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**1. [Heritage foundation]**

**Meeting China’s Space Challenge**

[**https://www.heritage.org/asia/report/meeting-chinas-space-challenge**](https://www.heritage.org/asia/report/meeting-chinas-space-challenge)

The United States faces its greatest space competitor since the dawn of the Space Age in the form of the People’s Republic of China (PRC). In order to secure its interests, both terrestrially and in space, the U.S. needs to sustain its own space efforts, both governmental and commercial, while recognizing the growing competition from China.

Since the beginning of the Space Age, the Chinese Communist Party (CCP) has been intent on making China a space powerhouse. China’s leaders recognize that space is a key domain for international competition and involves not only national prestige, but also economic and financial activity, science and technology, and national security. The most recent Chinese space white paper, “China’s Space Program: A 2021 Perspective,” lays out China’s space plans for the next five years. From the variety of programs and initiatives covered, it is clear that China is intensifying its efforts to be the leading space power.

**Ambitious Goals and Major Projects**

According to this new space white paper, China is setting an extensive range of ambitious goals that span the gamut of space-related projects from new launch vehicles to expanded space services. Major projects listed in the white paper include:

**New Launch Vehicles.** This will include a heavy launch rocket (probably for a crewed mission to the Moon) as well as a reusable launcher.

**New Satellite Constellations.** The white paper indicates that in the next five years, Beijing will deploy a new satellite data relay system and a new position, navigation, and timing (PNT) constellation, which may integrate communications functions as well. PNT constellations, like the American GPS, provide a range of services that not only help navigation, but also support telecommunications, pipeline and power grid operations, and financial transactions.

**Additional Space Services.** The new PNT constellation is clearly intended to attract more users globally to the Chinese system than to the American GPS constellation. Strikingly, China completed the Beidou PNT network only recently. Other Chinese goals include providing synthetic aperture radar coverage and commercial space launch facilities.

**Alternative Approaches to Space Governance.** A major Chinese initiative is “China Standard 2035.” The goal is to ensure that global standards are compatible with Chinese products so that Chinese products cannot be excluded from any nation’s markets. Equally important, through manipulation of governance structures, competitors can be disadvantaged. Not surprisingly, China is looking to help set standards for aerospace products and services including debris monitoring and space traffic management.

**Space Innovation.** The white paper also highlights Chinese interest in space innovation. This includes building an intersatellite network to allow satellites in different orbits to communicate with each other as well as to monitor other satellites. It also declares that China will try to undertake a sample retrieval mission from Mars. If it succeeds, Beijing will have accomplished something no other nation has done before—much as it was the first nation to land a probe on the far side of the Moon.

It is important to recognize that these white papers are the product of a bureaucratic consensus and coordinated with China’s Five-Year Plans. Consequently, projects listed in the white papers are part of the larger economic and political goals established in those Five-Year Plans.

**PLA and Belt and Road Initiative**

Notably, the white paper’s goals were laid out as the Chinese People’s Liberation Army (PLA) was granted a 7.5 percent increase in its budget for 2022.While the space white paper does not discuss China’s military space programs, the reality is that much of China’s space program occurs within the context of the PLA. The PLA manages China’s entire space infrastructure, and key projects are headed by active-duty PLA officers. The Chinese human spaceflight program, for example, is headed by General Li Shangfu, who is also head of the Equipment Development Department and a member of the PLA Central Military Commission.

Equally important, China’s defense budget in 2022 will be rising faster than the expected economic growth rate. The Chinese National People’s Congress projected a general economic growth rate of only 5.5 percent, which has subsequently been scaled back to 5.0 percent. This is one of the few times when the defense budget will grow faster than the economy. Given China’s ambitious space goals, spending on space-related projects is likely to contribute to the defense budget’s accelerated growth.

Meanwhile, Beijing openly discusses the concept of a “Space Silk Road” where Chinese space capabilities will be employed to support Chinese-built infrastructure under the Belt and Road Initiative (BRI).**4** This will likely take the form of incorporating and embedding Chinese PNT systems into various terrestrial BRI projects rather than developing some kind of military relationship involving PLA space capabilities. Insofar as Chinese-constructed pipelines, power grids, and telecommunications networks rely on Beidou or a successor Chinese system, recipient countries may find it almost impossible to separate themselves from the PRC, no matter what changes in government or relationships may occur.

