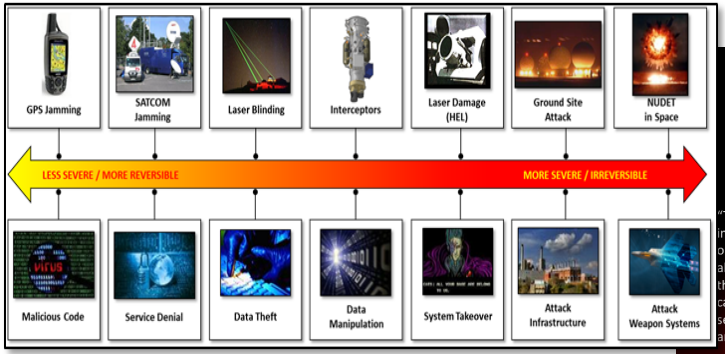
Space Enterprise Acquisition

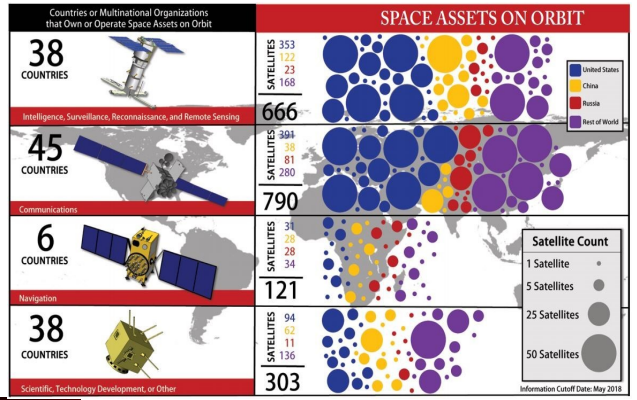
Col Russ Teehan
SMC Portfolio Architect
20 September 2019

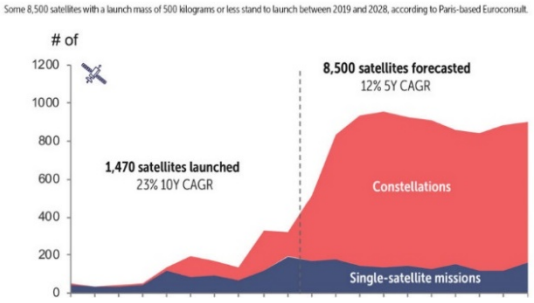
Shifting to an Enterprise Paradigm

- National Security Strategy and National Strategy for Space have placed a high priority on access to—and operations in—space
- Adversaries are rapidly leveraging technology along multiple threat axes (kinetic, cyber, RF, etc.) to outpace and counter the US across all domains including space
- Significant increase in global space investment offers much opportunity within Commercial/Allied provided capability



SPACE AND MISSILE SYSTEMS CENTER





AF and AFSPC must change the way they architect and deliver space capabilities as a key component of a lethal, resilient, and rapidly adapting Joint Warfighting Force

