

Co-creating Prosperity: How Canada Can Build Wealth by Embracing Research and Innovation

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The Canadian Club of Montreal
June 8, 2009

A year ago, the world was a very stable and predictable place. Not so any more. Cutbacks, bankruptcy, job losses, deficits all abound.

Yet I see in this turmoil a real opportunity for Canadians. The global recession has forced

We can build a more competitive economy.

everyone to re-examine not only how they do business, but why they are in business.

Given these new realities, I believe there is a way we can build a more competitive economy, a more productive workforce and lasting prosperity. We're better positioned to do this than many other nations.

But we have a problem because, frankly, we seem to be stuck in the past.

Much of Canada's economy is rooted in the past. The drivers of our wealth creation have been largely resource-based. There's nothing wrong with minerals, oil and forest products, but our business model of simply extracting and selling commodities will not be enough to ensure our prosperity in tomorrow's global economy.

Our weakness is in creating the wealth that comes from innovation. Our American neighbors excel at this, but we do not embrace or reward discovery. We do not have either the total environment or the entrepreneurial culture that will naturally create and foster a society and an economy based on research and innovation, even though we know – and even our governments accept – that this is the roadmap to future prosperity.

We do have a few stunning examples of success through innovation, such as Research in Motion and its famous BlackBerry. Just 10 years ago, BlackBerrys didn't exist. Now, they have become so useful and ubiquitous that it's easy to forget the true innovation they represent. Unfortunately, we know and are so proud of this Canadian success precisely

because it is such a rare example of a Canadian innovation that has been developed to create real wealth on the global stage.

Canada scores high on the innovation index in terms of research output, which is measured by the number and quality of scientific articles. But we are low when it comes to developing inventions. That is, filing patents and in translating research initiatives into products that can be marketed around the world – and thus creating wealth.

This shortfall was highlighted just last month in the first public report of Canada's Science, Technology and Innovation Council, a body created in 2007. This distinguished panel includes Heather Munroe-Blum, principal of McGill University. In commenting on their findings, she said: "We need to work together to nurture the capacity to create, apply new ideas and finance their translation into commercial successes in the global marketplace." I couldn't agree more.

A Consistent Laggard in Innovation

Among the world's 17 largest economies, Canada ranks 13th in terms of innovation. And we've been a consistent laggard since the 1980s. Indeed, our position has fallen in the past three years. In other words, compared to the rest of the industrialized world, Canada is growing less innovative at the very time when it must become more innovative. Even in telecommunications, which has long been a strength for Canadian innovation, we are slipping badly.

I will leave to others how this lack of innovation will affect the traditional sectors of our economy. I want to discuss how these problems impact the bio-pharmaceutical industry, and how that, in turn, has serious implications for both our economy and our healthcare system.

Let me first explain a bit about the hurdles we face in our industry, and what they mean for the

future of all life sciences research and innovation in Canada and on our healthcare system and economy at large. Then let me present some options for a different and much more promising future.

Research Faces a “Perfect Storm”

Life sciences research and innovation in Canada is facing a perfect storm. One which, if we don't head it off, could spell the end of this vital sector as a key player in our economy, with all the negative impact that would have.

I see four factors producing this “perfect storm” for biopharmaceutical research.

The first is that we are at the end of what has been a tremendous cycle of innovation, what could be called the golden era of chemical-based pharmaceuticals. For 50 years, we have developed medicines that have transformed healthcare, allowing us to live longer and better lives.

Over the next three years, the research-based pharmaceutical industry faces an unprecedented number of patent expiries that will eliminate more than 25 percent of our revenue in Canada. This is not news, and we have been anticipating for this for years, but our industry faces a serious decline.

The second factor is that research has never been more difficult. We are on new turf, leaving the familiar confines of chemical-based discoveries and embarking on an amazing new journey into biologic medicines, gene-based therapies and targeted treatments to treat very complex diseases. We are doing some amazing things, and more is to come, but the transition is difficult and costly.

For example, look at the number of products that our industry is actually able to bring to patients. In the last three years, the U.S. FDA approved just 60 new molecular entities, less than half the number approved in the corresponding three years of the 1990s. So the markets for new products are smaller while the costs to develop them skyrocket – even while we are losing huge amounts of our traditional revenue. This challenging combination was not foreseen.

