

Workshop of the Working Group on the Long-term Sustainability of Outer Space Activities

Panel 2 on Safety of space operations

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1. Over the span of 65 years of space exploration, we've witnessed remarkable achievements alongside the concerning build-up of space debris, which now presents an escalating threat to satellites. This challenge has grown in tandem with the rapid expansion of the space industry and the launch of expansive satellite mega-constellations, necessitating an increased number of spacecraft operations. Ensuring the safety of critical space assets through precise conjunction assessments and automation has become paramount, yet hurdles persist due to limitations in observation data availability and accuracy.

2. The burgeoning volume of objects in space, including minuscule fragments capable of inflicting significant damage, underscores the pressing need for enhanced data management. Fortunately, advancements in sensor technology, data analytics, and artificial intelligence offer promising prospects for refined observation and real-time tracking of space objects.

3. To successfully navigate this evolving landscape, fostering collaboration among space operators and stakeholders is imperative. Establishing global initiatives such as space safety coalitions and best practice guidelines is instrumental in guiding the industry towards a sustainable and secure future in space.

4. Developing and maintaining Space Situational Awareness (SSA) capabilities, such as space-based sensors and data processing infrastructure, are an expensive endeavour. At the same time, it is much required to push the technological advancements to match the commercialisation of up- and down- stream activities in space industry. Commercial SSA companies may face budget constraints and competition from government funded SSA programs, to stay competitive and bring the required technical innovative approaches. Collaborating with international partners and sharing SSA data can enhance the accuracy and effectiveness of SSA services. However, coordinating such efforts can be challenging due to geopolitical considerations. The regulatory environment for space activities is currently complex and varies from country to country. Navigating these regulations, including licensing requirements and frequency coordination for satellite operations, are challenging for commercial SSA and 'space operations as service' providers. Success in the industry requires a combination of efforts from the companies as well as the global willingness towards cooperation for space sustainability.

5. Through our participation in the forum, NorthStar will bring in its experience and expertise as a commercial SSA space-based sensor owner and data provider. Our deep understanding of both technological capabilities and limitations, as well as our insight into current market requirements, will enable us to provide valuable inputs towards the development of solutions within the United Nation's initiatives and the crafting of international policy frameworks for space sustainability.