**What the Administration and Congress Should Do**

The comprehensive PRC’s approach to foreign policy, which incorporates economic, technological, and military elements, is embodied in its space policies. Chinese dominance in space will translate into leverage for terrestrial purposes. Given the growing centrality of space for terrestrial political and economic activities, it is essential that the United States retain a preeminent position in space. At the same time, it is vital to recognize that China’s space ambitions, as reflected in the goals laid out in the space white paper, mean that the United States and the PRC will increasingly be competing in the heavens as they are on Earth.

With these considerations in mind, the United States should:

* **Support commercial development of space capabilities**. Perhaps nothing reflects the ability of free people and free enterprise to develop and innovate more than the American commercial space sector does. Over the past decade, American entrepreneurs like Elon Musk and Jeff Bezos have helped to revitalize the entire global space enterprise. Costs to launch have dropped, and new services have become available. The potential strategic impact of satellite-based Internet, for example, has been on display in Ukraine. But commercial development can occur only where government reduces barriers to entry, whether in terms of excessive regulation or prohibitive tax policies.

In a bipartisan move, both the chairman and ranking member of the House Committee on Science, Space, and Technology have called upon the Biden Administration to halt its efforts to have the National Transportation Safety Board (NTSB) impose an additional set of oversight requirements on space launches.**5** The NTSB effort is of questionable legality, is detrimental to the ongoing space renaissance, and duplicates the role of the Federal Aviation Administration, which already has responsibility for space traffic management. The Biden Administration should withdraw these proposed changes.

* **Support programmatic and funding stability**. NASA has commissioned a large number of plans to return to the Moon ever since Apollo 17’s flight in 1972, the last human mission to the Moon. Yet 50 years later, the United States still has not sent a crew back to our nearest celestial neighbor. Worse, the expectation of a return to the Moon by 2024 has been delayed to 2025 or beyond.  Time and again, studies have been undertaken and programs initiated, only to be cancelled or modified by subsequent Administrations. Nor has Congress supported such efforts through financial stability. The same has been true for weather satellites and other space programs, many of which are of direct benefit to terrestrial activities. If the United States is going to sustain its leadership in space, it can do so only through sustained, persistent support in terms of space funding (including redirecting funds from redundant or eliminated programs). This is one area in which China arguably has done a far better job.   
  Congress should consider adopting longer-term planning and budgetary horizons modeled after successful efforts in other parts of the government. For example, multi-year buys of space launch vehicles, satellites, or even long-lead items (as occurred with aircraft carriers) have stabilized both the work force and supply chains by providing a predictable series of purchases.
* **Deepen the U.S. Space Force’s thinking**. The National Defense Authorization Act for Fiscal Year 2023 includes a major increase in U.S. Space Force funding with an additional $7 billion authorized. This is good news from a technological perspective, since much of the funding is slated for expanded research and development functions. But the U.S. Space Force remains uncertain about how to think strategically about space. In particular, the need for both defensive and offensive space capabilities is recognized, but the U.S. Space Force’s strategic role is not yet fully understood. This is not a matter of the National Space Strategy, which is expected sometime this year; rather, it reflects the need for a clearer conception of how space is both similar to and different from other domains (land, sea, and air) as a theater of war. Ironically, while many have suggested that the Russia–Ukraine war will offer important lessons in such new areas as drone and cyber operations, what it might have to offer space strategists is far less clear.  
    
  Congress should consider reserving some of the additional funding to support careful studies by both traditional and unconventional thinkers in a space environment within which it is clear that not only China, but also Russia, France, the U.K., India, Japan, South Korea, and a host of other countries are likely to field dedicated space forces.

**Conclusion**

The United States is engaged in a long-term competition with the People’s Republic of China that includes political, technological, economic, and military elements. The PRC clearly recognizes that outer space will be a key domain in this competition, and its most recent space white paper issues the challenge. Whether American policymakers recognize that challenge and can respond to it effectively remains to be seen.

