

# CREATING SUCCESSFUL HIGH-TECH STARTUPS IN ITHACA

BY SHERRIE NEGREA

WITH A DOCTORATE IN MATERIAL SCIENCE FROM CORNELL, GREG GALVIN UNDERSTOOD THE INTRICACIES OF PHYSICS AND ELECTRICAL ENGINEERING BUT DIDN'T WANT TO SPEND HIS DAYS IN A LAB. WITH A CORNELL MBA, HE ALSO KNEW THE PRINCIPLES OF ACCOUNTING AND MARKETING BUT DIDN'T WANT TO LEAVE THE SCIENCE BEHIND.

So in 1993, he combined his complementary strengths and launched his first startup, Kionix, licensing a groundbreaking technology developed at Cornell. By 2009, Galvin had sold the company twice — for a total of \$533.5 million — and created 250 technical and manufacturing jobs in Ithaca. He had also started his second company, Rheonix, which produces molecular diagnostic testing systems.

A soft-spoken and self-effacing man, Galvin built a portfolio of successful high-tech startups in Ithaca with a strong dose of perseverance, grueling days, and dedication to his employees. Yet his unusual background in both science and business allowed him to become that rare type of entrepreneur who can not only envision the technology that will thrive in the marketplace but who can also develop the organization needed to produce it. “Greg is probably the most talented person I’ve ever known or worked for,” says Jim Kirkwood, the former chief operating officer of Kionix, now CEO of Endicott Machine and Tool in Endicott, N.Y. “He understands all the different aspects of owning your own business. He understands the technology as well as the engineering. He understands the sales and marketing so he can go into a customer meeting and understand all the players at the table. If he’s in a room with engineers, he can speak the technical talk. I always say, ‘Greg is two or three steps ahead of anyone else sitting in the room.’”

Galvin’s first passion for science was a childhood dream to become a doctor. But after discovering he despised organic chemistry, he ended up graduating from the California Institute of Technology with a degree in electrical engineering and followed a professor to Cornell to become one of his first graduate students.



## PROFILE IN Leadership

Galvin then spent four years conducting research on the solidification dynamics of silicon under ultra-rapid heating.

By the time he earned his doctorate, Galvin had become more interested in the business side of science, but the positions he was offered didn't match his diverse skill set. "The companies had this idea that if you're a PhD, you go in the lab and do science," he recalls. "I found it very difficult to get anyone to consider me for more of a product management position or something that merged the business side of the organization along with the science."

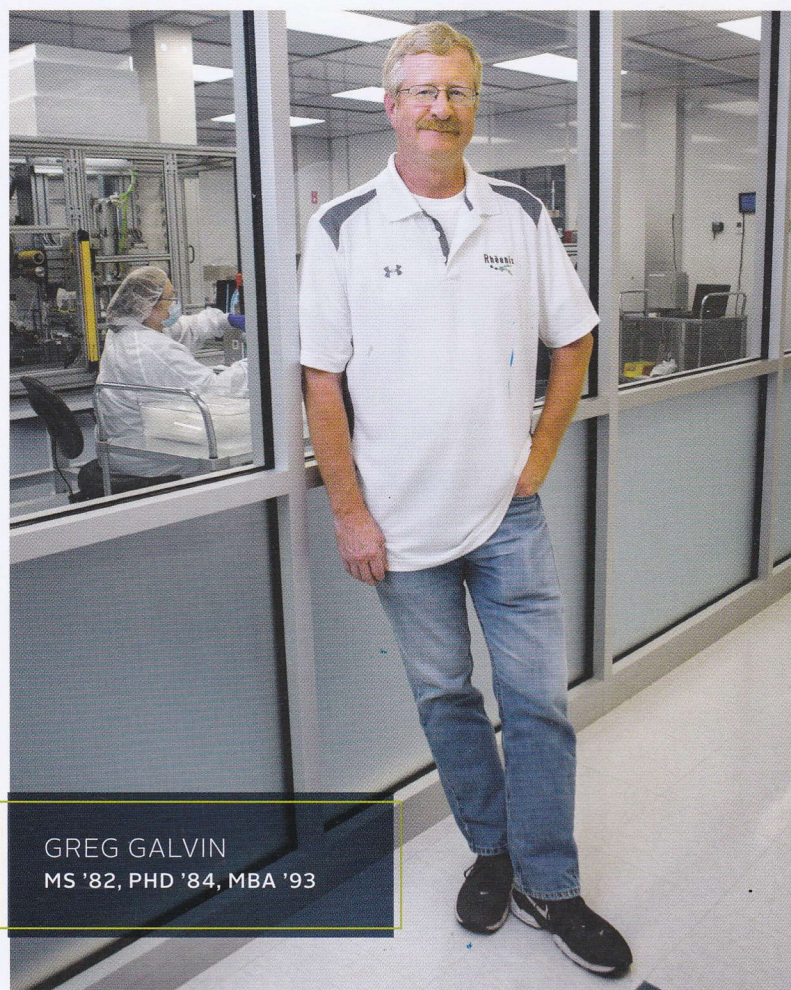
Instead, Galvin took the less typical path for a newly minted PhD: He became deputy director at the Cornell Nanofabrication Facility, where he made connections with the scientists whose research would eventually become the basis for Kionix. Developed by Professor Noel MacDonald, the technology, known as MEMS (micro-electro-mechanical systems), builds mechanical systems on a microscopic scale.

After taking a position with Cornell's corporate research relations, Galvin was asked to identify companies that wanted to license the MEMS technology. Unable to find any, he decided to develop the technology himself and invited an electrical engineering doctoral student he had met on campus, Tim Davis, PhD '93, to join the startup. He called it Kionix, taken from the Greek word *kíōn*, meaning "pillar," as he viewed the microstructures comprising the MEMS device as tiny silicon pillars.

