



# Space Systems Command Commercial Space Office

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*Engineering & Integration*



# BLUF—Commercial Space Office Mission



- **Deliver effective, efficient & resilient capabilities to the warfighter quickly & affordably through partnering with the commercial space industry**
  - **Develop sufficient and efficient capabilities through hybrid architectures to stay AHEAD of the threat**
  - **Integrate U.S., Allied, and Commercial capabilities (hybrid architectures)**
  - **Accelerate the adoption/integration/resiliency of commercial capabilities**
- **Maximize operational commercial services/capability integration**
  - **Focused on early market intelligence, international partnerships, and commercial acquisition strategy support**
  - **Expanding partnerships with USSPACECOM, NRO, NGA and NASA commercial offices**
  - **Implementing Commercial Augmentation Space Reserve Framework**
- **The Commercial Space Office supports and is integrated with the Capability Program Executive Officers**
- **Ask: Enable funding sources to maximize COMSO utilization**



# COMSO Organization & Roles



## SPACE SYSTEMS COMMAND

Responsible for developing, acquiring, equipping, launching, fielding, and sustaining lethal and resilient space capabilities for warfighters

## COMMERCIAL SPACE OFFICE

Deliver effective, efficient & resilient capabilities to the warfighter quickly & affordably through partnering with the commercial space industry

- Identify - NSS needs/risk & commercial marketplace opportunity
- Implement - Solutions via flexible contract options & stable funding
- Integrate - Across NSS via interoperable ops, train & sustain efforts
- Assess - Continuous improvement w/ops, acq & industry

### FRONT DOOR

#### CONNECT

The first step to understand industry opportunities and connect industry with the right space enterprise agents.

### SPACEWERX

#### INNOVATE

Advance technologies, expand industrial base, and enable capability transition.

### COMMERCIAL MARKETPLACE

#### ACCESS AT SPEED

Remove entry barriers to integrate existing and emerging commercial capabilities and exploit commercial data sources at speed.

### COMMERCIAL SATCOM OFFICE

#### DATA TRANSPORT OPTIONS

DoD's one-stop-shop for acquisition and management of COMSATCOM capabilities.

### COMMERCIAL AUGMENTATION SPACE RESERVE

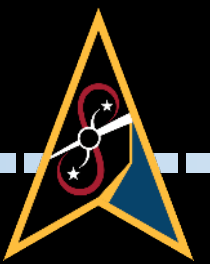
#### SURGE DURING CRISIS/CONFLICT

On-call commercial capabilities and incentive structures to backstop DoD needs across spectrum of conflict.



# Existing Commercial Commitments

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## Dedicated Commercial Integration

PE	Program Name	FY23	FY24	FY25	FY26	FY27	FY28	Totals
1203940SF	SSA Operations (Space Data Fusion)	\$ 58.00	\$ 73.70	\$ 70.70	\$ 78.60	\$ 80.70	\$ 74.60	\$ 436.30
1206862SF	TacRS (Commercial Launch/Satellite)	\$ 50.00	\$ 30.00	\$ 30.00	\$ -	\$ -	\$ -	\$ 110.00
1206445SF	COMSATCOM Integration	\$ 23.40	\$ 73.50	\$ 129.20	\$ 132.30	\$ 70.70	\$ 73.20	\$ 502.30
1206760SF	PTES (PTW Over Commercial)	\$ -	\$ 30.60	\$ 55.30	\$ 25.10	\$ 30.20	\$ 80.70	\$ 221.90
1206760SF	PTES HUB (Proc)	\$ 42.50	\$ 56.50	\$ 56.10	\$ 11.80	\$ -	\$ -	\$ 166.90
<b>TOTALS</b>		<b>\$ 173.90</b>	<b>\$ 264.30</b>	<b>\$ 341.30</b>	<b>\$ 247.80</b>	<b>\$ 181.60</b>	<b>\$ 228.50</b>	<b>\$ 1,437.40</b>

## Commercial Integration Within Programs

PE	Program Name	FY23	FY24	FY25	FY26	FY27	FY28	Totals
1203110SF	SCN CAS (Commercial Augmentation)	\$ 6.30	\$ 14.50	\$ 10.60	\$ 9.50	\$ 10.80	\$ 12.00	\$ 63.70
1208248SF	Space C2 Data as a Service	\$ 20.20	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00	\$ 120.20
1203940SF	UDL Commercial Data SDA Marketplace	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 18.00
<b>TOTALS</b>		<b>\$ 29.50</b>	<b>\$ 37.50</b>	<b>\$ 33.60</b>	<b>\$ 32.50</b>	<b>\$ 33.80</b>	<b>\$ 35.00</b>	<b>\$ 201.90</b>

