

In Our **DEFENSE** By Kevin Fritz

CENTRAL FLORIDA'S DEFENSE COMMUNITY IS ONE OF THE INDUSTRY'S MOST ESTABLISHED — AND EXPANSIVE — MODELING, SIMULATION AND TRAINING HUBS IN THE COUNTRY.



Central Florida's prominent role in the defense industry can be traced to the 1950s. After World War II, the Glenn L. Martin Company looked to Central Florida when it decided to establish a missile plant. The predecessor of Lockheed Martin opened its first office in Orlando in 1956.

» While Orlando may have a long history as an epicenter for defense industry-related businesses — as well as a key location for Department of Defense commands — it tends to take a back seat to tourism and, as of late, medicine. The 79th-largest city in the United States may never have grown to its level of notoriety without Walt Disney World, but it probably would have done pretty well for itself as a mecca for the defense industry. After all, it was here first.

It was the powers that be at the U.S. Army and Navy who decided to relocate a small detachment of simulation experts to Orlando in the 1960s, a decision that helped Orlando become the modeling, training and simulation capital of the world. Today, the area boasts more than 300 defense-related companies in Orange County alone that were collectively awarded 2,990 contracts worth \$4.5 billion from the Department of Defense in 2010, according to the

University of West Florida-based Haas Center for Business Research and Economic Development.

IN THE BEGINNING

The roots of the local defense industry can be traced to the 1940s when Army personnel, who had been stationed at the Orlando Army Air Base and nearby Pinecastle Army Air Field during World War II, remained in the area to raise families. In 1950, the Secretaries of the Army and Navy signed an agreement to work together on developing training devices and systems in New York, a cooperative effort that would later be relocated to Orlando.

In 1952, Boeing's defense segment came to Central Florida to support the U.S. Air Force Bomarc missile-testing program at Patrick Air Force Base. Boeing's first office in the state was established with only a handful of employees. (In 2005, Argon, a Boeing subsidiary, opened a location in the Central Florida Research Park, where 20 employees work on programs related to its electro-optical systems business.)

It didn't take long for leaders of the Bethesda, Maryland-based Glenn L. Martin Company, one of Lockheed Martin's predecessors, to see that opportunity was knocking in Central Florida. After WWII, it wanted to diversify from just building planes. Based on its new strategic direction, the company established its missile plant near Cape Canaveral. In 1956 it opened its first Orlando office on Sand Lake Road. Today, that office is part of Lockheed Martin's Missiles and Fire Control business. Coupled with its Global Training and Logistics operation, Lockheed Martin now employs 7,000 people locally.

The defense-industry giant is known for its tri-variant F-35 Joint Strike Fighter aircraft that represents the pinnacle of more than 50 years of fighter development technology. The F-35 combines fifth generation characteristics of radar evading stealth, supersonic speed and extreme agility with the most powerful and comprehensive integrated sensor package of any fighter aircraft in history.

The small group of aforementioned Army and Navy simulation experts



Lockheed Martin's F-35 Joint Strike Fighter aircraft represents the apex of defense industry technologies.

working in New York were moved to Orlando in 1965, eventually setting up shop at the Orlando Army Air Base, which would become the Orlando Naval Training Center in 1968. By chance, that was the same year Florida Technical University — the precursor to the University of Central Florida (UCF) — started offering classes.

In 1968, the Northrop Grumman Corporation's Laser Systems business unit opened a small office in Apopka with eight employees; today, it employs more than 600. Originally known as International Laser Systems, the company was bought by Martin Marietta in 1977, then sold to Litton Industries in 1983. Coming full circle, Northrop Grumman Corporation purchased Litton in 2001.

Over the years, Northrop Grumman has produced notable defense laser



Utilized by the U.S. Army, Northrop Grumman's LLDR can recognize targets in nearly any battlefield condition.

products. It continues to create cutting-edge electro-optical systems for the military at its 140,000-square-foot manufacturing plant, producing precision targeting systems, including the Lightweight Laser Designator Rangefinder (LLDR).

THE GAME CHANGER

In the 1980s the face of Orlando's defense industry truly took shape, thanks to UCF and some forward thinkers.

