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COVER STORY

Online Extra: Nanotech's Heartland Lift

Cleveland's Five Star Technologies is the kind of new company that's proving the Rust Belt can become part of the Next Big Thing

Nanotechnology is a blessing for the Rust Belt. It's restoring some long-gone luster to the traditional materials businesses, which fell out of favor -- and investors' sights -- during the Internet boom. Suddenly, industrial goods, from coatings to lubricants, are in vogue again. And this is bringing investment back to cities like Cleveland.

Consider Jim Mazzella, whose father, also named Jim, founded Mazzella Lifting Technologies in the 1950s. The Cleveland business hoisted lots of metal for the local steel and auto-parts manufacturers. But when the younger Jim and his brother, Tony, took over the business in the early 1990s, they wanted to get into new technologies.

LUCRATIVE BUBBLES. That's when they encountered Oleg V. Kozyuk, a Ukrainian scientist who held patents for a technology called controlled-flow cavitation. It may sound like a dental malady, but cavitation is a powerful natural force, a bombardment of microscopic bubbles that breaks down some of the hardest materials on earth. It can eat away submarine propellers, molecule by molecule.

Kozyuk's technology harvests this force. And the Mazzellas quickly saw its potential. Cavitation produces trillions of molecules -- the raw material for nanotechnology.

These days, Jim Mazzella is the CEO of Five Star Technologies in Cleveland, a company centered on Kozyuk's technology. Five Star has received plenty of attention from angel investors, not just in Cleveland but from afar. In October, 2003, Five Star landed \$4.5 million in venture funding from a consortium led by Morganthaler Ventures in Menlo Park, Calif.

"A CONSTANT CHALLENGE." Mazzella now has 20 employees and has expanded the intellectual property, with 11 patents issued and 12 more in the works. He has landed a contract with a medical-products company, and he plans to extend into a host of products, from cosmetics and health-care goods to metal oxides for heavy industry. "Our long-term vision is that we can be a number of divisions, or separate companies, that address each of these different markets," he says.

How does one small company target such diverse markets? If you reduce materials to the molecular level, they can go into all sorts of products. The hard part is to figure out which markets to attack. "Getting focus has been a tremendous challenge for us," says Mazzella. "From an operational perspective, it's a constant challenge to make sure we're not getting spread too thin."

Five Star's first splash is in health care. Late last year, the company started selling nanomaterials for a sprayable gel to a Cleveland company, Improvita Health Systems. The particles in the gels are engineered to cling to inflamed skin. It's a children's product that goes by the brand name Runny Rhino Cold Relief.

BOLD FORECASTS. Sure, it's a long way from Runny Rhino to Mazzella's dream of a large and diversified manufacturer of nano materials. But he has already come a long from heavy lifting to nanotechnology. Eventually, says Mazzella, "Nano is going to touch almost every market and product that you can think of."

A decade ago, entrepreneurs in the digital economy made similar bold forecasts. Most of them inhabited the coasts. With nanotech -- a revolution in material sciences -- the Rust Belt is back in the game.

By [Stephen Baker](#) in New York

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