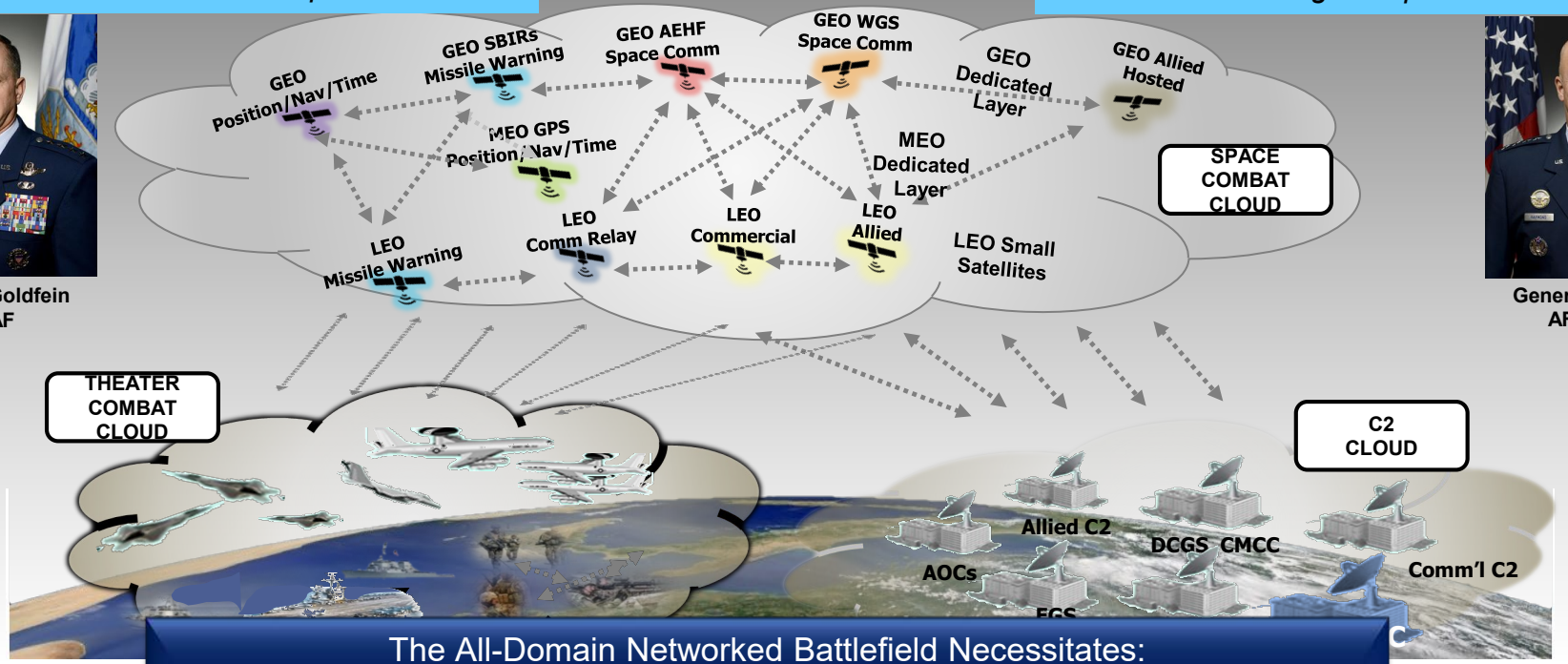
Space in the All-Domain Fight

"Victory in future conflict…will go to that leader who can control his or her forces to create multiple dilemmas from multiple domains"

"Space is a warfighting domain just like air, land and sea. We have to be prepared to fight a full range of operations"

General Goldfein
CSAF

General Raymond
AFSPC/CC



The All-Domain Networked Battlefield Necessitates:
Agile Operations/Requirements Processes + Rapid Enterprise Acquisition

Enterprise Acquisition

SPACE AND MISSILE SYSTEMS CENTER

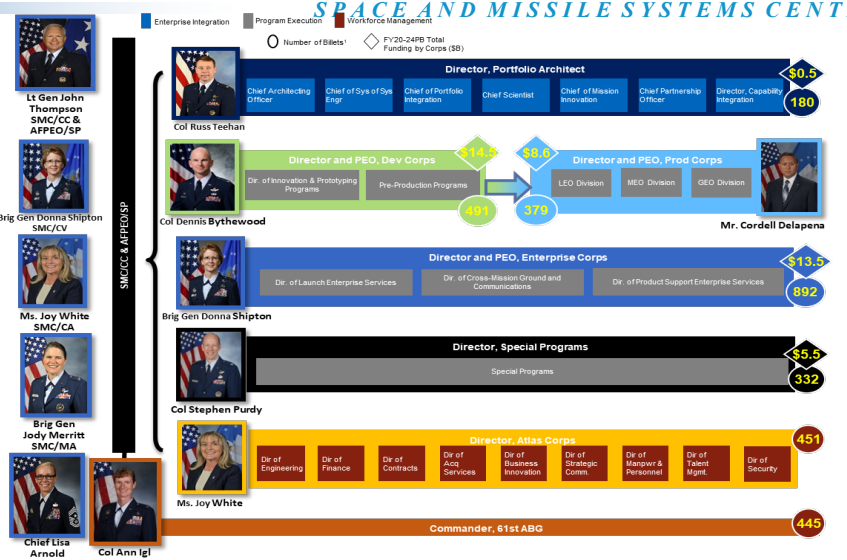
Enterprise
- **Shared vision and strategy** of an integrated portfolio across programs
- **Resilient, multi-layered architectures** and infrastructure services that leverage economies of scale for all programs
- Ability to **dynamically reallocate resources** based on priorities and promote collaboration and knowledge sharing

Partnerships
- A **wide network of suppliers** including both traditional contractors and innovative start-ups
- **Collaboration with Inter-government and International allies** to share costs, technologies and solutions to move faster and improve capabilities

Innovation
- Encourage **fast-failure and fast-learning** by maximizing use of prototyping, experimentation and rapid demonstration/feedback
- **Balanced portfolio** of S&T, R&D and fielded capabilities providing incremental improvements and opportunities for innovation
- Make **Strategic innovative investment** in high pay-off technologies and game changing capabilities (Space Control, Rapid Orbital Mobility, Info Agility)

