

Capacity Building with the Space Safety Institute

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¹ **The Aerospace Corporation** is a US non-profit, Federally Funded Research and Development Center (**FFRDC**), that addresses complex problems across the space enterprise and other areas of national significance through agility, innovation, and objective technical leadership.



(VIDEO)

The Demand for Space Safety

- Space offers significant benefits to society, the economy, and security
 - Global space economy likely to significantly grow over the next 20 years
 - Space is risk-prone and capital-intensive
- Growth of space activities depend on safe and assured space operations

INCREASING NUMBER OF
NEW ENTRANTS TO SPACE
ECONOMY



VARYING DEGREE
OF PRIOR SAFETY EXPERIENCE



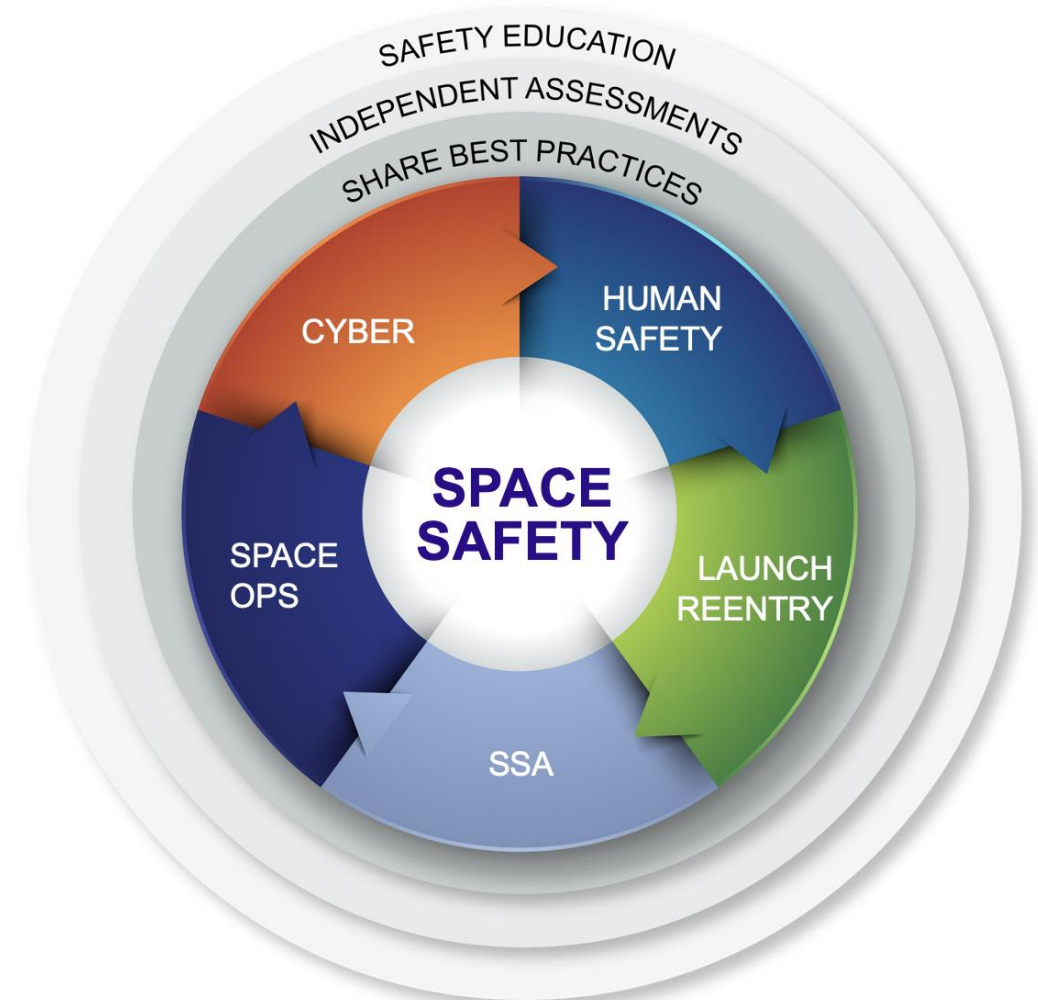
LIMITED FAMILIARITY WITH
REGULATORY REQUIREMENTS



The Vision of a Space Safety Institute

VALUE PROPOSITION

The Space Safety Institute helps the global space sector to accelerate the safe deployment of capabilities by shaping the future of spaceflight safety through innovation, analysis, capacity building, and education.



