

**Communications, Cybersecurity and Robotics**

26.27	-2.81%	-2.07%
29.80	+1.56%	+2.19%
91.14	+7.50%	+2.62%
35.67	+4.82%	+5.54%
30.22	+1.10%	+3.35%
89.71	+4.46%	

**Aerospace-based communications systems comprise a key component of the world's critical information and communications technology infrastructure, and much of the advanced software and systems developed for aerospace applications also present great crossover opportunity to build key target industries for Florida in information security and robotics. Aerospace communications sector 2008 revenues were more than \$90 billion in commercial markets alone.**

**Cybersecurity includes software and monitoring activities that protect computers, networks and communications from accidental or malicious harm, and is key to trade, defense, transportation and crime prevention.**

**Robotics, relied upon heavily in space exploration, has intersecting applications in manufacturing, medicine and processes carried out in harsh environments.**

**Communications infrastructure and providers of voice, video and data support the global information economy, national defense, homeland security and virtually every market constellation target in the Space Florida Vision 2020.**

**The Market Horizon**

Aerospace-based communications activities in all facets of satellite systems and services have been growing throughout the global economic downturn and promise new opportunities for Florida's 24,000 information and communications technology companies and the quarter million people they employ statewide. Likewise, the application of cybersecurity systems is growing as the world economy becomes more reliant on information technology, and areas of manufacturing and defense leverage robotic technologies to reduce costs and improve safety.

Key crossover sectors include digital media, microelectronics, photonics/optics, simulation and training and mobile technologies, which all have clear prospects in end-user products and services, ground equipment and manufacturing for communications. Current activity in microelectronics, photonics and mobile technologies supports satellite network equipment, gateways, control and ground stations, consumer equipment and direct broadcast satellite dishes. Growth in these ground support sectors was more than 19 percent in 2007, was 34 percent in 2008 and is forecasted for continued expansion. In addition, Florida's High Tech Corridor has emerged as a global hotspot for simulation and training as well as digital media and interactive entertainment, which support the thriving broadcast market.

Launch services in relation to communications satellites is an area of increasing opportunity for Florida. Space Florida is continuing target enhancement of key launch facilities, developing the Commercial Launch Zone and working with the Air Force and its control of the Eastern Range to strive toward more streamlined, cost-effective processes for commercial customers.



The global financial network depends on secure and uninterrupted satellite communications. This ATM uses GPS receivers to synchronize and timestamp transactions and VSAT (very small aperture terminal) communications to connect with interbank networks to verify identities, access accounts and provide other transactional information.

**Florida's Edge**

- Florida's photonics cluster is one of the best-established in the nation and includes preeminent optics and photonics manufacturers, integrators and end users, with total sales exceeding \$2.2 billion
- Florida hosts a \$1.2 billion microelectronics and nanotechnology industry along the High-Tech corridor with crossover opportunities in development of robotics, satellites and ground equipment
- South Florida's telecommunications and information technology industries are driven by its network of fiber optic routes and its Tier-1 Network Access Point of the Americas, which is a telecommunications hub that links the Americas with the rest of the world
- Multiple launch complexes, coupled with the state's unsurpassed talent base and development options for ground-based operations, are key to capturing more launch and support operations



Both the ISS and space shuttles are equipped with large robotic arms that are used to manipulate payloads. Shuttles are equipped with the 50-foot-long Canadarm while the ISS uses the larger, more advanced Canadarm2 (pictured here). Since 2008, Canadarm2 also has an advanced Special Purpose Dexterous Manipulator, Dextre, which greatly enhances the arm's capabilities. Image credit: NASA



**In Sight and Achievable**

- Increase in global market share of communications satellite development, launch and operations for commercial, civil and defense markets
- Expansion of existing IT clusters into ground operations activities for broadcast, mobile and fixed communications systems
- Application of advanced aerospace software capabilities to grow cybersecurity and robotics clusters statewide

**Tactical Development Strategies**

- Market and support Florida’s Commercial Launch Zone, extensive launch and industrial infrastructure and its superb workforce
- Create partnerships with key IT players including cluster trade groups, research centers and related companies developing advanced software for cybersecurity and robotic systems
- Work with related industries to capture programs that help Florida build presence in the growing markets for consumer-oriented products and services including satellite TV and broadband, training and distance learning and mobile technologies

**Timing**

- Markets within broadcast and mobile communications are immediate opportunities with the adoption of direct satellite television and mobile technologies for remote regions on the rise
- Advancements and new demand in IT and availability of a precision-focused labor force creates immediate opportunities for development of Florida’s commercial base in ground operations and services



Wideband Global SATCOM satellite used for military communications. Image credit: Boeing



UCF’s Surface Robotics team has won the International Autonomous Surface Vehicle Competition two years in a row. The University of Central Florida’s Robotics Laboratory is a group of undergraduate and graduate students who build advanced autonomous robots for competition and research. Image credit: University of Central Florida Robotics Laboratory

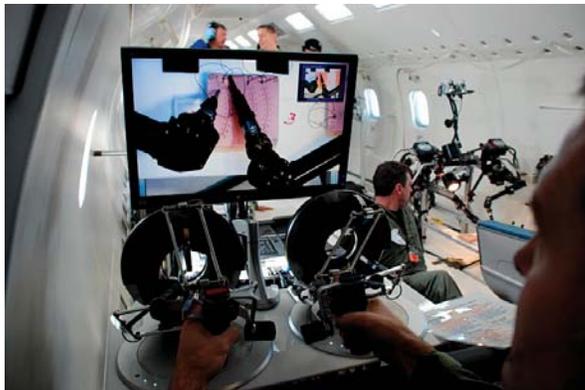


Image credit: NASA



In 2007, NASA performed its first microgravity telerobotic surgery experiment. Incision and suturing tasks were performed while both the surgeon and robot were flown on a parabolic path simulating zero-gravity conditions. Results showed that, while traditional surgical techniques were better adaptable, robotic surgery can successfully be deployed in zero gravity. Image credit: SRI International



Modern geographic information system (GIS) software combines information from many different sources—satellite photography, webcams, weather reports, 3D models, database content, etc—and links them to locations on a map. This gives users a powerful tool for planning, simulation, and analysis of geographically dependant phenomena. Here, authorities deal with a chlorine spill by positioning roadblocks, identifying evacuation routes, and monitoring traffic cameras. Image credit: Department of Homeland Security

**Space Florida** was created to strengthen Florida’s position as the global leader in aerospace research, investment, exploration and commerce. As Florida’s aerospace development organization, Space Florida is dedicated to attracting and expanding the next generation of space industry businesses. Created by the State of Florida as a special district in May 2006, Space Florida serves space-related functions in all three aerospace sectors: civil, military and commercial. Florida’s attributes include its superlative workforce, proven infrastructure and unparalleled record of achievement.

