



The Next Big Thing

What does it take to bring a new technology to market?

Kerry Freck and **David Henderson** spoke with successful and emerging Canadian water entrepreneurs to find out.

In 1976, Hank Vander Laan bought a small, London, Ontario-based metal works company that happened to hold a patent on an ultraviolet (UV) treatment unit for homeowners to purify their drinking water. Immediately after the acquisition of Trojan Metal Works and some initial research, Vander Laan devoted the majority of the company's limited resources to large municipal applications of UV technology. Based on his vision of transforming the metal fabricator into a dynamic global company capable of solving complex water problems, Trojan Technologies Ltd., one of Canada's biggest success stories in water technology, was born.

How did that happen? According to Vander Laan, having a supported, shared vision is what's most important. "The vision needs to be bigger than you. It has to be a shared vision that is healthy, profitable and sustainable."

For Philip Abrary, president and CEO of Ostara Nutrient Recovery Technologies Inc., the vision came when he and COO Ted Jones heard from the University of British Columbia's

industry liaison office. Over a period of five years, UBC had developed a nutrient recycling process that reduces the amount of pollutants released into the environment, helps sewage treatment plants reduce operating costs and meet environmental regulations, and provides municipalities with revenue from the sale of recycled fertilizer.

"We liked the technology's potential," says Abrary. "We thought it was intriguing, both in terms of the technology, but also the potential business model that could be applied to something that is both a wastewater treatment solution and a valuable product."

But innovation and vision alone will not get a technology to market, says Sustainable Development Technology Canada's (SDTC) Zoltan Tompa. "One of the least critical determinants of a successful technology company is the technology. At minimum, it takes the combination of good technology, great management, early market adopters, and a supportive and adaptive policy and regulatory environment."

In 2005, Abrary and Jones founded Vancouver-based Ostara and licensed the

technology from UBC, shortly thereafter proving its commercial viability at a site provided by the City of Edmonton. The company's first true commercial installation—a multi-reactor facility sold under Ostara's capital model—launched in June just outside of Portland, Oregon. This year, Ostara earned a spot in the The Guardian's Global Cleantech 100, a list of private cleantech companies which show the most commercial promise, the most potential and highest likelihood of achieving high growth and high market impact.

Contrary to Ostara's success and recognition, many new technologies often fall flat upon introduction to the market. In a paper entitled Successful Commercialization of New Technologies, ZENON Environmental's founder Andrew Benedek laments the lack of skills in commercializing very promising solutions that arise from brilliant scientific minds, several years of research, and often millions of dollars in funding. "[Commercialization] is a subject that most researchers are ill-prepared for," he writes.

So, what does it take to become a success? Here's what we know.

Do your research.

First, define commercial success, suggests Benedek. Is your technology solving a persistent water problem? Is there a market demanding a solution? "The venture must make money for the investors, and the technology must be adopted by at least ten per cent of the chosen market," writes Benedek. "In order to achieve success, we must start with an idea worth investing in." The technology must be different, useful, competitive, and have a large potential market.

Make sure it's economically viable.

"The biggest challenge is always getting the economic drivers to be competitive with whatever the entrenched technology is," says John Coburn, managing director of XPV Capital, and one of ZENON's founding employees. As president and chief operating officer, he helped grow ZENON from a start-up to a company with over \$146 million in revenue and a market capitalization

of \$700 million. "We had to get a membrane to be competitive in terms of cost in addition to providing benefits."

knows the ins and outs of testing a product's mettle. "Water is so important that people need to ensure that the

"The vision needs to be bigger than you. It has to be a shared vision that is healthy, profitable and sustainable." —Hank Vander Laan

Unfortunately, no matter how groundbreaking the technology, it won't fly unless it makes sound financial sense. "You can't build on a false economy," advises Vander Laan. Echoing him, Abrary says, "It doesn't matter if you're solving great environmental problems. You have to have a business model."

Prove that your product works and can make a difference.

As the president of Dagua, a Quebec-based company developing a chemical-free treatment technology, Pierre Bélanger

technology will work before they put their confidence in it," he says.

Along with rigorous provincial certification, Dagua tested its combination DaguaFlo ozonation and membrane filtration technology with water from the highly-polluted Yamaska River in southern Quebec. "We wanted to test in an area wherein our technology would really prove itself. Nobody thought that we'd pull that one off—but we did, and with flying colours." Now, Dagua is scheduling work on its sixth commercial plant and is interested in expanding beyond Canada.

