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SPACE INFORMATION SHARING ECOSYSTEMS: DIGITAL KNOWLEDGE MANAGEMENT IN OPERATIONAL AWARENESS

Abstract

Modern space activity exists as a very different world than the Space Race of the last century. Today's space coordination information sharing ecosystems can be designed to match the very different world, where states exist and exercise power side by side with corporate and civic space actors, enmeshed in a web of interdependent global social and technological networks. Space safety is not limited to the safety of any individual component but must consider how that component interacts within a complex space system. This goes beyond engineering and should consider how the operation of objects in space interact with one another. Knowledge management centers on the concept of knowledge sharing but means different things to different stakeholders.

This paper develops the concept of a Space Information Sharing Ecosystem (SISE) as a tool for interdisciplinary and international cooperation to facilitate the development of norms and standards, cooperation, risk management, and information management. Quality, safety, and security require trusted information as a foundation. The SISE approach starts with the determination of a Minimum Viable Information (MVI) set for each RISK category including bounded information that should be shared with the space community, and unbounded information that should not be shared due to proprietary or national sensitive nature.

The paper concludes with a call to action to pursue an MVI in a sustainability of space information category as a starting point. This initial MVI can be implemented using a small scale SISE prototype as a demonstration to the space community. Such a starting point can energize the space community to tackle more challenging MVIs and start building an operational risk characterization of the space domain. In turn, a trusted and symmetric risk characterization can serve as a foundation for norms-based rules in the space domain.