

Promoting Space Sustainability

RAND Corporation**June 2021**

Implementation of the Guidelines for the Long-term Sustainability (LTS) of Outer Space Activities of the Committee on the Peaceful Uses of Outer Space

Operational Case Studies

I. Short description of the outer space activity

In this case study, we highlight recent research and programming on responsible space behaviour and innovative space governance from the [RAND Corporation](#), a non-profit institution that provides research and analysis on critical public policy issues. RAND research applies rigorous and objective analysis designed to advance a safer, more secure, healthier and more prosperous world. As part of its [mission](#), RAND is committed to the broad dissemination of its research findings.

Throughout its 75-year history, RAND has been a leader in research on space science, technology and cooperation. In 2020, RAND established the [RAND Space Enterprise Initiative \(RSEI\)](#), a virtual research centre with a mission to conduct and disseminate space research. RSEI serves U.S. and international space sponsors.

In pursuit of promoting cooperation on the issue of space governance, RSEI organized a series of workshops in 2020 that brought together a diverse array of experts from defence, commercial and civil backgrounds to review the central obstacles to cooperation in responsible space behaviour. The workshops sought to encourage participants to develop frameworks for overcoming these challenges. In total, the workshops included 37 individuals representing 11 countries, including Australia, France, India, the United Kingdom and the United States, among others.

The workshops had both regional and international emphases. The first emphasized European regional cooperation, and the second invited stakeholders from the Pacific. The final workshop included experts from the United States, U.S.-allied countries and non-governmental organizations (NGOs).

RAND researchers integrated the insights gained from these workshops and combined their findings with insights from external workshops and discussions with officials from international organizations, academia and NGOs, into publications designed to inform a broad audience of laypersons and experts.

In *Responsible Space Behavior for the New Space Era*, Bruce McClintock et. al. outline the barriers to international space cooperation and propose guidance for responsible space activities in the future. Later, in the wake of NATO leaders expanding their interpretation of Article 5 commitments to attacks in space, RAND researchers gathered international legal insights from their research and outreach activities, preparing a journal article for a global audience. In both documents, RAND scholars seek to promote responsible behaviour among policymakers and communicate policy insights in digestible formats for broader audiences.

Based on their preliminary findings from their 2020 work, RAND launched an internally funded project on innovative approaches to space situational awareness (SSA) and orbital risk management. In this project, researchers are exploring approaches to facilitating international commercial and governmental cooperation in space and orbital data sharing. RAND researchers have already identified key challenges via case analyses and interviews with key stakeholders in the commercial, scientific and defence communities. The anticipated deliverable is a white paper and a policy publication. RAND believes the areas of SSA, data trust and transparency are important and provide ample opportunity for near-term progress.

RAND looks forward to continuing in its efforts to promote and conduct research on space governance. In particular, RAND is pursuing a project that will more comprehensively examine innovative approaches to space governance. Building on the existing work from RAND researchers, the project will look at governance frameworks in other operational domains and translate these insights into actionable guidance for the space domain. The end goal of this project is to develop specific characteristics for contemporary space rules, regulations and norms.

II. Connection with the LTS Guidelines

RSEI's research activities on responsible space behaviour and innovative governance in space relates to two LTS guidelines.

First, the work described in this case study relates to guidance C.1: *Promote and facilitate international cooperation in support of the long-term sustainability of outer space activities*. The primary thrust behind RSEI's work on cooperation is to broadly disseminate space research and promote the exchange of knowledge among researchers, policymakers and the general public. In this regard, RAND research activities draw in a diverse set of actors, from academia to military organizations. These activities are intended to support the development of space standards and norms among U.S. policymakers, international U.S. allies and the global community writ large.

Among the responsible space behaviours that RAND research has emphasized has been a call for increased transparency regarding SSA and on-orbit operations. In *Responsible Space Behavior for the New Space Era*, RAND researchers recommend leading space powers broaden the scope of acknowledged satellites in public databases. The research also calls for enhanced cooperation on overcoming the technical, organizational and legal challenges associated with space data sharing, an essential component of mitigating satellite collision risk.

Second, RAND research activities support guidance C.4: *Raise awareness about space activities*. A central function of RSEI research and programming is precisely to raise awareness among civilian and military institutions about relevant space behaviours and norms that constitute responsible and sustainable outer space activities. As a nongovernmental entity, RAND cannot enact national policies, though RAND does seek to bring national entities together to forge common ground and common practices for governing space activities.

Furthermore, RAND research recommends programs, like the UNOOSA Promoting Space Sustainability Project, that increase communication and engagement beyond the expert community. As illustrated in our discussion above, RAND works to achieve these goals by prioritizing outreach and educational initiatives in the form of external publications and workshop seminars (in person and virtually). Space-related publications dating back to 1946 are made available [online](#). These activities are all core elements of RAND's commitment to dissemination of its research and education for the public good.

III. Lessons learned

RAND's research activities connected to responsible space behaviour and innovative space governance yield three major lessons for other nongovernmental entities with similar cooperation-oriented goals, as well as ones for governments operating in space.

First, RAND research on responsible space behaviour focuses attention on the need for continued research and education on the norms and behaviours undergirding the international politics of outer space. Whereas the Cold War represented an era in which two global powers dominated space, the contemporary era is far more complex. Today, the space domain encompasses the activities of over 60 countries and various commercial entities. RAND and similar nongovernmental institutions have a role and responsibility in helping meet the demands for revised and renewed institutions for space governance, which originated in vastly different geopolitical and operational contexts.

Second, for other nongovernmental entities, RAND activities illustrate the importance of calling in diverse actors to develop and disseminate research. Developing new standards in the current era involves working with governmental and nongovernmental actors, civilian and military officials, academics and hobbyists.

Finally, for policymakers, this case study shows the potential of nongovernmental organizations to be leveraged as institutions that can facilitate cooperation. National governments can view nongovernmental organizations like RAND as sites that help governmental actors focus on long-term goals for space sustainability, as opposed to short-term gains that, if pursued, may undermine collective cooperation. Whereas national leaders may think in terms of short time horizons, entities like RAND have long time horizons and vested normative interests in working on issues of space governance. Nongovernmental entities, with their longer view of sustainability in space, thus serve as a natural source of accountability for national governments facing pressure to take a more limited view of space operations.
