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PRC Advances New International Order In Astana

by Arran Hope



Logo of the Shanghai Cooperation Organization. (Source: [Wikipedia](#))

Executive Summary:

- The People's Republic of China (PRC) sees the Shanghai Cooperation Organization (SCO) as an important part of a wider strategy to construct a new international order.
- Beijing promotes norms, discursive constructs, and policy preferences in the SCO to advance its geopolitical aims, which member states officially endorse. These include language about comprehensively reforming the UN and supporting all PRC efforts to achieve national reunification with Taiwan.
- Military exercises that take place via the SCO provide the People's Liberation Army (PLA) unique opportunities to gain practical experience outside its borders and normalizes basing of Chinese forces in other countries through international treaties.

The Astana Declaration, the result of the most recent annual Council of Heads of State of the Shanghai Cooperation Organization (SCO) in early July, proclaims an intention to make the SCO “one of the key multilateral organizations in a multipolar world (多极世界中重要的多边组织之一)” ([SCO](#), July 4). At the summit, Russian President Vladimir Putin triumphantly stated that the multipolar world “has become a reality” ([Kremlin.ru](#), July 4). In doing so, he was echoing what for SCO leaders is a self-evident truth. At last year’s summit in India, People’s Republic of China (PRC)s President Xi Jinping similarly stated that the “community of common destiny (人类命运共同体)”—a related concept—was “now being transformed from an idea into action, and from a vision into a reality (正在从理念转化为行动、从愿景转变为现实)” ([Aisixiang](#), July 4, 2023). [1]

The SCO, a multilateral organization consisting of ten Eurasian member states, two observer states, and 14 dialogue partners, is the world’s largest regional organization, constituting over 40 percent of the world’s population and a third of its GDP based on purchasing power parity. As of January 2022, its general secretary is career diplomat Zhang Ming (张明); and as of this month, the PRC has taken over the reins of the rotating presidency. [2] The organization holds symbolic significance for its members, but increasingly is seen also as an important node for security-related, diplomatic, economic, and cultural value. It is often dismissed by commentators in the West as a “talk shop” that cannot “even manage to settle its own internal conflicts,” or derided as “ineffective and irrelevant” ([China Global South Project](#), July 4; [ECFR](#), September 16, 2022; [Carnegie India](#), July 5). But its value to the PRC, both as an anti-Western multilateral organization and as a means of gaining military experience, makes it worthy of attention. [3]

PRC Discursive Power Projection At SCO

“In a spirit of partnership, the Parties shall strive to promote the multipolarization of the world and the establishment of a new international order ... profound changes in international relations have taken place ... [and] a growing number of countries are beginning to recognize the need for mutual respect, equality and mutual advantage—but not for hegemony and power politics.” These phrases are not recent, but rather are found in the Russian-Chinese Joint Declaration on a Multipolar World and the Establishment of a New International Order, signed by Jiang Zemin and Boris Yeltsin and adopted in Moscow on April 23, 1997 ([UN.org](#), May 20, 1997). The reason this rhetoric will sound familiar is because it has been consistently articulated and rearticulated in the intervening quarter century by both countries. It is enshrined in the founding document of the Shanghai Cooperation Organization (SCO), which frames the organization’s goals as including the promotion of a new international order in an era of developing multipolarity ([UN Treaties](#), accessed July 10).

The SCO stands out as a multilateral organization established without reference to the liberal international order and is one of several vehicles through which the PRC pursues its aims outside of Western interference. ([The Pacific Review](#), December 9, 2023). [4] Increasingly, the SCO is viewed as not just non-Western, but anti-Western. This is evident in both Iran’s and now Belarus’s accessions to the organization, but also in the rhetoric of the SCO’s two key leaders. Putin has recently spoken of “phasing out the military presence of

external powers in the Eurasian region,” while Xi Jinping used his speech at the summit to argue that SCO countries must “defend the right to development in the face of the real risks of ‘small yards and high walls’”—a reference to US export controls ([RFERL](#), July 3; [CPC News](#), July 8).

The PRC projects its normative influence across not just central Asia, but increasingly into Europe and the Middle East and North Africa region, via the SCO ([People’s Daily](#), July 9; [CRS](#), December 7, 2022). Xi’s speech, as well as coverage in state media, made clear links between historic PRC foreign policy principles and current policy priorities. Xi noted that “the Shanghai Spirit and the Five Principles of Peaceful Coexistence [5] are inextricably linked and are the common values of the Organization, which should be cherished and followed at all times” ([Aisixiang](#), July 5). He also mentioned that modernization—a core theme of the upcoming Third Plenum in Beijing—is a common goal of SCO countries. Similarly, PRC concepts that made their way into the official Astana Declaration were the “new type of international relations,” the “community of common destiny” [6] and the One Belt One Road initiative (OBOR), which all signatories except India are listed as supporting ([SCO](#), July 4).

Two indicators suggest that SCO documents are more than just a venue for the PRC to launder its political rhetoric, however. The first of these is the involvement of the United Nations, which legitimizes the PRC’s actions. In September 2023, the United Nations approved a statement that described the SCO as an “essential regional organization for addressing security in the region” ([UN Documents](#), August 28, 2023). [7] This, along with UN Secretary-General António Guterres’s presence at the summit, demonstrated what the Declaration referred to as “an affirmation of the international community’s recognition of the contribution of SCO to the realization of the United Nations’ goals, tasks, and agenda” ([SCO](#), July 4). A notable outcome is a professed desire to use the SCO (and perhaps other regional organizations) as a vehicle to advance the PRC’s preferred norms within the wider international community—including the UN. A new SCO Initiative titled “On World Unity for a Just Peace, Harmony, and Development” argues that “the Charter of the United Nations and the universally accepted basic principles and norms of international law have been systematically undermined” and as such advocates for “the comprehensive reform of the UN” ([People’s Daily](#), July 5). “Comprehensive reform of the UN” also appears near to top of the Astana Declaration ([SCO](#), July 4).

The second indicator is the PRC’s ability to persuade SCO member states to sign on to its designs regarding Taiwan. At the meeting of the Council of Foreign Ministers of SCO in May, PRC Foreign Minister Wang Yi (王毅) stated that he “believed” SCO member states “will continue to support the Chinese people’s just cause of opposing separatist activities for Taiwan independence and striving for national reunification” ([Aisixiang](#), May 21). [8] The threatening tone of this framing, which follows an observation from scholars Garlick and Qin that the PRC government “expects partner countries ... to model their behavior and discourse on the example set by the [PRC] without significant contestation,” [9] continues throughout Wang’s speech. He later warned that “the international community needs to follow the trend of history and make the right choice (国际社会需要顺应历史潮流，作出正确选择).” Other countries have followed suit. In a joint statement, Kazakhstan—which hosted the summit—declared that it “opposes any form of ‘Taiwan independence’ and external interference,” “reiterates that it will not conduct any form of official exchanges with Taiwan,” and, more

troublingly, “supports all efforts made by the Chinese government to achieve national reunification” ([People’s Daily](#), July 4). Similar sentiments were espoused by Belarus’ foreign minister Maxim Ryzhenkov in a meeting with International Department head Liu Jianchao (刘建超) ([International Department](#), July 9).

PRC Uses SCO For Military Testing Ground

One of the more significant benefits of SCO membership for the PRC is an ability to gain experience and knowledge of various kinds of military operations through annual multilateral exercises. The 2018 Agreement of the Shanghai Cooperation Organization Member States on Joint Military Exercises has also provided a basis in international law for People’s Liberation Army (PLA) forces to deploy in Central Asian (and now European) countries and could serve as a model for basing arrangements elsewhere ([MFA Treaties](#), July 18, 2018; [EH4S](#), April 8).

In recent years, Chinese armed forces have had opportunities to practice long-distance mobilization, counterterrorism missions, stability maintenance operations, and conventional warfare. This also includes practice in negotiating the rights for overflight and the use of foreign airfields, transit of third countries, host country logistics support, operating in airspace it does not control, coordinating with foreign authorities, and gaining familiarity with larger-scale deployments. The PLA has also been able to learn from the Russian military’s recent combat experience, as well as from other militaries. The utility of the SCO for these purposes is explicitly referenced in the 2015 edition of the Science of Military Strategy, an important PRC military text ([USCC](#), November 12, 2020).

Beijing has gained experience in using diplomatic efforts to support its power projection. For instance, it has organized counterterrorism patrols from its military outposts in the China–Tajikistan–Afghanistan border area. The Ministry of Public Security has also spent a decade training officials from SCO countries in areas such as counterterrorism and combatting transnational crime, as well as sending People’s Armed Police units outside the PRC to conduct patrols alongside Central Asian military personnel ([USCC](#), November 12, 2020).