"For Kionix, Greg jokes that we did everything wrong," says Davis, the company's chief technology officer. "We started a company that needed a lot of money to develop the technology and create both a product and a market. But even though we did everything wrong, he made it work."

Galvin made it work primarily because of his doggedness seeking venture capital for a startup in Ithaca, which has traditionally been overlooked by the major investment firms on either coast. Upstate New York, Galvin notes, ranked third from the bottom in the amount of venture capital it received among all regions across the country in the second quarter of 2015, according to a report by PricewaterhouseCoopers. While upstate generated \$22.2 million in financing, the number one region — Silicon Valley — raised \$9.1 billion, followed by the New York metro area, with \$2.3 billion. "There's a ton of federal research funding coming into this region, but we rank nearly last for venture capital," Galvin says. "That to me epitomizes the problem that we face in trying to generate this entrepreneurial ecosystem and entrepreneurial activity in Central New York."

Despite those odds, Galvin was able to raise \$13 million to launch Kionix by securing small amounts of money from a large number of investors, including family members, friends, and Cor-



GREG GALVIN  
MS '82, PHD '84, MBA '93

Pictured here in his trademark jeans, polo shirt, and sneakers, Greg Galvin is chairman and CEO of Rheonix and Mezmeriz as well as co-founder and former CEO of Kionix. He was named Cornell Entrepreneur of the Year in 2014.

nell associates. One of those investors, Cayuga Venture Fund, based in Ithaca, not only provided financing for Kionix but also funded Galvin's succeeding business ventures.

"We felt that their technology was advantaged and was going to create a marketplace for them, although they were competing against huge companies," says Phil Proujansky, a managing partner with Cayuga Venture Fund. "It took awhile to get there — it's always hard for a startup to compete against huge companies — but they got traction in the marketplace."

Kionix's first product was a set of micromirrors, each less than a millimeter on its side — that could switch fiber-optic signals. This niche product was in demand during the telecommunications boom in the late 1990s, as companies were exploring how to transmit and redirect fiber-optic signals in the Internet backbone.

As its products gained visibility in the market, Kionix attracted the attention of Calient Networks, a California optical circuit



switching company that bought the startup for \$300 million in 2000. But in a move Davis, his co-founder, calls “brilliant,” Galvin spun off a separate technology that focused on inertial sensors, creating the framework for a second incarnation of Kionix.

“The brilliance in it was structuring the deal so that he could sell only part of the company and retain part of the intellectual property to develop in new fields,” Davis says. “By being able to manipulate that situation so that you could retain enough and yet get enough money in the sale to fund the new activity was, I think, the key turning point not only for Kionix, but for Greg.”

The next generation of products of what came to be known as the “new Kionix” were devices that could be installed in laptop computers to detect if they were falling — if they sensed free fall, the devices would lock the heads on the disk drives before impact, preventing any damage to stored data. Kionix reached a milestone with the product when Apple purchased it to use in its MacBook, catapulting the startup to the top of the consumer electronics market.

Kionix developed two more highly profitable applications for its inertial sensors: enabling cell phones to switch from portrait to landscape mode and making possible motion-based computer gaming systems. When the technology was adopted by such major manufacturers as Samsung, Microsoft, and Nintendo, employment at Kionix grew to 250 people.

“The company ultimately went to a 24/7 operation,” says Galvin, who is known for wearing jeans, a polo shirt, and sneakers to work. “We had four shifts staffing the production facilities as well as a growing sales force and technical support worldwide.”

As Kionix became a leading supplier of inertial sensors, another buyer for the technology emerged: Rohm Co., Ltd., a Japanese semiconductor company, which bought the startup for \$233.5 million in 2009. A year before the sale, however, Galvin had already spun off a different product line developed at Kionix — a platform

for the molecular diagnostics industry — that became the basis for his second company, Rheonix — taken from the word rheology, the study of fluid flows.

With 62 employees, Rheonix is now conducting clinical trials on its first product, a completely automated molecular diagnostic system that will identify sexually transmitted infections. Future iterations of the platform will be designed to detect respiratory viruses and cancer.

Delving into medical diagnostics is another example of Galvin’s winning strategy. While devices that detect infectious diseases are already used by hospitals, Galvin believes Rheonix can improve the technology by fully automating the process, guaranteeing test results in hours rather than days, and reducing the cost of the test while delivering more clinical information.

“Greg is a very strategic thinker,” says Kenny Salky, vice president for sales for Rheonix, who formerly worked for Kionix. “He understands the market and understands where we should be and how to get there, and he doesn’t do it in a very complicated way.”

Galvin’s latest venture is Incodema3D, a company he founded with three partners in Ithaca last January. The startup is applying 3D printing to manufacture parts for the aerospace industry that weigh less and can have much more complex geometric shapes than those fabricated through traditional machining.

3D printing is yet another disruptive technology Galvin is guiding into what he predicts will become a rapidly expanding industry. “I don’t know that there’s something magic about what I do versus somebody else,” he says. “I think I’m pretty good at organizing and managing people, understanding the technology, understanding the marketplace, and setting the vision for where it is we should be going to be successful. But at the end of the day, it’s about getting the right set of people together who have the right talents and abilities to actually execute it.”



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— TIM DAVIS  
PHD '93, CHIEF TECHNOLOGY OFFICER AT KIONIX

Every time you turn your phone on its side, think of Greg Galvin and Kionix — the company responsible for developing the technology that enables cell phones to switch from portrait to landscape mode.