

REPORT ON  
**(SMALL) BUSINESS**  
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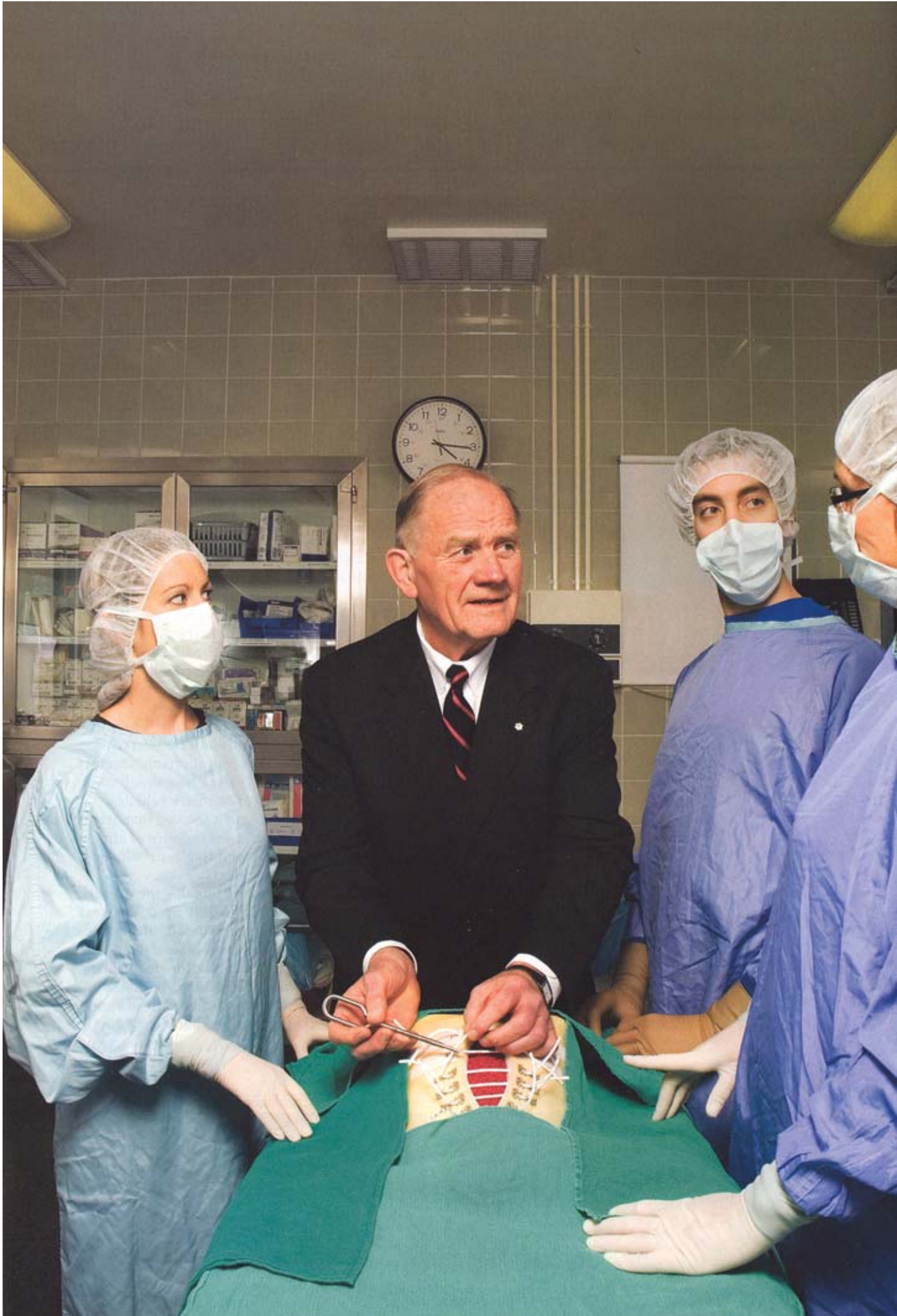
**HARDER THAN  
BRAIN SURGERY**

