

Lean Health Care Helps Rural Hospital Improve Emergency Room Treatment

A process used to boost productivity in manufacturing operations is being applied to the health care industry – with dramatic results. Based on continuous improvement systems pioneered by Toyota, lean manufacturing processes cut waste, reduce production time, expand capacity and lower costs.

Working with management and staff of the Meadows Regional Medical Center in Vidalia, Ga., Georgia Tech helped the hospital reduce the average amount of time non-critical patients stay in its emergency room by nearly 50 percent, while increasing the number of patients

treated – and maintaining a high level of customer satisfaction.

With funding from the Georgia Rural Economic Development Center, lean specialists from the Enterprise Innovation Institute conducted a three-day lean overview workshop and value stream mapping event with Meadows' emergency department in June 2005.



Photo: Gary Meek



Photo: Gary Meek

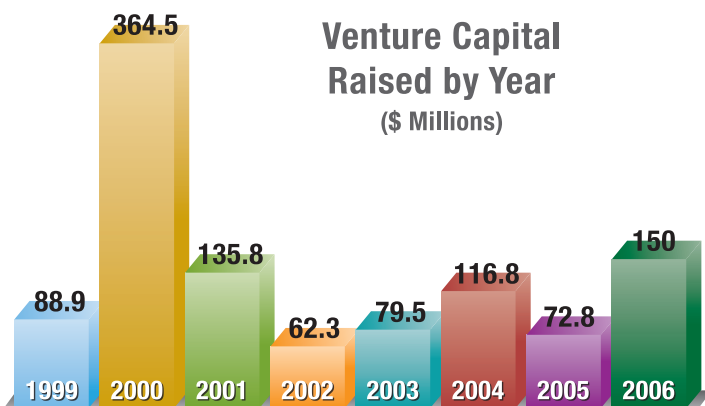
Above: Alan Kent, president and CEO of Meadows Regional Medical Center, championed implementation of lean principles in the hospital's emergency department.

Left: A nurse retrieves supplies from a Pyxis mobile supply station standardized as part of the lean implementation.

Based on that training, the hospital formed a team that developed a list of 44 action items aimed at reducing the time required to admit, treat and discharge a non-critical emergency room patient. The ideas fell into seven categories: 5S and visual controls, cross-training, equipment, hospital procedures, patient information, general procedures and staffing.

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Incubator Companies Attract \$1 Billion in Funding



Companies associated with Georgia Tech's science and technology incubator have raised more than \$1 billion in venture capital since 1999 – and in 2006 accounted for 10 of the top 25 venture deals in Georgia, including the two largest.

The incubator, the Advanced Technology Development Center (ATDC), has turned out 112 science and technology companies since 1986 – including 31 that have been represented on the public markets through initial public offerings or acquisitions.

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Study Ranks Georgia Tech at Top for Nano Research

The Georgia Institute of Technology ranks third in the nation for the number of nanotechnology researchers that are “highly cited” in peer-reviewed publications, and in the top 10 for the number of first authors publishing in such journals.

Overall, Georgia Tech is among the nation’s top 25 institutions for National Science Foundation nanotechnology support, and leads the South in such key indicators as the number of nanotechnology doctoral dissertations and nanotechnology prize winners.

The statistics are contained in “Connecting the Dots: Creating a Southern Nanotechnology Network,” a study done through the Program in Science, Technology and Innovation Policy – a joint initiative of the Georgia Tech Enterprise Innovation Institute and the Georgia Tech School of Public Policy for the Southern Growth Policies Board.

The study evaluated five factors that will be vital to the budding industry: human capital, knowledge generation, research and development funding, patents and commercialization – for the period 1995-2004.

Within the South, the state of Georgia ranks first in the number of nanotechnology prize winners; second in the number of nanotechnology publications, the number of highly-cited researchers, and the number of doctoral dissertations, and third in both the number of nanotechnology patents and the dollar value of Small Business Innovation Research (SBIR) awards in nanotechnology areas.



Photo: Gary Meek

A Georgia Tech researcher examines an experiment on magnetic nanoparticles that could lead to improved chemical separation processes.

Georgia Tech Plays Big Role in Startup Community

Statistics on Georgia’s top venture capital deals for 2006 show the importance of Georgia Tech to the state’s technology startup community.

