



Medical Device Sector Is Key to the Keystone State's Lehigh Valley

By Bob Michaels REPRINTED WITH PERMISSION FROM MEDICAL PRODUCT MANUFACTURING NEWS, OCTOBER 2009.

Less than an hour's drive from Philadelphia and about an hour and a half from New York City is one of the Mid-Atlantic region's up-and-coming biotech hubs: the Lehigh Valley.

PICTURED ABOVE: Alumni Memorial Building on the campus of Lehigh University, the center for university-based engineering and life sciences-related research in the Lehigh Valley.

From rust belt to high-tech hub, Pennsylvania's east is becoming one of the country's leading medical device manufacturing centers.

A century ago, Pennsylvania was synonymous with industry. From Pittsburgh in the West to Bethlehem in the East, the Commonwealth was dotted with coal mines, oil fields, steel mills, and textile and apparel factories. While traditional industrial manufacturing in Pennsylvania has declined over the decades, the service sectors have flourished. With a gross state product totaling \$533 billion in 2008, among the largest in the United States, a lion's share of economic output has been concentrated in general service industries, some of the fastest growing ones are concentrated in the medical and health fields.

In 2005, Pennsylvania was ranked among the top-five U.S. states for medical device employment. Two years later, the Philadelphia metropolitan area ranked number three in the country in terms of total employment in the bioscience fields, including medical devices and equipment; drugs and pharmaceuticals; and research, testing, and medical laboratories. At the same time, 80%

of the world's pharmaceutical companies were present in the region, which was also among the top-10 metropolitan areas for medical device and equipment employment.

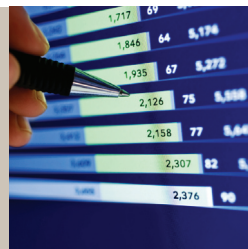
From Heavy Industry to High-Tech Haven

Less than an hour's drive from Philadelphia and about an hour and a half from New York City is one of the Mid-Atlantic region's up-and-coming biotech hubs: the Lehigh Valley. Between 1990 and 2003, medical device manufacturing was the seventh largest net jobs producer in the area. With a population of 635,000, two interstate highways, and an international airport, the area is well served by 11 colleges and universities that support a skilled workforce and a host of medical device firms and component suppliers.

Boasting a medical device manufacturing base that fabricates a multitude of products from electronic parts and tubing to IV components and vascular systems, the region is home to a variety of suppliers and OEM giants such as

CONTINUED ON NEXT PAGE...

Also in this issue



PAGE 2



PAGE 3



PAGE 4

1 Medical Device Sector in Lehigh Valley 2 Venture-Backed Start-Up Employment Data | Economic Impact of Venture Capital 3 Six Styles of Entrepreneurial Leadership | NanoHorizons Consolidates Operations 4 Events Calendar | Apeliotus Vision Science Wins Venture Idol

CONTINUED FROM PAGE ONE...

Olympus (Center Valley, PA; www.olympusamerica.com), a provider of medical imaging technology.

One supplier to the medical device industry in the area is **Fluortek** (Easton, PA; www.fluortek.com). There are several advantages to being a medical component outsourcing company in eastern Pennsylvania, comments Karen Werkheiser, Fluortek's sales development manager. "The area provides good colleges nearby to provide an educated workforce. We also have good logistics—a shipping corridor in close proximity to New York City and Philadelphia—without major congestion. In addition, real estate and utilities costs are affordable, and business and real estate taxes are reasonable."

Lehigh Valley Goes to School

For local manufacturers, one of the region's most important assets is its colleges and universities. A plethora of colleges and universities in the region support the industry's demand for a skilled, trained, and scientifically educated workforce, Werkheiser remarks.

In addition to local institutions such as **Lehigh University**, **Northampton Community College** (Bethlehem, PA; www.northampton.edu), and **Muhlenberg College** (Allentown, PA; www.muhlenberg.edu), schools near the Lehigh Valley with biomedical engineering programs include **Drexel University** (Philadelphia; www.drexel.edu) and the **University of Pennsylvania** (Philadelphia; www.upenn.edu). Over the state line in nearby New Jersey are **Rutgers University** (New Brunswick; www.rutgers.edu) and the **New Jersey Institute of Technology** (Newark; www.njit.edu), many graduates of which work in Pennsylvania's medical device industry.

An array of companies in the Lehigh Valley—from start-ups to mature manufacturers—fabricate products for the medical device, diagnostics, biological, and pharmaceutical sectors, engaging in R&D, manufacturing, packaging, and distribution.

Venture-Backed Start-Ups Employ More Than 24,000

The **National Venture Capital Association (NVCA)** and the online job board, **StartUpHire**, announced that 24,344 jobs listed on the site (www.startuphire.com) have been filled since January 2009. StartUpHire is a job search engine dedicated to recruiting exceptional talent to jobs at venture capital-backed companies. The company's mission is to connect talented individuals to career opportunities at venture-backed startups and to accelerate the team building process for companies and their investors.

Combining the 11,000 jobs currently listed with those that have been filled, start-up companies have created more than 35,000 U.S. jobs this year. Venture-backed job openings cross multiple industry sectors with jobs in Life Sciences representing a combined total of 6.9% of all StartUpHire jobs (4.2% in Biotechnology and 2.7% in Medical Devices.)

Source: NVCA (www.nvca.org)

The Economic Impact of Venture Capital

12.1 MILLION

Jobs at U.S. VENTURE-BACKED COMPANIES,
out of a total of 115 million jobs as of Q4 2009.

