



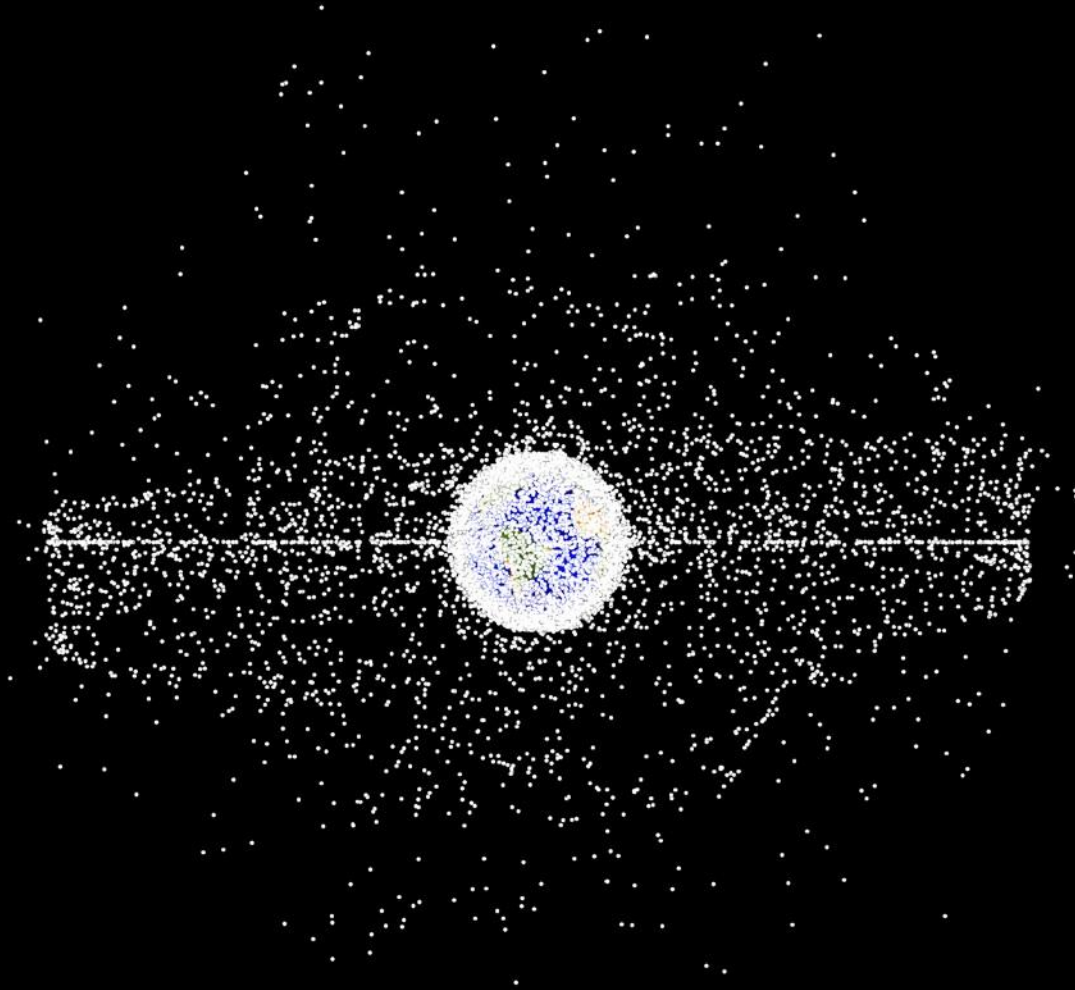
# Open Architecture Data Repository

UN Committee on the Peaceful Uses of Outer Space  
Scientific and Technical Subcommittee, 58th Session

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**The current  
way of doing  
business is  
unsustainable**



Credit: NASA Orbital Debris Program Office



# Recent Developments in U.S. Spaceflight Safety Policy

## **National Space Policy (9 December 2020)**

- Reaffirms and builds upon Space Policy Directive-3 “National Space Traffic Management Policy” (19 June 2018)
- Commerce remains lead federal department to:
  - Partner with private sector and U.S. Government stakeholders to develop and operate Open Architecture Data Repository for enhanced space situational awareness
  - Support to domestic and international civil and commercial space safety
- The Department of Defense is transitioning away from providing orbital space safety services to domestic commercial and international civil and commercial operators.

