Canada's Innovation Agenda
Building on our Natural Resources Advantage
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Opening Keynote

Innovation Today — New Insights, New Policies

Dirk Pilat, Deputy Director, Directorate for Science, Technology and Innovation, Organization for Economic Co-operation and Development

Pilat began by acknowledging that Canadian observers have well-honed expertise in gauging the natural resources sector, but he wanted to introduce members of that sector to what the OECD has learned about innovation and innovation-driven policy in recent years. “I come from the Netherlands, which is a very small country, but we still happen to be the third-largest exporter of agricultural products in the world,” he said. “So we know something about natural resources as well.”

He took up the question of why we should care about innovation — why it matters — and the elements that make up the answer to this question. “If we talk about innovation, we need to take a very broad lens to it. In many countries the discussion very quickly comes back to R&D in science and technology. I think that matters, and it matters a lot, but there is a lot more that we need to look at. Innovation is something that you do in a system where a lot of different things are going on and you need to get all that together if you really want to get strong innovation performance.”

Pilat argued that we care about innovation because it is at the core of our economic growth, an observation he subsequently broke down into specific factors that contain a great deal of innovative input. The list included technology that goes into fixed capital, such as a buildings or equipment. Such investments, which include knowledge-based capital (KBC), contribute to gains in productivity. He also credited innovation for the positive features of creative destruction and disruptive technologies, which give many new enterprises a competitive edge.

“You’ll probably see that innovation accounts for at least 40 per cent of economic growth,” he said. “If you think about what Henry Ford would have said if he’d been asked what his customers wanted, it would have been ‘faster horses’. If innovation had stopped at that point in time, what would our economics look like right now? All the technological change that we’ve since seen, all the things that have happened would not have happened. We might have had more horses, but a lot of progress would not have happened.”

He also clarified the concept of “investment”, which usually conjures up a piece of property or machinery that qualifies as fixed capital. Citing figures from the US Federal Reserve that cover the period between 1972 and 2011, he painted a very different picture of where investment funding has been heading. The resulting graph showed that while investment in tangibles has been decreasing, investment in KBC — software, data, R&D, IP products, firm-specific expertise, or branding — has been steadily rising. “It’s this broader range of capital that increasingly has been driving the economy forward.”

Although some countries — including Sweden, Denmark, Finland, the Netherlands, the UK, and the US — have experienced significant increases in the proportion of business

investment hat goes into KBC, Canada remains among those where most of that investment goes toward physical assets. He illustrated this trend with respect to several high profile products, such as pod-based coffee makers, sport shoes, suits, and cars. In each case KBC makes it possible to tailor these products for different tastes and a broader range of customers. “It involves an enormous amount of R&D, a lot of design, a lot of branding, to really make the product work as something that people are actually going to buy. A lot of value creation is around this broad base of knowledge-based capital that we now see in many companies.”

As a further illustration, Pilat distinguished between a country’s forward and backward participation in global value chains, i.e. “backward” referring to the extent to which a nation’s exports rely on imports coming from abroad and “forward” referring to how much a nation’s exports drive other countries’ exports. Canada does not participate in global value chains to the same extent as many other industrialized countries, even though some export industries such as mining are crucial to export industries elsewhere in the world. He further broke down this distinction between various industries, where it is clear that a great deal of Canadian participation in transportation, chemicals, and electrical equipment is in fact backward participation, dependent on inputs from elsewhere.

Pilat then asked if existing policy frameworks reflected the major role of KBC investment. This is especially important when it comes to intellectual property rights. Similarly, public investments in fields such as education or broadband communications will be instrumental in determining the success of KBC. “These are new things we have to think about if we want to get the right climate for innovation in our country,” he said.

Another aspect of establishing that climate is the mix of direct and indirect support for business R&D. He noted that Canada relies more heavily on indirect support in the form of tax credits, as do Korea, France, and the Netherlands. Others, including Germany, Switzerland, Sweden, and Finland, concentrate on direct funding for these R&D activities. Even as more countries are beginning to adopt tax credits as a major mechanism for promoting innovation, Pilat insisted that an appropriate balance must be struck. “You’re trying to build the links between the public research system and industry by putting some public money on the table to make those connections,” he said. “We find very clearly in a lot of our analysis that investment in public research is also an important driver in productivity growth.”