**CAN THE LEGEND BEHIND  
LEE VALLEY TOOLS  
BUILD ANOTHER WINNER?**

Leonard Lee, Canica Design

**PLUS**

**INSIDE A FRANCHISE DISASTER: LESSONS FROM THE FRONT LINES**  
**SEVEN WAYS TO FINANCE YOUR BUSINESS | HOW TO PROTECT A MILLION-DOLLAR IDEA**



# under the KNIFE

When Leonard Lee left the top job at Lee Valley Tools to launch Canica Design, a medical equipment company, he barely had a business plan and had almost no knowledge of the health-care industry. These two errors assured him a costly and frustrating re-entry into the world of small business. Indeed, nearly 10 years later, Canica is still not out of the woods. But if Lee has his way, operating rooms will never be the same again

BY OLIVIA STREN

PHOTOGRAPHS BY AARON FRASER

Reconstructive surgery is a precise and delicate business. Even for procedures as standardized as carpal tunnel surgery, the area of incision is barely a centimetre wide, and the smallest slip of the scalpel can permanently damage the hand. For Michael Bell, an assistant professor at the University of Ottawa and a plastic surgeon at the Ottawa Hospital, the procedure begins with a 2.5-centimetre vertical incision from the base of the palm down through the wrist. Once the tissue is cut and the carpal ligaments forming the roof of the tunnel are exposed, he must carefully divide and sever these bands to alleviate pressure on the underlying nerve.

Dr. Bell has performed this operation more than 7,000 times over his 30-year career in medicine, and he recognizes a good surgical tool when he sees one. That's why, almost a decade ago, he made what many in the medical community would consider a highly unorthodox move: He created a custom scalpel—out of a woodcarving knife he'd bought from Lee Valley Tools. Designed to trim chairs and cabinets, the knife was one of the standard tools in his basement workshop, and had a handle that was rounder and easier to grip than his flat-handled scalpel. It also featured an easy-release mechanism for the blade—another advantage over his hospital-issue implement. So he used his handyman skills and grafted the knife's handle onto the scalpel, ending up with a modified instrument

that would become the staple of subsequent surgeries.

"There's a myth about the wonders of surgical tools," says Bell. "They're just metal instruments."

In the summer of 1999, Dr. Bell wrote a letter thanking Lee Valley CEO Leonard Lee for inadvertently helping to create the world's best scalpel. He also asked how the instrument could be treated to prevent rust. After three or four sterilizations, parts of the handle would begin to corrode. Lee was intrigued that one of his tools was being used in surgery, and responded by visiting Dr. Bell's clinic with several of his designers. He was immediately appalled at the heft and relatively awkward feel of modern surgical instruments. Looking back now, Lee says, "Doctors didn't have tools that were as good as the ones cabinetmakers had, because it was harder for them to translate their needs into the market, and because the health-care profession is more highly regulated, for obvious reasons." His short-term fix was to create a new handle for Dr. Bell using stainless-steel components.

Within weeks, however, the prospect of entering the life-saving business began to captivate Lee. With great optimism, he stepped back from his comfortable position atop the \$100-million-a-year hardware chain and embraced the vulnerable, adrenalin-spiked rush of small-business entrepreneurship. He had launched Lee Valley by selling cast-iron stove kits on evenings and weekends, so how hard could it be to start a tiny R&D-based medical equipment maker, particularly in a market so seemingly starved for ergonomically designed instruments?

Eight years and millions of his own dollars later, Lee has his answer. Encouraging woodworkers to add another \$12.95 chisel to their collection is considerably easier than persuading surgeons to forsake the hallowed tools of their trade. If there is one thing Lee now knows for certain, it's that not every doctor is as inventive as Michael Bell in being willing to repurpose woodworking equipment for the O.R. In fact, if he was looking for insights into the mindset of the average surgeon, Dr. Bell was probably the last person in the country Lee should have consulted. Today, Lee's little start-up, Canica Design, appears to be on the cusp of success or failure. Either it will be instrumental in popularizing some radically innovative new medical devices, or it will succumb to the inertia and conservatism of a health-care industry with little appetite for change.

