DEPARTMENT OF THE ARMY
DEPARTMENT OF SOCIAL SCIENCES
UNITED STATES MILITARY ACADEMY
BLDG 607, LINCOLN HALL
WEST POINT, NY 10996

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MEMORANDUM FOR SCUSA 73

SUBJECT: Space Weaponization and Commercialization

1. **Issue**: This memorandum proposes policy options to defend U.S. security interests, promote international cooperation, and instill responsible commercialization of space, with special attention paid to low Earth orbit (LEO).

2. **Strategic Analysis:** Strategic competition extends to space. Spacefaring entities vie for the positioning of strategic space assets—both commercial and military satellites—especially in LEO. As of May 2022, over 5,400 satellites were in this orbit.[1] By 2027, SpaceX intends to launch 2,500 additional Starlink satellites, and China plans to counter U.S. space commercial activity by launching 10,000 more satellites into LEO.[2] A crowded LEO poses risks to commercial pursuits and military operations of the United States and its international partners. Furthermore, the proliferation of anti-satellite (ASAT) weapons increases overall risk in the operational environment and presents a threat militarily. For example, the military-derived value of U.S. commercial satellites to the Ukrainian war effort resulted in Russia targeting companies such as SpaceX Starlink.[3] The exponential growth of the number of spacecraft in LEO, the increased threats posed by ASAT weapons, and the existence of space debris necessitates the sustainment of LEO. The Inter-Agency Space Debris Coordination Committee (IADC)—which tracks space debris—has created the framework for cooperation among the United States, China, Russia, India, Japan, and other spacefaring nations. As such, it possesses the potential to lead a multilateral effort to mitigate and remove space debris.

3. **Relevant National Interests:** U.S. national interests in space are primarily rooted in concerns over national security, commercialization, and improving international space domain cooperation. Securing U.S. national security includes protecting U.S. assets in space (most importantly critical infrastructure used for missile and nuclear launch detection), maintaining the capacity to collect geostrategic signals, and ensuring the United States is not disadvantaged by adversary counterspace capabilities and enemy attempts to integrate space and ground operations. U.S. national interests also depend on expansion of U.S. commercialization of space and fostering international scientific cooperation for the betterment of humanity. The United States can best attain these interests by defending U.S. space infrastructure against physical, electronic, and cyber-attacks, building international institutions, and ensuring freedom of action and maneuverability in space.

4. **Strategic Options:** The United States is faced with two different strategies.
    a. The first approach features demonstrable space dominance, counterspace arms proliferation, and a zero-tolerance approach to other spacefaring entities' attempts of space power projection. This strategy can be achieved through the advancement and

testing of U.S. non-kinetic ASAT capabilities, punitive economic actions (including sanctions) against nations that continue testing kinetic ASAT weapons, and domestic incentives to unleash American companies to economically dominate commercial space activity. The United States can also pursue credible deterrence through the demonstration of capabilities and development of attribution technology.

b. The second approach attempts to achieve space superiority through multilateralism. In this strategy, the United States would pursue public-private collaboration and information sharing, the expansion of multilateral institutions focused on space debris cleanup, and the creation of a new international body to regulate activities in LEO.

5. **Recommendation:** We recommend a combination of the two aforementioned strategies. A space arms race, potentially resulting in kinetic warfare, would be devastating for all space-derived capability and human activities in LEO; similarly, an unchecked increase in satellites and debris in LEO would harm all actors via the Kessler syndrome. Thus, we recommend measures from the second strategy to form public-private and multilateral coalitions, while valuing U.S. prosperity and—drawing upon the first strategy—ensuring American technical capabilities sufficiently exceed other nations to produce desired effects on Earth and in space.

6. **Implementation:** The detailed policy recommended would include the following:
   a. The United States should pursue multilateral regulation through two avenues. The United States and like-minded nations should offer financial incentives (e.g., tax breaks) to generate private entity buy-in to this proposal.
      i. The United States should lead and finance an effort to expand the IADC to mediate international information sharing, implement debris mitigation in LEO, and develop improved precision tracking for spacecraft and debris. To aid with this development, the United States should construct a business and legal framework for private sector technology sharing and joint innovation. Furthermore, the IADC should be used as a collaborative space for members to share information that would improve collision course reports.
      ii. The United States should establish and lead a new international organization to facilitate Rendezvous Proximity Operation (RPO) procedures and serve as a forum to negotiate international restrictions on kinetic ASAT weapons.
   b. The United States should pursue public-private partnerships between the intelligence community, government agencies (such as the Defense Threat Reduction Agency), and commercial entities working on attribution technology to research and develop mechanisms capable of tracing the origins of non-kinetic counterspace attacks.
   c. Through the creation of a cohesive narrative and public displays of capabilities, the United States should promote transparency surrounding counterspace abilities to create credible deterrence and disincentivize any future attacks against U.S. space infrastructure and that of its international partners.

7. The point of contact for this memorandum is CDT Andrew Keith at andrew.keith@westpoint.edu or 423-444-5291.

[1] *UCS Satellite Database*. (2022, May 1). Union of Concerned Scientists. https://www.ucsusa.org/resources/satellite-database

[2] Chaudhary, S. (2020, November 19). *China Plans to Launch 10,000 Satellites To Complete With Elon Musk's SpaceX*. The Eurasian Times. https://eurasiantimes.com/china-plans-to-launch-10000-satellites-to-compete-with-elon-musks-spacex/

[3] Davenport, C. (2022, October 28). *Russia threatens commercial satellites that Pentagon sees as its future.* The Washington Post. https://www.washingtonpost.com/technology/2022/10/28/space-war-ukraine-pentagon-russia/