



In regards to training, developing modeling and simulation of locations for training exercises is often less expensive than having real aircraft fly around the cities.



BRANCHING OUT

By Kathy Hagood

Modeling and simulation contracts have established AEGis as a major player for the Department of Defense. Building on that success, future company plans are aimed at commercial applications.

Huntsville-based AEGis Technologies Group Inc., a leader in modeling and simulation, continues to seek and win major M&S contracts from the Department of Defense even as it diversifies into commercial markets and expands its nanotechnology efforts.

"We believe we're in the position to grow faster than ever before," says AEGis President and CEO Steve Hill. The privately held company garnered \$38 million in revenues last year, a 20 percent increase over the previous year, and Hill says he expects a similar growth rate this year. While the recessionary 2008 and 2009 were flat in terms of growth, that lackluster performance followed 20 years of steady revenue and personnel increases for AEGis. "One thing about modeling and simulation, interest increases when the economy is down," Hill says. "It's less expensive, for example, to simulate a training environment than to use real equipment and cover expenses, such as fuel for aircraft."

The company's M&S products and services include simulation software and training simulators; geospatial databases; 3D models; war fighter exercise support; systems engineering and analysis; verification, validation, and accreditation; test and evaluation support; and hardware-in-the-loop simulation.

Among the company's recent M&S successes:

- Vampire™ (Visualization and Mission Planning Integrated Rehearsal Environment) software, developed by AEGis, was created to train operators of small unmanned air vehicles (UAVs), including Raven®, Puma™, and Wasp™. AEGis recently sold 1,853 licenses to be used for U.S. Army training.



AEGis CEO Steve Hill

- AEGis will serve as a subcontractor to the Cobham-Sparta team to support the Missile Defense Agency with Engineering Support Services (MiDAESS) in the areas of M&S and laser technology.

- The company also will serve as a subcontractor on Carley Corp.'s Expeditionary Fighting Vehicle (EFV) training systems development contract. AEGis will create the Image Generation system and the correlated real-time, 3-D databases to represent the operational environment for the Marine Corps EFV trainers.

- AEGis is the prime contractor on a three-year, \$74 million contract for the Air Force Modeling and Simulation Training Toolkit. The government-owned simulation system will be used to train the Joint Force Command, Joint Force Air Component Commander, and battle staff in multiple environments.

Hill and AEGis Chairman and Chief Technical Officer Bill Waite founded the company in 1989.

At that time, Waite had 20 years of experience in the M&S industry, and Hill was a year out of college. Both had worked in the Huntsville office of Riverside Research Institute before it closed. "We could have gone out and gotten other jobs. At the time, the economy was so strong that any good engineer could find a job in a week," Hill says. "But instead we chose to form a



LEFT: AEGIS' model of Vancouver, British Columbia, Canada. BELOW: AEGIS' model of Strasbourg, France, the official seat of the European Parliament.



company focused on modeling and simulation."

Since then, AEGIS has expanded to employ more than 200 workers, most of whom are engineers and research scientists. In addition to Huntsville, the company has offices in Orlando, Fla., Albuquerque, N.M., and Washington D.C. and does work in government laboratories and other facilities in eight states. The company also is represented in Canada, Europe and Asia-Pacific.

AEGIS serves defense, aerospace, automotive, biomedical, chemical, and other process industries that use modeling and simulation or microsystems and nanotechnology. "For most of our company's history, 95 percent of our work has been for the Department of Defense, but now it's at about 80 percent," Hill says. "We've made a concerted effort to diversify."

Among the company's non-DoD work are geospatial databases created for clients, like the Beijing and Vancouver Olympics and the Superbowl. AEGIS modeled Kodak's 56-building complex in Rochester, N.Y., to help better manage shifts and traffic. And closer to home, AEGIS modeled the new Lendon development for John Blue Realty LLC to serve as an enticement for potential buyers. Through 3D software developed by AEGIS, a buyer can see what their home and the surrounding development will look like. "John Blue is our landlord, and after talking to him about his new development, we

told him what we could do for him," Hill says.

As part of AEGIS' plans to expand its presence in both M&S and nanotechnology, the company moved into its new 50,000-square-foot Huntsville headquarters in Cummings Research Park in November 2009. The facility includes a laser laboratory and expanded microelectronics and photonics laboratory, as well as a simulation demonstration laboratory. Class 1,000 and class 10,000 clean room facilities at the new building are dedicated to micro- and nano-scale technologies. "We knew we needed to expand our in-house capabilities if we wanted to take our company to the next level," Hill says.

The company's new nanotechnology division, The Nanogenesis Group, develops both military and commercial micro- and nano-scale products. Among its nanotechnology applications, AEGIS has patented an embedded lens coating to protect users from being distracted or temporarily blinded by small lasers. The coating would offer protection for members of the military, law enforcement officers and commercial pilots among others. According to the Federal Aviation Administration, the number of cases of people directing laser pointers at planes and helicopters jumped from 1,527 in 2009 to 2,836 in 2010.

Another of the company's nanofilm applications could be used to increase energy production of solar cells. In the bio-nanotechnology realm, AEGIS is working with the University of Memphis to develop a small sensor that could detect a heart attack and provide an early warning. The division often teams with university researchers to bring nanotechnology breakthroughs to the marketplace.

AEGIS started exploring the potential of microsystems and nano-scale technologies about 10 years ago and began to develop products. "A friend had finished his PhD in the area and was looking for a job," Hill says. Now the company's nanogenesis division is generating about 15 to 20 percent of the company's total revenues. "We believe that nanotechnology will be every bit as much of an industrial revolution over the next 30 years that integrated circuits has been for the last 30," Hill says.

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