Leonard Lee and I meet at Canica's headquarters, in a 3,000-square-foot, century-old building in drowsy Almonte, Ontario; in keeping with its Lee Valley roots, the place—with soaring pressed-tin ceilings and exposed brick walls—used to be a hardware store. Lee is dressed in the stereotypical handyman uniform (plaid shirt, pocketed cargo pants) and, fittingly, he has the convivial warmth of a general-store owner.

At 68, he's quick to break into infectious belly laughter, still leaps up stairs two at a time, and has enough energy to make the average 20-year-old feel middle-aged.

Like most of life's dramatic decisions, Lee's professional leap was less a product of careful planning and more one of good timing: After 30 years of growing Lee Valley from a mail-order business in his basement into a 13-store enterprise with 900 employees, he was kept to hand over the reins to the older of his two sons, Robin (then 41). Still, Lee had no interest in the shuffleboard-and-bridge version of retirement. "I still wanted to design, and I loved what I did in product development, but I also wanted less responsibility. And my son was really ready to take over. And I didn't want him to have a life as 'the son of.'"

To ease his return to the world of small business, Lee had the capital, but he also had the benefit of Lee Valley's considerable infrastructure; Canica started off as a subsidiary of LV (it was spun out in 2002), and employed LV's administrative and warehouse services. Bell acted as a consultant during Canica's infancy, but the two never established a formal partnership. "Dr. Bell's interest is solely in the improvement of instruments for sur-



SHARP DESIGN:  
ON THE LEFT,  
THE CUSTOMIZED  
SCALPEL THAT  
SPARKED LEONARD  
LEE'S IMAGINATION.  
ON THE RIGHT, THE  
BLADE HE'S BUILT  
HIS HOPES ON



#### LEONARD LEE UNSHEATHED

**Born:** In 1938. He grew up in a log cabin without electricity or running water near the tiny hamlet of Algrove in northern Saskatchewan

**Education:** Diploma in civil engineering, Royal Roads Military College; bachelor of economics, Queen's University

**Former jobs:** Topographical surveyor; joined the Canadian Foreign Service with postings in Chicago and Lima, Peru; civil servant in Ottawa's Department of Industry; founded Lee Valley Tools

**Turning point:** Saving a Japanese trade mission to Canada in 1977 by spending \$600 of his own money to buy clothes for a senior Japanese diplomat who had lost his luggage. The government refused to reimburse him. The following year, still miffed, he founded Lee Valley

**Telling line:** "I wouldn't say I was suicidal when I was in government. But what was driving me crazy were the number of people who would say, 'I have 17 years, eight months, two weeks, two days, and seven hours before I retire.' I'm sure shorter sentences were being served in Alcatraz at the time"

**Family:** Wife, Lorraine; two sons, Robin and James, and two grandchildren

**Passions:** Woodworking, writing

**Greatest strength:** Intolerance of boredom; appetite for risk—traits he also considers his greatest weaknesses

geons. His love is innovation, not increased revenue," Lee says. (In 2000, however, Dr. Bell accepted a nominal number of Canica shares as a gift. He now attends meetings a couple of times a month, to offer counsel.)

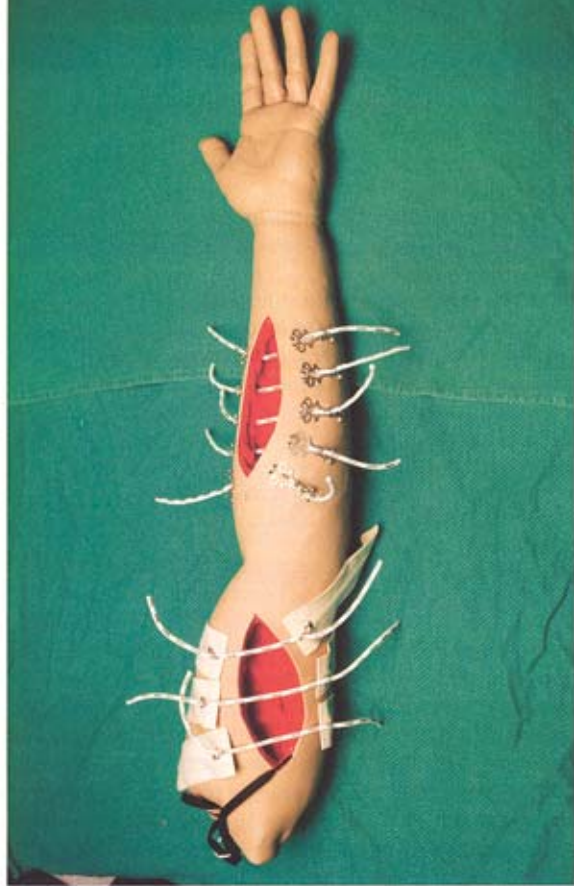
Together, their energies are focused on Canica's three main product groups: ergonomically designed scalpels, wound-closure systems, and stabilization tools to keep incisions open during surgery. Lee's team of 13 includes four industrial designers, mostly young grads from Carleton University's School of Design. Having so few people to call upon suits Lee just fine. His plan has always been to keep Canica small and nimble. "In five years, we want to have at the very most 20 employees," Lee told a *Globe and Mail* reporter in 2000. "Any more than that and I will consider us a failure. We don't want to become big and bureaucratic, because that's when the innovation starts to disappear."