\$2.9 TRILLION

Revenue at U.S. VENTURE-BACKED COMPANIES.

11%

VENTURE-BACKED JOBS
as a percentage of private sector employment.

21%

VENTURE-BACKED REVENUE
as a percentage of the United States Gross Domestic Product.

Source: NVCA (www.nvca.org)

The Six Styles of Entrepreneurial Leadership

By Juanita Neifert, LSGPA Project Manager/HR Specialist

The basic definition of an entrepreneur is one who organizes a business or develops an idea and takes responsibility for its operation, its profits and its losses.

While many entrepreneurs prefer to run their businesses single-handedly to produce maximum value for every dollar invested; taking care of marketing, operations, business research, etc. may eventually require staff to be added.

Enter Entrepreneurial Leadership. Turnaround Management Association® named six common styles. *The six styles are explained further below:*

* *The Classic*

Called the traditional entrepreneurial management style. You hire people but insist on tight, personal monitoring and supervision, aka micro-managing. You prefer to handle the really critical jobs yourself. People tend to criticize entrepreneurs for not being willing to delegate, and it can cause your staff to quickly become disillusioned.

* *The Coordinator*

This type of leader can run a fairly good-sized business with just a few employees. Sometimes called a “virtual corporation,” most of the sub-tasks are contracted out. The leader’s main task is to organize the business and verify that everything gets done. And while

it cuts down on costs, it does not accurately account for the value of your time.

* *The Craftsman*

These leaders prefer to maximize their control over the business by doing everything themselves. While operating without employees can simplify your life, remember that the Craftsman must do the tasks he or she likes, *as well as* the ones disliked.

All single-leader styles impose limitations on the business. Businesses beyond a certain size cannot be successfully managed by a single person. A complex business needs a management team in place, with several people with decision-making authority employed. Here are a few suggested ways to lead in this arena.

* *The Entrepreneur + Employee Team*

Here, authority is delegated to key employees with the understanding that final authority rests with the entrepreneur. Most often entrepreneurial leaders find themselves growing from the Classic style into this style of operation.

* *The Small Partnership*

Leaders who adopt this style have less control and autonomy in the business

structure, and they must share tactical decisions with one or more partners.

One of the most effective ways to make this style work is to make it an “inside-outside” partnership. One partner takes all of the “inside” tasks like operations and management. The other partner handles marketing and sales.

* *The Big Team Venture*

Leaders put a management team together to establish the business, secure financing and execute a business plan. The foundation of success in building an effective management team is to define the team’s roles and responsibilities, give the team freedom balanced with accountability and recruit the right people. While it is important to know, trust, and be able to work with the people in your team, it is essential to identify the right skills and experience needed to fulfill the roles and responsibilities defined as needed.

Smart leaders have an awareness of their leadership style, and realize that different situations call for different styles. Leadership is not an exact science. As stated previously, the challenge is to match your own style with the needs of your organization, the work involved, and the skill levels and experience of your team members.

NanoHorizons Consolidates Operations



State College-based **NanoHorizons Inc.** consolidated its corporate offices, manufacturing operations and laboratories into a new Bellefonte-based facility.

Located at 270 Rolling Ridge Drive, Suite 100, Bellefonte, this new facility provides the space needed to meet current requirements, enables future production growth and accommodates expanded research, development, and testing activities.

“This move allows us to take full advantage of the efficiencies of integrating all operations under one roof. We have

both a state-of-the-art R&D lab and dedicated Bio-lab to support broad integration testing and new application development,” said David Woodle, Chairman and CEO of NanoHorizons.

NanoHorizons manufactures advanced nanoparticles (**SmartSilver™** brand) that provide permanent, safe, effective, and economical antimicrobial protection in a variety of products.

LSGPA has invested \$1.3 million in NanoHorizons.

If you are receiving this publication in error, or wish to be removed from our mailing list, please contact info@lsgpa.com. For information about funding opportunities and business support services provided by the Life Sciences Greenhouse of Central Pennsylvania, visit us online at www.lsgpa.com.

Events Calendar



JANUARY 20

Capital –
From Sourcing to Preserving
Malvern, PA
www.pennsylvaniabio.org



FEBRUARY 4

2010 McKinley
Economic Forecast
Grantville, PA
www.harrisburg-regionalchamber.org



MARCH 11

2010 Annual Dinner
& Awards Celebration
Philadelphia, PA
www.pennsylvaniabio.org

The Life Sciences Greenhouse is a public/private venture whose mission is to commercialize bioscience technologies. Clients include university-based researchers and technology development groups, emerging companies, and companies seeking to expand or relocate. LSGPA provides direct early-stage investment, targeted business development services, and connections to strategic partners.

* Apeliotus Vision Science Wins Venture Idol

One of LSGPA's newest portfolio companies, Hershey-based **Apeliotus Vision Science**, captured the top award (\$5,000), along with the attention of investors, and venture fund managers during the recent Ben Franklin Venture Idol competition.

Formed in 2008, Apeliotus Vision Science is headed by chief executive John G. Edwards. The company is the developer of **AdaptDx™**, a simple, cost-effective device that measures the eye's ability to adapt to the dark. In an initial study, *AdaptDx* detected the onset of age-related macular degeneration well before it caused a lack of visual acuity.

A second LSGPA portfolio company, **Chaperone Technologies, Inc.**, an East Stroudsburg drug discovery company, took the \$1,000 third-place prize. Chaperone is developing antibiotics to treat infections that resist other medical treatments.