Ten of Georgia’s top 25 venture capital deals of 2006 involved companies associated with Georgia Tech’s science and technology incubator, the Advanced Technology Development Center (ATDC). These included the two largest deals: \$25 million for wireless infrastructure provider Air2Web and \$22.6 million for medical device developer CardioMEMS.

Four of those deals involved companies formed around technology developed at Georgia

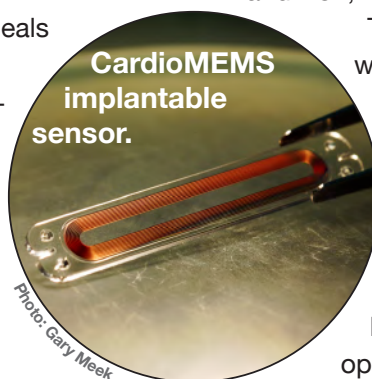


Photo: Gary Meek

Tech. That funding, which totaled \$55 million, went to CardioMEMS, Jacket Micro Devices, Qcept Technologies and EGT, Inc.

Two of the companies receiving top-25 deals were among the first VentureLab companies to graduate from the ATDC. Those firms are Jacket Micro Devices, which develops RF passive components used in wireless communications products, and Qcept, which develops chemical metrology technology for semiconductor manufacturers. VentureLab, created in 2001, helps form companies from technology developed at Georgia Tech.

Incubator— from page 1

At a May 10 event held to showcase the incubator’s companies, ATDC “graduated” six early-stage firms – three Internet companies, two semiconductor firms and a developer of homeland security technology. Together, those six early-stage firms raised more than \$50 million while in the incubator.

The \$1 billion raised by ATDC companies included 160 deals in 75 companies from 138 venture investors. The average deal size was \$6.7 million, though funding amounts varied, with 32 companies raising less than \$5 million and 10 raising more than \$25 million. More than 90 of the 160 deals involved investors from outside Georgia.

The \$1 billion includes funds raised by companies throughout their growth, including their time in the incubator and after they graduated. The amount does not include the value of mergers and acquisitions of ATDC firms – which would add another \$830 million in shareholder value.

About a quarter of ATDC companies grew out of technology developed at Georgia Tech. Two of the 2007 graduates – Jacket Micro Devices and Qcept Technologies – got their start in the Georgia Tech VentureLab program, an initiative that helps form companies from research innovations.

Georgia Tech Helps High School Students Learn Workplace Safety

As part of an effort to increase job-safety training and awareness among younger Americans, scientists from the Georgia Tech Research Institute (GTRI) have joined with the U.S. Occupational Safety and Health Administration (OSHA) and other groups to introduce health and safety training to Georgia high schools.

The aim: to try to ensure that young workers grasp job-safety basics before they ever reach the workplace.

GTRI instructors and others have already taught OSHA job-safety classes to three Georgia high schools, and more schools are scheduled to receive instruction. The effort stems from a 2006 agreement between OSHA, GTRI, Georgia schools and other groups to make safety and health training more available to the state's students.

Students attend a 10-hour course that's team-taught by OSHA and Georgia Tech instructors as well as industry representatives. The modular course covers general safety and health information as well as instruction pertaining to students' areas of work specialization.



Photo: Gary Meek

GTRI scientists are helping to conduct OSHA workplace-safety classes at metro Atlanta high schools. Here students at Maxwell High School of Technology in Lawrenceville receive instruction in power-saw safety.

Eureka! Winning Ways® Comes to Georgia

To help Georgia companies develop new strategies for growth, the Enterprise Innovation Institute has begun offering "Eureka! Winning Ways®," an award-winning three-step process that includes idea engineering, success screening and action-plan coaching. The process is offered through the U.S. Manufacturing Extension Partnership (MEP).

The new service enables a company to generate new ideas, determine which ideas have the best chance for success, and have its own MEP-certified "growth coach" assigned to accelerate the success of selected ideas.

For more about "Eureka! Winning Ways®," contact Don Pital at 770.595.8921 or (don.pital@innovate.gatech.edu) or visit (innovate.gatech.edu).