SSI will enable and provide capacity building for commercial, governmental, and international entities

Key Mission Areas for Spaceflight Safety and Available Capabilities



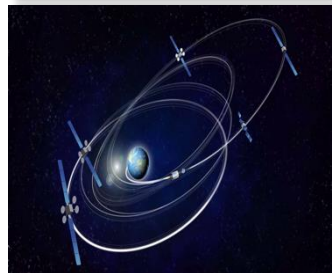
LAUNCH AND REENTRY SAFETY

- Spaceport safety
- Design for demise
- Collision avoidance
- Reentry analysis



SPACE SITUATIONAL AWARENESS

- Ground and space-based data collection
- Orbit determination and conjunction analysis
- Event and anomaly analysis



SPACE OPERATIONS ASSURANCE

- Satellite servicing and active debris removal
- Debris mitigation
- Collision avoidance maneuvers
- Traffic coordination



CYBER SECURITY IMPLEMENTATION

- Ground-based networking infrastructure
- Ground to space communications
- Space to space communications

MISSION AREA ACTIVITIES

- Providing Independent Assessments
- Performing Technology Research
- Sharing Infrastructure, Tools and Data
- Supporting the Development of Policy and Strategies
- Supporting the Development of Standards and Best Practices
- Providing Safety Education

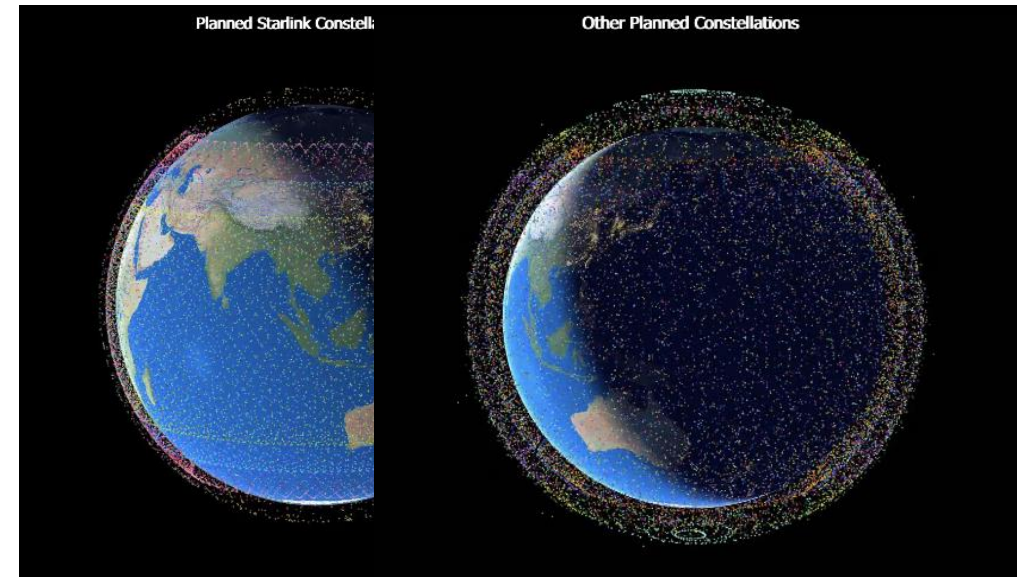
A two-day Workshop for New Space Actors

- A collaboration with Secure World Foundation based on the SWF published “Handbook for New Actors in Space”
- People registered: over 120
- Agenda outline
 - International Framework for Space Activities
 - National Space Policy and Administration
 - Responsible Operations in Space
 - Crisis Scenario Simulations



Framework for Autonomous Large LEO Constellations

- Several large LEO constellation are being deployed, some with autonomous maneuver capabilities
 - OneWeb, Starlink, Kuiper, etc.
- The Space Safety Institute is facilitating steps to
 - Create mutual understanding between operators
 - Improve communications and maneuver planning
 - Develop, jointly with operators, best practices to enable safe operations, free from interference
- Modeling and analysis tools available



December 2030 Forecasted Large LEO Constellation activity
(from August 2021 FCC filings)

Summary

Spaceflight Safety calls for a holistic, collaborative and capacity building approach

- The Space Safety Institute is enabling capacity building by sharing capabilities, tools, and expertise based on the broad and deep expertise of the Aerospace Corporation and partner organizations
- The SSI is an entry point for international entities, governments and industry to accelerate space activities that are safe and encourage space safety-related innovation
- The SSI is offering safety workshops and training events to educate and inform new space actors



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