Conclusion

The Astana Declaration, Xi Jinping’s speeches at the SCO summit, and other features of the summit itself point toward Beijing making progress on its early promise to create a new international order. By having its domestic policy priorities and preferred language inserted into the organization’s official documents and repeated by member countries in joint statements, and by enlisting the United Nations as a supportive partner, the PRC is achieving a degree of success in normalizing its preferences in the global south.

The PRC’s use of the SCO for a range of unique military exercises over the years—and most recently on the Polish border with newly-acceded member state Belarus—also make clear that the SCO enables the PRC to project its hard power far beyond its borders. The organization may never become a coherent or cohesive security alliance akin to NATO. But it nevertheless is already playing an important part in a broader PRC strategy to remold the world on its own terms.

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Notes

[1] This formulation has recently been updated in English to “community with a shared future for mankind,” seemingly due to concerns over potential interpretation of the phrase “common destiny” (See [China Brief](#), February 26, 2018).

[2] Initially established out of the “Shanghai Five” grouping of central Asian countries to enhance security cooperation, it has since expanded in terms of both its geographic scope and its aspirations as an organization.

[3] The United States applied for observer status in 2005, as did Iran. The United States’ application was rejected, while Iran’s was accepted.

[4] Others include, the Forum on China-Africa Cooperation (FOCAC), the China-Arab States Cooperation Forum (CASCF), and the China-CELAC forum. These are ultimately subsumed under the logic and rubric of the One Belt One Road Initiative (OBOR). See, Jeremy Garlick & Fangxing Qin. “China’s ‘do-as-I-do’ paradigm: practice-based normative diplomacy in the global South.” *The Pacific Review*. December, 2023. DOI: 10.1080/09512748.2023.2290619.

[5] “The Shanghai Spirit” is the foundational ethos of the SCO, and refers to the principles of mutual trust, mutual benefit, equality, consultation, respect for diverse civilizations and the pursuit of common development. The Five Principles of Peaceful Coexistence (mutual respect for sovereignty and territorial integrity, mutual non-aggression, non- interference in each other’s internal affairs, equality and mutual benefit, and peaceful coexistence) are PRC foreign policy principles first put forward by then-PRC Premier Zhou Enlai on 31 December 1953 during a meeting with a delegation from the Indian government. At the 1955 Bandung Conference, the Five Principles were included in the Ten Principles for conducting international relations that Indonesia adopted; and in 1970 they were included in the Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in accordance with the Charter of the United Nations. They are characterized as fundamental principles behind PRC foreign policy (see [Embassy of the PRC in the Islamic Republic of Iran](#), June 29, 2014). The links Xi mentions were also echoed at a recent event in Beijing commemorating the 70th anniversary of the Principles ([PLA Daily](#), July 8).

[6] This latter phrase was first used at an SCO summit in 2018 ([PLA Daily](#), July 8).

[7] United Nations resolution A/77/L.107, titled “Cooperation between the United Nations and the Shanghai Cooperation Organization.”

[8] Wang elaborated, saying that “the scandalous behavior of Lai Ching-te and his ilk in betraying the nation and their ancestors is disgraceful. But no matter how they toss and turn, they will not be able to stop China from eventually achieving complete reunification, and Taiwan will surely return to the embrace of the motherland. All ‘Taiwan independence’ separatists will be nailed to the pillar of shame in history (‘台独’分裂活动是台海和平最大的破坏性因素。赖清德之流背叛民族和祖先的丑行令人不齿。但无论他们如何折腾，都阻挡不了中国终将实现完全统一，台湾必将回归祖国的怀抱。所有‘台独’分裂分子都将被钉在历史的耻辱柱上).”

[9] Jeremy Garlick & Fangxing Qin, December 2023.

Illuminating the Future: Developments in PRC Photonic Microchip Production

by Sunny Cheung

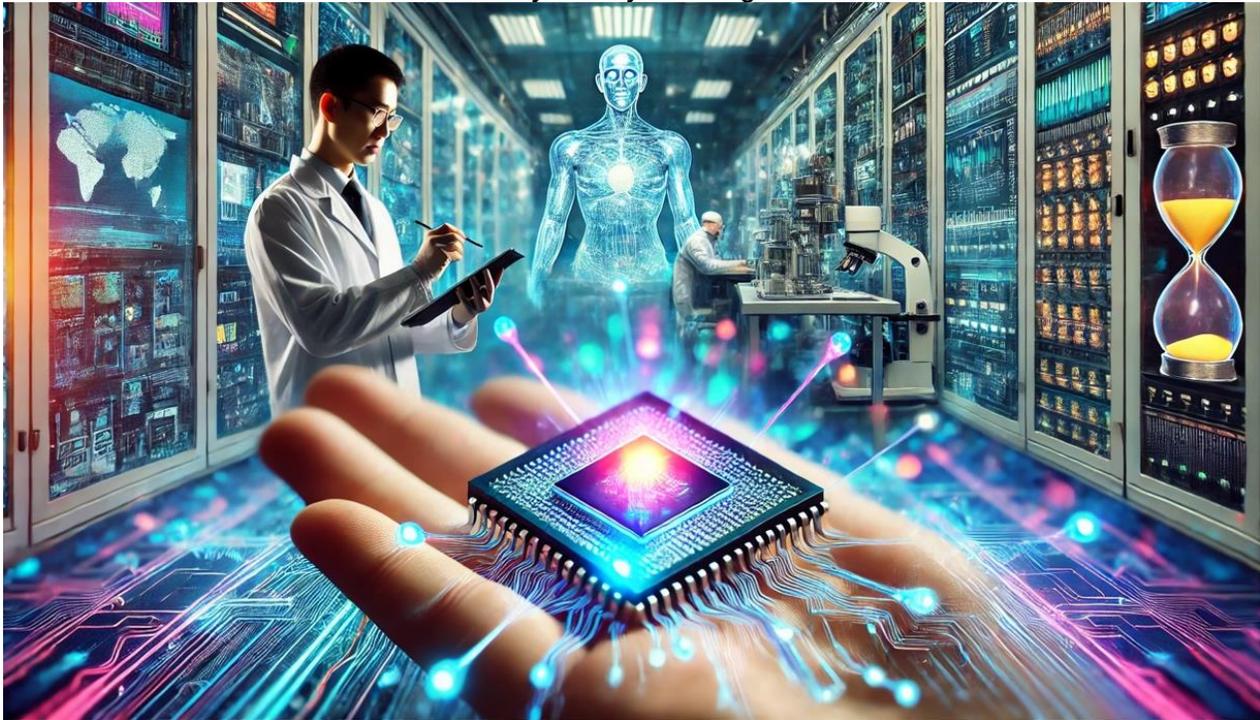


Illustration depicting microchip innovation. (Source: AI-generated image)

Executive Summary:

- In June, the first pilot production line for photonics microchips in the People’s Republic of China (PRC) was launched at Shanghai Jiao Tong University’s Chip Hub for Integrated Photonics Xplore (CHIPX), as the country explores new approaches to chip design.
- The PRC sees photonic chips as a potential to underpin many of the technological solution, offering superior speed, energy efficiency, scalability, and higher bandwidth, paving the way for future technological advancements.
- Xi Jinping, as shown in the PRC’s 14th Five-Year Plan and other national strategies, has emphasized photonics, leading to substantial investments aimed at reducing reliance on foreign semiconductor technology and achieving global leadership.
- The PRC’s advancements by academic institutes and Huawei in photonic technology aim to revolutionize the nation and military with chips potentially 1000 times faster than their electronic counterparts. These developments carry significant national security implications, potentially reshaping the US-China technological competition and export control policy. The situation warrants close monitoring.

At the end of June, the People's Republic of China (PRC) marked a technological milestone by launching its first pilot production line for photonic microchips. The new facility, established by the Shanghai Jiao Tong University Chip Hub for Integrated Photonics Xplore (CHIPX), is intended to accelerate the development and application of photonics technology in the PRC ([Xinhua](#), June 11).

The pilot production line, which saw its first batch of equipment installed in early January, aims to make “breakthroughs in the critical core technologies of optoelectronic information.” The primary focus of this production line is to advance new-generation information technologies and their industrial applications. The core technologies being developed include quantum computers, photonic processors, three-dimensional optical interconnection chips, and high-precision femtosecond laser direct writing machines (which are used in chip fabrication) ([Sina](#), June 17). This initiative is part of a wider goal of harnessing photonics technology, which could prove important for advancing the PRC's technological independence and undermining current US efforts to restrict the PRC's development of its chip sector.

Photonics: Revolutionizing Chips, Quantum Computing, Telecommunications

Photonics technology uses photons—light particles—to transmit, process, and manipulate information. Photonic computing, a subfield of photonics, includes the design of optoelectronic circuits—chips that use photons instead of electrons to achieve high-speed, high-capacity data transmission. If manufacturing of these chips can scale up, costs come down, and they can be integrated with electronic systems, then photonic chips could underpin much future information processing and communication, especially as traditional electronic chips approach their physical and operational limits ([Synopsys](#), last accessed June 30).