**2. [CFR]**

**Anticipating a U.S.-South Korea Semiconductor Alliance**

<https://www.cfr.org/blog/anticipating-us-south-korea-semiconductor-alliance>

July 19, 2022

During a recent summit trip to South Korea, President Joe Biden made his first stop at a Samsung Electronics plant and toured the semiconductor manufacturing facility that would serve as the model for a $17 billion factory in Texas scheduled to begin operations in 2024. Biden and the newly inaugurated South Korean President Yoon Suk-yeol, in a joint statement, also outlined several areas of bilateral cooperation for addressing supply chain vulnerabilities in critical technologies. The U.S.-South Korea technological alliance could be the means to strengthen and upgrade the security alliance.

Semiconductors are at the heart of bilateral technology cooperation as policymakers in both Washington and Seoul are intently focused on this sector. President Biden named semiconductors as one of the four critical products to U.S. security and called for “friend-shoring” where production of those goods are brought back to the United States and its like-minded allies. Both the United States Innovation and Competition Act and the America COMPETES Act — the Senate and House versions of the bipartisan China competition bill slowly making its way through Congress — include $52 billion for domestic semiconductor research, design, and manufacturing.

Similarly, South Korea renewed its interest in supporting the advanced semiconductor industry in recent years. Former President Moon Jae-in worked to form a “semiconductor belt” spanning across the Gyeonggi and Chungcheong provinces with resilient supply chains. The South Korean National Assembly passed the National Advanced Strategic Industry Act during the Moon administration, empowering the Minister of Trade, Industry, and Energy to regulate the export of advanced semiconductors to foreign companies. President Yoon also declared his intentions to make South Korea a “semiconductor superpower” and vowed to train more semiconductor specialists by expanding the quota for engineering students at universities.

Semiconductor cooperation between the United States and South Korea will better situate both countries from China-related semiconductor supply chain disruptions that are likely to emerge in the coming decades. A potential Chinese invasion of Taiwan can trigger massive semiconductor shortages, given that the island is home to the world’s largest foundry operated by the Taiwan Semiconductor Manufacturing Company. At the same time, China’s semiconductor industry continues to grow with generous state subsidies and aggressive production of less advanced chips that flood the market with cheaper semiconductors, creating unfair competition and market disruptions. Chinese domestic capacity to produce cutting edge chips moreover will give China the ability to more readily develop advanced weapons systems and malign surveillance tools.

The United States is pushing to formalize semiconductor cooperation with South Korea through the “Chip 4” alliance framework, which also includes Japan and Taiwan. The Yoon administration reportedly faces significant pressure from the United States and will make a final decision by end of August. While details about the new quadrilateral framework are scant, **full realization of technological alliance between the two security allies will likely involve wholly detaching China from the global semiconductor manufacturing process and a significant reduction of semiconductor sales to China. It can also include technology sharing between American and South Korean chipmakers**. While certain aspects of this vision may be attainable in the future, several issues will likely frustrate expectations of a technological alliance.

Points of Tension

Despite talks of cooperation, U.S. and South Korean companies — and by extent, the two economies — fundamentally are technological competitors. The semiconductor industry is highly competitive, with each firm focused on acquiring certain cutting-edge capabilities before others and, consequentially, increasing their market share. Top firms of a particular product dominate that category and reap the profits given the business costs associated with switching suppliers, reinforcing the winner-takes-all nature of the semiconductor industry. Intel and Samsung, for example, are both constructing new semiconductor fabrication plants in the United States and will compete on contract-manufacturing chips.

The two countries hold a level of distrust toward each other’s industrial policies that support the semiconductor industry. The United States has been wary of state subsidies received by South Korean firms for warping competition and lacking transparency. South Korea initially feared that only U.S. firms stood to receive subsidies in the CHIPS for America Act. The U.S. Department of Commerce’s request to chipmakers, including South Korean firms, to provide supply chain information to help the Biden administration address the global chip shortage was also met with considerable misgivings from both the South Korean government and businesses.

Further, South Korean chip manufacturers have significant business interests in China, and U.S. policies on supply chains will hurt their bottom line. Samsung and SK Hynix both operate plants in Xian and Wuxi, respectively, and the Chinese market accounts for over 40 percent of South Korean chipmakers’ sales. In 2021, the United States blockedSK Hynix from upgrading its Wuxi plant with ASML’s latest extreme ultraviolet (EUV) lithography machine, fearing that introducing the most advanced lithography equipment to China risked the technology being stolen and used for Chinese military modernization efforts. SK Hynix now is concerned with profitability and plant viability issues due to its inability to upgrade the plants. South Korean chipmakers are also reportedly wary that joining the Chip 4 alliance would hurt their operations in China due to both U.S.-imposed restrictions and Chinese retaliation.

