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Author: Prof. Mariel Borowitz
Georgia Institute of Technology, United States

NETWORK ANALYSIS OF THE EVOLVING LANDSCAPE FOR SPACE SITUATIONAL AWARENESS

Abstract

The U.S. military currently operates the most advanced SSA system in the world. However, in recent years, there has been a rise in commercial and foreign SSA providers, as well as a push for greater U.S. civil government involvement. In many cases, these developments have been spurred by the desire by civil, commercial, and foreign satellite operators to have access to more accurate SSA information than the U.S. military is willing to provide through its SSA data sharing program. At the same time, the U.S. military has engaged in, or is exploring, partnerships with many of the emerging SSA data providers.

Given the rapid changes occurring in this sector, there is significant uncertainty about what the future SSA organizational environment will look like, and how the U.S. government should engage with these developments. In particular, the U.S. government must determine 1) how best to promote and/or regulate commercial entities in the United States, 2) whether and how to take advantage of the data and services provided by both commercial and foreign entities, and 3) how to coordinate with U.S. civil entities regarding SSA management. These decisions will affect the quality of SSA information available to the U.S. military and others, and will have an impact on the effectiveness of global SSA and the sustainability of the space environment as a whole.

To investigate these issues, I conduct a rigorous network analysis - a systematic mapping of the information flows and connections between these entities, with particular attention to likely development over the next five to ten years. It will include a full listing of the U.S. and foreign government entities as well as commercial actors involved in Space Situational Awareness, including their current and planned SSA assets. Current efforts have tended to react to developments as they occur, whereas the forward-looking aspects of this project will enable a more wholistic and proactive treatment of this issue. The mapping created for this project allows for dynamic analysis and consideration of multiple future scenarios for the evolution of this sector and partnerships among organizations.