Photonic chips offer several advantages over electronic ones. In short, they can be faster, smaller, more energy-efficient, more scalable, able to handle much larger bandwidth, and able to transmit data more reliably and with lower latency ([Nature](#), December 23, 2015). Some experts have suggested that photonic chips potentially offer a 1,000-fold improvement in computational speed compared to current silicon-based chips ([Sohu](#), April 13). All this makes them suitable for high bandwidth, low latency scenarios, such as in data centers, telecommunications, high-frequency trading and real-time data analytics. [1] Back in 2020, Nick Harris, the CEO of a leading American photonics startup called Lightmatter, claimed that his firm's chips could reduce AI data centers' energy consumption by a factor of 20 and shrink the chips' physical footprint by a factor of five compared to current technologies. The company also claimed that their chips would surpass Nvidia's leading chip at the time, the A100, in both energy efficiency and throughput ([EE Times](#), August 24, 2020; see also [Semianalysis](#), August 22, 2022).

Photonics is still an emerging field, but photonics technologies already being integrated with existing technologies and global companies are also already investing in them ([Nikkei Asia](#), January 29). For instance, Taiwan Semiconductor Manufacturing Company (TSMC) has assembled a team of about 200 researchers focused on ultra-high-speed silicon photonic chips and is collaborating with Broadcom and Nvidia, with production expected to start in late 2024. TSMC's Vice President of System Integration Yu Zhenhua (余振華) has argued that these chips could address critical issues of energy efficiency and

computing power in AI applications, potentially increasing computational power for large language models (LLMs) ([Baidu](#), September 17, 2023). IBM, Google, and Intel, meanwhile, are investing in photonic quantum computing.

Silicon-based photonics, for instance, integrates photonic and electronic components on a single silicon chip using mature semiconductor CMOS (Complementary Metal-Oxide-Semiconductor) processes ([China Energy News](#), June 3). This allows for the development of high-density, low-cost, and energy-efficient photonic devices ([163](#), February 29). Microwave photonics, meanwhile, uses optical components to process and compute analog electronic signals with faster speeds and higher energy efficiency than traditional electronic processors, and could dramatically improve telecommunications systems, wireless communication systems, high-resolution radar systems, AI, computer vision, and image and video processing ([Nature](#), February 28).

Photonics increasingly plays a role in quantum computing. Some quantum computers now use photons to represent quantum bits (aka qubits—basic units of quantum information). This offers the similar advantages of speed, scalability, and energy-efficiency over electron-based quantum information processing seen in other photonics applications ([Baijiahao](#), June 11). As such, photonic quantum computers can operate at room temperature, unlike superconducting qubits that require extremely low temperatures. This makes them more practical and potentially more accessible ([Zhihu](#), November 24, 2023). Jin Xianmin (金贤敏), founder of leading PRC quantum computing startup TuringQ (图灵量子), has argued that photonic quantum computing meets the essential criteria for developing general-purpose quantum computers ([Wenwui](#), June 17; [TuringQ](#), accessed July 2).

Xi, PLA, Government Focus on Photonics

Since at least 2015, the PRC has incorporated its commitment to advancing photonics technology into its national strategy. That year, the Ministry of Science and Technology (MOST) convened experts in Beijing to evaluate the “Photonics Integration Technology and System Applications (光子集成技术与系统应用)” project. Led by the Chinese Academy of Sciences’ Institute of Semiconductors, the project involved prominent institutions such as Zhejiang University, Peking University, and Nanjing University. It achieved breakthroughs in designing, packaging, and testing high-density silicon-based photonic waveguide devices—components that direct light signals with minimal loss, enabling high-speed and high-capacity data transmission ([MOST](#), October 20, 2015).

In the 14th Five-Year Plan, a section on strengthening the power of the country’s strategic technology includes photonics in a list of technologies for which national labs should be built ([State Council](#), March 13, 2021). MOST has also instituted an “Information Photonics Technology (信息光子技术)” project, aimed at boosting research and development (R&D) in this area ([SKL-PET](#), May 11, 2021). The National Natural Science Foundation has also funded several early photonics projects, while MOST has included it in its own R&D plans ([NSFC](#), November 26, 2020; [OE Journal](#), November 30, 2023).

Xi Jinping has personally provided his imprimatur to the photonics industry. During an inspection of a leading

photonics company in 2022, Xi Jinping remarked that the photonic-electronic industry “is a widely applied strategic high-tech industry, and it is also a high-tech industry in which our country has the conditions to achieve breakthroughs ahead of others.” [2]

There are four aspects to the PRC’s officially mandated focus on photonics. First, the PRC recognizes that traditional integrated circuits are reaching their physical limits and that the challenges associated with them—such as increased heat generation, energy consumption, and signal interference—are becoming more pronounced. By pivoting early to focusing on photonic chips, the PRC hopes to capitalize by providing the next generation of chips ([China Energy News](#), June 3).

Second, the PRC views photonics as a means of leapfrogging its competitors in the global semiconductor race, which has historically been dominated by Western countries. By investing heavily in R&D, the country aims to overcome its deficiencies and reduce its reliance on foreign semiconductor technology. Sui Jun (隋军), president of SinTone (中科鑫通), asserts that photonic chip production enables the PRC to innovate without relying on extreme ultraviolet (EUV) lithography, the most advanced machine tool for fabricating chips that the PRC cannot produce and is currently restricted from importing ([ChinaAET](#), December 12, 2022).

Third, the ability to efficiently process and analyze vast amounts of data at speed is increasingly important as the amount of data grows exponentially ([MIT Technology Review China](#), November 23, 2020). Photonics technology is therefore seen as the foundation for future information technologies, as it can support large-scale data centers, high-speed communication networks, and advanced AI applications—all of which are hoped will reenergize the PRC’s economic growth and enhance its technological leadership.

Last, experts within the People’s Liberation Army (PLA) are also studying potential applications of photonics technology, particularly in the field of microwave photonics. According to researchers from the Nanjing Electronic Devices Institute and the Second Military Representative Office of the Air Force Equipment Department in Nanjing, microwave photonics is considered a disruptive technology that can address many of the electronic bottlenecks currently faced by microwave radar equipment. They recognize that microwave photonic technology holds immense potential for applications in radar, satellite communications, broadband wireless access networks, and integrated space-air systems, promising to profoundly impact the advancement of modern information technology. ([Journal of Radars \[雷达学报\]](#), 2019).

Breakthroughs in PRC Research

PRC researchers have announced breakthroughs in recent years that have often flown under the radar of observers in the West. One notable example is the development by Tsinghua University of the Taiji Photonics Chip (太极光芯片), which allegedly outperforming current smart chips by two to three orders of magnitude ([Baijiahao](#), April 12). This chip is framed as being especially useful for complex tasks such as analyzing large-scale images, supporting LLM training and inference, and operating low-power autonomous intelligent systems. In other words, this technology can be applied to complex classification tasks and AI-generated content.

Huawei is also making strides in photonics. The company filed a patent for a “photonic chip, its preparation method, and its communication device (光芯片及其制备方法、通信设备)” in 2021, for instance ([Baijiahao](#), March 13). At the 2021 Huawei Global Analyst Summit, Xu Wenwei (徐文伟), President of Huawei’s Strategic Research Institute, predicted that computing power demand will increase 100-fold by 2030, leading to heavy investment by Huawei in research in photonic computing ([Youtube/Huawei](#), April 12, 2021).

Another advance comes from a team under Professor Wang Cheng (王騁) at the City University of Hong Kong, which has also developed what it describes as a “world-leading microwave photonic chip.” This chip uses optical components to process and compute analog electronic signals at speeds 1,000 times faster than traditional electronic processors while consuming less energy, and is intended for use in a wide range of applications ([CityU](#), February 29). Professor Wang’s team overcame challenges with integrating photonics with electronic systems by developing a chip with ultrafast electro-optic conversion modules, using an artificial crystal known as Lithium Niobate.

Lithium niobate (LiNbO₃) is often referred to as the “silicon of photonics” and is increasingly being used in photonic applications ([Springer](#), January 1, 2012). Initially developed through collaborations between Harvard University, Nokia Bell Labs, and PRC researchers back in 2018, lithium niobate on insulator (LNOI) platforms have paved the way for high-performance photonic devices ([Nature](#), April 18, 2018). The material’s properties make it well-suited for these purposes, and LNOI devices have captured 99 percent of the high-speed modulation market ([CHIPX](#), last accessed June 30; [IOPTTEE](#), last accessed June 30). Challenges persist, however.