## **Consolidated Appropriations Act, 2021 (27 December 2020)**

- Initiates Department of Commerce space traffic management (STM) pilot program to develop an Open Architecture Data Repository (OADR)
  - Led by Department of Commerce
  - Conducted in collaboration with industry, Department of Defense, Federal Aviation Administration, NASA, and other Federal partners
- Commerce also directed to:
  - Develop STM technical prototypes,
  - Perform STM demonstrations and experiments

***Sustained U.S. Commitment to Engagement at COPUOS as well as Bilateral and Multilateral International Cooperation***

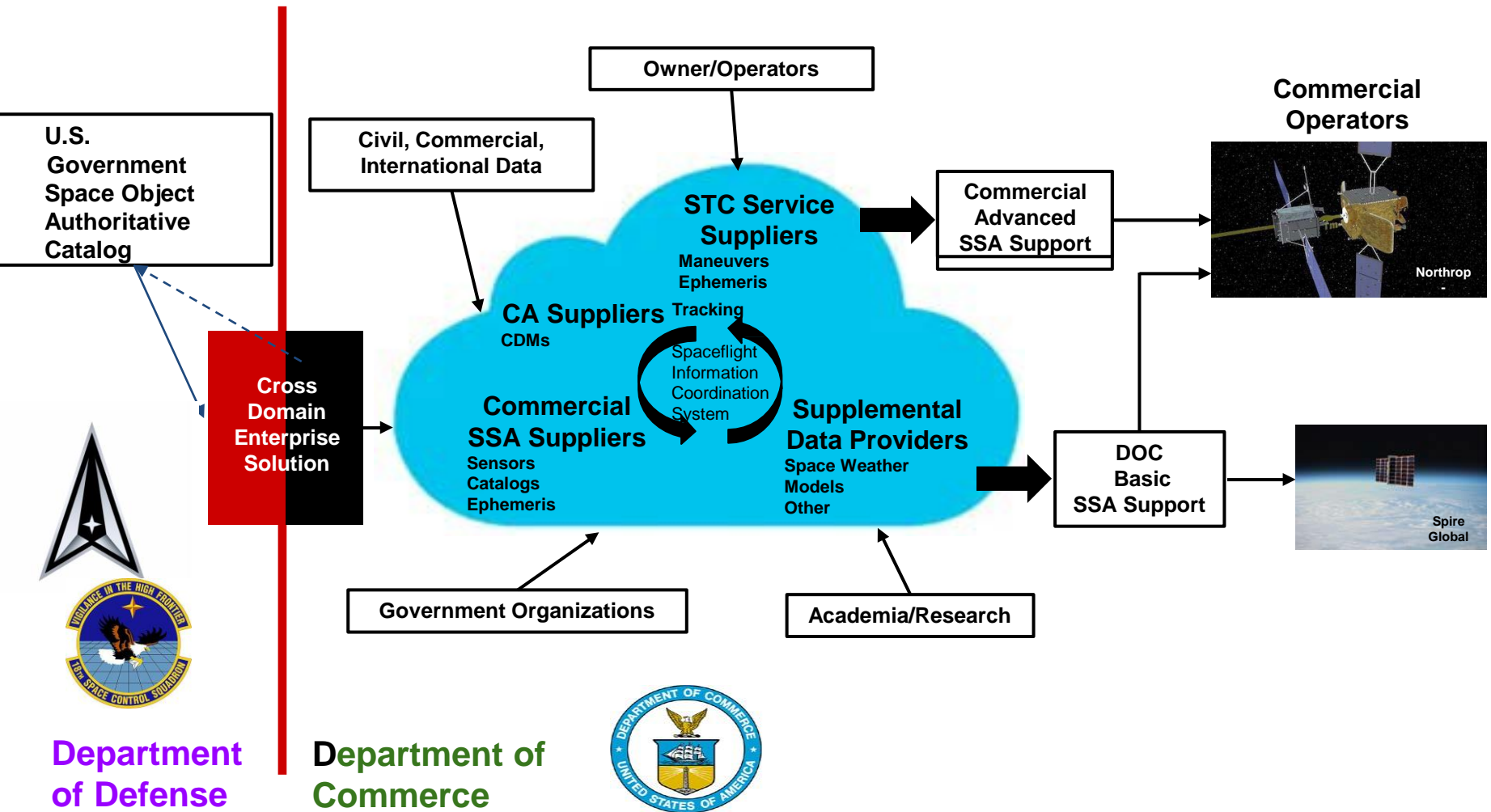


# OADR Guiding Principles

- Continue U.S. provision of reliable, trustworthy and free basic orbital space safety services to allow civil and commercial space operators to make timely and accurate decisions
- Establish and maintain a cloud-based platform to enable government, industry, academic and international participants to improve the accuracy and timeliness of space situational awareness data
- Provide a conduit for commercial sector to develop and offer advanced SSA products and services to the full range of space operators
- Quickly incorporate new technologies and best practices to support with the burgeoning commercial space sector