As evinced by Samsung’s planned investments in Texas, the South Korean private sector does not wholly oppose U.S.-led semiconductor supply chain restructuring despite some grumblings about recent Biden administration policies. However, the transition will nevertheless be painful and highly risky for firms that have derived much of their profits from doing business in China.

The South Korean government, too, understands the strategic rationale for moving supply chains away from China. South Korea vividly realized the national security risks of overreliance on Chinese supply chains through the diesel exhaust fluid (DEF) shortages starting in October 2021. The DEF shock, which disrupted agriculture and shipping industries, elevated broader concerns about economic reliance on China: a widely circulated report by the Korea International Trade Association revealed that China accounted for 1,850 out of 3,491 items for which South Korea relied on a single country for 80 percent or more of imports.

The Yoon administration has signaled that the “America for Security, China for Economy” strategic model needs to be replaced with a “America for Security, World for Economy” model. However, the administration’s political willingness and ability to do so remain to be tested. South Korea is a middle power hedger between the United States and China. Technological cooperation, which ultimately is a balancing act against China, closely fuses economic and security issues and presents difficult questions for South Korea’s strategic outlook. China has already criticized Chips 4 as “coercive diplomacy” and warned that South Korea would “cause more harm than good" by taking part. If South Korea were to completely limit its cutting-edge chips from China, South Korea may also open itself up to economic retaliation from China.

First Steps

The alignment of U.S. and South Korean interests in cutting-edge technology, demonstrated through the Biden-Yoon summit, makes cooperation on semiconductors a political priority. A full-fledged technological alliance may very well emerge in the future given strong U.S.-South Korea relations, shared concern about Chinese supply chains, and dominance of U.S. technology undergirding South Korean semiconductor production. Important first steps taken by both governments to improve communication and foster trust can open the path toward a more robust partnership that better prepares both economies for China-related disruptions.

Interdependence between the allies should be increased, and friend-shoring should go both ways. Semiconductor policies pursued by either government should be grounded on principles of reciprocal investments and equitable subsidy availability to build trust. The United States should also proactively work to reduce friction emanating from export control measures through high transparency and communication.

South Korean firms, whose main customers are in China, will also lose huge markets as a result of not only U.S. policy but also the growth of SMIC and other Chinese semiconductor firms. While planned investments in new foundries can help address medium-term semiconductor shortage risks, it can open up over-supply issues if the market demand does not meet the increased supply. The United States and South Korea need to work to find another region to augment and replace the Chinese market.

**3. [CSIS]**

**Will the U.S.-Australia Alliance Sprout a Development Dimension?**

[**https://www.csis.org/analysis/will-us-australia-alliance-sprout-development-dimension**](https://www.csis.org/analysis/will-us-australia-alliance-sprout-development-dimension)

**July 21, 2022**

The Pacific Islands are piercing the strategic imagination of Washington political leaders. As the U.S. and Australian governments renew their commitments to cooperation under the alliance, it is time for a proper plan on development cooperation.

The significance of the Pacific Islands region to the United States has never been clearer. Vice President Kamala Harris’s address to the Pacific Islands Forum announced a suite of measures and a commitment on approach to “listen, collaborate and coordinate at every step of the way.” In coming months, Washington will devise its first-ever national strategy on the Pacific Islands. The United States will establish new embassies in Kiribati and Tonga, reopen its Solomon Islands mission, as well as triple the request for U.S. economic development assistance. The United States will also appoint its first Pacific Islands Forum envoy, reestablish a U.S. Agency for International Development (USAID) regional mission for the Pacific, and bring the Peace Corps back to the region.

Through this uptick of engagement in a region where the United States has had a minimal presence and where Australia is the largest donor, the U.S.-Australia alliance is being given due prominence. Australian deputy prime minister Richard Marles welcomed the Harris speech, emphasizing that U.S. rhetoric on the Pacific Island countries was complemented by “real policies and real engagement.”

