

SECTION 2: CHINA'S MILITARY REORGANIZATION AND MODERNIZATION: IMPLICATIONS FOR THE UNITED STATES

Key Findings

- Chinese President and General Secretary of the Chinese Communist Party Xi Jinping significantly accelerated China's military modernization goals in late 2017, requiring the People's Liberation Army (PLA) to become a fully "modern" military by 2035 and a "world-class" military by mid-century. This new guidance moves China's military modernization timeline up nearly 15 years.
- Beijing is currently capable of contesting U.S. operations in the ground, air, maritime, and information domains within the second island chain, presenting challenges to the U.S. military's longstanding assumption of supremacy in these domains in the post-Cold War era. By 2035, if not before, China will likely be able to contest U.S. operations throughout the entire Indo-Pacific region.
- China's large-scale investment in next-generation defense technologies presents risks to the U.S. military's technological superiority. China's rapid development and fielding of advanced weapons systems would seriously erode historical U.S. advantages in networked, precision strike warfare during a potential Indo-Pacific conflict.
- The PLA Strategic Support Force—whose organization and operations reflect the importance Beijing places on information warfare—poses a fundamental challenge to the United States' ability to operate effectively in space, cyberspace, and the electromagnetic spectrum. The new force signals Beijing's intent to build a military capable of dominating these domains of warfare.
- China's rapid buildup of the PLA Navy as a blue water force through its continued commissioning of highly capable, multi-mission warships will give Beijing naval expeditionary capabilities deployable around the globe as early as 2025, well ahead of the PLA's broader 2035 modernization goals.
- China continues to develop and field medium- and long-range air, sea, and ground-launched missile systems that substantially improve China's capability to strike both fixed and moving targets out to the second island chain. China's ability to threaten U.S. air bases, aircraft carriers, and other surface ships presents serious strategic and operational challenges for the United States and its allies and partners throughout the Indo-Pacific.

- Beijing has sought to use its sweeping military reorganization efforts to address the PLA's so-called "peace disease" and persistent weaknesses in its ability to conduct joint combat operations. Much of Chinese leaders' concerns center on the PLA's lack of recent combat experience and the perceived inability of many operational commanders to carry out basic command functions such as leading and directing troops in combat. President Xi's "Strong Military Thought" ideology, promulgated in late 2017, also seeks to overcome perceived shortcomings in the PLA's war preparedness and combat mindset.
- Prior to the PLA achieving its objectives of becoming a "modern" and "world-class" military, Beijing may use coercive tactics below the threshold of military conflict rather than resorting to a highly risky use of military force to achieve its goals in the region. However, as military modernization progresses and Beijing's confidence in the PLA increases, the danger will grow that deterrence will fail and China will use force in support of its claims to regional hegemony.
- The Central Military Commission's assumption of direct control over the People's Armed Police and China Coast Guard in 2018 effectively removed all remaining civilian status from both forces and clarified their military role. The move places added importance on the China Coast Guard as an instrument to police, enforce, and advance China's domestic maritime interests.

Recommendations

The Commission recommends:

- Congress direct the U.S. Department of Defense and U.S. Department of Homeland Security to provide to the relevant committees of jurisdiction a report, with a classified annex, assessing how the change in the China Coast Guard's command structure affects its status as a law enforcement entity now that it reports to the Central Military Commission. The report should discuss the implications of this new structure for China's use of the coast guard as a coercive tool in "gray zone" activity in the East and South China seas. This report should also determine how this change may affect U.S. Navy and U.S. Coast Guard interactions with the China Coast Guard, and whether the latter should be designated as a military force.
- Congress consider imposing sanctions on key Chinese state-owned enterprises and individuals involved in China's ongoing militarization of the South China Sea.

Introduction

China's sweeping reorganization of the People's Liberation Army (PLA), initiated in 2016 and led by Chinese President, General Secretary of the Chinese Communist Party (CCP), and Chairman of the Central Military Commission (CMC) Xi Jinping, is designed to improve the PLA's ability to advance China's interests and constrain the ability of the United States to operate freely in the Indo-Pacific region. The most important goal of this restructuring effort is to build a joint force capable of projecting power farther from China's

shores. New directives laid out by President Xi in late 2017 now significantly accelerate China's military modernization timetable and squarely set the PLA's sights on becoming a "world-class" military on par with the United States.

