Budget 2014: Re-balancing Innovation Support Programs
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Debate Panel

Are Start-Ups the Secret to Canada's Future Success?

Moderator: **Peter Frise**, Scientific Director and CEO, AUTO21

Adam Chowaniac, Chair, Belair Networks
Richard Hawkins, Professor and Canada Research Chair in Science, Technology and Innovation Policy, University of Calgary

Crelinsten introduced the first RE$EARCH MONEY debate, which was inspired by the widening interest in the role of start-ups and entrepreneurship. He stated the proposition of the debate: "It is proposed that future science, technology and innovation policy in Canada should focus on start-up firms." Chowaniac, himself a serial entrepreneur, argued for this proposition, while Hawkins argued against it. Frise introduced the debate as a deliberately provocative undertaking, one that he invited the audience to participate in.

Chowaniac started with some key facts, such as the observation that SMEs represent 40% of GDP, and added some recent insights on GDP growth from a recent speech by the governor of the Bank of Canada. "If you take out the oil and gas sector and the auto sector, he said the main driver of growth is export growth," said Chowaniac. "And the remarkable thing is that in the last five years, export growth in that definition has been totally SME-driven." This implies that corporate Canada is "broken", and only robust SME activity will grow GDP. "Very clearly SMEs are the future of Canada."

As for why corporate Canada is broken, Chowaniac blamed high levels of protection. "If you're a bank, a telco, and airline, you cannot be acquired and you cannot acquire one of the others," he said. "Essentially you're a monopoly; you can just sit there and have a nice time. These guys are not world-class anything as a result. They have no ambition other than to tread water."

He added that while the country's banks have been praised for how well they weathered the recent recession, they have done so by not lending any money except on a strict asset-based manner. Telcos have likewise fallen far behind their international counterparts. The result is artificially high costs associated with creating a business in Canada, as opposed to other parts of the world.

"We're losing hundreds of our SMEs to acquisitions every year, way before we've got their economic benefit to Canada," he said, adding that governments are making this situation worse by avoiding the use of Canadian SMEs for goods or services. "It's absolutely shameful. For an SME in Canada, the domestic market is actually the US."

Chowaniec related his own experience of these effects in his business, describing how cable giant Shaw wanted to implement a new wifi system and turned to Cisco rather than Belair Networks, even though his firm has the more prominent expertise in this technology.

Chowaniac then contrasted two primary sectors — auto and information & communications technology — each of which has around 500,000 employees. The former is established and mature, depends heavily on government support, and uses very few SMEs in its supply chain; meanwhile, the latter is newer and still developing, being much more entrepreneurial and much

less dependent on government largesse. More significantly, he emphasized, the ICT sector spends about 10% of its revenue on R&D, while the auto sector only puts about 1% toward this goal.

Chowaniac concluded that it will be essential to dismantle some of these business monopolies, protect SMEs with new acquisition regulations, and change the levels of government support to various sectors. “We need to find a way to make our own SMEs grow,” he said. “That’s the engine for the future.”

Hawkins began by agreeing that start-ups are an important part of the economy, but not necessarily an appropriate focal point for policy. He suggested that governments became enamoured with SMEs during the initial high tech boom of the 1970s and 1980s, when their tremendous growth made it look like the economy was getting something for nothing. This perception also overlooks the fact that many start-ups begin their existence with a great deal of direct and indirect government support. “Governments don’t like that anymore,” he observed. “They don’t like to take credit for successes.”

He then set the role of SMEs in a larger economic context. “There is a microeconomic relationship between start-ups and the rest of economy,” he said. “Guess what. It’s inverse and negative. This has been shown in many studies in many countries. As wealth and growth goes up, the number of start-ups goes down. As wealth and growth goes down, the number of start-ups goes up. It’s a pure opportunity cost question.”

Since the value of start-ups in the economy is cyclical, therefore, Hawkins said any government policy aimed at promoting these enterprises is tasked with doing so at just the right point in the cycle. One of the incentives for such a policy is the observation that SMEs create jobs, but the rate at which these firms add to employment only becomes significant as these businesses mature, after as much as a decade. Similarly, SMEs are widely regarded as highly productive, but their high failure rate mitigates against this virtue. In fact, some of them offer such a narrow range of goods and services that they are highly vulnerable to even modest shifts in their market.