Culture
- **Mission focused**, motivated, knowledgeable, and empowered workforce
- A culture of **risk-taking and continuous improvement** that enables creative problem solving
- **Talent management system** designed to develop leaders, empower teams, and reward performance

Speed
- **Increase decision-making velocity** with flatter organization and delegated decision authorities
- **Streamlined processes, documentation and reviews** tailored for the acquisition strategy



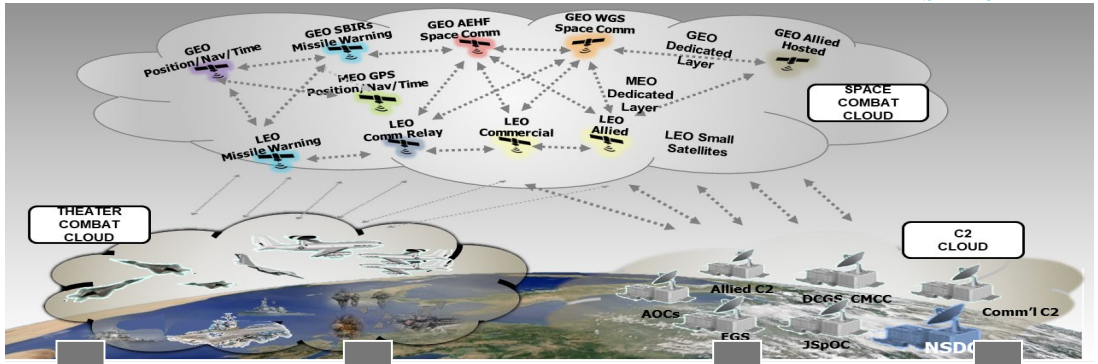
Portfolio Architect

Architect the Space Enterprise of the Future

Engineer and Deliver the Systems of Systems Architecture of the Present

Drive the Space Investment Strategy to Simultaneously Deliver the As-Is and Enable the To-Be

Space Enterprise Capability & Acquisition Needs



Space Enterprise Capability Needs

Enhanced Resiliency: Enhance Mission Assurance of existing architecture through all spectrums of conflict

Architecture Agility: Rapidly onboard new technology, partner systems, and Commercial/Allied capabilities

Agile Rqmnts/CONOPS Processes: Create dynamic capability area strategies able to allocate rqmnts and update CONOPS at the speed of partnership opportunities and technology innovation

Space Enterprise Acquisition Needs

System of Systems Engineering: Ensuring seamless Protection / HVA architecture interoperability

Agile/Open Architecture: Create dynamic space C3I architecture including enterprise products & standards/interfaces required to enable mission partner integration

Rapid Acq / Fielding: Create rapid prototyping capability to include 14 AF DevOps Cells (CDD), Early Ops Experimentation Cells (RSC & Catalyst Campus), Rapid Contracting (SpEC OT)

Enterprise Architecture Dimensions

"Horizontals"