PRC experts argue that photonic materials like thin-film lithium niobate lack standardized processing techniques, which hampers the development of related devices and chips. Photonic devices are highly sensitive to temperature and manufacturing errors, necessitating high-precision real-time detection and repair technologies for large-scale integration ([NSFC](#), January 17, 2023). Foreign experts, meanwhile, have focused on key obstacles such as power loss from passive components, delay lines, switches, and chip interconnects, which impede the performance of integrated photonic circuits ([Nano Material Science](#), April 11).

To fully leverage benefits of photonics such as high speed, high bandwidth, and low energy consumption, the development of next-generation ultralow-loss components using multimode waveguide technology and materials like silicon or silicon nitride is essential ([Nano Material Science](#), April 11). This involves overcoming bottlenecks related to bandwidth, noise, loss, sensitivity, and extending operational wavelengths. One critical component is high-density integrated transceiver chips for optical communication, which are capable of increasing parallel channels and breaking transmission capacity limits. Intel’s 1.6 TB/s 8-wavelength multiplexed silicon photonic communication chip illustrates the challenge. The laser and modulator components occupy most of the chip area, indicating that current sizes and integration levels are insufficient for future ultra-high-capacity needs ([Intel](#), June 28, 2022).

Conclusion

The PRC's launch of its first photonic chip production line is significant. It is set to drive innovations in quantum computing, photonic processors, and advanced communication technologies. Strategic investments in photonics by the state, as highlighted in the 14th Five-Year Plan and other high-level endorsements, is helping to position the PRC at the forefront of this critical technology, as well as to help it circumvent US tech controls.

Whether the PRC can convert its alleged research breakthroughs into scalable production of devices based on this new technology remains to be seen. Currently, no country has the capability to harness this technology for mass production beyond proof of concept and limited prototypes ([Nature](#), May 8). Nevertheless, the PRC has made a bid to lead in this emerging sector, laying out the pathway and marshalling the necessary resources. The potential gains that photonics represents for an array of technologies with national security implications makes it imperative that future developments are watched closely.

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Notes

[1] Gupta, Rajeev et al. "The integration of microelectronic and photonic circuits on a single silicon chip for high-speed and low-power optoelectronic technology." *Nano Materials Science*, 2024.
<https://doi.org/10.1016/j.nanoms.2024.04.011>.

[2] Gong, 2023.

**‘A New Type of War of Unification’: Liu Mingfu on the
American Civil War’s Relevance to Taiwan**

by Rena Sasaki



The cover of Kenji Minemura’s translation of Liu Mingfu’s book, *China’s “Strong Army” Dream in the New Era: Building a World-Class Military* (Source: [Amazon Japan](#))

Executive Summary:

- A recent translation of a book by influential writer and retired PLA officer Liu Mingfu includes a previously censored chapter on a new approach to reunification with Taiwan, indicating that a wider range of approaches to the “Taiwan question” are in play than many outside the PRC assume.
- The book uses the American Civil War as a model of a successful war of reunification that decisively quashed divisive forces and safeguarded national unity.
- Liu emphasizes the Union’s ability to influence international public opinion in ways that limited support to the Confederacy and precluded foreign intervention.
- Liu argues that the American model should be transcended in the Taiwan context by reducing casualties and national spending, aiming instead for an “intelligent war,” a “civilized war,” and a “zero-casualty war,” though he does not elaborate on what these would mean, limiting their practical utility.

World-Class Military by Liu Mingfu (刘明福) was released. [1] Originally published by the Central Party School, the book carries an official endorsement and likely reflects the latest ideology, policies, and strategic thinking of the Chinese Communist Party (CCP). The translator of the Japanese edition, Kenji Minemura (峯村健司), managed to acquire the complete manuscript, including sections that were censored in the original version published in the People's Republic of China (PRC) in 2020. Liu, a senior colonel and professor at Beijing's National Defense University, wrote the book as a sequel to his 2010 work *The China Dream: The Great Power Thinking and Strategic Positioning of China in the Post-American Age*, which attracted considerable attention in PRC and Western media when it came out ([China Brief](#), April 1, 2010). [2]

Liu remains important within the Party. Indeed, the recent expulsion of former PRC Defense Minister General Li Shangfu (李尚福) and his predecessor Wei Fenghe (魏凤和) from the CCP as part of an ongoing anticorruption campaign within the People's Liberation Army (PLA) owes something to Liu ([Gov.cn](#), June 27). Liu was a key player in the anticorruption campaign that took place during Xi Jinping's first term, both in terms of providing some of the intellectual justifications for it and as an advisor to its flagbearer, General Liu Yuan (刘源) ([CLM](#), April 30, 2012). [3] Liu Yuan, through whom Liu Mingfu gained Xi's trust, retired in 2015. But Minemura believes that the connection between Xi and Liu Mingfu remains strong ([Bunshun](#), October 12, 2023). As such, understanding Liu's recent book provides a window into the discourse environment in which Xi operates.

Liu's new book offers a vision for transforming the PLA into a world-class military. It focuses on a force development concept that demonstrates the desire of the PRC leadership to become one of the world's leading military powers by mid-century. [4] In particular, the unredacted edition contains insights into tactical approaches toward Taiwan, including a discussion of what Liu terms a "new type of war of unification (新型统一战争)." These sections were omitted from the original publication, likely due to touching on sensitive aspects of security strategy.

The China Dream is the Unification of Taiwan

Liu's title borrows from a concept that Xi Jinping first referred to on November 29, 2012, shortly after he was anointed General Secretary of the CCP—the "China Dream." That day, Xi brought the entire Politburo Standing Committee to the National Museum of China to visit an exhibition titled "The Road of Rejuvenation (复兴之路)" ([Gov.cn](#), November 29, 2012). There, Xi articulated the "China Dream" as "the greatest dream for the modern era (近代以来最伟大的梦想)" aimed at "the great rejuvenation of the Chinese nation (中华民族伟大复兴)."

In a speech delivered on January 2, 2019, during the 40th anniversary of the "Message to Taiwan Compatriots (告台湾同胞书)," [5] Xi emphasized that the China Dream is the "common dream of compatriots on both sides of the Taiwan Strait (中国梦是两岸同胞共同的梦)" and declared that "the motherland must and will be reunified (祖国必须统一，也必然统一)" ([FMPRC](#), January 2, 2019). This

sentiment was reaffirmed in an August 2022 white paper on “The Taiwan Question and the Cause of China’s Unification in the New Era (台湾问题与新时代中国统一事业)” that stated, “resolving the Taiwan issue and achieving the complete reunification of the motherland represents the collective will of all Chinese people, and is a necessary condition for the great rejuvenation of the Chinese nation (解决台湾问题、实现祖国完全统一，是全体中华儿女的共同愿望，是实现中华民族伟大复兴的必然要求)” ([Gov.cn](#), August 10, 2022; see also [China Brief](#), September 20, 2022). These statements highlight the central position that unification holds in the Party’s conception of national rejuvenation, and how integral Taiwan is to Xi Jinping achieving his aims.

The Civil War as ‘The War of Unification of the United States’

In the previously censored chapter from *China’s “Strong Army” Dream in the New Era*, Liu analogizes reunification with Taiwan to the American Civil War, positing that it serves as a model for the PRC. Liu argues that the primary aim of the American Civil War was to maintain national cohesion and counteract secession, branding it as “The War of American Unification (美国统一战争)” (p 73). He emphasizes that the American Civil War decisively quashed divisive forces and safeguarded national unity, which is precisely what the PRC hopes to achieve with Taiwan. Liu also meticulously details how the Union’s operations and its success in swaying international public opinion contributed to its victory. Liu applies these historical insights to propose strategies for Taiwan. His interpretation of the American Civil War diverges from prevailing analyses in the United States but can be read as a provocative framework for understanding the potential complexities of Taiwan’s future status.

Liu identifies four distinct characteristics of the American Civil War: uncertain victory, minimal external interference, protracted conflict, and extensive damage. Following the formation of the Confederate States of America in February 1861 and the secession of a number of states, the Union was not initially poised for a clear victory—the Confederacy represented a quarter of the nation’s territory and a third of its population. Moreover, the Union’s first military engagement, the Battle of Bull Run, ended in defeat. Liu commends Abraham Lincoln and other Union leaders for their audacity and unwavering commitment to reunification. He also highlights European attempts to influence and divide the United States, particularly by Britain and France, who saw an opportunity to contain American expansionism. Britain’s declaration of neutrality on May 13, 1861, and its recognition of the Confederacy as a belligerent power marked a critical step toward potentially recognizing it as an independent state. France and Spain followed suit, threatening further colonial ambitions in the Americas. This external interference, Liu argues, compounded the internal challenges faced by the United States, transforming the American Civil War into a grueling war of attrition that lasted four years. The Union ultimately prevailed in the face of enormous setbacks, but at immense human cost—over 624,000 American lives were lost, more than in two world wars, the Korean War, and the Vietnam War combined (p. 78).