Hawkins insists that we should not overlook the contribution of larger companies, who may be seemingly thin on the ground but nevertheless generate 50% of our GDP. He recommended research being conducted by University of Manchester Business School Professor Bruce Tether, who has explored the relationship between who comes up with idea and who adds value to those ideas. “Small companies are really good at creating ideas and really good at creating a certain amount of value out of them in the short term,” he said. “Large companies may have crappier ideas, but they create huge amounts of value from them.”

With respect to the role of start-ups and economic growth, Hawkins said government support often confuses this process. “They direct policy at what they think is going on in start-ups,” he said. “Governments consistently confuse ingenuity with innovation — big mistake. If you want

to succeed as a start up, you'd better not get those things confused. And if your government's trying to help you and it's confused in that way, you have a real problem."

Worldwide, he argued, small firms amount for less than 2% of research and development. Admittedly, this could be highly significant research and development, since it is difficult to quantify the impact of specific work. However, most of these firms are already conducting as much of this work as they can handle, and need no encouragement to do more. "Nothing's going to put a company out of business faster than investing in research and development," he said. "It's pure risk. You've got to be sure where you're going. You've got to know what you're doing."

Nor is innovation just about technical change, Hawkins maintained. "It's about finding out about your market. It's about finding out what people think about your product, and whether they're going to buy it or not," he said. "In fact, R&D is mostly about all the things that SRED [Canada Revenue Agency's Scientific Research and Experimental Development Tax Incentive Program] specifically excludes. We don't do any of that. This has been the greatest act of vandalism of a government in the OECD for the last 50 years."

He offered up the irony of the popular wisdom that you get more large companies if you have more start-ups. But the evidence actually reveals that if you have more start-ups, then more of them fail. In a similar way, Hawkins observed that individual firms come and go, but industrial sectors persist, so innovation policy should not target specific firms. "It's industries you want to aim the policies at, not the firms, large or small. So what should governments be doing if they're not investing in small firms?" he asked. "The first thing they should be doing is going back to what they have historically done very well — and which they still can do very well — which is to pick winners. Pick winners: don't subsidize losers, which is where almost all of our money is going now. It's not that hard to pick them. It's hard to have the courage to not just pick them but to do something about fomenting their success."

Hawkins concluded that targeting industry means focusing on an area that will remain at the heart of your economy, which in Canada's case means the energy sector. Above all, following private money with government investment means you will be reinforcing where the marketplace is heading. "The secret to making small firms successful is to aim your policy at these large firms that are the actual problem, and not at the small firms that tend to give you solutions to problems for nothing."

By way of rebuttal, Chowaniec returned to the disconnect between a comfortable, insular large corporate sector and the dynamic potential of SMEs. He speculated that a return to a more sweeping industrial policy would transcend these differences between big and little companies in order to address underlying problems. By way of example, he cited the fact that Startup Canada, of which he was the founding chair, now has some 80,000 companies and individuals working through the challenges of getting an enterprise going.

"But why is this coming from the ground up?" he asked. "Why isn't it coming from the top? Because everything's happening on the ground and nothing is happening on the top." In light of the unwillingness of corporate Canada, the banks, or any kind of venture capital investors to take part in this process, entrepreneurs find themselves with few options.

"It's not about R&D, it's about innovation," he maintained. "It's about doing things in a different way, and it's about finding opportunities that somebody else isn't going to steal from us."

Hawkins insisted that the challenge is not just a matter of innovation. "Innovation is the easy part," he said. "The hard part is leveraging innovation upward, to create lasting value in an economy; to create a source of wealth that didn't exist before." Only in this way can wealth be created and investment encouraged.

For the same reason, he cautioned, an exclusive emphasis on innovation can be an expensive undertaking. "Innovations don't always make you wealthy; innovations can kill you," he said, pointing to innovative financial services that have demonstrated an ability to wreck the economy.

Further to Chowaniec's observation that SMEs do not serve the Canadian market, Hawkins insisted that they should be required to do so. In many other countries, government procurement programs elsewhere have demonstrated remarkable success at encouraging such businesses. Moreover, many of these Canadian SMEs are serving precisely these kinds of procurement initiatives elsewhere, so there is no reason to shun this kind of opportunity here.

Finally, Hawkins clarified the notion that venture capital is scarce. "The problem is that there are no ideas venture capitalists want to invest in," he said. "Everybody who has an idea thinks there's a venture capitalist out there who wants their idea — not true." Moreover, he suggested that venture capital is not the only way to fund a business, and many entrepreneurs consciously avoid this approach.

