From garage to global how to build strong innovative SMEs in Canada

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Le Corvec premised his remarks with reference to a set of key points that he has gleaned from years of experience working on projects all over the world. He established some of the basic questions that surround the concept of innovation, including the nature of its inputs and outputs, the extent to which we have a culture that enables us to innovate, the distinction between innovative goals versus actions, and the best innovative practices that have been implemented around the world.

His preferred analogy for analysing this intricate subject was that of a cube, which has six sides, only three of which are visible at any one time. Depending on your level of expertise in a given subject, he said, you will be aware of just one or several of these faces. “Let’s always look at the hidden faces,” he insisted, then took the audience on a face-by-face tour of the cube.

The first face he examined was that of innovation itself. He broke this down into four further categories: science, technology, design, and problem solving. “Over the past 20 years, the key was more in technology; we were focused more on hardware, on technology,” he said. “Now we are in the area of user experience, design, and perception.” This shift is important, because it opens up the basis of design, in principle, to a much greater proportion of the seven billion of us who inhabit the world. For more and more of us, he argued, innovation has become a “real event” we experience, rather than an abstract technological claim.

Another face of the cube consists of innovators, whose characteristics were again subdivided in four: knowledge, know-how, soft skills, and creativity. Living as we do in a widely touted information society, he noted, knowledge is widely available and has a decreasing inherent value. Know-how, on the other hand, has become an increasingly prized asset. “Know-how is much more complicated to get and transfer than knowledge,” he said, adding that the purely technical aspects of innovation are increasingly being shaped by what has traditionally been viewed as secondary aspects such as soft skills and creativity dedicated to particular goals.

Le Corvec coloured this analysis with brief portraits of two innovators. The first, Percy Spencer, was a Raytheon engineer who observed that a radar magnetron melted a candy bar in his pocket. This led him to experiment with this equipment with water, then foods such as eggs. The ultimate result of his pioneering research was a practical design for a now-ubiquitous household appliance: the microwave oven.

Another innovator, Stephanie Kwolek, had wanted to be a doctor, but worked as a chemist a Dupont in order to raise the necessary funds for her education. She was struck by a failed polymer reaction, in which she found thin filaments. The result turned out to be the first batch of kevlar, a material that has found a wide number of commercial and consumer applications.

In both cases, Le Corvec explains, these innovators had no special knowledge at work for them, but they did have a great deal of know–how, along with soft skills and creativity. “They had the mind-set to think outside of the box; they had the willingness and interest to understand.” In this way, what might have been regarded as trivial failures were actually milestones. “In my company,” he explained, “it’s even more important to understand why something doesn’t work rather than why it works.”

He cited no less an observer than Albert Einstein paying homage to these qualities: “Theory is when you know everything but nothing works. Practice is when everything works but nobody knows why. We have put together theory and practice: nothing is working ... and nobody knows why!”

Le Corvec offered business innovators as another face of the cube. In this case, the four subdivisions consist of four types of businesses: start-ups, small, medium, and large, each distinguished by the number of employees and the nature of the firm’s cash flow. In Canada, he noted, 95% of companies have an average of six

employees, placing them in the category of start-up or small; alternatively, these categories might be compared with stages of human growth, from infancy to maturity, so that the nature of funding they require might be compared to the different types of food we require as we grow. In this light, it is important to see the funding provided for innovation as being essential to commercial growth, so that firms can move toward maturity; if this link is not there, the funding will not succeed in helping the firm, even if the innovation itself appears to be technically successful.

Similarly, the sources of funding also bear on the most appropriate sustenance for different types of firms. Where SR&ED tax credits might be of significant help to a more established firm, it will not be helpful to a smaller one that has a more immediate need for cash flow, as opposed to a way of managing expenses over a longer term. Such distinctions also put pressure on policymakers, who will find themselves confronting a variety of different calls for support, depending on the size and age of the firm making the application.

