need more *help* so much as it needs to be made to *worry*, through a set of policies designed to expose Canada more directly to global competition. So I like this quote from John Manley in David's column: "Quite frankly, if there is an innovation problem in Canada, that's the responsibility of the management and boards of directors here in Canada." I'm really pleased to see that UofT president David Naylor is on Goodyear's panel; he's good at the kind of blunt talk that will be needed.

There's another guy on the panel who will not be familiar to just about anybody, but should be. His name is Arvind Gupta, he runs an organization called [MITACS](#), and I've had a story about him ready to run for the past couple of weeks in one of our upcoming university issues. We've plucked that story out of our queue so you can read about Gupta now. Here it is after the jump.

Much of the debate over innovation and productivity in Canada focusses on ideas: the search for a new research breakthrough that changes the way we see the world. Governments' R&D policy concentrates on steering dollars toward types of research that might produce the kind of discovery that can pay off in the marketplace.

But what if the most valuable product from higher education isn't the ideas but the people who generate them—the superbly educated graduates with advanced math and science degrees?

That question fascinates Arvind Gupta, a professor of computing science at UBC. He is also CEO of MITACS, a federally funded Centre of Excellence in information technology.

MITACS (Mathematics of Information Technology and Complex Systems) was one of more than a dozen Centres of Excellence set up by the Mulroney and Chrétien governments to encourage industry and academia to work closely together in specific areas. And it didn't attract

much attention outside computer-science circles until it launched a little internship program in 2003.

That year, 18 doctoral students in maths and science were placed for four-month internships at Canadian companies. The students' mandate was to tackle a technical problem the company was facing. But science students are problem-solvers born and bred; as often as not, they found other ways to improve the work their host companies were doing. Both sides had to make a real investment: the company paid \$7,500 for the extra help, and the students had to report back to their PhD advisors on the work they'd done.

The internship program, dubbed [Accelerate](#), took off. From 18 internships in 2003 it grew to 608 in 2009 and doubled again to more than 1,200 this year. That growth is not artificial. It is demand-driven. As word spreads about how creative these young recruits could be, businesses lined up to get involved. "Our goal is to get this up to 10,000 projects a year," Gupta says.

Which is why MITACS, despite its wonky name, deserves to be more broadly known. When hundreds of mathematicians a year start spending time in the real world of business, the gulf between industry and academia starts to narrow. Businesses start to realize that research and development doesn't have to be done by some other business. Young people who've trained since their teenage years for a life on campus—but who, statistically, are unlikely to land tenure—start to see real-world outlets for their abilities.

More broadly, Gupta has turned his organization into perhaps Canada's leading source of practical ideas for improving the knowledge economy. "What we believe at MITACS is that building a knowledge economy is really a people issue. Knowledge is something that resides in people's heads. It's really an issue of skilled workers."

How does Canada produce more skilled workers? "If you think about producing anything, there's a supply chain, right? If you want to produce a widget, you start with raw materials, you process it and you market it.

"If you want to produce knowledge workers, you have to start with raw material, which is smart young people, basically. You have to process them—teach them the kind of skills they need. And you have to market them, deploy them out into society."

MITACS now runs programs at every step of that chain. Last year it launched [Globalink](#), designed to get the best raw material. It's a concerted effort to recruit the highest-ranking graduates from India's top technical schools. These undergrads could write their own ticket to the world's best universities. They would not normally consider coming to Canada. But a combination of personal attention and challenging academics persuaded 17 of them to spend three months at British Columbia universities in 2009. This summer the number was up to 105. Next year it will be 300. Gupta is fond of geometrical progressions.

If Globalink is about attracting human capital and Accelerate is about helping science students realize there's a place for them in industry, a new program called [Elevate](#) aims to ensure that the brightest minds stay in Canada as they begin their careers. Funded this summer with \$9.95

million from Science Minister Gary Goodyear, Elevate connects 80 post-doctoral fellows with private-sector companies for two-year collaborations. “These people are now facing career choices,” Gupta said. “We want to make sure we give them industry as a really interesting, viable choice.”

In a highly competitive global knowledge market, it matters a lot whether efforts like Gupta’s succeed. Twenty of 27 graduate students he’s supervised as a UBC have left for the United States. It cost Canadian taxpayers a mint to educate them, and the wealth they might have generated if they’d stayed here is greater still. “The Silicon Valley phenomenon was not a phenomenon of California residents,” Gupta says. “It occurred because bright young people from around the world came to the graduate schools of California.” From a standing start, MITACS has become a formidable engine for ensuring that bright young people come to Canada, stay here, and find work that exploits their formidable potential.