

POINT PAPER
ON
A SPACE-BASED COMMUNICATIONS NETWORK FOR TAIWAN

- BLUF: Taiwan needs a resilient comm network to deter a Chinese invasion. Non-kinetic attacks against SATCOMs “will likely be the first moves in any PLA counter-intervention operation.”¹ Having a credible, resilient Non-Terrestrial Network (NTN) will deny China from quickly achieving info dominance, forcing the CCP to recalculate the merits of a first strike.
- KEY POINTS: Taiwan’s current broadband network relies on 15 undersea cables that have been cut – possibly deliberately – 27 times in the last 5 years, resulting in massive blackouts.²
 - Chinese doctrine calls info power the “key to controlling the battlespace,”³ and Xi is “likely to adjust his plans for annexing Taiwan” based on China’s ability to control the info space.⁴
 - Russia’s attack on Ukraine demonstrated the devastating impact a degraded network can have in the opening days of a war, but also showed how a resilient network allows a nation to unite its narrative and continue to resist.⁵ These are lessons China is observing.⁶
 - Making a network more resilient relies on bolstering security by (1) reducing system susceptibility, (2) diminishing threat accessibility, and (3) responding to threat capabilities.⁷
- LESSONS LEARNED: When designed for security, an NTN is more resilient than a ground-based network. Designing for security should focus on *proliferation*, *segmentation*, and *agility*.
 - *Proliferation* disperses a network and creates redundancies, *reducing system susceptibility*. In space, NTNs are inherently more dispersed and have more nodes than ground networks.
 - *Segmentation* separates key functions, *diminishing a threat’s accessibility* to the whole network. An NTN’s use of the EM spectrum enables it to segment dataflow by frequencies.
 - *Agility* adapts dataflow through the network, *responding to a threat’s capability*. Since NTNs have more nodes, they create more links, allowing more possible routes for dataflow.
- DISCUSSION: Taiwan’s prospects are currently limited to Starlink and OneWeb. While it contracted OneWeb for services by the end of 2024, Starlink is more proliferated, segmented, and agile. Within the decade, Amazon, Telesat, Rivada, and Hanwha will also have broadband NTNs, each more resilient than OneWeb. Outside the decade, Taiwan’s ambitions for a domestic broadband NTN might be realized.
- RECOMMENDATIONS: Right now, Taiwan must rely on OneWeb but it can procure the ground architecture for interoperability with Starlink in a crisis. In the near-term, Taiwan should secure multiple services, boosting resilience while reducing reliance on a single provider. Long-term, a domestic constellation designed for proliferation, segmentation, and agility will provide both resilience and the most credibility as an indigenous capability.

¹J. Michael Dahm, *China C4ISR and Counter-Intervention* (Arlington, Va.: Mitchell Institute for Aerospace Studies, 2024), 34.

² Huizhong Wu & Johnson Lai, “Taiwan Suspects Chinese Ships Cut Islands’ Internet Cables,” AP News, April 18, 2023. <https://apnews.com/article/matsu-taiwan-internet-cables-cut-china-65f10f5f73a346fa788436366d7a7c70>

³ J. Michael Dahm, *China C4ISR and Counter-Intervention* (Arlington, Va.: Mitchell Institute for Aerospace Studies, 2024), 5.

⁴ Dean Karalekas, “Taiwan and the Software of War: Learning Resilience from Ukraine,” *Contemporary Chinese Political Economy and Strategic Relations: An International Journal*, vol. 8, no. 3 (December 2022): 492.

⁵ Robin Dickey & Michael P. Gleason, “Space and War in Ukraine: Beyond the Satellites,” *Aether: A Journal of Strategic Airpower & Spacepower*, vol. 3, no. 1 (Spring 2024), 24.

⁶ U.S.-China Economic and Security Review Commission, *China’s Position on Russia’s Invasion of Ukraine* (Washington, D.C.: U.S.-China Economic and Security Review Commission, 2024). <https://www.uscc.gov/research/chinas-position-russias-invasion-ukraine>

⁷ Jeff Hughes & George Cybenko, “Quantitative Metrics and Risk Assessment: The Three Tenets Model of Cybersecurity,” *Technology Innovation Management Review*, no. 3 (August 2013): 21-23, <https://doi.org/10.22215/timreview/712>