

Florida Companies Train the World

Many different companies, government agencies, and the military use training systems developed by Florida companies. Although much of the industry is oriented toward supplying the needs of the military, companies are developing applications that can be used by other governmental agencies as well as the private sector. These applications include training in emergency response, education, health care, and aviation; all delivered by Florida's important Modeling, Simulation and Training (MS&T) sector.

Simulation is a means of replicating real-life situations for training purposes. The ongoing Federal sequester, which has caused reductions in military and other government spending, has put a spotlight on simulation training. This type of training can be used to save substantial amounts of money, such as when pilots are trained on simulators minimizing fuel and aircraft maintenance expenses.

Rare events such as natural disasters can be simulated so that emergency responders have training in current methods when their performance is critical. Soldiers can be trained not only in combat situations, but also cultural training for when they are deployed to foreign countries.

Orlando's MS&T Cluster Development

In 1943 one of the earliest military flight simulators was developed at NAS Banana River, now Patrick Air Force Base. Since then the industry grew with the demands of the U.S. military, whose training needs became more complex over time. This was accelerated in the 1960s, when virtually all military equipment integrated computer electronics.



Training in a Naval Air Warfare Center Training Systems Division (NAWCTSD) ship simulator. Photo © Nat. Center for Simulation

The cluster in Orlando developed with the relocation of the Naval Air Warfare Center Training Systems Division in the 1960s, and now includes the presence of the Army, Air Force and the U.S. Marines. Together they developed a governance structure that now includes advisors from the University of Central Florida, the National Center for Simulation, and the Metro Orlando Economic Development Commission. Working together, the military, academia, private companies, and government agencies help develop the business climate, increase Florida's competitiveness in the world, and create more high-wage jobs.

Presently, the MS&T industry directly employs more than 27,000 people in more than 1,000 Florida companies with an average salary of \$69,797. It also indirectly impacts other Florida industries, such as the tourism industry, since MS&T entities attract a diverse group of professionals from across the nation and the world that come to Florida for training purposes. It is estimated that the sector contributed to more than 60,700 combined direct, indirect, and induced jobs in 2011.¹

¹ "Impacts of Florida Modeling, Simulation and Training" A report sponsored by the Florida High Tech Corridor Council for the National Center for Simulation. September 2012.

Florida Universities Deliver Research and Workers

The University of Central Florida (UCF) has the largest program in the U.S. dedicated to MS&T. It awards both master's and doctoral degrees in MS&T, and there are currently 50 master's and 84 Ph.D. students in the program. Although relatively new, the program has already graduated 223 M.S. and 52 Ph.D. students. In Fall 2012, the Graduate Certificate in Modeling and Simulation of Technical Systems enrolled its first class. The Certificate's curriculum is delivered by distance learning, and can be completed by part-time students.

UCF also hosts the world-renowned Institute for Simulation & Training, which performs basic and

applied simulation research, supports education in modeling, and serves both the public and private simulation communities. This institute is an integral part of the MS&T cluster surrounding Orlando and provides a link between the University and the Florida companies that are part of this important cluster.

In nearby Winter Park, Full Sail University is a school for careers in creative industries. What was first a university that offered programs in music and sound has become over the last thirty years a leader in computer animation and game design, partnering with the UCF Incubator Program to develop some of the latest technology in the industry. Many graduates of the Full Sail game development program find jobs in the MS&T industry.

Engineering & Computer Simulation (ECS), also located in Orlando, has been very successful in the MS&T industry. Presently, the company offers a wide variety of technological solutions for both the military and industry, and was awarded the National Small Business of the Year honors by the Small Business Association (SBA) in 2010. ECS started in Florida and is a graduate of the University of Central Florida's Incubator Program, a program that was featured in the October 2011 *Economic Commentary*.

ECS was awarded the Blue Ribbon Small Business Award in 2011 by the U.S. Chamber of Commerce; one of only 75 of the awards given annually. ECS is also the only 3-time winner of the Serious Games Showcase & Challenge, a significant recognition from its industry peers.