The third factor in the perfect storm facing biopharma innovation in Canada comes from abroad. Like many others, our industry has become completely globalized. If we want global companies and global investors to choose Canada as a centre for research and development, we have to fight against many other countries. Three weeks ago, I

was at the huge annual BIO meeting in Atlanta – it was a United Nations. The whole world wants in on the life sciences, and the many senior political leaders who were present – including Premier Jean Charest of Quebec and Premier Dalton McGuinty of Ontario, as well as federal Industry Minister Tony Clement – show they do have an interest in and understanding of what is at stake.

As in other industries, the emerging markets such as India and China are gaining incredible advantages in attracting investment due to their market size and the growing capabilities of their workforces and medical systems.

The final factor is our attitude toward innovation. Instead of rewarding innovation, our health system is fighting it.

The numbers speak for themselves. A study last year by Wyatt Health Management looked at 36 innovative medicines that were evaluated for public reimbursement in 18 western countries.

In European countries, an average of 91 percent of the drugs were reimbursed and in the U.S., 88 percent. In Canada, only 61 percent were even recommended for reimbursement by the Common Drug Review and far fewer had then actually been reimbursed by our individual provincial drug plans.

Access to Only One in Five New Medicines

In fact, of 96 new medicines studied over five years by the Canadian Common Drug Review, as of last September the best province for actually reimbursing was Quebec, which was paying for 54 of them. Ironically, Quebec has not joined the other nine provinces in participating in the Common Drug Review so it can make its own evaluations in the context of its desire to recognize the value of pharmaceutical innovation. At the other end of the scale, Manitoba and British Columbia were paying for less than 20 of the 96 medicines. That means in those provinces only one in five new medicines was available to patients relying on those public drug plans.

Two provinces, British Columbia and Nova Scotia, have even adopted policies of reference-based pricing, policies that say the cheapest drug in a category is good enough, and that they won't pay for any other innovation in that drug category.

Those are the four factors in the perfect storm I fear. But to understand the full potential impact of

that storm, it's important to understand the interconnectedness of the bio-pharma research sector which is all threatened by this storm. This isn't just a matter of big pharma companies facing tough times. It's far more than that.

The life sciences sector includes not only large pharmaceutical companies, but also biotechnology companies and academia which rely on a continuous stream of public and private investment to keep operating, with much of that private investment being R&D investments of the innovative pharmaceutical companies, which total more than one billion dollars in Canada every year.

The biotech companies create thousands of jobs, as does academia, and their activities complement those of large pharmaceutical companies. The real challenge, then, is to allow the whole sector to succeed by allowing each part to complement the other.

The Bio-Pharma Sector is at Stake

But the perfect storm I have described threatens all that by seriously diminishing the ability of profit-making bio-pharma companies to invest in Canadian R&D. The result? A sector which is seen by so many as a key pillar of our economic future is at risk.

So, while Canada describes itself as being "pro-innovation," our health system sends a contradictory message in refusing to pay for innovative medicines. This has two consequences, one for patients and one for investors.

Only a major paradigm shift can take us from this course. But how could we do it?

The first change we can make is a long-term one. We need to create an environment for our children to, first, stay in school and, second, develop an interest and enthusiasm in exploring science and technology. We have to reaffirm the importance of this sector for the economy of tomorrow.

We also need public policies that embrace all aspects of creating an environment for innovation. For example, Canada must ensure its provisions for respecting intellectual property at least match that in effect in the U.S. and Europe.

An interesting model for embracing innovation can be found in North Carolina. Thirty years ago, the foundations of manufacturing in that state were

textiles and furniture, and neither was doing well. That sounds very much like Quebec in recent years.

But in the past 10 years that state – whose population is just a bit larger than Quebec's – invested more than \$1.2 billion in bio-technology facilities, research, training programs and incentives for companies. It now has more than 54,000 people working for some 500 biotech companies and is considered the third-largest biotech centre in the U.S., behind only California and Massachusetts.