Liu points to two pivotal factors that tipped the scales in favor of the Union, namely, the abolition of slavery and the prevention of British interference in the conflict. According to Liu, the United States emerged from the

war with a strengthened national identity, paving the way for its rise to become a global hegemon. In the post-Civil War era, the abolition of slavery and territorial expansion catalyzed the transformation of the country from a primarily agrarian economy to an industrial powerhouse centered around major steel corporations and robust capitalist growth. Liu's narrative underscores the necessity of internal unity and the management of external threats to achieve national consolidation.

Liu Mingfu's interpretation of the American Civil War as a model for Taiwan's reunification will raise eyebrows for many outside the PRC. More typical analogies include the Sino-Vietnamese War of 1979, the Sino-Indian War of 1962, the ongoing Russian invasion of Ukraine, or perhaps the Normandy landings by the Allied forces in June 1944. Liu's comparison, while novel, does not fully resonate with contemporary realities—the geopolitical, cultural, military, and international legal landscape has undergone significant transformation since the middle of the 19th century. His characterization of the American Civil War as a unification effort also oversimplifies the complex causes of the war, which include deep economic, social, and ethical divisions, particularly over slavery. His reductionist view may reflect a selective interpretation of history, tailored to support a specific narrative that justifies forceful reunification with Taiwan, but such selectivity undermines his argument, as it leads to him disregarding international norms that prioritize self-determination and peaceful resolution of disputes.

Recognition of the Confederacy as a belligerent by Britain and France without establishing formal diplomatic ties illustrates the delicate balance of international diplomacy during conflict. Liu suggests that similar diplomatic strategies could prevent Western interference in a potential Taiwan conflict. In the American Civil War, while Britain and France initially provided de facto support to the Confederacy, such support eventually diminished due to the international acceptance of the Union's cause of emancipation. Similarly, it is likely that the PRC would appeal to a global audience, especially countries in the Global South, arguing that external interference violates the international norms of territorial integrity and the principle of non-interference—convenient concepts that many authoritarian and quasi-authoritarian states leverage to refuse external pressure or push back against international opprobrium.

A New Type of War of Reunification With Taiwan

For Liu Mingfu, a potential war of reunification involves denying Taiwan independence movements and external interference, particularly from the United States, Japan, and other states (p.98). It is also characterized by the dual goals of “anti-separation (反分裂)” and “anti-interference (反干涉)” (p 83). A decisive victory in this conflict would significantly impact the PRC's national destiny, but it would also affect regional power dynamics and have implications for the structure of the international system.

To achieve a decisive victory in the “new type of war of reunification,” Liu argues that the PRC needs to transcend the old (American) model in three respects. First, the PRC must avoid extensive casualties and national spending. Instead of brutal armed conflict, the PRC and the PLA should strive for an “intelligent war (智慧战争),” a “civilized war (文明战争),” and a “zero-casualty war (零伤亡战争),” something that is unparalleled in human history (p 100).

Second, the PRC should redefine “landing operations.” Traditional landing operations are outdated, and with their high costs and heavy casualties would conflict with Liu’s first criterion for a new approach. The new strategy should instead pursue innovative methods that minimize loss of life and maximize strategic effectiveness. Liu does not articulate how exactly the PLA could achieve these goals. He merely argues for an approach that would discourage the enemy’s will to fight by fighting “skillfully” and “with wisdom” to “crush the enemy’s hearts and minds,” and characterizes its effects as including no casualties among personnel, no destruction of property, and no damage to society. Yet as the current conflict in Gaza illustrates, the reality of contemporary warfare in densely populated areas suggests that Taiwan would suffer immense civilian harm and would rapidly deteriorate into an international humanitarian crisis.

Third, the PLA must innovate at the tactical level. A paradigm shift has occurred over seven decades of de facto separation, with both sides of the Taiwan Strait now bracing for a decisive “landing-counter-landing (‘登陸’与‘反登陸’)” battle. Taiwan’s military has moved beyond its reliance on traditional anti-landing defenses, while the PLA has shed the conventional constraints of such tactics. Liu argues that this strategic evolution is crucial for securing a victory with “zero casualties” and complete national unity, suggesting that PLA soldiers may choose not to land on Taiwan Island at the initial stage of a war, but a post-victory occupation and administration would be necessary to solidify control.

Liu’s framework reimagines what a PRC approach to Taiwan’s reunification could entail. He emphasizes that contemporary warfare requires minimal casualties and strategic sophistication and challenges traditional military doctrines, suggesting a shift toward methods of conflict resolution that could be more politically palatable for the rest of the world. However, executing such a strategy requires careful consideration of what international reactions to an invasion might be, the legal implications of non-conventional warfare, and the humanitarian impact on Taiwan’s populace. While it is convenient for the PRC to claim that it acts within the established principles of international law and human rights, Liu does not provide his views on these considerations.

Liu is forced to admit that his new type of operation to achieve unification “at any cost (不惜一切代价)” is not a war to “subdue the enemy without a fight”—fundamentally, it is still a military operation (p.218). Engaging in military aggression could potentially isolate the PRC or at least damage its reputation on the global stage. A major weakness of Liu’s work is his silence on how such an operation could be negatively received. He does not consider regional security dynamics, including the multi-layered security architectures that exist, such as ASEAN, the Quad, AUKUS, and other multilateral organizations. Beyond the strengthening of military alliances, he also does not lay out how more neutral states might oppose the PRC’s actions in the diplomatic realm. Just as a number of states have recently recognize a Palestinian state at the United Nations, similar motions could be put forth in support of Taiwan, for instance ([UN Press](#), June 26). Russia’s experiences in the last two years, including extensive economic and financial sanctions and repeated condemnation by the G7 or via resolutions at the UN General Assembly, suggest that international efforts may not significantly alter an aggressor’s will to fight, though it is unclear that the PRC is willing to undergo a loss of face to the extent that Putin has been. Liu’s book was published well before these two recent conflicts

broke out, and it is not known what impact they may have had on his thinking. It is clear, however, that the Russian invasion of Ukraine has been studied in depth within the PRC (*China Brief*, May 24).

Conclusion

Liu's analysis provides a unique perspective on the discourse around unification within the CCP. He uses an oversimplified model of contemporary international relations and military ethics, however, and his analogy with the American Civil War is not persuasive to those knowledgeable about its causes, conduct, and consequences. If Liu Mingfu still retains the same level of influence as he clearly used to enjoy under Xi, it is possible that the PRC will adopt aspects of his proposed strategy and learn from the American example when deploying narratives to justify an aggressive attempt at reunification against Taiwan.

Liu's limited elaboration on how to operationalize his strategy makes it of little practical value for the PLA in the short-term. Liu's ideas nevertheless suggest that a wider range of approaches to the "Taiwan question" are in play than many in policy circles assume.

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Notes

[1] 刘明福 Liu Mingfu, "Xin Shidai Zhongguo Qiangjun Meng: Jianshe Shijie Yiliu Jundui" 新时代中国强军梦：建设世界一流军队 [The Dream of China's Strong Army in the New Era: Building a World-Class Army]. Zhonggong Zhongyang Dangxiao Chubanshe 中共中央党校出版社 (2020); Liu Mingfu 劉明福. *China's Dream of Becoming a "Military strong nation"* 中国「軍事強国」への夢. Kenji Minemura 峯村健司. Bungeishunjū 文藝春秋, 2023. Unless otherwise noted, Liu's views are taken from Chapter 5 "From Opposition to Taiwan's Independence to the Complete Reunification of the Motherland" (pp. 71–108).

[2] 刘明福 Liu Mingfu, "Zhongguo Meng: Hou Meiguoshidai de DaGuo Siwei yu Zhanlüe Dingwei" 中国梦：后美国时代的大国思维与战略定位 [The China Dream: The Great Power Thinking and Strategic Positioning of China in the Post-American Age]. Zhongguo Youyi Chuban Gongsi 中国友谊出版公司 (2010). Liu was also a coauthor of a book that was the first to use the formulation "Xi Jinping Thought." (see Tsang, Steve; Cheung, Olivia. *The Political Thought of Xi Jinping*. Oxford University Press, 2024, p.25.

[3] Minemura confirmed this point during his interviews with Liu Mingfu.

[4] Fravel, M. T. (2020). China's "World-Class Military" Ambitions: Origins and Implications. *The Washington Quarterly*, 43(1), 85–99. <https://doi.org/10.1080/0163660X.2020.1735850>

[5] The "Message to Taiwan Compatriots" was released on January 1, 1979, during the early years of the

leadership of Deng Xiaoping. It articulated a desired policy of terminating cross-Strait military confrontation calling for peaceful reunification. In the decades since, direct transportation, postal services, and business ties have allowed for substantial engagement between both sides of the Strait.