Frise offered up some points of his own. He started by crediting the success of Mexico's bid to build up its automobile industry to sizeable government subsidies, something Canada is reticent to adopt, even though this industry has by far the largest footprint on the Canadian economy. The prospect of losing this economic multiplier is one he illustrates for audiences by noting, "If you think Newfoundland looks poor without fish wait until you see southern Ontario without the auto industry."

In order to underscore that assertion, he referred to the aforementioned Bank of Canada analysis that deliberately omitted the auto industry and oil, since they dominate the economy to such an extent. Frise acknowledged that automotive manufacturing had suffered in the last few years, but it continues to grow. "It's now just past its pre-recession levels and profits are expected to double between now and 2020," he said. This sector receives little government support for its R&D ef-

forts, in contrast to the ICT sector. Moreover, the Canadian industry's investment in R&D is only a fraction of the global average for the auto sector.

Frise then offered the debaters a well established statistic that some 90% of all start-ups fail, raising the question of why economic policy should be premised on this basis. Chowaniec focused on ICT, where he attributed value in supporting innovative enterprises, but likewise bemoaned the loss of that value as most of these enterprises are acquired by outside interests. Moreover, these tend to be the most promising enterprises, which is why he called for stricter rules about such takeovers. "We're basically killing our own children, and that's just not a very smart thing to do."

Hawkins cautioned against a desire to increase the number of surviving firms; instead, he preferred to focus on those outstanding firms that go on to grow and thrive. Though they may be few, their impact could be profound, as Finland has experienced with Nokia. And although Canada may be having unacceptable experience with comfortable, unambitious corporations that dominate their respective markets, he has worked with others such as Siemens or Daimler-Benz that demonstrated a remarkable openness to new ideas. More specifically, though, these companies find such ideas amongst the small start-ups.

Hawkins also echoed Harold Warner's comment about the critical role of manufacturing, i.e. "You've got to break it to know how to build it well." Similarly, Hawkins insisted that innovation, R&D, and production are tightly linked. "If you're not making stuff — and it doesn't matter if you're making a car or a financial service — you're not doing the research and development," he said, adding that this was the only way of increasing and improving the jobs that go along with this work.

Frise then brought the speakers back to the original question, which considered whether policy should focus on start-up firms. As a starting point, he noted that while there has always been political pressure on AUTO21 to generate start-ups, doing so runs counter to the auto industry's desire to reduce the number of its suppliers.

Chowaniec returned to his argument by noting that the government has no science and technology policy, and so does not have a template by which to even collect the necessary data for a coherent innovation strategy. Meanwhile, other countries are throwing a great deal of money at precisely such strategies, leaving us further behind and in need of more time to ramp up a competitive response.

Hawkins built on Frise's comment about the auto industry tending to use fewer outside suppliers, which is something that can be traced to innovative practices. In this respect, innovation can be very much a two-edge sword, one that must therefore be managed even more closely with appropriate policy. He concluded with Abraham Lincoln's definition of the role of government, as an agency that does for individuals what those individuals cannot reasonably be expected to do for

themselves. “That’s a pretty good definition of the policy space we should be inhabiting here,” he said. “Where we do have these chasms that need bridging, there’s no individual actor that’s got enough of a stake in it to bridge it for themselves and we need some collective action.” He emphasized that countries overseeing strong R&D policies have already committed themselves to the essential costs of doing so. “They don’t see it as incurring a debt,” he said. “They see it as making a national investment in something that’s going to make everybody more prosperous. We need to start growing up and thinking like that.”

Q&A

Margaret Dalziel of the Evidence Network at the University of Waterloo asked about Canada’s prominent use of R&D tax credits, asking for opinions on what they can and cannot do. Hawkins referred to a recent Belgian study that shows the impact of tax incentives for R&D is about the same as that of direct subsidies. Despite that, he voiced his own skepticism about the value of tax incentives, which let governments “off the hook”, in the sense that they do not have to tie themselves to a specific policy. Chowaniec, for his part, argued in favour of tax credits, which work well in the absence of any policy.