Some parts of the world provide examples of good practice in achieving this balance, he argued, pointing to the UK’s Catapult Centres as an case where indirect support for innovation has been matched with well designed direct support. Despite Canada’s success with regard to the use of tax incentives, these measures can always be revisited to optimize their value and weigh them off against equally well designed direct

support. Finally, Pilat warned against an overemphasis on short-term ventures, since long-term, stable investment is essential to public research.

As for making the most of government support, he regards comparison and evaluation as crucial. “When we do look at innovation policy across countries, we see a real lack of evaluation of policies,” he said. “We often do things because we’ve been doing them for a long time but not necessarily because we think they actually work.”

Pilat assigned a major role to business dynamism in various countries. “A lot of the new jobs that are being created come from young firms that are less than five years old.” He underscored this point with data showing that while dynamic new enterprises are often responsible for job destruction, those losses are more than offset by the new positions that these same firms help establish. OECD figures show dramatic job creation is tied to the work of the youngest of small businesses, while job destruction is actually much greater when these small firms operate for more than five years.

At the same time, many of these firms have difficulty growing beyond a very small size. In some countries, the average size of such firms remains at 10 employees or fewer even after a decade in business. A few countries, including Canada, see somewhat better growth, but the underlying challenge is the same. In more dynamic business sectors, this growth happens more frequently, as does the decline of other businesses. A more daunting challenge is the shrinking share of start-up businesses in many national economies. Pilat acknowledged that the reasons for this decline in start-ups remain unclear, but its implications demand further investigation.

He offered some approaches to enhancing the dynamism of businesses, such as reducing the bureaucratic barriers to starting a business as well as the legal restrictions that make it difficult for entrepreneurs to abandon a failing venture. All too often innovative firms find themselves operating at a disadvantage in the competition for resources such as R&D tax credits. This problem can often be overcome by strengthening the support for innovation through mechanism such as business accelerators, which provide access to risk capital, skills development, or networking opportunities.

Innovation is also being held back by a broadly based lack of skills, as indicated by an OECD survey that found some two-thirds of adults did not have the requisite capability to compete in a technology-rich environment. “If we’re talking about innovation, we need to think about skills development, what we can do to get those skills into the workplace.”

Pilat concluded that it is important to consider how a range of different types of policies can contribute to innovation, as opposed to devoting too much energy to specialized innovation policies. These policies will cover skills, regulations, and other aspects

framing an innovation system. “We need to look at many different areas to make that system work the way we would like. You need to bring it all together, which is often extremely difficult.”

He reiterated that governance, evaluation, and implementation remain the most important — if sometimes elusive — priorities attached to innovation.

Jeffrey Crelinsten began the question period by asking about the basis of the observed decline in start-up companies. Pilat indicated this trend could have several causes, including a changing relationship between large and small firms, but he admitted that for now there are more questions than answers about this significant shift.

Another question dealt with the precise nature of how small firms move from creating jobs to destroying them after the five-year mark. Pilat credited this movement to the way in which many businesses scale up their operations, as well as how they cope with maturing markets.

Nobina Robinson of Polytechnics Canada expressed an interest in how skill development policy could contribute to an innovation agenda. She asked if the OECD had information about who was applying these skills within particular organizations. Pilat noted that this represented a newer area of research with limited amounts of information, but he agreed that there were many useful insights that should be drawn from pursuing this work.

Ron Freedman asked which countries Canada should emulate with respect to innovation policy. Pilat observed that he does not endorse emulation, since institutions and economies are specific to each country. “I think you can look at specific policy instruments and learn from those,” he said. “You can learn a lot from what is being done in other countries to try and make their system work better. Our role is to provide you with some of that cross-comparative stuff.”

Catherine Cobden of the Forest Products Association of Canada followed up on that point by asking what international examples there might be with regard to the sharing of risk as a way of encouraging innovation. Pilat replied that there is evidence from a variety of approaches, including shared funding arrangement, public-private partnerships, and the identification of specific research targets, such as a particular disease, which encourages a variety of participants to join in the work. “Innovation is a risky business that companies have to be involved in,” he said. “But in certain cases it’s important that government shares that risk because there is a very clear public demand to move forward with something.”