## Commercial Launch Procurement

PE	Program Name	FY23	FY24	FY25	FY26	FY27	FY28	Totals
1203953SF	NSSL (Nat'l Security Launch)	\$ 1,025.00	\$ 2,143.00	\$ 2,187.00	\$ 2,067.00	\$ 2,195.00	\$ 2,223.00	\$ 11,840.00
1206860SF	RSLP (Launch)	\$ 39.10	\$ 74.80	\$ 72.80	\$ 67.60	\$ 69.30	\$ 70.80	\$ 394.40
1206310SF	SDA Launch (using NSSL)	\$ 746.30	\$ 529.50	\$ 498.40	\$ 412.10	\$ 241.60	\$ 246.60	\$ 2,674.50
<b>TOTALS</b>		<b>\$ 1,810.40</b>	<b>\$ 2,747.30</b>	<b>\$ 2,758.20</b>	<b>\$ 2,546.70</b>	<b>\$ 2,505.90</b>	<b>\$ 2,540.40</b>	<b>\$ 14,908.90</b>

## COMMERCIAL INVESTMENT FYDP TOTALS

- **Space Domain Awareness**
  - \$454M
- **Tactically Responsive Space**
  - \$110M
- **COMSATCOM Integration**
  - \$891M
- **\*COMSATCOM Services**
  - \$850M+ Annually via WCF
- **Space C2 Data as a Service**
  - \$120M
- **Space Control Network (Space)**
  - \$64M
- **Launch**
  - \$14.9B

**USSF executing \$16.5B in commercial integration/procurement – more is needed!**

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\*COMSATCOM services executed by COMSO for DoD via working capital fund



## *Opportunities - Challenges - Innovations We're Seeing in the Following Areas:*

*TT&C Ground Systems  
SATCOM Gateways & Terminals  
Space Mission Planning Ground Systems  
Data Exploitation Ground Systems  
Space Domain Awareness (SDA) Ground Systems*



# Commercial TT&C Ground Systems



- **Opportunities:**

- Increasing data volume & advancing technology foster a shift toward service-based models
  - Reduces the need for DoD and PoRs to always build their own networks for TT&C
- Adoption of new technologies like optical communications & software-defined payloads
  - Enhances data throughput & system flexibility as TT&C automation advances

- **Challenges:**

- DoD transition to digital & cloud-based operations
  - Requires significant infrastructure changes as well as investments
- Integration of ground systems into broader networks, such as 5G
  - Drives the need for continuous security improvements, innovation & adaptation

- **Innovations:**

- Software-based ground systems increasingly employing MOSA approaches
  - Improves adaptability, resiliency, security & reliability
- Creative partnerships & new business models increasing
  - Improves ability to expand network capacity, TT&C site proliferation & access to cloud services



# Commercial SATCOM Gateways & Terminals



## • Opportunities:

- Demand for global connectivity drives innovation in SATCOM gateways & terminals
  - Enabling more efficient and reliable communication links
- Seamless communications across terrestrial & celestial SATCOM systems

## • Challenges:

- Deployment of advanced SATCOM gateways & terminals involve significant costs as well as technical complexities
  - Increasing demand for bandwidth
  - Managing spectrum
  - Avoiding interference

## • Innovations:

- Phased array & electronically steered antennas
  - Offers improved performance, multi-beam capabilities & greater flexibility
- Interoperability Standards
  - Maximizing global industry consortiums & standard committees (e.g. IEEE)
- Hybrid Gateways & Terminals
  - Pushing compatible Multi-card & SDR solutions meeting DoD form-factor & SWAP requirements



# Commercial Space Mission Planning Ground Systems



## • Opportunities:

- Automation & AI can significantly improve the efficiency of mission planning & execution
- Cloud computing offers scalable resources for processing complex mission planning algorithms & data sets
  - Enhances interoperability for seamless integration & data sharing across diverse systems

## • Challenges:

- Complexity of integrating real-time data feeds
  - Ability for disparate mission planning systems to react to dynamic mission requirements
- Maintaining the security & integrity of mission-critical data
  - Ability to operate at multi-classification levels in distributed & cloud-based environments

## • Innovations:

- Pushing towards machine learning & AI to automate mission planning tasks and optimize satellite operations
- Developing more robust cybersecurity protocols & encryption technologies to protect sensitive mission planning data





