



Business Council *of*
British Columbia

**Submission
to the
Expert Panel
Established
to Review
Federal Support
for Research
and Development**

February 18, 2011



Business Council of
British Columbia

SUBMISSION TO THE EXPERT PANEL ESTABLISHED TO REVIEW FEDERAL SUPPORT FOR RESEARCH AND DEVELOPMENT

The Business Council of British Columbia is pleased to provide our initial views to the Expert Panel appointed to examine federal government support for private sector research and development in Canada. We appreciated the opportunity to meet with several members of the Panel in Vancouver on February 10, 2011. Based on further research and consultations with Business Council members, we may elect to provide the Expert Panel with a subsequent written submission later in the spring.

Established in 1966, the Business Council is an association representing approximately 260 large and medium-sized enterprises active in British Columbia. Our members are drawn from all major sectors of the provincial economy, including forest products, mining, manufacturing, transportation, agri-food, telecommunications, information technology, financial services, energy, utilities, tourism, retail, construction, life sciences, engineering, healthcare, education and the professions. Taken together, the corporate members and the associations affiliated with the Business Council are responsible for approximately one-fifth of all paid employment in British Columbia.

1. Background to the Review

The accelerating pace of scientific and technical change is one of the most significant trends shaping the global economic landscape. This point emerged in many of the papers developed for the Business Council's *Outlook 2020* project, including several which probed the competitive dynamics unfolding in specific industry sectors.¹ From health care to manufacturing to telecommunications, the development and application of new knowledge generated by science and technology is redefining the way business is done.

¹ The Outlook 2020 papers and final report are available at www.bccbc.com



This has profound implications for the ability of countries, regions and even cities to prosper. “Strength and leadership in science, technology and innovation is the price of entry to full participation in the knowledge-based global economy of the 21st century.”² Advances in these fields are creating new markets for goods and services, blurring distinctions between industries, reshaping business models, and altering patterns of competitive advantage. The growing importance of science and technology to economic success is a theme the Expert Panel would be wise to keep in mind as it considers changes to the various federal government policies and programs that affect R&D in the private sector.

Science and technology are closely linked to innovation in many policy discussions. Innovation involves new or better ways of doing things that have economic value. New ideas and technologies that stay in the lab may increase the stock of human knowledge, but only when they migrate to the commercial world do they produce significant economic benefits. From a quantitative perspective, as noted by the Council of Canadian Academies in its landmark 2009 report, a jurisdiction’s innovation performance can be assessed along three dimensions:³

- *Inputs*, like research and development activity, investment in advanced technologies and equipment, and the proportion of the workforce consisting of scientists, engineers and technologists.⁴
- *Outputs*, such as the proportion of business sector revenues derived from products/services introduced with the past few years.
- *Outcomes* – for example, a country or region’s market share in technologically sophisticated industry sectors, the speed of diffusion of new technologies across the business sector, the growth of locally-based innovative firms with a global presence, etc.

² Science, Technology and Innovation Council, State of the Nation 2008, Ottawa (2009), p. 5.

³ Expert Panel on Business Innovation, Council of Canadian Academies, Innovation and Business Strategy: Why Canada Falls Short, Summary Report (April 2009), p. 7.

⁴ Some studies identify the proportion of workers with graduate-level degrees as an important aspect of innovation performance.



From the perspective of the Expert Panel's mandate, it is important to consider the outputs and outcomes of private sector innovation, as it is these that ultimately speak to whether innovation delivers economic value – particularly relative to the public resources that may be expended to support it.

A point often overlooked in discussions of business R&D is that for the vast majority – 90% or more – of enterprises, innovation has nothing to do with direct expenditures on research and development. Either because of the nature of their industry or as a result of their size, business model, or market focus, these firms are never going to dedicate scarce resources to undertake R&D, as the term is defined by government statistical agencies and tax authorities. Instead, for the overwhelming majority of firms, innovation encompasses activities such as investing in (and successfully using) machinery, equipment, software, e-commerce, broad-band technologies, and other assets that embody advanced technical knowledge; deploying novel management knowledge and tools to boost productivity; developing a deeper understanding of the needs of current and prospective customers; and adopting human resource and other organizational practices that generate gains in efficiency and market share.