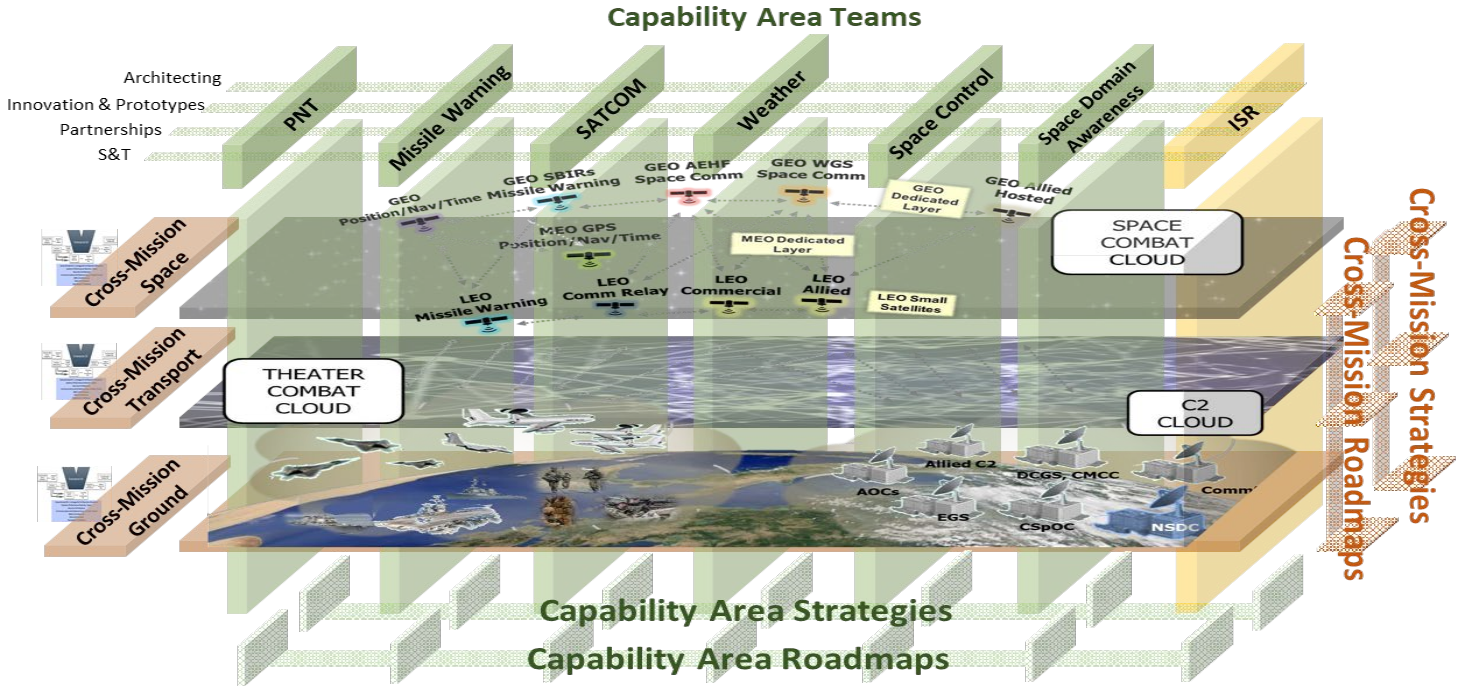
Enterprise Integration

Dynamic systems of systems engineering framework

"Verticals"