It was that sense of discovery that fuelled Lee's initial passion for the venture—that, and a cheerfully naive assumption that good products, marketed well, would engender quick success. But, in his enthusiasm, Lee took some surprising shortcuts. The first was to skip the business plan. His rationale: "I thought people would seize upon innovation quickly. I thought they would see a good idea and want to adopt it right away. It was not smart. It's a mistake I made. I'm revealing it, but I'm not proud of it," he says. "I'm wiser now," he adds, laughing. "In fact, I can't afford to get much wiser." In his defence, Lee insists that it's hard to develop revenue projections on R&D. "Sales of procedural products are dependent upon the acceptance of the medical community," he says. Securing that acceptance proved to be far tougher than Lee had expected.

Part of the difficulty lies in the decentralized way the Canadian medical system approaches procurement. Health-care authorities engage in silo-budgeting, meaning that individual departments are more concerned with managing their own costs than achieving system-wide savings. So there's little incentive for operating-room managers to invest in new wound-closure systems when all of the savings and benefits would be realized in the intensive care units, or after the patient returns home. "There is no rational allocation of costs," Lee said in a 2005 interview with the *Globe*. "I had no idea the medical industry didn't function rationally."

Lee also failed to grasp how deeply conservative the health-care system can be. "Problem is, doctors don't like change," says Lee. He's discovered that they especially don't like change when it involves experimenting with an item as intrinsic to surgery as the scalpel, a tool that still owes much to its 1908 origins. "It's like when people get married and they think, 'He'll change.' Well, it's not as easy to change people as you think."

Doctors' resistance to taking chances is, in many ways, understandable. Because the risk of lawsuits is so high, they need a risk-free product, which necessitates an interminable battery of clinical tests and forbidding regulations. The result is a painfully slow purchasing process. "You have to



#### JUST PUT SOME DUCT TAPE ON IT

By dissecting a chisel to create a better scalpel, Michael Bell joins an eclectic list of scientists who have tackled medical hurdles with rudimentary materials and a heavy dose of lateral thinking. The result? Some of the most ingenious health-care advances of the modern world.

#### Ilizarov apparatus

While doing his orthopedic-surgery residency in the Kurgan region of Siberia, Gavril Abramovich Ilizarov discovered that when he carefully severed a bone and separated the pieces slightly, the bone would grow to fill the gap. In a MacGyver-esque fit of resourcefulness, he created the first Ilizarov apparatus using bicycle spokes. The device, which is still used today, consists of an external metal ring connected to the bone by adjustable rods, wires and screws. The technique was brought to the West only in the 1980s, and gained popularity in the '90s.

#### Dialysis machine

It sounds like the set pieces for a Mr. Bean sketch: a Ford automobile water pump and a pile of sausage casings. But in Nazi-occupied Poland in 1943, that's what Dutch physician Willem Kolff used to create the first kidney dialysis machine. Legend has it that the first patient to be saved with the device was a 67-year-old woman in acute kidney failure. After 11 hours of dialysis, the woman regained consciousness. Her first words? "I'm going to divorce my husband." She lived another seven years—single.