Of interest, the 2005 edition of the OECD's Oslo Manual addresses not only the "traditional" product and process innovations that were the focus of the first two editions of the Manual, but also organizational and marketing innovations, including the kinds of innovations commonly found in the service industries that account for more than two-thirds of Canadian economic output.⁵ This broadening of the concept of business innovation is welcome, as policies informed by such an understanding are more likely to produce tangible and lasting economic benefits for Canadians.

The prevailing small business character of the private sector, in BC but also in Canada, is a factor that arguably serves to dampen business innovation, particularly direct private sector outlays on R&D. Contrary to what many may believe, the presence of large companies is positively correlated with key indicators of private sector innovation. For example, about

⁵ OECD and European Commission, Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data (2005).



90% of worldwide business R&D is performed by companies with more than 250 employees (close to 80% is done by those with 500 or more).⁶ Bigger firms have a greater capacity to finance innovation, to commercialize new ideas, to forge alliances, to hire and develop engineers, scientists, technicians and skilled managers, to deploy and extract economic value from new technologies and business tools, and to participate in collaborative arrangements with universities and outside research bodies. A pronounced structural weakness of the BC economy is that the province has only 7,000 firms with more than 50 employees, out of a total of 175,000 businesses with paid workers.⁷ The typical technology company in the province has fewer than ten employees, with only a handful of firms in the sector employing more than 500.

Far from being a source of strength, the paucity of large innovative enterprises is a significant impediment to building globally competitive industry clusters. Here, we would note that the existing federal SRED program (and its provincial counterparts) is skewed toward incenting R&D by start-ups and other very small firms. It is not evident that this is the most effective way to nurture the growth of innovative, globally-oriented Canadian enterprises.

Some analysts point to difficulties in financing knowledge-based firms as a factor slowing innovation in Canada. There is some evidence to support this view. Unlike many other businesses, small- and mid-sized innovative firms typically depend on equity rather than debt to finance growth (this reflects the inherent risk of innovation, and the fact that such firms lack tangible assets to use as collateral for borrowing). However, the sources of equity finance for innovators are limited in Canada.⁸ This problem is linked to and exacerbated by the fragmented and excessively tax-driven character of the Canadian Venture Capital sector as it has evolved over time.⁹ According to the 2010 Global Venture Capital Survey by Deloitte, the Canadian VC industry suffers from a lack of “critical

⁶ Organization for Economic Cooperation and Development, OECD Industry, Science and Technology Scoreboard (2007).

⁷ BC Stats, Small Business Profile, 2009. Note that another 216,000 BC businesses are categorized as self-employed without paid help.

⁸ S. Wang, “Financing Innovative Small- and Medium-Sized Enterprises in Canada,” Industry Canada, Small Business and Tourism Branch, Working Paper (October 2009).

⁹ Douglas Cumming, Financing Entrepreneurs: Better Canadian Policy for Venture Capital, C.D. Howe Institute Commentary (April 2007).



mass” that diminishes its effectiveness as a source of capital to support innovation and wealth-creation.¹⁰ The same survey posits that the Canadian VC sector will continue to decline in size, even as the industry expands in many other markets. Recent changes in federal tax policy may help to attract more American VC funding into Canada, increasing the pool of growth capital for innovative companies, and hopefully strengthening the quality of the country’s VC industry as a whole.

Finally, it must be recognized that business investment in machinery and equipment (M&E), and in information and communications technologies (ICTs), is a crucial requirement for an innovation-based, knowledge-intensive economy. As noted above, the vast majority of firms do not and never will invest in research and development, as it is traditionally understood. For these businesses, the acquisition and deployment of new technologies, equipment, machinery and business processes is the primary means by which they move closer to the innovation frontier. Research has demonstrated close links between ICT investment and economic growth.¹¹ This is an area where Canada trails well behind the US benchmark, and also underperforms leading European jurisdictions. Ontario’s and British Columbia’s decisions to harmonize their sales taxes with the federal Goods and Services Tax should stimulate investment in M&E and other productive assets by significantly reducing the marginal effective tax rate on new capital investment.¹² Increasing investment in M&E, including ICTs, is essential to raising productivity and to becoming an innovation-driven economy. So is accelerating the diffusion of advanced process technologies, sophisticated business tools, and managerial and market knowledge throughout the business community as well as the public-sector.

