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Author: Ms. Ludovica Ciarravano

Sapienza University of Rome, Italy, ludovica.ciarravano@gmail.com

THE EUROPEAN SPACE SITUATIONAL AWARENESS LEGAL FRAMEWORK AS AN EXAMPLE
OF TOP-DOWN APPROACH APPLICABLE TO FUTURE EUROPEAN SPACE TRAFFIC
MANAGEMENT-RELATED INITIATIVES**Abstract**

More than seventy entities, including countries, international organizations, and commercial companies, currently operate more than 3,000 satellites in orbit around the Earth. These space capabilities facilitate many of the activities conducted on Earth and are an important part of securing physical, social, and economic wellbeing of nations. Over the coming decade, the number of operational satellites in orbit is set to increase to over 20,000, and, according to the European Space Agency's Space Debris Office, the estimated number of break-ups, collisions, or anomalous events resulting in fragmentation is more than 550. As a result, the development of a Space Traffic Management (STM) framework aiming at guaranteeing the security, safety, and sustainability of outer space activities is considered crucial. Notably, among STM-related activities, the exploitation of Space Situational Awareness (SSA) services, along with the demand for products and services from a credible Space Surveillance and Tracking (SST) provider, able to detect pieces of the debris population, but also detect and attribute purposeful attacks on satellites, is projected to increase. At European level, hitherto, most STM-related issues are addressed through a bottom-up approach, centred around the sovereign competence of national governments. Nevertheless, in the SSA/SST domain, the willingness of European autonomy in the field, namely from the United States, and to contribute to global burden-sharing, has led the European Space Agency first, and the European Union institutions then, to adopt the first collaborative frameworks concerning the Space Situational Awareness. These are the European Space Agency Space Situational Awareness Preparatory Programme (ESA SSA- PP) and the Space Surveillance and Tracking Support Framework (EUSST) set forth by Decision 541/2014/EU. The setting of the SSA/SST framework by adopting a top-down approach has proved to be appropriate to deal with some political and technical challenges, for instance, identify shared goals and principles in the field of SSA and set up a wise split of roles and responsibilities. The aim of this paper is to uphold that such a top-down approach can be considered and investigated in the development of a more general STM framework at a European level in order to achieve consistency of the overall regime made up of national initiatives. It also offers an analysing of the complementarity of the developing stages of the ESA and EU programmes, the limits and the available resources of ESA's programme and the way of handle the most sensitive segment of the SSA, namely the SST segment.