PRC Use of Middlemen to Circumvent US Government Export Controls: The Case of Suzhou Rebes Electronic

by Matthew Bruzzese



A middleman handing over stolen technology to the People's Republic of China (Source: AI-generated)

Executive Summary:

- The People's Republic of China (PRC) has been relying on middlemen to obtain US technology for military programs, including hypersonic weapons. These intermediaries provide a flimsy cover for direct sales to military end-users, with some even openly listing military clients on their websites.
- Suzhou Rebes Electronic Technology, a PRC company, imports US-made radio frequency and microwave components, selling them to PRC defense entities and research institutions. Their marketing materials explicitly emphasize the military applications of these components.
- Simple measures, such as employing Mandarin-speaking analysts to monitor PRC companies' public statements, could significantly enhance enforcement. Greater scrutiny and due diligence by US companies regarding the end-users of their products is necessary to prevent unauthorized military use in the PRC.

As strategic competition between the United States and the People's Republic of China (PRC) increases, the US Government has become more vigilant in its attempts to prevent the illegal export of sensitive technology to the PRC. This has included the addition of more PRC institutions to the Bureau of Industry and Security (BIS) Entity List, as well increased enforcement and legal action against individuals found to be violating export control measures ([Federal Register](#), December 19, 2022; see [Defense One](#), June 8, 2021). Despite this, sanctioned PRC entities have continued to find ways to circumvent these measures and acquire the critical foreign technologies they need to advance the PRC's military modernization. This has included sanctioned PRC defense companies' use of thinly veiled straw purchasers to acquire needed technology from the United States that would otherwise be off-limits to them. The recent indictment of two PRC nationals attempting to use a front company to purchase critical semiconductor manufacturing equipment on behalf of a blacklisted PRC entity shows that this continues to be a go-to method in the toolkit of any would-be smuggler hoping to circumvent US export control laws ([US Department of Justice](#), April 25; [Tencent](#), April 30).

In October 2022, a report in *The Washington Post* revealed that US technology was being used to advance the PRC's hypersonic weapons program ([Washington Post](#), October 17, 2022). The report put a spotlight on PRC use of middlemen, as the technology had apparently found its way from the United States to PRC missile research institutes via straw purchasers offering a very flimsy veneer of plausible deniability about the final destination for this technology. Even the most cursory check of the middleman's website would have revealed that it was making zero effort to conceal its sales to military end-users:

"Hifar makes no secret that it sells software and consulting services to Chinese missile groups. It lists more than 50 military groups and suppliers as "cooperation partners" on its website, including CAAA, the China Air to Air Missile Research Institute, the China Academy of Launch Vehicle Technology, and the People's Liberation Army's missile group, the China Aerodynamics Research and Development Center."

The cases described by *The Washington Post*, while concerning, are not unique. The PRC uses the same method to source key components needed for its radar, communications, and other military products, suggesting that the use of seemingly innocuous middlemen is likely a common tactic for circumvention of export controls.

Firm Imports US Tech, Sells to PRC Defense Industry

Suzhou Rebes Electronic Technology (苏州瑞贝斯电子科技有限公司), a PRC company formed in 2006, specializes in radio frequency (RF) and microwave components for mobile and satellite communications, quantum computing, radar, and other uses ([Suzhou Rebes Electronic](#), accessed February 2023). While perhaps less eye-catching than hypersonic missiles, the advanced cable assemblies and other components sold by Suzhou Rebes are a critical piece of just about anything that requires high-speed and reliable data transmission. This includes military aviation, satellites, radar and air defense systems, communications systems, and high-performance computers, among many other applications. In short, the ability to transmit large volumes of data quickly, reliably, and in austere or degraded conditions that these cable assemblies provide is indispensable for modern warfare. Suzhou Rebes makes no secret of the fact

that it sources many of these components from the United States and sells them to PRC defense companies and PLA research institutions—many of which are blacklisted by the US Government.

Micro-coax



Micro-Coax专注于高质量的传输线方案，已有50多年的经验。Micro-Coax是全球领先的同轴电缆厂家，提供性价比高的线材、接头、线缆组件以及屏蔽材料。Micro-Coax产品广泛应用于军用通信、雷达、导弹制导和卫星、航空、移动设备、蜂窝发射与接收机、以及大范围的测试设备上。

主要产品：

柔性稳相电缆
半钢电缆
半柔电缆
电缆组件

市场应用：

军用通信
雷达
导弹制导
卫星
航空
移动设备
接收机

Suzhou Rebes' advertisement for Micro-Coax products, citing their usefulness in, among other things, military communications, satellites, radars, and aviation. (Source: Suzhou Rebes Electronic)

Suzhou Rebes claims to have partnerships with multiple US companies, importing and re-selling their products in the PRC ([Suzhou Rebes Electronic](#), Accessed February 2023). It also claims to serve as an official PRC representative for some of those US firms, many of whom are industry leaders in the field of RF and microwave cables and components ([Marki Microwave](#), Accessed February 2023). Many also supply products to the US military, advertising their reliability and ruggedness in the face of modern combat. [1] Documents available on Suzhou Rebes' website indicate that at least some of its US imports are indeed military-grade high-end cables ([Suzhou Rebes Electronic](#), Accessed February 2023). [2]

Far from downplaying the military potential of these US imports, Suzhou Rebes cites their utility to the military as part of its pitch to PRC customers. Suzhou Rebes cites cables from one US company as well suited for, among other things, “military communications, radar, missile guidance, satellites, and aviation” ([Suzhou Rebes Electronic](#), accessed February 2023). Another US product is marketed as being suitable for “satellites, phased array radars, electronic warfare, and signals intelligence,” among other applications ([Suzhou Rebes Electronic](#), accessed February 2023). And a third company's product is advertised as being suitable for use in supercomputers, which are currently restricted for export to the PRC ([K&L Gates](#), October 21, 2022; [Suzhou Rebes Electronic](#), accessed June 2023). A visit to the latter product's website suggests that it is used in US Cray supercomputers (used by the US Department of Defense and the US Armed Forces), as well as in an array of advanced weaponry such as the F-35 fifth-generation combat aircraft and Tomahawk Missile

([Custom Interconnects](#), Accessed June 2023).

Marki Microwave



Marki Microwave成立于1991年,总部设于美国硅谷,是专业的宽带微波器件制造商。提供了频率范围高达110 GHz的产品线。Marki广泛的信号处理产品包括性能优异的混频器、倍频器、乘法器、放大器、偏置器、滤波器、定向耦合器,正交混合器和功率分配器产品线。Marki Microwave以优秀的设计和创新的技術,制造了满足军事和商业市场要求的产品。

苏州瑞贝斯是marki中国区代理(有授权代理证书),自2006年开始,瑞贝斯便与marki合作,负责marki在中国的市场推广工作。

主要产品:

- 射频混频器(同轴,表贴,裸片)
- 射频巴伦(同轴,表贴)
- 功分器
- 偏置器
- 均衡器
- 滤波器
- 耦合器
- 倍频器
- 90°电桥

市场应用:

高标准的质量和性能产品被广泛运用于:

- 射频无线发射器和接收器
- 宽带无线通信
- 宽频数字通信
- 卫星系统
- 相控阵雷达
- 电子战
- 信号情报
- 测试和测量设备
- 医疗/工业研发

Suzhou Rebes' advertisement for Marki Microwave products, citing their usefulness in, among other things, satellites, phased-array radars, electronic warfare, and signals intelligence. (Source: Suzhou Rebes Electronic)

Deleted Press Release Burnishes Military Links

Suzhou Rebes makes clear that many of these imported products from the United States are sold on to military end users in the PRC. For example, in one since-deleted press release from its website, Suzhou Rebes celebrates the successful sale of a ka-band cable assembly to a PLA communications unit for use in a "radar project" ([Suzhou Rebes Electronic](#), accessed June 2021). While the press release claims that Suzhou Rebes manufactured this piece of equipment itself, in the very next paragraph it claims that *all* of its cables utilize imported electrical cables from US and European companies, and even specifically names several of these: "All of our cables use imported electric cables from firms such as MICRO-COAX, TIMES, GORE, Harbour, ATM, Tensolite, Huber+ Suhner, and IW (线缆全部采用 [list of firms] 等进口电缆)."

The press release then claims that Suzhou Rebes has agreements to supply cable assemblies to numerous major PRC defense companies, including subsidiaries of military electronics conglomerate China Electronics Technology Group Corporation (CETC; 中国电子科技集团公司), military aviation conglomerate the

Aviation Industry Corporation of China (AVIC; 中国航空工业集团公司), and several subsidiaries of the aerospace and ballistic missile giants the China Aerospace Science and Technology Corporation (CASC; 中国航天科技集团有限公司) and the China Aerospace Science and Industry Corporation (CASIC; 中国航天科工集团有限公司). Specifically, it names CETC's 10th, 13th, 14th, 22nd, 29th, 38th, 54th, and 63rd Research Institutes, all of which are involved in the development of military electronic products, AVIC's Shenyang and Harbin subsidiaries, CASC's 5th, 8th, and 9th Academies, and CASIC's 2nd Academy. It also claims to have agreements with two PLA academic institutions, the National Defense University and Naval University of Engineering, as well as several civilian academic institutions with close ties to the PRC military establishment. This latter group includes Beihang University, one of the "Seven Sons of National Defense," a grouping of ostensibly civilian universities known for their close ties to the defense establishment and responsible for a high proportion of the PRC's military research ([ASPI](#), November 25, 2019).