The last two decades under the U.S.-Australia alliance paved the way for closer defense and security ties. This includes the annual rotation of U.S. Marines to Darwin, a U.S.-Australia Force Posture Agreement in August 2014, ongoing Australia-United States Ministerial Consultations (AUSMIN) talks, and the AUKUS submarine deal in 2021 (a trilateral strategic defence alliance between Australia, the United Kingdom and the United States). Recently, the United States and Australia completed the ninth Talisman Saber joint military exercise—designed to ensure and demonstrate the ability of Australia and the United States to work together “with the highest levels of interoperability.” All these activities build a long-standing defense and intelligence relationship.

But as People’s Republic of China (PRC) concerns unite the security interests of Australia and the United States in the Pacific Islands, a critical truth confronts strategic leaders. If the United States and Australia want the alliance to function in the Pacific, it can only do so on Pacific terms. Far from wanting to be treated as a theater of geostrategic competition or venue for superpower military presence, Pacific leaders have made it abundantly clear that they have security concerns of their own, starting with the existential threat of climate change and expanding across the fully documented gambit of development concerns: jobs, education, health care systems, social prosperity, and inclusive economic growth.

Marles put it well last week at a CSIS address when he reflected on Australia’s battle to win back trust in the Pacific, offering a warning to the United States that to get anywhere on its security interests in the region, it needed to advance the security interests of the Pacific Islands first:

The Pacific has been clear in saying that geopolitical competition is of less a concern to them than the threat of rising sea levels, economic insecurity, and transnational crime. Australia respects and understands this. And we are listening.

Both the U.S. and Australian governments emphasize that development assistance will feature heavily in an increased prioritisation of the Pacific Islands. The 2020 MOU on development cooperation signed between Australia’s Department of Foreign Affairs and Trade (DFAT) and USAID sets out a menu of options.

But the political rhetoric will only get the United States and Australia so far. While the U.S.-Australia alliance is mature on security, the picture looks different for development. USAID and DFAT do not exchange staff or share development project pipelines, joint programming on the ground is scarce, and there are significant practical hurdles to cooperation, such as procurement barriers. To date, neither government has sought to tackle these challenges. Marles described this element of the U.S.-Australia alliance as “underdone” due to the absence of the “same kind of deep, organic interoperability as there is in other areas, such as defence” meaning that there is “huge opportunity to develop this and do more.”

While this mattered less in the past when there was limited overlap between the two countries’ aid programs, if Australia cannot coordinate effectively with its major allies, it is likely to become a challenge for Pacific Islands as the United States increases its presence.

There are a number of short- to medium-term steps both governments can take to mitigate this challenge and enhance the interoperability of U.S. and Australian development cooperation. These include:

Establish an AUSMIN-style development dialogue. Both governments should also include development experts in existing U.S.-Australia alliance discussions. This will elevate the relevance of development cooperation in the U.S.-Australia alliance.

Establish a small coordination unit in either Washington, D.C. or Canberra. This offers an opportunity to co-locate key development staff (alongside other relevant agencies) from each country and integrate them into broader bilateral alliance engagement. The first-order priority of the unit should be an audit of the existing presence, capability, and comparative national advantages. The unit should then focus on addressing critical barriers to interoperability and establishing a roadmap to joint financing and development programming.

Fund government-to-government, research-to-research and track 1.5 exchanges. This will build Pacific literacy in the United States and bolster a strong ecosystem for governments and Pacific leaders to draw on when making critical policy and developmental decisions.

Commission an integrated strategic assessment of priority countries. This will build joint analysis capabilities under the alliance. Assessments should take into account key poverty, inequality, resilience, economic, environmental, security, and social justice drivers of instability and underdevelopment in the region. This will build the critical foundations from which the United States and Australia can effectively cooperate to support the development aspirations of Pacific leaders.

Cofund a grant window that incentivizes U.S. and Australian agencies. This will allow organisations to cooperate on development on the ground and administer aid embassy by embassy in priority countries if needs be.

Ultimately, strong development alliances do not happen by accident. They take practical people, ideas, and the ability to execute them. With political will high and strategic visions aligned, now is the time to make things happen.