Budget 2014: Re-balancing Innovation Support Programs
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Closing Panel

Innovation Indicators - How Do We Measure Success?

Moderator: **Fred Gault**, Professional Fellow, United Nations Unviersity, MERIT

Pierre Cléroux, Vice President, Research and Chief Economist, BDC
Margaret Dalziel, Associate Professor, Conrad Centre for Business, Entrepreneurship & Technology, University of Waterloo and VP Research, The Evidence Network
Raymond Luk, Founder and CEO, hockeystick.com

Jeffrey Crelinsten referred to his earlier suggestion that we care about innovation because we want Canada and Canadians to prosper. “It’s been clear from the discussion over the past two days that our efforts are indeed aimed at improving our economy and our quality of life,” he said. “That’s why we’re in this business.” He then introduced this final panel as a review of how we know whether these efforts have been successful, and how we connect what we measure to spe-cific policies, programs, and activities.

Gault began by pointing to four words in the panel’s title — innovation, indicator, measure, and success — that promised to make subsequent discussions difficult. He then provided some context by quoting from the Oslo Manual, an OECD publication of the official guidelines for collecting and interpreting innovation data. “Innovation is the introduction of a new or significantly improved product that is a good or service to the market, or finding a better way of getting it there,” he said. Three specific types of innovations to emerge from this definition would be new delivery processes, organizational changes, and market development. The indicators for these innovations — identified by the Community Innovation Survey statistics that are part of the EU science and technology statistics — represent the propensity of firms to engage in these innovative activities, which is information that forms the basis for policy discussions.

Gault emphasized that this definition is not normative. “It simply asks if you put a product on the market or found a better way of getting it there — that’s it,” he said. “The product could kill you or make everybody happy or make you bankrupt. We don’t ask.” Nor is there any mention of research and development associated with this definition. He suggested that this reflects the fact that more firms innovate, perhaps by acquiring IP or entire firms associated with some IP, than do R&D. He then turned the discussion over to the panelists, asking them to address the concept of indicators used to measure success.

Cléroux began by distinguishing different forms of innovation, contrasting an incremental development from a breakthrough or disruptive technology. “We often use the amount of money we spend on these innovations as a measure,” he said. “But you can spend a lot of money to introduce a new product, but that doesn’t mean it’s going to be successful. The same thing can be said about how much you spend on R&D.” Since the goal of these activities is to improve an organization’s output, he added, a better approach would be to look at whether an innovation improves productivity. Such changes in productivity would be measured in terms of labour, capital and business processes, as well as in comparison with similar organizations elsewhere.

Dalziel recalled Vicki Saunders' earlier comment that a world full of problems is also a world full of opportunities, and suggested that this also means a world full of people trying to help firms succeed in their missions. She described the mandate of The Evidence Network as finding ways of enabling these firms to assess that success. While revenue and profitability are obvious sources of information, they are not always the best measures for organizations that are not yet active in the marketplace. A more universal approach would look at the impact an innovation has on the resources and capabilities of a firm — what they know, what technology they have, what

prototypes they offer, what customers they have found. “We’ve created a methodology to assess those direct impacts on companies, then we look at indirect impacts on company performance,” she said. “Since we’re surveying companies anyway, we ask respondents to judge the impact of any intervention.” All of this information contributes to statistical models that identify the mechanisms of impact, the degree of impact, and what might improve that impact.

Luk argued that small companies are driven by a desire to at least remain solvent but ideally to be highly profitable. In this context, there is a great deal of self-interest attached to ensuring that investors understand what you are doing and reminding them of that fact as often as possible. This also means that regardless of whether you are passing along good news or bad news to those investors, you have a working relationship that can be used to obtain necessary resources and help to move your enterprise forward. His organization, which provides reporting and metrics for companies and their shareholders, is instrumental in shaping such relationships. “For a lot of investors, they’re not only interested in success metrics, they want to know all those metrics between success and non-success, all those things that can help them properly evaluate how their portfolio is doing,” he said.

Gault pointed out that while most innovation metrics consist of aggregate figures, the panelists outlined three distinct approaches that are based on information obtained directly from firms. In other words, these metrics deal with the value of innovation to individual firms, which raises the prospect of how these findings could be applied to government policy.

Dalziel described her role as chair of a provincial government expert panel reviewing Ontario’s business support programs. In this capacity, she has been struck by the difficulty of extracting information from the tax records that is relevant to understanding its implications for business success. Her influence, then, will come in the form of this panel’s report, which should indicate which firms are benefiting from government initiatives.

