

FASTCOMPANY.COM

Where ideas and people meet

Article location: <http://www.fastcompany.com/magazine/55/novalux.html>

December 19, 2007

Tags: [Leadership](#), [Innovation](#), [strategic planning](#), [leadership skills](#)

Is This Company Beyond Repair?

By [Keith H. Hammonds](#)

I am circling around Midas Way in Sunnyvale, California, hunting down a morning appointment amid the look-alike sandstone bunkers. Midas Way -- the name reeks of Silicon Valley circa 1999, all bright eyes and geek braggadocio. Only now, some telling new signs ornament the neighborhood. "For lease/sublet." "Space available." So much for the Valley's golden touch. Here's the address where I think I'm supposed to be -- but it doesn't look promising. Above the door, where you'd expect to see a brassy company logo, there's a blank concrete facade. Inside, ducts, cables, and pieces of furniture pock the dark, bare space. Taped to one window, a sheet of paper bears a hand-drawn arrow pointing to a modest side entrance.

And there, in inch-high stick-on letters, the kind you'd buy at Staples, is the name of the ostensibly world-class technology outfit housed inside this building: "Novalux, Inc."

You could make the case that Novalux shouldn't even exist today. That it does is partly the consequence of astoundingly good timing. On September 26, 2000, it accepted \$109 million in capital from A-list backers such as Morgan Stanley Dean Witter Venture Partners and Crescendo Ventures, a deal that valued the revenueless company at \$500 million. It turned away another \$240 million from funds that were begging to invest.

Novalux was that hot. Its founder, an awkward former MIT professor named Aram Mooradian, had come up with a semiconductor-based laser that promised high power at relatively low cost -- an innovation that seemed remarkably well suited for, among other things, propelling information long distances over optical telecommunications networks. And at that moment, telecom carriers were building out their networks like crazy.

But then they stopped building. The day after Novalux's funding closed, the stocks of telecom-equipment makers dropped on an analyst's forecast of lower orders to come. Over the next few months, Corning, Lucent, Nortel -- and, ultimately, Cisco Systems -- admitted that their business was, in fact, drying up. The companies that Novalux had expected would lift it into orbit were caught in one of the most dramatic free falls in business history. And Novalux's prospects fell with them.

Novalux had expected to fill its offices with 350 employees by now. It had hoped to be nearing a public offering. Instead, following a round of layoffs in October 2001, it is down to 95 workers. The IPO is a fragile fancy; so, for that matter, is access to more venture funding. Novalux still has \$45 million in the bank. It has Mooradian's laser and at least \$25 million worth of fabrication facilities. It has a management team assembled from the likes of Advanced Micro Devices, Corning, and Intel. It has a way with PR. And for all that, it hangs in limbo.

There are two sorts of stories in Silicon Valley these days. In one, a company that never should have been inflicted on the world flies high and then crashes, betrayed by strategic hubris, executive ignorance, and the flimsiness of its business model. In the other, a serious outfit does most things right -- and gets bludgeoned anyway. That's Novalux. Its marketplace is a wasteland. There's no more money on the way.

Salvation, if there is salvation, lies in resilience. Change quickly and often, work your tail off, and hope. Hope that business comes back in time for you to stay alive. But even to have the right to hope, Novalux has had to fix everything -- to rethink its technology, its strategy, its operations, and its executive team. It's done all that it can. Will that be enough?

The Promise: "We have a totally unique technology"

Back at Midas Way, the office cubicles at Novalux are silent and surreally plain. This is a company of researchers and engineers, and they're not really into decorating. What they're into can be found in the back building: two new, \$2.8 million epitaxial reactors. These are machines that coat gallium-arsenide semiconductor wafers with the layers of metals and chemicals that will yield high-powered laser beams. With these reactors, Novalux can manufacture many, many more lasers than it will sell for years.

"This company has huge capability," Mooradian says. "This is a dream." Specifically, it is Mooradian's dream. Here is a guy who has spent the past 42 years thinking about lasers and little else. He hangs out with other laser guys; he talks wistfully of vacations spent on remote Italian hilltops, pondering the future of ... lasers. He still mourns the failure of an earlier laser startup. He is 64 years old, but there is a waiflike quality to him, as if he hasn't fully acknowledged the machinations of whatever world lies beyond his cozy scientific orb.