Bert Van Den Berg of NSERC asked the debaters to revisit the challenge of protecting start-ups from acquisitions, and for any insights as to how other countries go about protecting these fledgling enterprises. Chowaniec responded that it is not necessary to put a blanket ban on acquisitions, but instead to adopt an American approach, which allows boards of directors to reject takeover bids if they see fit to do so (which they cannot do under current Canadian regulations). “We are the worst in the Western world in terms of protecting our own companies,” he said. Hawkins agreed, adding that Canada was missing a major opportunity to nurture new industry in our most dynamic economic asset, which is the oil sands. By allowing foreign firms to carry out the work of processing and cleaning up after this resource, we are allowing the export of knowledge and expertise that were developed domestically. “There’s an enormous industry to be built out of this, which we haven’t even thought about building yet,” he said, suggesting that whether we were examining the high-tech sector or the resource sector, the development model of “rip it and ship it” seems to apply. “Our business model — whether we’re selling oil, agricultural products, or IT — is for you to be acquired.”

Gord McDonald, President of the 13-year-old software firm Process Pathways Inc., insisted that the ICT sector is far more dynamic than most people realize, as indicated by on-line financial giant PayPal’s recent move to cloud computing, which accelerated its release of new software from 78 days to one day. He likewise harkened to Harold Warner’s suggestion that start-ups serve as a valuable “boot camp” for young people to learn how to succeed, especially since they are at a stage in their lives when they can afford to take risks and incorporate those risks into their lifestyle.

Hawkins recounted teaching engineering classes and having no takers when he asked the students if they wanted to start their own business. In a business school class, he added, the response would be the opposite. “The difference is that nobody from the business school is going to start up a company,” he said, “whereas the guys in engineering are probably going to start up one.” This distinction is crucial, he suggested, because it speaks to the underlying cultural roots of enterprises and how they get started. “They are so dependent on the psychology of the people who start them.” Nor should we try to change that psychology, such as by trying to get scientists to be more business-like; instead, we should concentrate on helping entrepreneurs connect with scientists as part of their business development.

Ron Freedman asked what we were talking about when we use the term “start up”. He suggested that the paradigm has been the Silicon Valley garage firm fuelled by young, inexperienced people with original ideas. Yet there are also firms begun by people who have worked in established businesses and bring a great deal of that experience to their own business project. This raises the question of which sort of start-up we would like to support.

Chowaniec conceded that young entrepreneurs may not have the necessary experience to understand their market, but if that causes them to fail it will not necessarily be the worst outcome. Conversely, experienced entrepreneurs bring valuable assets to a new enterprise, one that can appeal to potential investors. Hawkins underscored this point, suggesting that pinning all our hopes on energetic youth may not always be the best way to go. More experienced entrepreneurs bring not just good ideas to the market, but an understanding of that market and a product that can meet the expectations of that market.

Another question returned to use of tax credits to promote R&D, which may be a flexible arrangement but one that may be difficult to make accountable. Hawkins agreed, and suggested that accountability may ultimately be unattainable in certain contexts. In fact, it may be good to allow R&D activities to transcend typical measures of accountability, which will insulate enterprises from political pressures that would shut them down prematurely. He cited the example of the Netherlands, which supports innovative enterprises to an extent that allows them to outlive several iterations of government, by which time they may be ready to support themselves without any public assistance. “That’s why they create things there that don’t belong there, which create all kind of value in that economy,” he said. “And that’s why we don’t, because we’ve got a political time frame of about four weeks, if we’re lucky.”

Ron Van Holst of the Ontario Centres of Excellence asked how we should provide start-up enterprises access to physical resources, such as specialized scientific instrumentation, and whether that will help them to succeed. Frise added that in addition to these physical resources, entrepreneurs might also benefit from access to humanities and social sciences resources, such as marketing information. “They may have the greatest science and technology in the world, but they really have no idea how to convince someone else to part with their money for it,” said Frise, paraphrasing Doug Barber on this point, “A lot of these great little ideas have no customers.”

Chowaniec agreed with Frise, suggesting that technology plays only a token role in driving a new enterprise. “They don’t have to care about the technology,” said Chowaniec. “They have to care about understanding what the market really needs from them and how they’re going to address it on day one.”

Hawkins was even more adamant on this point: “It’s a dangerous thing. We need to stop thinking about science and technology leading the innovation system. We have to start thinking about the innovation system leading science and technology.”

Celine Bak of Analytica Advisors described her work on start-ups that grow according to who they perceive their customers to be. Chowaniec agreed and challenged the earlier point about the automobile industry cutting back on its suppliers, when in fact it continues to use hundreds of these small firms, who can be well placed to break into this supply chain with the right idea. “That’s where their innovation comes from,” he said.

Frise subsequently coordinated a formal vote on who won the debate. The results: 6 abstentions, 22 in favour of the proposition, and 22 against the proposition.