2. Comments on Federal R&D Programs

As noted in a consultation paper published to inform the work of the Expert Panel, the Scientific Research and Experimental Development (SRED) program is the biggest federal

¹⁰ Deloitte, 2010 Global Venture Capital Survey.

¹¹ See Aled ab Iorwerth, “Machines and the Economics of Growth,” Department of Finance Working Paper (March 2005); Andrew Sharpe and Jean-Francois Arsenault, The Canada-US ICT Investment Gap: An Update, Centre for the Study of Living Standards (February 2008).

¹² Jack Mintz, British Columbia’s Harmonized Sales Tax: A Giant Leap in the Province’s Competitiveness, University of Calgary, School of Public Policy, SPP Briefing Papers, Volume 3, Issue 4, March 2010.



measure supporting business R&D. Most provinces, including British Columbia, maintain their own R&D tax incentives which top up the financial assistance available through this key federal program. Other federal initiatives which support business innovation include the Industrial Research Assistance Program (IRAP), the Centres of Excellence for Commercialization and Research program, and the Industrial Postgraduate Scholarships Program.

Encouraging business R&D is generally viewed as sound public policy. Because R&D spending has positive “spillovers” (economic benefits that are not captured by the entity undertaking the research), most economists believe there is a case for public support to stimulate more business R&D.¹³ The issue is how best to provide such support.

Existing Canadian tax incentives for R&D are generous by the standards of other industrialized countries. A large portion of the R&D undertaken in the Canadian private sector is based, at least in part, on the availability of this tax support. Looking ahead, a key challenge is to leverage the considerable public and private resources devoted to R&D (and to innovation more broadly) to create wealth and build more globally competitive enterprises in knowledge-intensive sectors. It is in this area – where research and innovation are converted into commercial success – that Canada’s record has been less than stellar. As the Expert Panel on Commercialization observed in its 2006 Final Report:

“An important element of Canada’s productivity challenge is its inability to capitalize on innovation and discover new and better ways to add value to what it sells. The key to solving this is in commercializing knowledge – the surest path to enhancing productivity and sustaining economic prosperity.”¹⁴

The SRED program has produced benefits by incenting private sector research, but it has been less successful in spurring the kinds of innovation that foster wealth creation and commercial success. As documented in the Council of Canadian Academies’ 2009 report,

¹³ Richard Harris, “Canada’s R&D Deficit and How to Fix It,” C.D. Howe Institute, Commentary (May 2005), p. 4.

¹⁴ Expert Panel on Commercialization, Volume I: Final Report (April 2006), p. 6.



Canada is unusual among advanced industrial economies in its overwhelming reliance on “indirect”, tax-delivered public funding to encourage business R&D. A case exists for shifting the balance of federal support for business R&D, so that a bigger portion is delivered through direct programming, such as IRAP, and less through SRED. We recommend that the Panel explore this option, drawing on the experiences of other OECD countries that have successfully implemented more direct forms of public support for business R&D and innovation more generally.

We also believe the SRED program itself can be modified in a manner that will improve outcomes and reward success. As structured, the program is heavily focused on the “science” portion of innovative activity and does not encompass other elements of commercialization. This issue is particularly important for smaller companies that often lack the financial means to perform effective market research for an innovative product or technology. A 2005 Conference Board of Canada report suggested establishing a “pilot program” to enhance the effectiveness of the SRED by including a wider range of corporate expenses related to the broader innovation process, not just direct R&D expenditures.¹⁵ Extending the SRED program to include business expenditures on selected “go-to-market” activities would be beneficial to smaller technology firms and increase their odds of achieving commercial success. We recommend that the Panel explore how this might be done in a cost-effective way.