Four years ago, Mooradian, now Novalux's chief technology officer, figured out how to create a tiny semiconductor that could produce a laser beam both powerful and perfectly round. That was a big deal. It promised to be more powerful than anything as cheap, and much cheaper than anything as powerful. That calculus was enough for Jack Gill, a respected partner at Vanguard Venture Partners who had scored big with Ciena, another optical-networking investment. He became Novalux's first backer, and, he says, "We bet the whole ranch on telecom."

Mooradian and Gill convinced Malcolm Thompson to join the fledgling company as chief executive officer. Thompson's previous venture, a Xerox spin-off called dpiX that developed liquid-crystal-display technology, never turned a profit and was purchased by a consortium of its customers. And he was not a telecom guy. But as former chief technologist at Xerox's fabled Palo Alto Research Center, the British physicist brought sterling credentials. He exuded passion for technology and for building an organization from scratch.

The plan: Novalux would quickly ramp up production for long-haul optical networks, blowing out clunkier, pricier devices. Over time, it would work to transfer its technology to health-care and lighting applications and, ultimately, to the massive video-display market. It was always a hell of a risk -- even in boom times. "One wonderful thing is, we have a totally unique technology," Thompson said. "But that's also the bad news. We have to solve problems that no one knew existed. We're constantly being surprised."

The Reality: "You're never done"

By last summer, one surprise in particular had seriously changed the game: Novalux's initial strategic gamble -- targeting long-haul telecom -- was going to fail. Jane Li arrived in June as the company's new vice president of marketing and sales, following a five-year stint at Corning. After pressing Novalux's initial target customers, she concluded that they wouldn't commit anytime soon to new technologies. "We had started with this perfect laser device," she says. "But we were focused too much on long-haul."

"Where did that leave Novalux?" Gill asks. "In a skyrocket trajectory, adding people and foundry capacity, and rushing to market with products at a time when everyone was pulling in their horns." Li and chief financial officer Douglas Norby, a veteran of Fairchild Semiconductor and LSI Logic Corp. who was enjoying one final tour of duty before retirement, proposed that Novalux switch gears. It still would pursue the long-haul opportunity. But it would also start developing lower-powered lasers for so-called metro markets -- the local networks that long-haul fibers feed. They guessed that metro demand would rebound earlier than long-haul.

Within Novalux, that strategic pill was tough to swallow. "Everyone's reaction at first was the same," says Thompson. "Our advantage was in high power -- so this seemed to be a total contradiction in strategy." And apart from the technology issues, the new plan was a wound to the company's collective ego. Novalux had expanded aggressively, anticipating an imminent move to commercial production. Now, it would have to throttle back: Given Li's sales projections, the company did not have the cash to support its burn rate. "Getting people off the old curve was more difficult than anything else," Norby says, "because everyone was pedal to the metal."

In more than 25 years in the technology world, Thompson has seen this all before. It's what he loves: turning ideas into companies, then shaping those businesses to meet evolving challenges. "You're never done," he says. "It always looks like you're near the finish line, but there are always new opportunities along the road -- and new obstacles you'd never thought of. That's part of the exploration -- constantly looking at the next problem and the next solution."

On October 1, 2001, Novalux announced a new suite of lasers targeted at metro optical networks. One week later, Thompson gathered his employees to report on the company's prospects -- and to drop the other shoe. He had worked the numbers 18 different ways. "You don't do things like that nonchalantly," he says. But the hockey stick was too long. There would have to be dozens of layoffs. (Novalux won't specify exactly how many.)

Donna Ferris, Novalux's human-resources director, spent the day escorting tearful workers to their cars. A few weeks later, she points to a framed photo of grinning employees at the opening of Novalux's first offices, in May 2000. "I love that picture," she says. "That was the day we told the world, Here we are." That's why layoffs hurt. Not because they weren't necessary, but because they inflicted a whiff of mortality on an organization for which everything had been going so right.

Combined with renegotiated leases and other savings, the job cuts would lower Novalux's annual expenses by about \$10 million. That would allow the company to operate until mid-2003 without more financing. But here was the catch: Even with lower expenses, Norby's model assumed that Novalux would soon generate revenue. It had to get stuff out the door.

