

The Implications of the Militarization of Space and Potential Dangers of a Space Arms Race

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Australia has always been positive about space technologies. When Defence Minister Peter Dutton announced the establishment of Australia's Defence Space Command in January 2022, not all commentators took it seriously. However, space is recognised as a warfighting domain. Australia's decision to establish the Defence Space Command, which was officially stood-up in March 2022, follows the founding of similar organisations in the US, UK, Russia and China.

Space has been a contested domain since the former Soviet Union's launch of the world's first artificial satellite, Sputnik I, in 1957. However, the crucial role of military enabling satellites providing surveillance, navigation and communication capabilities, and the deployment of offensive and defensive space systems, has the potential to escalate conflict in the space domain with potentially ruinous consequences.

Australia in the space domain

The establishment of the Defence Space Command brings together members of Air Force, Army, Navy and the Australian Public Service under an integrated headquarters reporting to the Chief of Air Force. It aims to drive space priorities in Australia and with allies and partners, create a cohort of trained specialists and conduct strategic planning.

While Australia is in the early stages of developing sovereign space capabilities, it is able to leverage its alliance with the US to obtain significant benefits, including, for example, intelligence derived from US space capabilities. Australia is also collaborating with the US on its Space Surveillance Telescope, operated by the US Space Force's Space and Missile Systems Center and located in Western Australia, which will improve space domain awareness available to Australia, the US, and allies.

Australia's Defence space strategy acknowledges that Defence has limited sovereign space capabilities, forcing it to rely on the US, other international partners and commercial entities. As a consequence, Australia is investing significant sums to improve its self-reliance. The strategy highlights that the 2020 Defence strategic update includes 'over AUD \$17 billion investment in space capabilities to 2036' aimed at delivering 'a mix of sovereign and collaborative systems to Defence including Positioning, Navigation and Timing, Satellite Communications, Intelligence Surveillance and Reconnaissance, and Space Domain Awareness'. In particular, the strategy notes the importance of 'resilience, survivability and the ability to continue operating under gradual degradation of national and allied space capabilities'.

The Defence strategic update also emphasises the importance of investing in space situational awareness, including sensors and tracking systems and states that Defence will continue to work with government agencies and industry to advance its space capabilities.

Elements of the strategy appear to be in train. For example, a February 2022 media report observed that the Morrison Government had issued a tender for a contract to deliver at least 2 and as many as 4 military communication satellites worth \$4 billion. The project scope includes ground stations, launch and life-cycle costs. As the report notes, perhaps the biggest challenge will not be procuring the equipment, but staffing it: building a cohort with the appropriate skills to fully exploit the satellite constellation will be a challenge.

Furthermore, according to Air Vice-Marshal Catherine Roberts, Commander of Defence Space Command, Defence is currently developing kinetic and non-kinetic capabilities to deal with adversary satellites without creating risk debris fields. The Morrison Government was also investing in developing Australian-made satellites and was promoting cooperation between Australia's space industry and India.

On the need for resilience, survivability and the ability to continue combat operations as space capabilities are degraded, Malcolm Davis, an analyst at the Australian Strategic Policy Institute, has argued that Defence should aim for a 'high-low mix', buying sophisticated satellites from allies and complementing them with 'small, many and cheap' satellites, some of which are available from Australian manufacturers. Ideally, Davis points out, Australia requires a sovereign launch capability that can quickly reconstitute satellite capabilities lost to enemy action, providing a resilient, survivable constellation.

As the Australian delegate, my thoughts on this issue are positive. Achievements and advantages in space are what make a country strong. But I am also aware of how bad it is. For example, in a crisis between 2 great powers, both of which rely on space capabilities to facilitate military operations, both sides will possibly be motivated to attack their opponent's space assets first. The ability to attack satellites without killing adversary personnel may also lead to miscalculations that make conflict more likely. For example, a belligerent might calculate that an attack on its adversary's satellites, which kills no one, is less likely to prompt retaliation than an attack on a satellite ground station operated by personnel. Similarly, the use of 'soft-kill' techniques, such as using a laser to dazzle a satellite, might be considered by an attacker to be less escalatory than destroying a satellite. However, the target of such attacks may not appreciate the distinction and retaliate.