PROFILE Jason Burr

With nearly a decade of experience as a venture capitalist, Jason Burr brings to the Savannah office of the Advanced Technology Development Center (ATDC) a wealth of expertise in strategic planning, governance, market analysis and fund-raising.

Burr came to Savannah from Arbor Partners, a boutique venture capital firm located in Ann Arbor, Mich. and focused on information technology and enterprise software firms. He was also a co-founder and director of the Michigan Venture Capital Association, where he worked closely with the governor and state legislature to craft the Michigan Early Stage Investment Act that created a \$150 million fund to help the state's startup companies.

He also served as the deal flow officer and continues to serve as a director for the Ariel Savannah Angel Partners, a local group of investors focused on early-stage, growth companies – and as a director for the Coastal

Business, Education and Technology Alliance of coastal Georgia and South Carolina.

He sees a bright future for technology companies in the Savannah area.

"With the presence of prolific research organizations, creative individuals and a focused economic development engine, Savannah has the resources necessary for launching and building technology startup companies," he said.

Burr received an undergraduate degree from Duke University and an M.B.A. from the University of Georgia.

Housed at Georgia Tech's Savannah campus, the Savannah ATDC currently assists five companies: Evoca, Color Maria, Storm Shelter, Attrasoft and Pixelphish.



ISO Certification Helps Recharge U.S. Battery

When U.S. Battery Manufacturing Co. wanted to enhance its competitiveness by obtaining ISO (international standards organization) certification, company officials turned to Georgia Tech for help.

Founded in California in 1926 and expanded into the Augusta area, U.S. Battery produces deep-cycle batteries for the golf cart industry, sweeper-scrubber market, aerial lifts, commercial marine use and special applications. The company's management wanted to boost production with a minimal investment of resources – while maintaining quality standards.

Georgia Tech's Enterprise Innovation Institute helped U.S. Battery implement a documented quality system based on the ISO 9001-2000 standard that sets the stage for addressing inefficiencies in manufacturing by providing a clear picture of how processes are actually working. The company credits the assistance – which ultimately led to quality certification – with improving performance and helping boost sales.



Photos: Elliot Price



Above, right: Brian Bolig and Bruce Eaton confer in a production area of U.S. Battery Manufacturing Co.
Above, left: Georgia Tech Region Manager Elliot Price and Bruce Eaton of U.S. Battery pose in front of the company's facility.

For additional information about any item in this newsletter, please visit:
innovate.gatech.edu/impact-q3-07

Lean—from page 1

5S, which stands for “sort, straighten, shine, systematize and sustain,” is a way of organizing and managing the workspace to boost morale and efficiency. Other changes included labeling, installing a color-coded flag system for patient rooms, standardizing mobile supply stations, adding a holding room for certain patients, and implementing a new software program that better tracks patient information throughout the hospital.



Photo: Gary Meek

Color-coded flag system for patient rooms.

As a result, the emergency room has cut the average length of stay by 44 percent, from 247 minutes to 139 minutes, while increasing its business by 10 percent. A recent survey showed 92 percent of patients satisfied with the service.

Minority Business Enterprise Center Wins New Funding

Georgia Tech's Enterprise Innovation Institute has won renewed funding from the U.S. Department of Commerce to continue operating the Georgia Statewide Minority Business Enterprise Center (GMBEC). Since its inception three years ago, GMBEC has helped its clients secure nearly \$70 million in financing and create more than 240 jobs.

The GMBEC is part of a national network of centers established to increase the number of minority-owned businesses and strengthen

existing ones. Its

services are designed to improve access to capital, make businesses more profitable, create jobs and make companies sustainable.



Minority Business Enterprise Center

Ammunition Maker on Track to Be Military Supplier

Polywad, a small middle-Georgia ammunition manufacturer, is poised for rapid growth thanks to a recent Department of Defense (DoD) contract – and broad-ranging assistance from Georgia Tech's Enterprise Innovation Institute.

Macon-based Polywad, maker of patented Spread-R ammunition and other shotgun products, is gearing up to make specialized rounds for the U.S. military. Critical to the move are two Small Business Innovation Research (SBIR) grants totaling \$1.9 million that the company won with help from the SBIR Assistance Program for the State of Georgia.

Beyond the SBIR assistance, Georgia Tech also helped the company with noise measurements necessary to win DoD approval, assistance in locating a new manufacturing site, help in establishing a quality system, and automation for the production process.

