

IAF SYMPOSIUM ON SECURITY, STABILITY AND SUSTAINABILITY OF SPACE ACTIVITIES  
(E9)

Interactive Presentations - IAF SYMPOSIUM ON SECURITY, STABILITY AND SUSTAINABILITY  
OF SPACE ACTIVITIES (IP)

Author: Mr. Swarnajyoti Mukherjee  
Apogeo Space Srl, Italy, s.mukherjee@apogeo.space

Mr. Francesco Ventre  
International Space University (ISU), France, Francesco.Ventre@live.isunet.edu  
Dr. Annamaria Nassisi  
Thales Alenia Space Italia, Italy, annamaria.nassisi@thalesaleniaspace.com

A PRACTICAL PERSPECTIVE OF DEVELOPING SUSTAINABLE SPACE FOR THE EU WITH  
ESSENTIAL STRATEGIES & POLICIES FRAMEWORK

**Abstract**

In the last decade, the space scenario has changed with the small satellite constellation's emergence by offering non-traditional actors, such as universities, private companies, research centres, and non-space-faring nationals, to launch satellites congested due to rising numbers of on-orbit satellites and debris objects pose a threat to all the space economy stakeholders. Uncontrolled growth will severely affect future space operations. In this context, the Newspace standards, space policy, and licensing approaches can all have a significant impact on the future of operations and the debris ecosystem.

Post-mission disposal and improved sustainable design of the systems (Design for Demise) have been taken into consideration as mitigation techniques. However, to have an impact on the existing scenario, those practices shall be coupled with the Space Traffic Management (STM) paradigm. STM, defined by the International Academy of Astronautics (IAA), includes the procedures and tools needed to enter, use, and return space in a secure, safe, and ecological manner.

The European Union (EU) already promotes a multilateral approach to ensure the preservation of the long-term safety and sustainability of activities in outer space, with the objective of reducing threats and risks for all space systems. The United States already took the global STM initiatives, meanwhile, Europe strives to secure the long-term viability of space activities while acknowledging that space-based technologies like communications, navigation, and Earth observation are essential to the European economy, society, and citizens.

The EU could play a key role and be at forefront of the discussion of space sustainability. Based on a critical analysis of the existing strategies and policies, here the paper will suggest a robust and flexible framework suitable to accommodate future commercial regulatory requirements. To foster the EU STM future market, this paper depicts the discussion on multiple proposals such as the establishment of a solid legal framework, the coordination of the effort from the EU Member states, and the development of the European position within the ISO forum by the European Cooperation for Space Standardization (ECSS) to provide the technical input and recommendations. The target is to contribute a framework for the sustainable development of a space economy with a focus on the STM.