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SPACE TRAFFIC MANAGEMENT REGIME NEEDS AND ORGANIZATIONAL OPTIONS

Abstract

With the increasing risks of collisions and electromagnetic interference, some suggest that there is a need for "space traffic management" in order to sustain safe operations in the space domain. Developing such a system to manage launch, on-orbit, and reentry space activities would embody important principles of the Outer Space Treaty's Article IX —- cooperation, mutual assistance, and due regard—and the affirmative duty to consult. Performing any form of space traffic management, however, would be technically daunting, and resolving the security and proprietary concerns would present significant obstacles to achieving success with any proposed scheme. Nonetheless, some argue that a comprehensive space traffic management regime should be developed. These proponents suggest that it would require the drafting a new inter-governmental agreement on the status and use of outer space which would build on but not replace the principles incorporated in the existing space treaties. And they argue the new international agreement would need to include provisions for liability and confirm the basic principle that while States are the primary actors, provisions of the agreement also must be applicable to private activities as well, achieved through national licensing regimes. These proponents recommend that the agreement address information needs, notification systems, traffic management, and an implementing organization with appropriate oversight. Relevant space traffic management architecture options can vary. This paper will address the need for a new international agreement or set of agreements to address space congestion, debris, and electromagnetic interference concerns. Then, it will apply common sense criteria to determine which organizational options have the greatest merit for the global spacefaring community. Five overarching approaches to reduce collisions and electromagnetic interference, and mitigate space debris challenges, will be examined, scored, and arguments for and against each presented. In addition, this analysis will assess whether a space traffic management regime that incorporates privately performed regulatory mechanisms, instead of international or multi-government governmental schemes, could provide more flexible, responsive, and evolutionary processes; and whether this, in turn, could reduce space operator regulatory compliance costs.