The Future: "There is no correct answer"

"It's time to grow up." Barry Soloway speaks with the authority that comes from having done this many times before. He talks as if he runs the place -- which may be mostly true. Soloway arrived at Novalux in August as senior vice president of product realization. The wording of his title is intentional. It is his job to turn research projects into actual products, to give customers what they want -- to get stuff out the door. Stuff that someone will pay for.

Soloway is an organizational enforcer, a hired gun. He insists that he work only on six-month contracts, and he has done so at a string of technology outfits across Silicon Valley. "I discovered early in my career that I enjoy uncertainty. I like getting into the chaos of a startup and creating pockets of sanity. When things get to the point when, each day, you can predict what's going to happen, then I can step out."

Soloway sees Novalux's revised strategy not as a concession but as a move that plays to its technology's true advantage. Power? Anyone can do power. Real success, Soloway says, comes when you "change the way people think about something." That's what Novalux's shift is all about - - providing lower-cost technology that actually ignites a new market by making metro networks economically viable.

To exploit that "unfair advantage," Soloway had to transform a research organization into a commercial enterprise. And he had to do it quickly too. To supply lasers for amplifiers that will be deployed in networks in 2004 -- when demand is likely to have recovered -- Novalux has to get working prototypes to its customers by the middle of next year.

Job one: Focus. A few months ago, engineers were toying with as many as 10 prospective new products. Thompson likes to compare organizations to rivers, their width always varying with the geography. Well, it was time to build a dam. The 10 products would be narrowed to 2 -- real solutions that customers might actually buy soon. Only two people, Mooradian and business-development director Vincent Schmidt, were allowed even to daydream about other applications.

Soloway installed an investment-review process to provide accountability. Senior managers now meet regularly to assess the business case surrounding each product. Do customers still accept the value proposition? How have sales forecasts changed? What prices are sustainable? What prices do manufacturing yields allow -- and what will those yields be six months from now? What capital resources are required -- and what's the likely return on investment?

None of these, of course, are extravagant questions. But at Novalux, they hadn't been pressed routinely. Soloway made them routine. In place of a random crush of meetings each day, he instituted two -- one first thing in the morning, the other at 5:30 PM -- where managers review operations and assess whether products are still on course. In doing this, Soloway created discipline -- an environment where people take responsibility for delivering results and then make them happen.

All of that did nothing to cure the marketplace, of course. Analysts differ on when demand for optical-networking equipment will return and, when it does, which technologies will prevail. It's not clear whether a low-cost laser can stimulate construction of local networks, as Novalux suggests it will. Also, competition to supply new technology is incredibly fierce. There are dozens of Novaluxes out there, waiting for business to return. "Will many of those startups still be around

when it does?" asks Blaik Kirby, a telecommunications expert at consulting firm Adventis Corp. "Probably not."

But by November, Novalux at least understood how to make lasers that equipment makers would buy, and how to get those products out of the building. It knew how it would bring manufacturing costs down in a way that would allow steep price cuts. It was building an outfit conceivably capable of churning out new, leading-edge lasers for many different applications, as Mooradian imagines. It had fixed what it could fix.

Except for one last thing. On November 17, Thompson told his employees that he was resigning as chief executive. He had given all of his ideas to the company, he said, and "in the evolution of every company, there comes a time when it's not a bad thing to have new ideas." The board wanted someone who had telecom experience, a player who had relationships in the industry. "We mutually concluded that Malcolm was not the best guy to run the company in its next leg," Gill says. Ian Jenks, a Novalux director, would take charge as CEO.

Days after his departure, Thompson sounds oddly ebullient. Perhaps it is the prospect of three months of photography and gardening ahead. Perhaps it is the understanding that there was not much he could've done differently. He wishes that Novalux had spent less on equipment -- but it bought what it did to be ready for torrential demand. He wishes that he had taken more than \$109 million in the last funding round. "That would have been lovely." But then, who knew that wouldn't be enough?

"Those are learning experiences, as opposed to mistakes," Thompson muses. And through it all -- the thrill of discovery, the VC high, the rush to market, and the implosion -- this is what he has learned: "There is no correct answer."

Keith H. Hammonds (khammonds@fastcompany.com [1]) is a Fast Company senior editor. Learn more about Novalux on the Web (www.novalux.com [2]).

Links:

[1] <mailto:khammonds@fastcompany.com>

[2] <http://www.novalux.com>