# "To Be" Open Architecture



Department of Defense

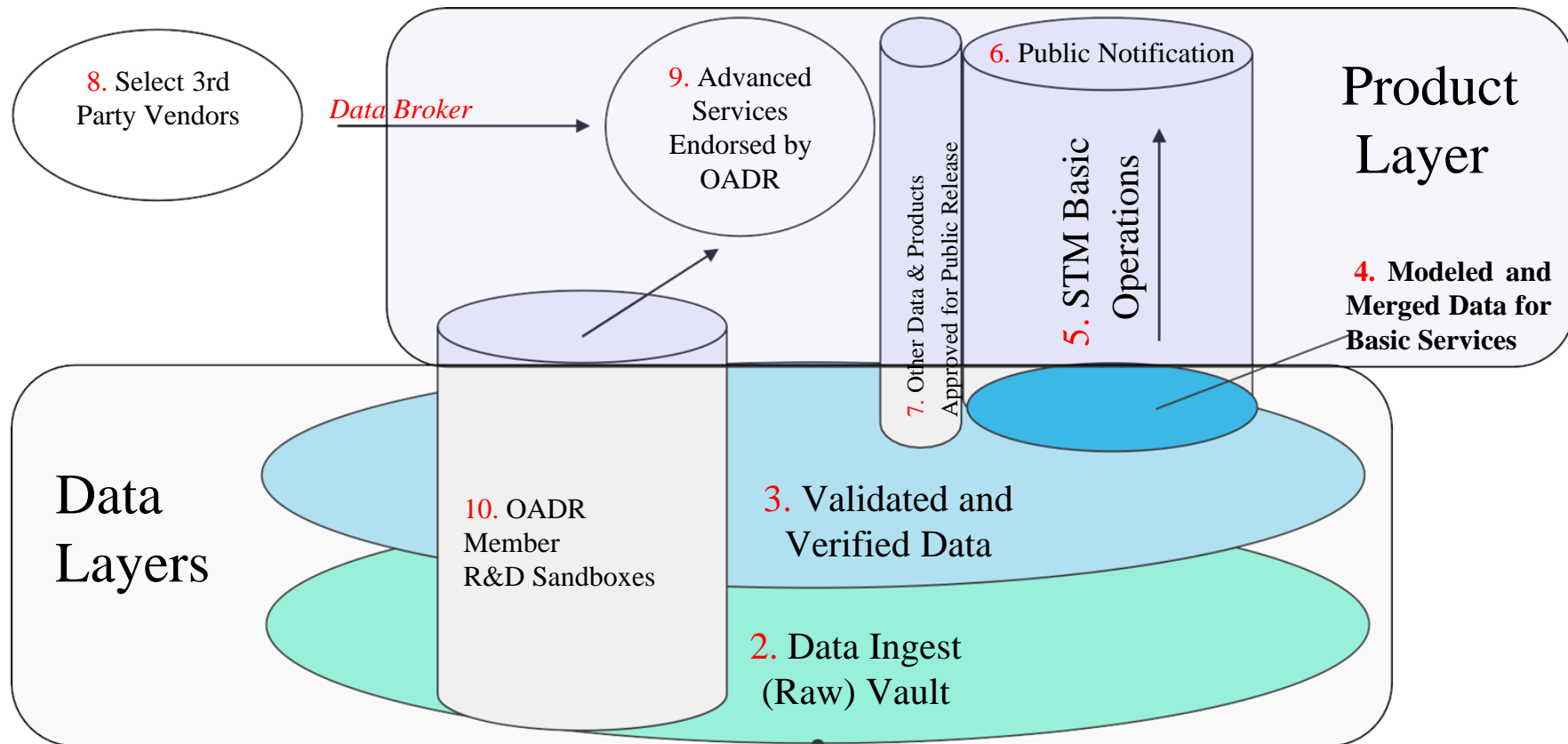
Department of Commerce



Office of Space Commerce



# OADR Components



1. Multiple Real-Time Data Streams from Commercial, Civil, International and DOD (Includes Unified Data Library (UDL) and Space-Track)



# U.S. Approach to Use of Standards in Spaceflight Safety Regulation

- **Transparency in the making of technical assessments, factual findings, and normative policy choices, including:**
  - Transparent and open opportunities for public participation regarding assessments, findings and policy choices to ensure effective monitoring, critiquing and reviewing of rulemaking
- **Regulatory analyses, based on sound science and data and the consideration of alternative approaches to and stringency of regulation**
- **Strong support across the federal government for the use of regulatory best practices**
- **Accountability of government agencies within the executive, legislative and judicial branches of the federal government.**

## *U.S. Approach Can Serve as a Model for Rulemaking by Established and Emerging Spacefaring Nations*

Source: U.S.-EU High Level Regulatory Cooperation Forum, "Report on the Use of Voluntary Standards<sup>1</sup> in Support of Regulation in the United States," October 2009

[https://www.nist.gov/system/files/documents/2016/12/30/voluntary\\_standards\\_usregs.pdf](https://www.nist.gov/system/files/documents/2016/12/30/voluntary_standards_usregs.pdf)



# Potential Orbital Space Safety Standards and Best Practices

- **Satellite position sharing**
  - Ephemeris production frequency, length, density, and quality (including covariance realism standards)
  - Trackability enhancements
- **Conjunction assessment and mitigation**
  - Risk assessment methods and thresholds for action