Warfighting Capabilities

Dynamic family of systems requirements framework

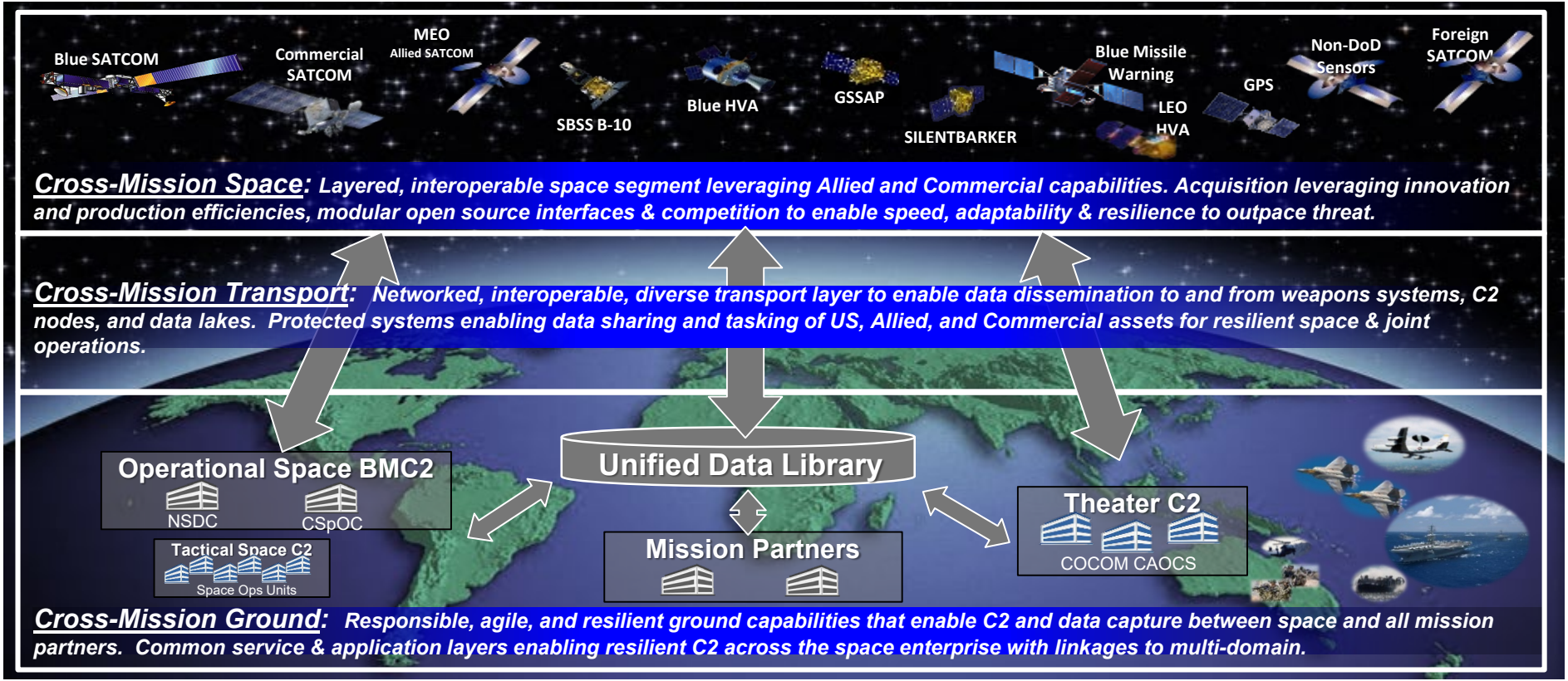


We are creating the Enterprise Processes and Products to Simultaneously Evolve the "Verticals" and "Horizontals"

2030 Space Enterprise Architecture

(AFSPC Key Lines of Effort)

SPACE AND MISSILE SYSTEMS CENTER



Space Enterprise Focus Areas

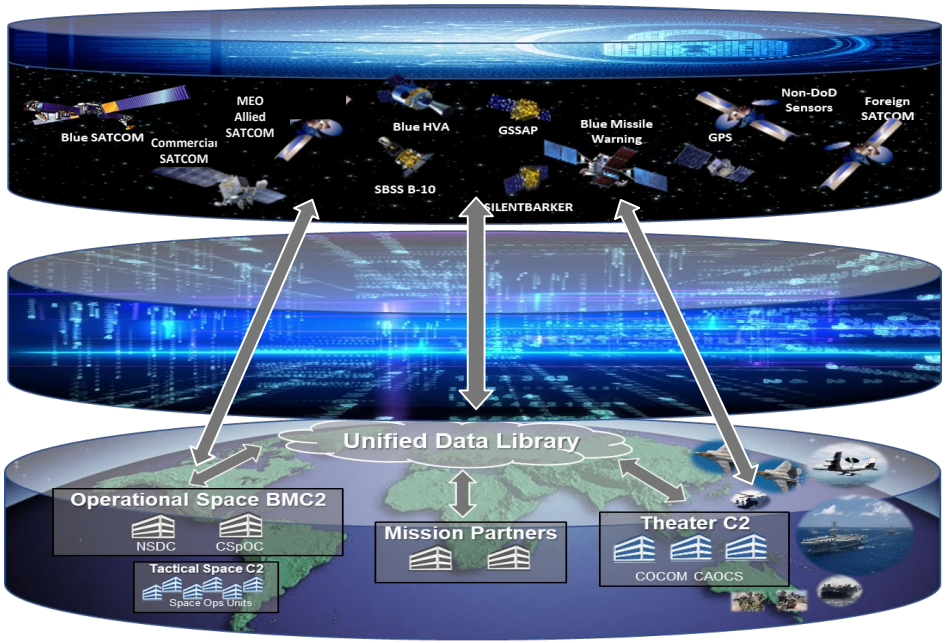
SPACE AND MISSILE SYSTEMS CENTER

Space/Cyber
Life-cycle cyber security/protection for on-orbit & cross-mission enterprise capabilities

Cross-Mission Space
Continuous Product Agility--driving production & high-rate payload efficiencies and able to leverage commercial and Allied opportunities

Cross-Mission Transport
Agile "path-agnostic" open networked C3I architecture enabled by machine-to-machine capabilities to stitch space to the "all-domain"

Cross-Mission Ground
Dynamic all-level C2 solutions for the space enterprise & hybrid commercial/Allied architectures, enabling theater integration and rapid on-board of new capabilities



Space Maneuver/Logistics
Novel architecture & capabilities enabled by alternative orbits/cis-lunar options, agile launch, enhanced maneuver and on-orbit servicing

Cross-Mission Data
Cross-mission data ecosystem, leveraging traditional/non-traditional data analytic tools & applications, enabling C2, domain awareness, tasking & delivery of warfighter effects

Multi-Domain Ops Integration
Seamless cross-mission all-domain transport & data integration enabling operational theater C2 & "sensor-to-shooter" capabilities

"Virtual" Warfare Center
Dynamic "digital twin" ecosystem shared by operators & developers to plan, test, train, exercise & wargames to inform architecture and TTPs opportunities

Aligned with AFSPC/CC's challenges that must be solved to field resilient space capabilities to joint operators