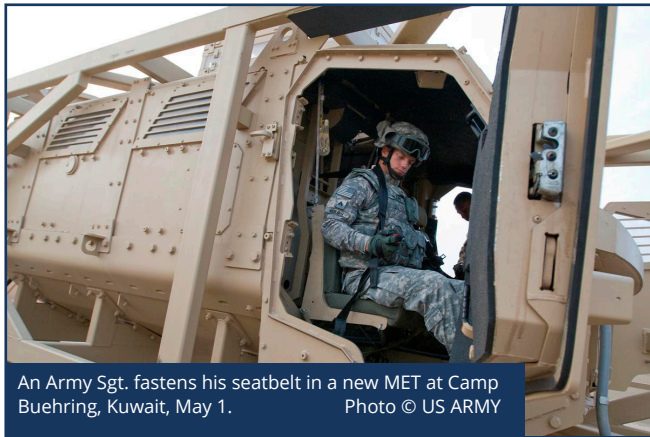
Their Cross Cultural Competence Trainer (3CT, right) offers simulation technologies for foreign language skills and cultural expertise, which allows for employees in a variety of fields, including defense personnel, to develop cultural sensitivity before leaving the country. These skills can help make peacekeeping, negotiation, or humanitarian aid scenarios far more successful.

ECS recently created Crisis Response Simulation (CRS), a simulation tool that can be used in training for both natural and man-made disasters. Not only can emergency response personnel be trained, this new tool can be used to train others that are involved when a crisis occurs. ECS President Waymon Armstrong said, "Nobody helps train the senior leaders that are responsible for overseeing responses to disasters." Armstrong indicated that there is an opportunity to train elected officials, including governors and state cabinet members, as well as heads of major corporations, before these disasters happen.



Florida Companies Develop Solutions for Many Industries

Military - Science Applications International Corporation (SAIC), has eight offices in the Orlando area. They were involved in the development of MET, the Mine-Resistant Ambush-Protected Egress Trainer. This simulator replicates rollover incidents some on-duty soldiers may experience in MRAPs, a combat vehicle the Army and Marines use in Iraq and Afghanistan. According to army statistics, “there were 121 non-hostile-related MRAP rollovers” from November 2007 to March 2009. Since the implementation of mandatory training on egress trainers, injuries to gunners have decreased by 80 percent.²



Education – The University of West Florida is using a virtual classroom simulation, named TeachLivE™, a program that was developed by educators and computer scientists at UCF working with engineers from Lockheed Martin. This program is currently used to help train pre-service teachers in classroom management skills to help their professional development.

Emergency Responders – ETC Simulation is located in Orlando – an area the company refers to as Simulation Valley. This company has developed the Advanced Disaster Management Simulator (ADMS), which is used to train emergency responders in incident command and control, and lower-level trainees under the stress of

a realistic environment. The company offers ADMS applications for police, fire, medical, emergency management, and natural disasters and has contracted with countries such as the Netherlands, Korea, Saudi Arabia, and Hong Kong.

Medical - Lockheed Martin has adapted simulation technology originally used for aerospace training environments to help train physicians, registered nurses, and other medical personnel. Simulators are used to test highly complex procedures in safe, cost-effective scenarios. Their development products provide scenarios that include devices, patients, processes and the clinical setting.³

Aviation - The National Flight Academy has more than 30 simulators. These were developed through a collaboration between the University of West Florida, TEQ Games (part of Universal Orlando), and Full Sail University to develop the curriculum and game-based learning environment. The Academy inspires students in grades 7 to 12 to pursue opportunities in STEM fields, through an immersive learning experience.

Conclusion

Florida’s MS&T cluster is an important part of the state’s economy and it has the potential to develop further. Given the cutbacks by the military and other government agencies, simulation training gives these innovative Florida companies opportunities to help save the government and private sectors substantial amounts of money. This will further develop and strengthen Florida’s economy, increase Florida’s competitiveness in the world’s economy, and will continue to help train those men and women fighting to keep us safe at home and abroad.

² <http://www.teamorlando.org/army-and-marines-give-the-term-rollover-a-new-meaning/>

³ Innovation. A Prescription for Health Care’s Challenges. Lockheed Martin. <http://www.lockheedmartin.com/content/dam/lockheed/data/corporate/documents/Health-Brochure-Health2point0.pdf>

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