# Commercial Data Exploitation Ground Systems



## • Opportunities:

- Explosion in data generated by satellites offers unprecedented opportunities for advanced analytics, machine learning & AI to extract valuable insights
- Rapid processing advancements enable real-time processing of satellite data
  - Enables immediate decision-making to take action

## • Challenges:

- Sheer volume & complexity of data poses significant challenges
  - Requires advances in storage, processing power & analysis techniques
- Easily accessible processed data while maintaining compartmented security

## • Innovations:

- Cloud computing for scalable processing & storage solutions
- Edge computing for lower latency in critical real-time applications
- Advanced analytics, AI & machine learning algorithms
  - Automates data processing
  - Enhances predictive capabilities
  - Uncovers new insights



# Commercial Space Domain Awareness (SDA) Ground Systems



## • Opportunities:

- The growing number of satellite constellations necessitates more efficient & flexible SDA ground systems
- Software driven integration with commercial SDA networks & technologies
  - Enhances SDA operational capabilities & responsiveness

## • Challenges:

- Managing the complexity & security of SDA ground systems reporting across extremely diverse & numerous constellations
- Ensuring interoperability & seamless data exchange between different ground architectures & platforms

## • Innovations:

- Pushing towards scalable, modular ground system architectures
  - Support for a wide range of missions & satellite constellations
- Pushing towards security designed into SDA ground systems from the outset
  - Dual-use SDA sensors drive advanced encryption & cyber defense mechanisms
- Advanced analytics, AI & machine learning algorithms
  - Automates data processing; enhances predictive capabilities; uncovers new insights



# Questions

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# Questions?

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# *Back-up*

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# Front Door

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- ***A first step for early-stage startups, non-traditional partners, and other commercial vendors to engage with the US Space Force***
- ***A central point of connection and useful information exchange for industry and government stakeholders***
- ***Focuses on discovering and aligning innovative technologies and capabilities to space systems programs and mission areas and priorities***
- ***Informs startups, non-traditional partners, and commercial vendors of Space Force technology and capability needs to help them better understand and potentially support the “art of the possible”***
- ***Helps facilitate engagement and connect commercial vendors and businesses to Space Force Command and DoD organizations***

## MISSION AREAS

Front Door has divided capabilities into eleven mission areas.



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# OVERVIEW



Headquartered at the Los Angeles SpaceWERX Hub, SpaceWERX inspires and empowers collaboration with innovators to accelerate capabilities and shape our future in space.

SpaceWERX is both a part of AFWERX and the Commercial Space Office (COMSO), aligned with each organization's vision, SpaceWERX is uniquely positioned to drive innovation and commercialization within the Space Force.

## MISSION

Accelerate agile and affordable capability transitions by teaming leaders in innovative technology with Airman and Guardian talent.

## VISION

Forge an innovation ecosystem that delivers disruptive Air and Space capabilities.



SPACEWERX  
SHAPING OUR FUTURE IN SPACE

AFRL



AFWERX

SPACEWERX

# IMPACT

Since SpaceWERX was founded in Aug '21

**908**

**AWARDS**

**563**

**COMPANIES AWARDED**

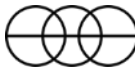
**8 WEEKS**

**AVERAGE TIME TO AWARD**



**\$184.3M**

TACFI/STRATFI



**\$405.5M**

Open Topic



**\$172.8M**

Specific Topic



# CASR Framework

## CASR END STATE

CASR is a contractually managed framework that ensures DoD has access to commercial capabilities throughout the spectrum of conflict

### CASR Commercial Baseline (Day-to-day Operations & Surge)

- Provide integrated commercial capabilities in peacetime and exercise/wargame full CASR actions with customer
- Have consideration in best value evaluation continuum for access to COMSO contracts and task orders
- Receive improved info and threat sharing
- CASR Pre-requisites:
  - US-owned company, including FOCI-mitigated US-owned subsidiaries
- Execute pre-negotiated services and pricing for increased commercial capacity
- Varying echelons of support, increasing with threat-based needs or requirements

- Contract action to surge triggered by regional conflict or significant crisis
- Driven by COCOMs, DoD, services, other Gov't agency requirements

SECDEF Approval

### Full CASR Execution

- Baseline, plus:
  - USG has top priority or exclusive access (specifics vary by mission area and contract)
  - USG could execute denial of service
  - Potential for USG-backed war risk insurance for services provided, CAL/DAL (TBD)
  - Significant info/threat sharing
  - US-owned subsidiaries case-by-case

- Triggered by war, major conflict, national or international emergency
- Directed by President or SECDEF

Spectrum of Conflict