The U.S. military is interested in the company's "Polyshok," a special shotgun round that combines the company's shot-spreading device with a metal-powder slug – also known as an impact-reactor projectile. The round devastates its target, but is harmless to persons nearby.

Study Shows Attracting Retirees Makes Economic Sense

Georgia has considerable potential to realize economic development gains from attracting retirees, but it lags behind neighboring states in doing so, according to a study done by Georgia Tech's Enterprise Innovation Institute for the Georgia Rural Economic Development Center at East Georgia College.

While Georgia ranked sixth nationally in the total number of in-migrating retirees from 1995 to 2000, the study found that the state had a net loss of retirees to Alabama, Tennessee and South Carolina.

Capturing market share in the senior-housing arena will require multi-disciplinary approaches to address regulatory, policy, infrastructure and other issues. The benefits of increasing the number of continuing care retirement communities and active adult retirement communities would be new jobs, investment and tax revenues.



Photo: BigStockPhoto

SBIR funding comes from federal agencies that use small businesses to develop new products and technologies the agencies need.



Photo: Gary Meek

Georgia Tech provided comprehensive assistance to Polywad, including help in winning \$1.9 million in Small Business Innovation Research (SBIR) grants to help create a new military product.

Procurement Assistance Center Wins National Award

Georgia Tech's Procurement Assistance Center (GTPAC) has won the 2006-2007 Outstanding Center Award from the Association of Procurement Technical Assistance Centers. Of the 93 centers eligible for the award, GTPAC was judged by a panel of peers across the country as the nation's top performing center.

GTPAC, part of Georgia Tech's Enterprise Innovation Institute, provides no-cost assistance with government procurement to any company licensed to do business in Georgia. Last year, the Center helped Georgia companies secure more than \$1 billion in government contracts, besting its previous record by more than \$350 million.

The Center assists companies with all aspects of federal, state and local government procurement processes, including solicitation analysis, proposal creation, pre- and post-award counseling and quality and accounting systems.

Since 1986, GTPAC has helped hundreds of Georgia companies successfully compete in government markets, with contract awards exceeding \$3.9 billion. These contract awards resulted in the retention or creation of some 89,141 jobs.

AROUND THE STATE

■ Over the past 40 years, more than 2,500 economic development professionals have taken their first career steps at Georgia Tech. The **Basic Economic Development Course**, presented by the Georgia Tech Enterprise Innovation Institute and accredited by the International Economic Development Council, began in 1967 as the first course of its kind in the country. The 40th edition of the course was presented March 13-16 at Georgia Tech's Global Learning and Conference Center.

■ The U.S. Manufacturing Extension Partnership (MEP) has named **Ed Hardison** as a "practitioner of the year," one of only five to be chosen nationwide. A principal research associate with Georgia Tech's Enterprise Innovation Institute, Hardison has worked at Georgia Tech since 1979. Based in Georgia Tech's Albany office, he completed energy assessments for 11 manufacturers in seven different states last year – work that resulted in \$7 million in energy savings.

■ **Vivonetics**, a startup company that is bringing several Georgia Tech biomedical technologies to market, has recently been accepted into the Advanced Technology Development Center (ATDC). The company is developing and commercializing nanometer-scale sensors called "molecular beacons" that could dramatically change the drug discovery process and disease diagnosis. The company, which has received more than \$1.8 million in funding so far, was formed in Georgia Tech's VentureLab program.

■ Georgia Tech and **Sorman Information and Media AB** – a Swedish company that provides technology for managing complex systems – have signed an agreement to collaborate on research and development, education and training. The collaboration is expected to result in the establishment of an Atlanta facility for Sorman, which provides product lifecycle management information systems that help with the maintenance of aircraft, motor vehicle, construction machinery and other complex equipment.

Enterprise Innovation Institute Locations

For assistance, call 404.894.6100



ATDC

Atlanta: 404.894.3575

Savannah: 912.963.2525

Warner Robins: 478.953.3155

VentureLab

Atlanta: 404.385.2360

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communities and economic developers:

innovate.gatech.edu

Commercialization assistance to Georgia
Tech faculty:

www.venturelab.gatech.edu

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www.gtri.gatech.edu

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