President Xi views the PLA's modernization as fundamental to achieving his signature initiative to realize the "Chinese dream of the great rejuvenation of the Chinese nation"—restoring what China perceives as its historic and rightful place as the dominant power in Asia. The PLA is also building the capacity to support China's ambitions to play an influential role on the world stage. China's military continues to improve its ability to conduct expeditionary operations to protect Beijing's overseas interests, facilitated by the buildup of a blue-water navy, China's construction of its first overseas military base, and potentially by a range of ports and airfields developed around the world through President Xi's Belt and Road Initiative. The Chinese leadership's vision for the PLA is therefore expansive. It seeks to build capabilities not only suited to resolving regional sovereignty disputes in China's favor, but that will also allow China to achieve the further-reaching goals implied by the "China Dream," likely by the 100th anniversary of the founding of the People's Republic of China in 2049. These goals include achieving unification with Taiwan, resolving other remaining territorial disputes, and fully restoring China's regional and global prestige.

One key element of China's worldview is that the first two decades of the 21st century—and potentially longer—serve as an important "period of strategic opportunity" for expanding China's comprehensive national power, during which the likelihood of an outside power initiating a large-scale conflict with China remains low. President Xi's initiation of his overhaul of the PLA—whose major components are scheduled to be completed by 2020—aligns with this strategic window and further shapes Beijing's belief that it is increasingly well positioned to contest the U.S. military presence in the Indo-Pacific, which it views as the foremost obstacle to China achieving its goals in the region. Beijing also believes its growing military power will undermine the confidence of U.S. allies and partners in the ability of the United States to deter China's pursuit of these goals.

Today, the United States and its allies and partners are facing a China more capable and increasingly confident in its ability to use the military as a tool to intimidate countries throughout the Indo-Pacific and support the expansion of its global interests. The PLA's modernization over the past two decades has already resulted in a force capable of contesting U.S. operations in the region, presenting challenges to the U.S. military's longstanding assumption of enjoying ground, air, maritime, and information dominance in a conflict in the post-Cold War era. As China continues to achieve its military modernization goals, the PLA will become increasingly capable of contesting all domains of warfare throughout the Indo-Pacific region and beyond. Given the PLA's lack of recent combat experience, however, Beijing may find itself hard-pressed to execute complicated military operations against a capable and modern opponent. In the meantime, the PLA will continue seeking to overcome these challenges by improving combat-realistic training, which—if successful—will provide Beijing with a greater sense of confidence during

a crisis, especially should Beijing decide to use force. President Xi's successful efforts to end term limits for himself, consolidate his power on the CMC, and carry out a large-scale anticorruption campaign within the PLA have created an environment for him to shape and execute a reorganization and modernization program that will almost certainly result in a much more capable, joint PLA.

This section examines the drivers behind China's military reorganization and modernization efforts and assesses President Xi's vision for how the PLA will help secure his signature "China Dream." Further, it provides important updates on improvements in the PLA's joint command structure, advancements in force building, and efforts to develop joint operational capabilities since the initiation of the PLA's reform and reorganization in 2016. Finally, the section explores the implications of these developments for the United States and U.S. allies and partners in the Indo-Pacific. This section is based on the Commission's February 2018 hearing on the topic, the Commission's May trip to Asia, unclassified statements by U.S. officials, and open source research and analysis.

