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Space Technology – POST

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Space Technology Mission and Vision



Leadership in Space delivers global advantage.

R&E Space Technology develops a diverse investment portfolio:

- Coordinating Department with national, commercial, foreign, and capital investments,
- Supporting transition to Services, Joint Force operators, partners and Allies, and commercial products and services, and
- Enabling deterrence against aggression and defense of our nation, our Allies and U.S. interests

Tech Investment Areas

1 Space Domain Awareness

2 Agile Mission and Assured Command, Control, and Communications

3 Intelligent Systems

4 National and International Space Power Integration

5 Sustained Operations and Rapid Reconstitution

6 Deterrence



Engage and Elevate Commercial Space



Growing and innovative global commercial Space ecosystem increases capability and enhances resilience

Diversity of communication pathways

Pre-placed contracting mechanisms, reliable funding

Speed transition of microelectronics and components to space

Responsive satellites and launch vehicles

interconnectivity and trusted autonomy

Smart cyber, encryption and physical hardening, when needed only

Modeling, simulation, and strategic commercial gaming

Reusable Systems



Space Technology Culture of Innovation



Innovation happens in a (Space) vacuum!

R&E Space Technology is taking steps to use Space investments to spur Department innovation

Put the Nation's future in the hands of Emerging Talent; investments in Space STEM education

Improve velocity of new thoughts mixing with new problems

Reduce barriers of entry and Diversify the available talent pool; reconsider classification

Communicate priorities
Intervene early, powerfully, and decisively to vector technology

Protect technology development from adverse influence

Fix incentives to promote DoD within commercial sector

Strengthen portfolio of Integrated space activities with Allies and partners

Use available economic tools to harvest Space Economy for DoD

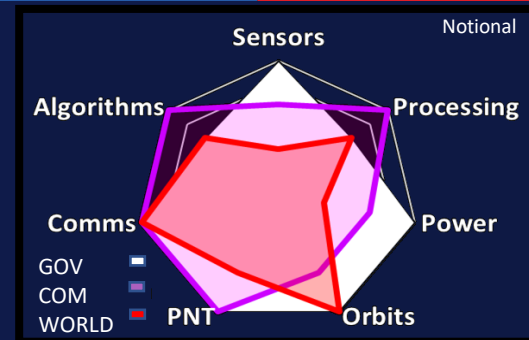
*Poor culture will erode a good strategy;
Companies do not innovate, people do.*



Investment EXAMPLE: Space Domain Awareness



Space Domain Awareness: The capability to monitor, track and characterize an expansive, crowded, and dynamic environment. This includes both long-range wide volume situation awareness and short-time scale local tracking and prediction.



Technology Pushes	Local and Wide Volume Sensors	On-Board processing	Sustained High Power	Exotic Orbits	PNT	Communication	AI/ML algorithms for object, ID, control, and sensor processing
NEAR	<ul style="list-style-type: none"> Affordable & manufacturable large format arrays and apertures 	<ul style="list-style-type: none"> Rad hard processors* COTS based processors 	<ul style="list-style-type: none"> Advanced solar and nuclear* Energy Storage 	<ul style="list-style-type: none"> Modeling and facilities for simulations 	<ul style="list-style-type: none"> Alt Ranging Quantum accelerometers, gyros, sensors* 	<ul style="list-style-type: none"> Efficient radiators, apertures, and transceivers 	<ul style="list-style-type: none"> Increase maturity of SDA algorithms*
MID	<ul style="list-style-type: none"> Increase maturity of spectrum and waveform agility 	<ul style="list-style-type: none"> Secure cloud processing* 	<ul style="list-style-type: none"> Thermal management 	<ul style="list-style-type: none"> ESPA class to large satellites 	<ul style="list-style-type: none"> On orbit predictions 	<ul style="list-style-type: none"> Fine Pointing Data backhaul 	<ul style="list-style-type: none"> Search, detection and tracking ID and Event predictions
FAR	<ul style="list-style-type: none"> Fine grained target acquisition Intelligent Sensors 	<ul style="list-style-type: none"> Diversified tip & cue* Federated computing 	<ul style="list-style-type: none"> Power Management 	<ul style="list-style-type: none"> Autonomous orbit maneuvering 	<ul style="list-style-type: none"> Autonomous guidance and navigation 	<ul style="list-style-type: none"> Increase maturity of spectrum and waveform agility 	<ul style="list-style-type: none"> Sensor fusion Computational architectures Sensor fusion

*Leverages on-going efforts in Microelectronics, Quantum, and AI/Autonomy Critical Technology Areas, DARPA projects, NASA, and commercial developments