  - Coordination and notification among operators
- **Standard operational procedures for operational coordination between two or more satellite operators**
- **Constellation planning**
  - On-orbit colocation deconfliction
  - Ascent/descent management
  - Maneuverability requirements for some orbits





# Supplemental materials





# Policy Guidance

*“To maintain U.S. leadership in space, we must develop a new approach to space traffic management (STM) that addresses current and future operational risk.*

*This new approach must set priorities for space situational awareness (SSA) and STM innovation in science and technology (S&T), incorporate national security considerations, encourage growth of the U.S. commercial space sector, **establish an updated STM architecture**, and promote space safety standards and best practices across the international community.”*

-- Space Policy Directive 3, “National Space Traffic Management Policy,” June 18, 2018



# National Academy of Public Administration Study of STM

- **The FY 2020 Appropriations Act required a NAPA study to assess OSC's role in SSA/STM. NAPA found:**
  - OSC is best suited to perform STM tasks within the federal government.
  - OSC views STM as predominantly a data management function, rather than as a prescriptive regulatory role.
  - The Department of Commerce, with its proven ability to effectively manage large, diverse, and complex data sets, provides essential technical expertise and other support to the Office of Space Commerce for SSA and STM tasks.
- **NAPA also highlighted OSC's concept of operations using a collaborative approach involving military, civilian, commercial, and international space actors, and its ability to draw upon the deep expertise from across the Department.**