After purchasing land left behind by a soured real estate deal and turning it into the Central Florida Research Park, UCF leaders and Senator Bill Nelson worked with the chief of naval operations to move its simulation and training operation from the Orlando Naval Training Center to the 1,027-acre park. UCF, which was already working with the Navy on simulation and training, offered it a 40-acre swath of land near the university for the Navy to build a new facility. Coincidentally, that same year — 1982 — the Institute for Simulation & Training (IST) opened at UCF.

"UCF is the Godfather of modeling and simulation," says Kent Gritton, director of Team Orlando's Joint Training Integration and Evaluation Center (JTIEC). "They realized it was a discipline of the future and offered the first degrees in modeling and simulation." Consisting of the Army, Navy (and Coast Guard), Air Force, Marines, UCF, local, state and federal government offices, and representatives from private industry, the 2,500 members of Team Orlando create a group of acquisition professionals with one common goal: to improve human performance through simulation.

While Science Applications International Corporation (SAIC) may not have had a crystal ball, the Virginia-based company saw what was happening in the UCF area and opened an Orlando office in 1980. Al Funderburk, vice president of operations for SAIC in Orlando, which has grown from a dozen employees to 1,028, says the scientific, engineering, and technology applications company continues to have close ties to UCF. "We focus on helping young graduates and interns get engineering experience," he says. "We have picked up several folks that way."

SAIC is known for its work with the Army's \$222 million SE Core (Synthetic Environment) program, integrating virtual training simulation devices used by America's soldiers and allowing for even further in-depth coordination and collaboration within the defense industry.

Funderburk says many defense-related companies are attracted to Orlando because of its proximity to the work. Indeed, the military's three primary acquisition centers are based here: the Army (Program Executive Office for Simulation, Training and Instrumentation Program or PEO-STRI), Navy (Naval Air Warfare Center Training Systems Division or NAWCTSD) and the Marines' Program Manager Training Systems. Each one caters to modeling and simulation architectures.

In 1985, Martin Marietta, Lockheed Martin's other preceding company, opened its Electronics System Center in East Orlando. Its location at Global Innovation Circle is now the headquarters of Lockheed Martin's Global Training and Logistics business.

Banking on the success of simulation training in the "City Beautiful" during the 1980s, Waymon Armstrong saw a niche: utilizing gaming technology for training purposes. The president and CEO of Engineering and Computer Simulation (ECS) founded the company in 1997 as one of the first UCF Business Incubator Program graduates. Today Armstrong's

idea has become ubiquitous, highlighted by events such as GameTech, an annual user-focused, warfighter gaming technology conference. GameTech2012, sponsored by Team Orlando and the Research Park-based National Center for Simulation (NCS), epitomizes how integral simulation and training tools are for the defense industry in the area. Tom Baotiste, NCS president and executive

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director, says that most companies in his 186-member association are focusing on serious games, Avatar technologies, and mobile applications.

ECS, which employs 55 people, is now considered an industry leader in simulation, training more than 100,000 people in its Nexus Virtual Worlds. It created Z-Tech, a browser-based world that works in almost any secure environment. In 3-D, it offers the freedom to train or meet with anyone anywhere in the world. And as medical simulation begins to grow, ECS launched the Virtual Medic (vMedic), a 3-D, immersive medical-training system for learning and practicing battlefield medicine.

Founded in 1922 in Cambridge, Massachusetts, Raytheon Technical Services Company (RTSC) arrived in Orlando in 1999 with fewer than 10

employees to support the U.S. Army Simulation Training and Instrumentation Command's Live Training Program. In 2004, the business moved into a larger facility in the Research Park to house a 50 percent growth in program-management-office employees supporting military simulation, training, and instrumentation programs. In November 2008, after being awarded work on the

Army PEO-STRI 10-year, \$11.2 billion Warfighter Field Operations Customer Support (FOCUS) Indefinite Delivery/Indefinite Quantity (ID/IQ) contract, Raytheon moved into its current Research Park facility.

A NEW MILLENNIUM

Although the Team Orlando brand was created in 2000, many of its members had already been associated with the defense industry for years. In fact, that small group of simulation professionals, who moved from New York to the Orlando Naval Training Center and then to the Research Park, is known as the foundation for Team Orlando. Director Gritton says that technology via simulation, while critical to Team Orlando's mission and the industry as a whole, can be a wild card.