Why? Not because they had any huge natural advantage beyond a few excellent universities like we have in the province of Quebec. They made it work because they had the will and foresight to make difficult choices for the future by investing to make it happen.

There are some promising signs here, things that if nurtured give hope for the future. We at Pfizer are investing in several vital projects that we believe shine a light on the way we can progress with public-private partnerships and cooperation.

One is the creation of 12 Centres of Excellence for Commercialization and Research, a key element of the federal government's Science and Technology Strategy. All of these initiatives have the potential to fast-track the commercialization of some of Canada's most promising research. Since last year, Pfizer has invested a total of \$15 million in four of these ground-breaking public-private partnership projects. Beyond the sum invested, Pfizer also works with these partners by investing time and expertise to support them and the whole Canadian life sciences sector, acting as a connector between academia and the commercial world. This is an example of the type of mutual support I referred to as being vital to ensure future success.

A Unique Public-Private Partnership

Another vital initiative of which I am particularly proud is a unique public-private partnership right here in Montreal called the Quebec Consortium for Drug Discovery, or CQDM by its French acronym. On the private side of the partnership is Pfizer, as well as AstraZeneca and Merck Frosst, both also key players in pharmaceutical R&D here in Montreal. On the public side is Quebec's ministry of economic development, innovation and export trade, as well as Quebec's public-sector health research funding agency, and the federal government.

The CQDM promotes synergy between academic and industrial research through the creation of a network for exchange and cooperation among research at universities, hospitals, biotechnology companies and the broader pharmaceutical industry.

The work it does is at the precompetitive level. This means its projects do not set out to develop new drugs themselves. Rather they create enabling tools and technologies that will accelerate drug discovery and development, such as new tests for toxicity or efficacy, new models, or new biomarkers to evaluate a certain condition. This work is done in an atmosphere of partnership so it is known in advance that the research projects are relevant to the needs of industry, thus greatly enhancing their marketability upon development.

In this way, public research funding is leveraged into meaningful results with market value, governments can see their research investments creating real results, private companies can get insight into the new thinking of a broader range of researchers, and researchers can get facilitated access to turning their research into commercial opportunities. Instead of a perfect storm, we get perfect synergies through which everyone wins – particularly patients who are the ultimate beneficiaries of the new treatments which result.

Imagine What Progress We Could Make

We are making these positive steps despite the current environment I have spoken about. Imagine what further great progress we could make for patients and for our economy if we truly embraced research and innovation!

I would like to leave you with some further thoughts – perhaps radical – about how governments, academia and the bio-pharmaceutical industry can and need to work even more closely to in “co-creating” the environment that will foster innovation and benefit patients.

I'd like to suggest a different way to do things. Rather than governments and industry fighting, let's agree on a system that embraces both innovation and the appropriate use of all medicines, based on the principle that innovation is welcome because it benefits patients and the health system when used appropriately.

We can co-create such a system. First, we need a constructive and open system of dialogue for payers, physicians and innovators to fairly assess the value a new medicine brings to patients and to settle on reimbursement policies based on appropriate use. Second, that review should happen at the same time Health Canada is doing its safety and efficacy review, not after.

As a result, when a new medicine is approved by Health Canada, it could immediately be reimbursed by provinces. Patients would benefit, companies would have a more predictable business model and a real “pro-innovation” message would be sent to the whole world.

To complement this, I also recommend regular evaluations of appropriate use of medicines with payers, physicians and patients. These re-evaluations can take into account new data or new uses for a medicine and ways to eliminate any inappropriate usage.

Let's remember, it's not medicines that are expensive – it is medicines not being used properly. By ensuring the right medicines are used by the right people at the right time, governments can save overall healthcare costs, patients would benefit and we would help secure our economic future by reinforcing the life sciences sector.

I firmly believe we can co-create an environment and system that could make Canada a world leader in research, innovation and healthcare. I want to be a part of that, Pfizer wants to be a part of that, and I'm convinced that by working together we have the means, and the motivation, to make it happen.

**Canada has a choice.
Where do we want to
be in 50 years?**

Canada has a choice. Where do we want to be in 50 years? What will be the pillars of our economy? Those are the real questions.

Thank you for the opportunity to share my vision with you, and I wish you all good health and prosperity.