In general, the government should not be providing incentives which simply encourage firms to increase spending on R&D, when such dollars would be better devoted to market development, non-R&D innovation activity like the adoption of leading-edge process technologies, or other tasks with a greater likelihood of maximizing enterprise growth. In its submission to the Panel, the BC government suggests creating an SRED tax incentive “that applies to all commercialization-related activities, provided a company spends a certain percentage on R&D.”¹⁶ The goal would be to reward companies that undertake R&D as part of an appropriate mix of business practices. We believe this idea has merit.

¹⁵ Conference Board of Canada, Leaders’ Roundtable on Commercialization, Six Quick Hits for Canadian Commercialization (April 2005).

¹⁶ Province of British Columbia Submission to the Government of Canada’s R&D Program Review.



Certain features of the SRED program limit its ability to stimulate business innovation. Many companies that conduct (or that would like to undertake) R&D in Canada are not eligible for the full suite of tax incentives available under the program. Firms in this situation include those not organized as Canadian-controlled private corporations. There is no compelling public policy basis for differentiating between companies that undertake R&D based on their business structure or ownership status. We encourage the Panel to consider how the SRED program can be changed to treat all companies conducting R&D equally in terms of access to tax incentives. If non-Canadian controlled companies gain access to refundable tax credits, there may be a concern that certain firms could transfer the benefits of their research outside of the country. This issue can be dealt with by setting the rules of the program so as to discourage such behavior.

The Canada Revenue Agency (CRA) has made improvements to the SRED application process in recent years. However, there is a widespread view within the technology industry and other parts of the business community that the SRED program is still overly complicated and imposes high overhead costs on companies of all sizes. Specific concerns include the time needed to process claims, delays in auditing and appealing claims, discrepancies in the way the CRA and some of its regional offices apply policies and practices, and the general unpredictability of the process. Some companies complain that they must retain expensive consultants and advisers in order to understand and work with the SRED program. Large British Columbia companies report that there continues to be significant uncertainty about the definitions and requirements of the program.

We recommend that the government take further steps to streamline and simplify the SRED application process, expedite the assessment of claims, and ensure consistency of treatment of applications by regional CRA offices. Greater clarity regarding the program's rules and requirements would reduce uncertainty and diminish the incentive for companies to turn to outside consultants and "middlemen" to assist in applying for the program.

Within the Business Council's membership, concerns have also been raised about the fairness of the CRA's administration of the program. Some companies believe the CRA is



the wrong government agency to oversee the SRED program, since its fundamental mandate and expertise is to enforce compliance with the *Income Tax Act*, not to encourage innovation or economic development. The Panel may wish to consider whether responsibility for administering federal programs intended to support innovation, including the SRED, should be shifted to another department or agency with greater expertise in the areas of research, commercialization and industrial development. Here again, it may be instructive to examine the experiences of other jurisdictions that have out-performed Canada on R&D and other measures of business innovation.

Turning to other federal policies and programs that affect R&D, the Business Council agrees with the following recommendations made by the BC government in its submission to the Panel:

- The federal government should provide additional support for graduate students, as the evidence indicates that they are important conduits for research and the transfer of knowledge to industry.
- In a similar vein, the government should also boost support for programs that connect graduate students, including international students, with industry to assist in attracting talent and to facilitate the diffusion of knowledge from universities to businesses.
- We also recommend that the government further expand opportunities for international students with Canadian graduate degrees to stay in Canada following the completion of their studies.
- Finally, although this may be beyond the Panel's mandate, we recommend that the government consider instituting a regime of investment tax credits or accelerated depreciation allowances to encourage business investment in machinery and equipment, including information and communications technologies. The rationale for this proposal is a large and growing body of evidence that a stepped-up pace of investment in M&E and ICTs is critical to achieving higher productivity and improved business innovation.



3. Conclusion

The Business Council welcomes the decision to take a fresh look at federal programs to support business R&D and innovation. Although the SRED program has been successful in some respects, it is legitimate to ask whether current public support for industry R&D can be more effective in generating the levels and kinds of business innovation needed to enhance Canada's long-term prosperity in an increasingly knowledge-driven global economy.