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You'll also want to differentiate your product from possible competitors. Angella Hughes, president and CEO of Orangeville, Ontario-based Xogen Technologies Inc., reminds future entrepreneurs to ask themselves the following questions: How good is the product? What is its value in the marketplace? Will it be able to penetrate the marketplace by taking down traditional barriers or driving change? "Don't be afraid to do things differently," says Hughes.

Believe in the technology, and convince others to buy into the vision.

If you know the technology works and makes good business sense, you need employees and advisors with capacity to support your vision. "In every part of your business, hire the best people that you can afford," says Hughes. Additionally, it doesn't hurt to have big names on board. Ostara's board of directors, for instance, consists of a handful of influential and experienced businesspeople, including Robert F. Kennedy Jr., founder of the Waterkeeper Alliance, and Dr. Rafael Simon, former COO of ZENON. Seasoned veterans of the industry can provide valuable, insightful advice for young companies [see James Sbrolla's "Sound Advice," *March/April 2009*].

That said, "If your only vision is to make a pile of dough at the end of the day, you're probably not going to go too far," says Vander Laan.

Find financial support and early adopters.

When it's necessary to explore opportunities for demonstration (a step nearer to commercialization), new entrepreneurs and companies do not often have the funds to make progress.

A number of opportunities are available. Well-connected, vision-sharing board members may be conduits to angel investors or other private investors. Arm's-length federal initiatives such as SDTC are other funding resources. SDTC supports technology developers through the critical juncture when capital and scaling costs become prohibitive and when capital availability is at its lowest, says Tompa. "SDTC supports promising technologies to advance beyond the lab by proving them at a more commercially

representative scale under real-life conditions."

SDTC requires that companies leverage the expertise and resources of other partners to share in the risk of development and in the reward of downstream commercial deployment. This dramatically increases the rate of commercial success and can help enable more rapid market transformation for disruptive new technologies. "At SDTC, we're fortunate to have a broad purview

"We're dealing with a very conservative industry. They do not adapt or change quickly. They want to make sure that somebody else is doing it, and that it's working." —Philip Abrary

into trends and developments across all economic sectors," says Tompa. "As such, we're in a unique position to idea linkages between complementary organizations within or across these sectors. We also provide some of this general market insight to applicants so they can adjust their business or technology plans accordingly."

After finances, one of the biggest challenges is finding early adopters. "We're dealing with a very conservative industry," says Abrary. "They do not adapt or change quickly. They want to make sure that somebody else is doing it, and that it's working."

To make partnership more attractive, federal initiatives such as tax credits or subsidies are available to early adopters, says Tompa. "These can create market pull so these technologies don't just fall off the edge of a cliff after the development is complete," he says. "Furthermore, it takes early collaboration with strategic market partners and end users to inform the design and development stages so that the technology is transformed into a customer-oriented solution that also meets the needs of a broader market. These partners also play a critical role in creating a channel to market."

Fortunately, Ostara had early adopters in Edmonton and Portland, and now they're seeing a much higher degree of acceptance and confidence. "We've proven that the business model is sound and the technology works," says Abrary. "The resistance to change and new technology is quickly going away as people see others incorporating it."


Maintain R&D and continue to innovate.

Water treatment regulations are constantly changing. Especially with the new national wastewater strategy about to be introduced, it's important to stay on top of the market's needs and adjust your technology ahead of the game. "There's not one day where we don't do R&D," says Bélanger. "We don't want to be surprised by new regulations, so we try to be ahead."

It's also important to maintain business relationships with academies, laboratories, investors and other stakeholders. "Stronger linkages are needed between universities and water research institutes and larger water and environmental services companies to continue to fuel the innovation pipeline so the industry can be a vibrant self-sustaining cluster which attracts and retains talent," says Tompa.

Finally, work hard and be patient.

"This is a very slow-moving and conservative industry. Things don't happen overnight," advises Abrary. "You have to stick with it for the long haul," agrees Hughes. "I think a lot of investors are not prepared for how long it takes. You have to stay the course."

The road before a technical entrepreneur is full of steep risers and major potholes and is one of the hardest roads in life to follow, concludes Benedek's paper. "Nonetheless, if [the enterprise is] successfully navigated, the personal and financial rewards are well worth the foot sores." 



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