#### Thalidomide

In 1964, Israeli doctor Jacob Sheskin was looking after a critically ill leprosy patient in Jerusalem. Searching the hospital for something to help the man sleep, Dr. Sheskin found a bottle of thalidomide—the drug responsible for thousands of birth defects during the late 1950s and early '60s, when it was used to treat morning sickness—and remembered that it had once been used as a sedative. With nothing to lose, he gave the patient two tablets, and was amazed when the man awoke and was able to get out of bed and walk without assistance. Thalidomide is now a standard treatment for leprosy, and is being researched for other uses, including treatment of multiple myeloma, prostate cancer and Kaposi's sarcoma.

—JESSICA WERB

remember that there are not a lot of incentives for taking risks in medicine, whether in Canada or elsewhere. Part of the Hippocratic oath is that, first of all, you will do no harm," Lee says. "And in the U.S., there is a substantial amount of malpractice litigation. The insurance fee for an obstetrician in Florida can run to hundreds of thousands of dollars per year."

Faced with these obstacles, and with his personal savings being quickly depleted, Lee realized in 2001 that he had misjudged the time it would take to get these products to market. He would need to either cut his losses or significantly expand operations. He chose the latter, securing \$2 million from private investors. Next, he established a distribution chain of 50 sales reps across the U.S.—home to more than half of the world's health-care spending, and a country where cost-cutting stands among the highest health-care priorities. Lee's next step was to retool Canica's product line.

First down the pipe, in 2002, was the Canica Hand Surgery System (CHES), a device invented by Bell. It uses magnets to keep the edges of a wound open during surgery. Traditionally, the task has required another physician to pull back on the incision with retractors. Lee reasoned that if CHES could eliminate the need for a second doctor during routine operations, intensive procedures could be shifted out of costly operating rooms and into clinical settings.

Lee then launched the Safety-Scalpel, with the world's first retractable-ejectable blade, after legislation was introduced in the U.S. mandating scalpels that could be more safely passed between doctors and nurses. This product provided Canica with its first major inroad into the U.S.—a multimillion-dollar distribution deal with Tennessee-based medical manufacturer DeRoyal Industries. Canica now ships more than \$75,000 worth of the scalpels to the U.S. each month.

Leveraging the success of the Safety-Scalpel, in March of last year, Lee unveiled a new line of non-invasive (that is, low-risk) wound-closure products at a Washington, D.C., conference for O.R. nurses. An adhesive Band-Aid-like strip, SutureSafe has been used to miraculous effect on children with cleft lips and palates. (The product exploits the skin's natural elasticity, drawing together the wound margins, and thereby dramatically reducing scarring.) According to Alden Rattew, Canica's vice-president, more than 80% of delegates at the conference asked for samples, and four Canadian medical-equipment suppliers have expressed an interest in distributing them. An encouraging sign, for certain, but Lee is no longer naive about the time it takes the medical business to accept change. "It's still very much a one-surgeon-at-a-time process," he says.

To no one's surprise, Lee now produces a catalogue to help spread the message. But instead of the softly lit images that showcase many of the 22,000 items in Lee Valley's three catalogues, Canica's mail-out features mostly open wounds in mid-operation, and is confined to the company's six products.

Eight years after its launch, Canica has yet to turn a profit. Were it not for Lee's deep pockets, his legendary credentials and his indefatigable sense of optimism, the company would have been in peril of closing years ago. Lee's expectations for a swift medical revolution have been tempered, but his prognosis for the company remains positive. "Our hopes are quite modest," he says. "We want to be able to continue to do research and development in the medical field. We are not looking at an IPO any time soon."

Lee wastes little time on regrets or second-guessing himself, but in a reflective moment, he acknowledges that if he had to do it again, he'd plan a bit better and make a few more concessions to the conservatism of the medical profession. "We probably would have developed a more stable revenue base by designing new tools for accepted procedures, rather than [advancing] new procedures that have a much more protracted time to market," says Lee. As Canica's tools—hopefully—help save and improve lives, Lee is focused on rescuing his company from the red. "Profitability's the hope, if not the result," he says. This time, his laugh is uncharacteristically subdued—and cautious.

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