



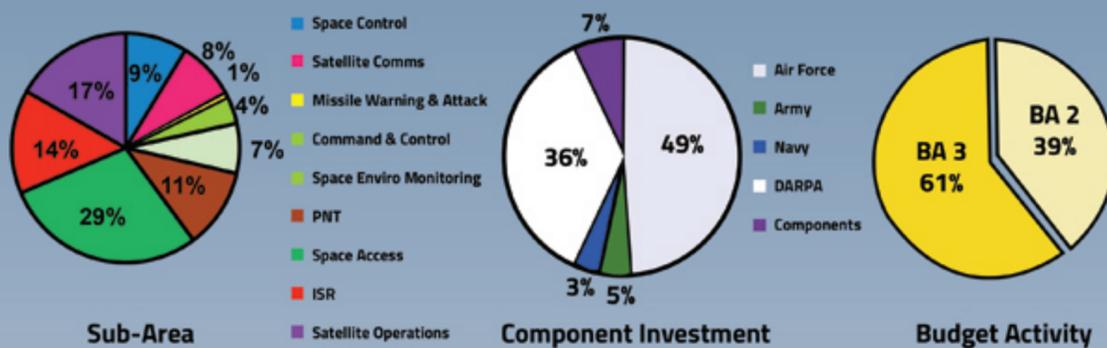
Space S&T Community of Interest



Purpose: Space S&T forum for sharing new ideas, technical directions and technology opportunities, jointly planning programs, measuring technical progress, and exchanging advances in space S&T

Focus: Investments in space-unique S&T essential to maintain and advance existing U.S. conventional and asymmetric military advantages enabled by space systems at the strategic, operational, and tactical levels

Nominal Space S&T COI Funding Allocation



Space S&T COI Subarea	Technical Challenges
Satellite Communications	<ul style="list-style-type: none"> Reduce SWaP-C and improve thermal management Develop V/W band RF and laser comms
Missile Warning, Missile Defense, and Attack Assessment	<ul style="list-style-type: none"> Improve sensors for whole-Earth staring Improve data fusion algorithms
Positioning, Navigation and Timing	<ul style="list-style-type: none"> Improve anti-jam capability and atomic clocks Enhance orbital navigation technology
Intelligence Surveillance and Reconnaissance	<ul style="list-style-type: none"> Increase persistence of ISR Improve data compression Integrate space, air and ground based ISR
Space Situational Awareness	<ul style="list-style-type: none"> Improve space object detection and monitoring of potential threats
Space Access	<ul style="list-style-type: none"> Reduce cost and cycle time Higher performance on-orbit propulsion Enable reusable launch systems
Space and Terrestrial Environmental Monitoring	<ul style="list-style-type: none"> Improve awareness of Earth/Sun environment Enable real-time weather threat warning Improve marine Meteorology and monitoring of ocean conditions
Command and Control; and Satellite Operations	<ul style="list-style-type: none"> Increase autonomy to reduce manning Space robotic capabilities for servicing/repair
Space Enablers	<ul style="list-style-type: none"> Standardized and miniature components and interfaces Carbon-based nanotechnology Ultra-high efficiency power systems
Space Control and Space Resilience	<ul style="list-style-type: none"> On-board adaptive planning Local area imaging sensors Laser survivability

U.S. Army Themes

Deployable Antennas, Software Defined Radios, Encryption, Imagery, Constellation Management

U.S. Navy Themes

Geospace, Heliospace, High Energy Space, Advanced Spacecraft Technologies, Payloads & Sensing, Connectivity

U.S. Air Force Themes

Space Electronics, Space Remote Sensing, Space Platform & Ops Tech, Space Environment Impacts & Mitigation, Space Flight Experiments

DARPA Themes

Robotic capabilities in GEO, Automated, scheduled refueling, LEO-to-GEO space tug, On-orbit replaceable units, Modular spacecraft, Large apertures, structures and bases

Impacts and Success Stories

- Army SMDC is leveraging NRL's Common Ground Architecture project Neptune and VMOC satellite C2 Capability for a projected cost savings of approximately \$450K per Ka Ground Station
- Tri-Service, ASD(R&E)-sponsored Vital Infrared Sensor Technology Acceleration (VISTA) effort has successfully developed and matured advanced infrared materials that are potentially viable for future overhead persistent infrared satellite systems
- Conducted a SmallSat Interoperability Workshop with the UK Ministry of Defense/Defense Science and Technology Laboratory