Cléroux discussed the example of productivity, which is lower in Canada than the US, despite the fact that firms here do most of the right things, such as hiring skilled workers and adopting the latest technology. “The lack of productivity is more due to the fact that we seem to have a problem putting all this together in our companies,” he said. “It seems to be related to multi factor productivity, the productivity outside of labour and capital.” He cited research showing that even when the latest equipment is purchased, many companies do not change their processes, which means they do not get the optimal results from that equipment. Nevertheless, this kind of fundamental shift must be initiated to obtain the full benefits of investments in labour and capital.

Luk suggested that the best way to influence policy is to follow the money, allowing entrepreneurs to demonstrate where public investment can have the best effect. “The more programs become public-private partnerships, the more it puts the responsibility in the right place,” he said, suggesting that by linking the development of private enterprise to public interests, the framers of government policy will have a stake in the success of these ventures.

Gault posed one more question to the panel, asking if official statistics on innovation are strictly necessary, or whether we can use other sources of data to gain the same insight, or some combination of the two approaches.

Luk acknowledged that there are different metrics for different purposes, and the optimal way of approaching this topic may be to focus on the metrics that matter most to the people creating companies. His own company does just this: not imposing data collection techniques on its client firms, but letting them use what they regard as most important. “What’s interesting is that they all tend to coalesce around very similar metrics,” he said. “In the early stage it’s cash, because they care about life and death; in the mid stage it’s all about commercialization and those leading indicators. What’s very interesting is that none of those is an indication of innovation, at least as we define it. I’ve never seen a measurement of lines of codes written or numbers of patents. So why are the firms and their investors measuring something different than we would want to measure, and is there something there?”

Cléroux suggested that companies are most interested in data that allows them to compare themselves with others, in order to set benchmarks. “What we see in our clients is that they believe they spend a lot of time and money on innovation when in fact they don’t,” he said. “It’s hard for a small business to understand if what they do is enough.”

Dalziel insisted that official statistics are worthwhile, including global figures such as BERD or GERD, which have value for firms trying to benchmark their performance. In the same way, she suggested that business support organization should be similarly benchmarked against their peers. “We need to know which support organizations are providing the most value for our investment,” she said, adding that there should be some form of experimentation with these measurements, in order to ensure that the most useful data is obtained.

Chad Gaffield of SSHRC led off the questioning by observing that innovation is not an end in itself, but is carried out in order to have a positive impact on particular individuals, organizations, or society as a whole. In that light, he asked, how can metrics be designed to reflect the larger goals of innovation and identify where that impact might be unsatisfactory?

Cléroux replied that he does not worry about the innovations that might stem from bad ideas — such as sub-prime mortgages — since the business community will sort out the shortcomings of

those ideas for themselves. Luk built on this observation, suggesting that innovation extends beyond the bounds of an individual business practice to affect the strategy and model of the business. This is seen most clearly in the "lean start-up" concept, which advocates running a business like an experiment, such as fast-tracking a crude pilot of the operation, so as to rapidly gather evidence justifying any further effort. Dalziel added that this kind of measurement is essential to motivating people to act. "What gets measured gets done," she said.

John Hector, of Natural Resources Canada's Canadian Forest Service, suggested that he is among those for whom metrics are essential. "Without Statistics Canada, we would be absolutely blind," he said. When the measured quality and quantity of innovation in Canada reveal shortcomings, therefore, he worries that this reflects deeper problems that will eventually degrade our standard of living. Existing metrics point to clear links between innovation and the success of firms, which led him to raise the point about how we should assess why companies decide for or against these kinds of clearly beneficial practices.

Cléroux said his bank's experience with small companies reveals that these firms do not necessarily analyse what they are doing for themselves. "There's no real process of evaluation," he said. "Basically they innovate because they're always trying to do better. Some businesses have a culture of innovation, but most do not have a process, and that's probably not helping." Luk maintained that such businesses simply do not have the people or the time for such activities. Nevertheless, digital technology increasingly makes it possible to "test" innovations at a market level, in order to collect essential information about viability before making a formal investment in some new product or service.

Doug Barber portrayed innovation as a two-edge sword, which can often yield as much ill as good, and which thereby implies that it has an ethical component. Referring to Baker's description of how he grew Desire2Learn, Barber asked the panel if they would have supported this firm in its early years.

Dalziel recalled that Baker did refer to programs such as IRAP and Communitech, which are supported by government, and which are both clients of The Evidence Network. Cléroux likewise indicated that BDC has its own program that supports some 30,000 start-ups. Cléroux added that Desire2Learn has been distinguished by the fact that Baker embraced innovations that not only benefitted his firm, but entire business sectors. "He really has this culture of innovation," he said. "That's really what we need — more John Bakers in Canada."

Luk argued that the key to supporting John Bakers is being willing to invest in failures. "We all want to pick the winners, but we need programs that realize when a young person starts a company and fails, that experience is invaluable," he said. "We have to be willing to invest in these people. We have no shortage of talented people in Canada; you cannot be afraid to have programs that don't immediately generate amazing Desire2Learns."