Many of these institutions would have an obvious use for the kind of high-end cable assemblies Suzhou Rebes provides. For instance, the press release mentions supplying the CETC 14th Research Institute, which is one of PRC's most important research institutes for military radars ([Global Times](#), January 12, 2020). Likewise, the CETC 54th Research Institute is dedicated to research of tactical communications and other military electronics ([SASAC](#), September 8, 2021). The two AVIC subsidiaries mentioned in the press release, the Shenyang Aircraft Corporation and Harbin Aircraft Industry Group, are responsible for many of the PLA's combat aircraft and helicopters, respectively ([CASI](#), January 22). Additionally, the listed CASC and CASIC subsidiaries are heavily involved in the development of missiles and air defense systems, as well as the PRC's space program. This suggests that US technology may have contributed to the development of some or all of these military end products.

Perhaps most concerning, the press release claims that Suzhou Rebes also has an agreement to supply components to the "Mianyang 9th Academy," a euphemism for the China Academy of Engineering Physics (CAEP; 中国工程物理研究院). CAEP is the primary research institute for the PRC's nuclear weapons program ([Suzhou Rebes Electronic](#), accessed June 2021). Suzhou Rebes' involvement in nuclear weapons research is seemingly confirmed in another press release, celebrating a new contract that allowed it "to enter the high-end nuclear industry for national defense (进入了我国国防领域高端的核工业领域)" ([Suzhou Rebes Electronic](#), accessed February 2023).

Conclusion

Suzhou Rebes' own website and statements make clear that US companies are selling critical technology to the PRC that is destined for its defense complex. There is no evidence that any of the US companies with products being sold by Suzhou Rebes are aware of these secondary sales and, on their face, these companies appear to take US Government export controls seriously (see, for example, [Marki Microwave](#), June 2018; [ATM Microwave](#), accessed February 2023). Some brief due diligence would raise awareness of the likely endpoints of their sales, however. At least one US company advertises products on its PRC website that meet the US military's MIL-DTL-17 standard ([Times Microwave](#), accessed February 2023). [3] These

companies may believe that Suzhou Rebes' absence from any US export screening lists makes the sales unproblematic. While Suzhou Rebes itself is not listed on any US Government export screening lists, however, many of the institutions it partners with, including CETC, AVIC, CASC, CASIC, and CAEP, are on the US Department of Commerce Entity List for export control ([BIS](#), March 2, 2023).

PRC companies often see the Chinese language as the “first level of encryption,” making public statements that, if translated, could get them in trouble. More often than not, they are correct in assuming that no one will translate these statements. As the US Government begins to enforce its export control regime with more stringency, cases such as that of Suzhou Rebes show that it still has a long way to go. Limited resources could nevertheless go a long way—a single Mandarin speaker with 15 minutes and an internet connection can easily uncover the facts necessary to make the link between US technology exports and their destinations in the PRC's defense complex. While further work must be done to assess how widespread PRC circumvention of export controls via middlemen is, its emergence in cases involving a wide range of controlled products suggests that it is a common, and likely effective, tactic that should receive additional attention.

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Notes

[1] See, for example:

- Ted Prema, “Powering high-performance, ultrareliable RF systems in military electronics,” Military Embedded Systems, 3 December 2021, [https://militaryembedded.com/radar-ew/rf-and-microwave/powering-high-performance-ultrareliable-rf-systems-in-military-electronics](https://militaryembedded.com/radar-ew/rf-and-microwave/powering-high-performance-ultrareliable-rf-systems-in-military-electronics;);
- “GORE-FLIGHT Microwave Assemblies for Defense Aircraft,” GORE, Accessed February 2023, <https://www.gore.com/products/gore-flight-microwave-assemblies-defense-aircraft>;
- “Micro-Coax, a Carlisle Brand,” CarlisleIT, Accessed February 2023, <https://www.carlisleit.com/brands/micro-coax/>;
- “Relentlessly Pursuing Discovery,” CarlisleIT, Accessed February 2023, <https://www.carlisleit.com/markets/military-defense/>;
- “Six cables available to support F-35 ramp rate to full production,” Harbour Industries, 21 January 2020, <https://harbourind.com/latest-news/82-f-35-cables>.

[2] The product in this source is described as MIL-DTL-17 grade, the official designation for US military-standard cables. See: “MIL-DTL-17 Requirements for Hi-Rel/MIL-SPEC Coaxial Cable Assemblies and a Note on RG Coax,” Military and Aerospace Electronics, 3 March 2019, <https://www.militaryaerospace.com/directory/blog/14059642/mildtl17-requirements-for-hirelmilspec-coaxial-cable-assemblies-and-a-note-on-rg-coax>.

[3] An English version of the manual can be found at: <https://web.archive.org/web/20230217220131/http://www.timesmicrowave.cn/uploads/PhaseTrackFamily.pdf>.

Ant Group Expands Overseas But Still Hampered By The State

by Matthew Fulco



Promotional advertisement of Alipay Overseas Offers hanging at MTR station in Hong Kong. (Source: [Wikipedia](#))

Executive Summary:

- Ant Group’s strategy since the fallout from its canceled IPO in 2020 and subsequent crackdown on the fintech sector has seen it seek opportunities while capturing projects within the People’s Republic of China (PRC) that are aligned with government priorities.
- Key markets for the initial phase of regional expansion include South Korea, Pakistan, and Singapore, but there is significant overlap between Alipay’s development overseas and the One Belt One Road (OBOR) initiative and the Digital Silk Road Initiative.
- Within the PRC, Ant is investing record amounts in Artificial Intelligence (AI) research and development and claims to be actively responding to develop “new quality productive forces.”

On June 5, Ant Group, the financial technology (fintech) unit of Chinese technology giant Alibaba, announced it would partner with Mongolia's Khan Bank to bring its mobile payment services to the country ([Hawk Insight](#), June 6). Given that Mongolia's population of just 3.28 million is approximately one-eighth the size of Shanghai and its tourism appeal is limited, its addressable market is small ([Shanghai Securities News](#), March 21; [CIA World Factbook](#), accessed July 10). For Ant, however, even small international markets show more promise for its core fintech business than its home turf in the People's Republic of China (PRC). Ever since the Hangzhou-based company's dual initial public offering (IPO) in Shanghai and Hong Kong was abruptly canceled in November 2020, it has been struggling under the weight of the ruling Chinese Communist Party's (CCP) sustained crackdown on consumer internet companies. According to an analysis published by digital media company Sohu, Ant's profit fell 92 percent on a quarterly basis to RMB 242 million (\$33.3 million) in the third quarter of 2023 ([Sohu.com](#), February 21). Following a July 2023 share buyback, the company was valued at RMB 567.1 billion (\$78.5 billion per the exchange rate then), a steep drop from its \$315 billion valuation on the eve of its abortive IPO ([Central News Agency](#), July 8, 2023).

PRC President Xi Jinping likely personally ordered the IPO suspension over concerns about how its proceeds could benefit political rivals affiliated with former CCP General Secretary Jiang Zemin ([SinoInsider](#), February 17, 2021). However, Xi has also voiced skepticism of private sector firms he sees as focused on profit maximization and which do not contribute to the so-called "real economy" of physical goods and services ([South China Morning Post \[SCMP\]](#), May 6, 2023). In a January 16 speech to the CCP's Party School, Xi called for fostering a "financial culture with Chinese characteristics," which avoids "a single-minded focus on profit" and "prevents funds from being diverted out of the real economy." ([Beijing Municipal Government](#), January 17).

The crackdown on technology companies that began with the suspension of Ant's IPO has yet to end, however. The company has paid about \$1 billion for regulatory violations. It is also continuing government-mandated restructuring that has included the dilution of founder Jack Ma's voting rights from more than 53.5 percent to just 6.2 percent ([STCN](#), December 30, 2023). A key development occurred in March when Ant moved to restructure its operations into three independent business units. Notably, one of these units focuses on the company's international operations, which are concentrated in Asia but have begun expanding further afield, including into the West. Along with strategic investments in technologies favored by Beijing, Ant sees this global expansion as its best hope for future growth.

