

TAKING THE NANOPULSE

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2010: Welcome to the Nano Decade.

Don't think nano-science. Think nano-economy.

BY SCOTT E. RICKERT

No one has ever called me an incrementalist. Maybe it's my science background, but I don't have much patience for "baby steps." I like breakthroughs, Eureka Moments, quantum leaps of progress.

So, sure, I'm happy our economy is climbing out of the hole. But walking the same old paths a little faster, tweaking the old ways to work a little better? Does that really make sense? Let's quit fighting the old economy and create a new one. Ingenuity, innovation, ideas – that's where American industry has led the world. It trumps hourly wages, operating costs, supply and demand.

This needs to be the Nano Decade in America. Nano-ized solutions are fundamental to U.S. industrial and growth. Biotech and agritech, advanced batteries and computing, high tech and mainstream. One research study suggests the global market for nanotech-enabled products will grow from 400 billion in 2009 to 13 trillion by 2013. Don't we want a piece of that pie? We're already spending more on nanotechnology research than anyone in the world, now let's make it pay. It's technology we can develop here, make on-shore and supply the world. Let's see some just a few of the nanotechnologies that can transform America's traditional powerhouse industries.

Nanotechnology: it's what's for dinner. What if farmers could detect disease before the damage was done to a crop? Treat it at the molecular level? And then nano-control pesticides and fertilizers to reduce pollutants and costs? That's exactly the kind of results nanotechnology is going to make possible before the decade is out. We'll likely have the same kind of control over animal food safety. Nano-enabled biotech systems will detect disease in animals, and even track the entire history of a farm animal from birth to the dinner table. Even the forestry industry is looking at nanotechnology for better harvests, developing nano-manipulated cellulose structures, as well as how nano-composites and coatings will change the wood products, pulp and paper industry.

Nanotechnology: the other national health care plan. Looking for health care treatments that deliver better outcomes? How about injectable nanomaterials that absorb infrared light to destroy cancer cells without harming nearby healthy tissue? Or nanomaterials that absorb allergens before they can cause a reaction? We're even looking at nano-surgery and nano-regeneration. Is it any wonder the National Institutes of Health have upped their research budget to \$326 million for 2010?

Get behind the wheel of nanotechnology. Nanotechnology is going to

be crucial in reinventing traditional American industries, too – like auto making. Success with electric cars is all about the batteries – and that’s where nanotechnology excels. There are probably a dozen companies at work, with half them in tests with carmakers or already on the road. But nanotechnology isn’t just showing up under the hood. There’s work on lighter, stronger nano-ized metal alloys, new nanocomposite body materials, plus nanocoatings for the body increase durability and for the sunroof to reduce breakage hazards. Want a little more proof? Michigan’s 2010 economic plan includes a focus on advanced manufacturing, including nanotechnology.

And American ingenuity at it’s best. When you check the rest of the industrial landscape, you’ll see American dreamers bringing to reality their nanotechnology ideas from the sublime to the quirky. Superconducting nanowires to revolutionize computing. Solar panels with the efficiency and durability for real-world mass power generation. Carbon nanotube thread for garments that can monitor vital signs. And nano-lipstick that include mood-lifting nano-ized ingredients.

So what’s your business plan for the new decade? Wait out the recovery or engineer your own with nanotechnology? Check out opportunities to partner with existing start-ups and even not-so-small companies. They’re feeling strapped by the economy like everyone else, and you could find some very willing colleagues. Look into academic research groups, too. The budgets for nano-research are growing at 10 times the rate of the research overall, according to some reports. And examine your product line. How could nanotechnology give a better product, a new product, a new market? Whatever you do, don’t waste another day of the Nano-Decade.

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