“It’s all about the right kind of money, in the right amount, at the right moment, with the right conditions and a continuous flow,” he said. He emphasized the overriding importance of continuity, which will prevent the company’s progress from halting or back-sliding. Similarly, continuity is reflected in how quickly a firm is willing and able to respond to particular requests from customers, which will be an indication of how well they can cope with the demands of customers. Referring to his own experience in the materials industry, he noted that as a customer he prefers dealing with supplier firms in the United States or Asia that have stock on hand and can create test moulds in a matter of a day or so. Canadian firms often take upward of two weeks to fill such orders, because they must first obtain stock. This kind of “just in time” strategy may keep a company’s bookkeepers happy by reducing overhead, Le Corvec concluded, but it is no way to keep customers happy.

He also examined the question of risk-taking, arguing that this behaviour relies on the extent to which a firm can afford to fail. He offered the celebrated example of Apple, which was on the brink of bankruptcy but bet everything on the iPod, which transformed the company’s fortunes. More recently, he added, the example of RIM may turn out to be a similarly valuable lesson in awareness of embracing the prospect of failure in order to make significant gains.

Returning to the case of Apple, he quoted Steve Jobs, who pointed out that IBM was spending far more on R&D, but it was nevertheless Apple that produced the Mac, thanks to having the right people for this goal. “It’s not all about the money, it’s about the way you spend it,” he asserted, pointing out that if we have the resources to work faster, we can also reach our goals at a far lower cost.

He then turned quickly to the subject of infrastructure, namely the physical circumstances where innovation is occurring, be it a garage, educational institution, or corporate laboratory. While much of our attention is focused on universities, he suggests that a more fundamental level of creativity can be nurtured at the secondary school level.

He also addressed the nature of what he dubbed the innovation ecosystem, which is most often regarded in terms of an extended supply chain. However, he added other facets to the concept of an ecosystem, including the nature of a global economy, the creation of silos where people and ideas can be restricted, and the ecosystem’s ultimate role as an enabler of innovation. “Is your ecosystem a supplier of innovation,” he asked, “or are you pushing innovation into your ecosystem?”

Cultural aspects of innovation — perceptions of risk, trade, security, and creativity — are no less significant than the ecosystem. The role of wealth creation is another reflection of how innovation can vary from one setting to another; this process can take forms such as targeted trade with growing markets, or seeking the best value for innovation rather than simply trying to achieve the lowest cost.

As for why these matters are crucial to Canada's future, Le Corvec cited the demographic changes that will be shaping the country's population — and economy — over the next four decades. He cast this as nothing less than a competition between countries that will succeed in raising their standard of living while others will see their standard of living slowly decline. For Canada to succeed in this way, then, he identified five needs that will have to be met. First, we must increase the average size of our enterprises, so that we have more medium-size ones capable of competing internationally. "If we expect that 95% of companies with six employees to be the world leaders, we're lying to ourselves," he said. "It's just not possible."

Secondly, he called for a better understanding of the roadblocks to innovation and higher productivity. This kind of work could begin with a review of successful ventures supported by IRAP. "There is a gold mine there," he said. "There are a lot of answers there. And then we can connect it to the macro level."

Thirdly, he insisted on properly financing innovation, so as to get away from a one-size-fits-all programs for all industrial categories. "It's not about putting in more money," he said. "It's about putting the right money in the right way, under the right conditions."

Fourth, he argued that we must help the education system strike a better balance between knowledge, know-how, soft skills, and creativity. "Innovation is a lot more chaotic than it is linear, and we need to have the right mind-set," he said.

And finally, we need to help Canadian culture embrace the values associated with innovation, such as pride in accomplishment, competitiveness, speed, and efficiency. "If we want to compete, we need to feel confident that we can win," he said, proposing that we do a better job of showcasing our successes. "We need to have entrepreneurs and successful people going to universities and talking about their experiences, about their successes and especially about their failures, because we learn a lot more from our failures."