Ant Group's Overseas Expansion Continues Apace

Ant Group's international expansion pre-dates the PRC's fintech crackdown but it has accelerated in tandem with a worsening business environment at home. The company is mainly focused on developing a cross-border payments network called Alipay+ that facilitates interoperability among participating digital wallets. There are currently more than 25 e-wallets in the network, most of which are based in Asia ([Alipayplus.com](#)). Alipay+ offers convenience to travelers by reducing the need to download additional payment apps while merchants are able to accept more payment methods through a single network. According to data provided by Ant, Alipay+ has 1.5 billion consumer accounts and 88 million merchants on its network ([Infocast](#), April 2).

Although the company does not break down these numbers by geography, it is understood that most of its customers are Chinese given that Alipay does not yet have significant market share outside of the PRC.

A key market for Alipay+ is South Korea, a top destination for Chinese tourists and the PRC's fifth-largest trading partner. (The PRC, meanwhile, is Seoul's top trading partner.) With investments in two of Korea's largest digital wallets, Kakao Pay and Toss Pay, Ant is well-positioned to expand in the country. At a press conference held in Seoul in December 2023, Ant said that Alipay+ transactions at offline merchants in Korea grew by more than 700 percent in the first 10 months of the year and that the network now encompasses 1.7 million merchants in Korea ([The Korea Times](#), December 12, 2023). Ant Group has a similarly growing payments network in Southeast Asia, Pakistan, and Sri Lanka. Though Ant is not making an explicit connection between Alipay+ and the PRC's OBOR, the company is nevertheless involved in Xi Jinping's massive infrastructure project. In 2017, Ant signed an agreement with the United Kingdom's Standard Chartered Bank to collaborate with countries participating in the OBOR ([Ta Kung Pao](#), December 19, 2017).

Pakistan is a promising market for Ant given its large unbanked population, estimated at more than 100 million adults, and its historically close relationship with the PRC ([The Express Tribune](#), March 29, 2023). Ant first gained a foothold in Pakistan in 2018 when it purchased a 45 percent stake in the Pakistani microfinance bank Telenor for \$184.5 million ([Sina](#), March 13, 2018). In April, the Chinese company signed a deal with the Pakistani digital payments firm NayaPay, allowing the latter's users access to Alipay's merchant network in the PRC. NayaPay CEO Danish A Lakhani described the partnership as "a monumental milestone in the commercial relationship between China and Pakistan as we witness the establishment of the first direct payment channels between our two nations" ([Business Recorder](#), April 10).

In 2022, following a lengthy approval process that coincided with its regulatory difficulties within the PRC, Ant launched a digital bank for businesses in Singapore called ANEXT. While Singapore is a mature, ultra-competitive financial services market, ANEXT could cultivate a niche given the growing Chinese corporate presence in the city-state. The importance of ANEXT to Ant can be seen in the substantial investments it has received, including \$188 million in March 2023 and \$148 million in March 2024 ([Baijing.cn](#), March 30, 2023; [Baijing.cn](#), March 26).

Alipay's expansion overseas has an added strategic dimension. It aligns with Xi's stated emphasis on goals of seizing the opportunities presented by the digital economy and financial technology to secure a leading position in future global development ([Baijiahao](#), July 5). Alipay aims to dominate emerging markets and facilitate the international use of the digital RMB as part of the government's Digital Silk Road initiative, which is part of the broader One Belt One Road Initiative (OBOR) ([MOFCOM](#), September 19, 2023). It is already creating an inclusive digital financial ecosystem among OBOR partner countries ([China Comment](#), December 12, 2019; [81.cn](#), April 10, 2023; [Zaker](#), July 10). This expansion helps boost RMB internationalization as well as enhance transaction traceability for the People's Bank of China, the country's central bank—something that could raise privacy and surveillance concerns globally ([Haokan](#), February 20, 2022).

Ant Group's Pivot To Appease At Home

Ant Group has doubled down on financial technology investments overseas, but back home in the PRC it has sought to capture a different kind of market opportunity that is more aligned with the preferences of the country's leadership. In its 2023 Sustainability Report published in mid-June, Ant said that it had spent a record RMB 21.2 billion (\$2.9 billion) on research and development last year, highlighting investments in artificial intelligence (AI). In the report, Ant CEO and chairman Jiang Xiandong (井贤栋) said that the company would prioritize the development of AI technologies and “actively respond to the call of new quality productive forces” ([Ant Group](#), June 5).

The term “new quality productive forces” has appeared consistently in Xi's speeches and state media since it first emerged during Xi's September 2023 inspection tour of Henan ([Henan High People's Court](#), September 11, 2023). Li Yuju (李玉举), deputy director of the Xi Jinping Economic Thought Research Center at Peking University, told the state-run China News Service in June, “Future industries,” mainly concentrated in areas including AI, new energy, and life sciences, “are crucial forces for reconstructing the global innovation landscape, reorganizing global resources, reshaping the global economic structure, and altering global competitive dynamics” ([Accesswire](#), June 29). In June, Xi sent a congratulatory letter to the 2024 World Intelligence Expo held in Tianjin, in which he said that “China attaches great importance to the development of AI” and works to integrate the internet, big data, and AI with the real economy. He also called on the PRC to “speed up the development of new quality productive forces, so as to provide new driving forces for high-quality development” ([MOHRSS](#), June 21).

Ant, meanwhile, has been busy trying to capture business opportunities from the CCP's interest in AI. Earlier this year, shortly after the news broke the company had set up a new dedicated AI unit, Ant signed a strategic cooperation agreement with the Shanghai Municipal Government to support the development of the city's AI and blockchain ecosystems ([SCMP](#), January 25; [People.cn](#), February 1). This agreement followed Ant winning approval last November to release products powered by its “Bailing” AI large language model to the public ([Shanghai Securities News](#), November 6, 2023).

Ant Group is steadily recovering from its nadir in 2020. Its government-mandated restructuring has progressed, while overseas expansion is proceeding smoothly, and it is exploring new opportunities in Beijing's preferred technologies. The company's profit margins have suffered under the weight of the crackdown though, and it is far from certain that its AI ventures will pay off to the same extent as its investments in financial technology. By the end of June 2020, it had processed RMB 2.1 trillion (US\$310 billion) in consumer and business loans. Yet due to restructuring and associated restrictions on its lending activities, Ant has lost a key growth driver—a new consumer finance company it established in Chongqing is required to fund 30 percent of the loans it makes with partners, while banks are not permitted to originate more than half of their total loans from online firms. A calculation by Reuters in early 2023 found that Ant could disburse about RMB 500 billion (\$69 billion) in credit with its partner banks, less than 25 percent of its loan balance in 2020 before its IPO was suspended ([Reuters](#), Feb 9, 2023).

Ant Group's connections to the state mean that the PRC's strained ties with the West and India could complicate its international expansion efforts. When Ant acquired the UK money transfer firm WorldFirst in 2019, the company had to first shut its operations in the United States in order to forestall the \$900 million acquisition from being blocked by US lawmakers ([Financial Times](#), January 31, 2019). More recently, the US Department of the Treasury has issued new proposed regulations for outbound investment screening in "countries of concern" of technologies deemed critical for national security, including AI ([US Department of the Treasury](#), June 21). Meanwhile, Ant has been gradually paring down its stake in the prominent Indian financial technology company Paytm. In August 2023, Ant swapped about half its equity investment in the company for convertible debt, which reduced its holding to 13.5 percent and increased founder Vijay Shekhar Sharma's to 19.4 percent ([Sina](#), August 11, 2023). The People's Daily-owned Global Times said, "The move comes as Chinese investment faces increasingly biased scrutiny by the Indian government" and accused New Delhi of "a repeated malicious crackdown on Chinese companies" ([Global Times](#), August 7, 2023).

Conclusion

Since November 2020, Ant Group has shown that it is too big to fail in the eyes of the party-state, but not too big to be cut down to size. The company remains a major player in the PRC's financial services and technology sectors but must contend with lower profit margins and a reduced scope of business within the PRC. It is trying to realign its domestic business with Xi Jinping's preference for companies that support the real economy and technologies Beijing prioritizes, such as artificial intelligence.

Given the intensifying technological competition between the United States and the PRC, Ant may try to reinvent itself in its home market as a key player in Beijing's push to become a dominant AI power. However, Ant's core business remains digital financial services, and it can be expected to continue expanding its overseas operations—especially in countries that have amicable ties with the PRC like Pakistan and Singapore as well important economic partners like South Korea, even if this expansion will be constrained to some degree by geopolitical tensions. Alipay's expansion is also a strategic move to align with the PRC's Digital Silk Road and OBOR initiatives, promoting digital RMB and enhancing transaction traceability, which could raise global privacy concerns.

The resumption of its IPO process would be a potential game-changer for Ant Group and would signal to investors and business partners that the company had fully emerged from regulatory scrutiny. There has been no indication that this will happen soon, however, and Beijing would have to see a clear benefit in allowing the listing to go ahead. For now, it is likely to continue keeping Ant on a tight leash.

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