"As modeling and simulation continues to grow, we are using that as a tool," he explains. "But technology is growing at an expeditious rate. Moore's Law is that technology will double every 18 months. That's 100 times in 10 years."

Noting that the Army PEO-STRI has been chosen as the acquisition agent for the Veteran Affairs' (VA) Simulation Learning, Education and Research Network (SimLEARN) Program at the new VA Medical Center in Orlando and nationwide, Gritton says that the medical complex growing up at Lake Nona in south Orlando will soon be a major player in the collaborative efforts strived for by Team Orlando. "This is going to be something to witness," he says. "Medical City will soon drive some of the discussions."



Headquartered in Orlando, Adacel is a leading developer of advanced simulation and control systems for the aviation and defense industries.

ADACEL

The \$5 million contract to become the acquisition agent to enhance patient care at the 150-plus VA medical facilities across the country should spark a long-term relationship between Orlando's defense and medical industries.

NEWCOMERS

Unlike many Orlando-based defense-related companies, RINI Technologies is not in the simulation and training business. It's in the business of thermal management. From RINI's office and research laboratory, located approximately one mile from UCF, the company creates thermal products to keep things cool or warm, depending on the application. It has created the smallest refrigeration system on the market, effective up to 120 degrees. "We cool lasers, and soldier's bodies," says President Dan Rini. "For the Navy, a reverse product keeps SCUBA divers warm in cold water."

Founded in the spring of 2000, RINI Technologies also graduated from the UCF incubator program and continues to keep close ties with the school by "test-driving interns" and hiring engineering graduates. Rini says that while up to 90 percent of his work is from Department of Defense contracts worth a collective \$20-\$25 million, his 20-employee company has begun to

ramp up production to diversify into nonmilitary markets.

In 2002, the Australian company Adacel secured the largest air-traffic-control contract ever in North America. Marketing and Communications Director Tom Evers says that in order to deliver and support the agreement, the company needed to move. Two years later its headquarters relocated to Orlando. "We knew Central Florida was a hub for simulation," he says. "The heart of our organization is now in Orlando." Today Adacel employs 80 people in the area, and creates a \$20 million impact on the local economy.

Evers says that Adacel's air-traffic-control and aircraft-management simulation work is only bested by its speech-recognition technology, which now accounts for 35 percent of its business. The company is working with Boeing on updating management systems and avionics within its aircrafts, and adapting speech technology for Lockheed's F356 Joint Fighter and Boeing's Apache helicopter.

Just as the opening of Walt Disney's Magic Kingdom forever changed the landscape of Orlando, so did the establishment of Orlando's multibillion dollar defense industry. And it not only predates the theme park, but also has an expansive legacy all of its own.

» The Genesis of it All

Opened in 1981, the Central Florida Research Park helped launch the area's defense industry as we know it today. About half of the park's 116 tenants are defense related, according to Executive Director Joe Wallace, and the area's defense community and the UCF-inspired park are inherently intertwined.

"The partnership between them is big," says Kent Gritton, director of Team Orlando's Joint Training Integration and Evaluation Center. The idea to offer the U.S. Navy 40 acres free and clear to bring its modeling and simulation operation to the Research Park is the reason for the breadth of today's defense industry in Orlando. "That was the genesis that let us take off," he says.

For the most part, it's high-tech simulation and training that drives the defense work at the park, led by the military acquisition centers of the Army, Navy and Marines. "We are the epicenter of modeling and simulation because the government is here," says Tom Baptiste, president and executive director of the Research Park-based National Center for Simulation.

Other major defense-related tenants include Boeing, Northrop Grumman, and Raytheon, as well as the UCF Incubation Program, which has spawned military support companies such as RINI Technologies and ECS.

The 1,027-acre, 56-building complex has a vacancy rate of 14 percent. Wallace says 75 percent of the tenants that leave do so because they become so successful they require more space. He notes that the majority usually relocate within the area, keeping those jobs and economic impacts close to home. Such was the case with RINI Technologies, which relocated to a 12,000-square-foot office and research laboratory in Oviedo.

For more information, please visit cfrp.org.



Defense company SAIC supports the nation's warfighters by offering comprehensive modeling and simulation solutions, including virtual training simulators.

SAIC