Beijing Sets Goal to Build World-Class Military

At the CCP's 19th National Congress in October 2017, President Xi laid out new requirements for a military modernization program seeking to achieve force-wide mechanization and major progress in strategic warfighting domains by 2020, a "modern" military by 2035, and a "world-class" military by the middle of the century.¹ These requirements represent President Xi's confidence in the PLA and a major acceleration of China's previous military modernization timeline, moving the goal for a fully modernized military up by nearly 15 years.² Cortez Cooper, senior researcher at the RAND Corporation, surmised in his February 2018 testimony to the Commission that the implication of this modernization timeline shift would be that "[b]y 2035, if not before, the PLA likely will be able to contest all domains of conflict—ground, air, sea, space, cyberspace, and electromagnetic—throughout the Indo-Pacific region."³

To achieve these goals, President Xi called at the Party Congress for the PLA to continue with its reform and restructuring efforts—begun in 2016 and the most comprehensive in decades—under the banner of the CCP's newly promulgated "Strong Military Thought for the New Era," an important ideological formulation further highlighting the importance of a powerful military to achieving national policy goals.⁴ The new guiding ideology, which the CCP has since retitled "Xi Jinping Strong Military Thought" and amended into its constitution, builds on President Xi's past declarations that "a strong military is needed for the great renewal of the Chinese nation."⁵ The formulation also suggests Beijing intends for the PLA's modernization to not only address specific perceived threats in the Indo-Pacific but also allow China to more broadly increase its influence in international affairs.⁶

Admiral Philip Davidson underscored the far-reaching implications of China's military modernization for the United States during his April 2018 confirmation hearing to become the new commander of U.S. Indo-Pacific Command (INDOPACOM). In his testimony, he stated that "China is pursuing a long-term strategy to reduce U.S.

access and influence in the [Indo-Pacific] region and become the clear regional hegemon, and Beijing has already made significant progress along this path. China is no longer a rising power but an arrived great power and peer competitor to the United States in the region.”⁷

Overcoming the “Peace Disease” and Improving Combat Readiness

In his Party Congress report, President Xi gave clear instructions for the PLA to focus its training and modernization efforts exclusively on preparations for war in all domains and directions around China’s periphery.⁸ This almost certainly included instructions for the PLA to enhance its preparations for military operations in its “main strategic direction” to the east, focused on combat preparations for Taiwan and any potential U.S. military intervention in a Taiwan conflict.* As part of President Xi’s broader guidance, he also tasked the PLA to enhance its combat-realistic training; improve preparations for war in all domains, including in space and cyberspace; and increase the active use of the PLA as an element of national power.⁹ Notably, President Xi’s instructions to the PLA seek to overcome concerns of his own and among senior military leaders over the PLA’s so-called “peace disease” and lack of ability to fight and win a modern, joint campaign.¹⁰ Prominent among these concerns are significant PLA shortcomings President Xi has termed the “Five Incapables”—referring to the inability of some PLA leaders to effectively judge the military situation and understand their orders, make operational decisions, direct troops in combat, and handle unforeseen battlefield developments.¹¹

The PLA’s current modernization effort is rooted in the efforts of President Xi’s predecessors who in the 1990s and early 2000s assessed the PLA suffered from critical shortcomings in modern warfare that would put China at a disadvantage should a conflict occur with a Western power.¹² China’s previous leaders, former Presidents Jiang Zemin and Hu Jintao, initiated important reform and modernization efforts to narrow gaps in PLA warfighting capabilities with the United States and U.S. allies, providing Beijing options for advancing its regional interests and dominating Taiwan.¹³ Senior Chinese military leaders observed the U.S. employment of long-range and precision strike capabilities in the 1990s with alarm—including the 1991 Gulf War and 1999 accidental bombing of the Chinese Embassy in Belgrade—leading Beijing to focus its modernization efforts on “antiaccess/area denial (A2/AD)” (or “counterintervention”) † ca-

* China’s 2015 defense white paper—*China’s Military Strategy*—which outlines China’s national military strategy, calls for the PLA to prepare to respond to crises in multiple domains and geographic regions simultaneously, indicating there are multiple strategic directions that would be assigned to the PLA’s theater commands. While theater commands are assigned primary and secondary strategic directions, Taiwan remains the primary strategic direction at the national level. U.S.-China Economic and Security Review Commission, *Hearing on Hotspots along China’s Maritime Periphery*, written testimony of Mark R. Cozad, April 13, 2017; Wang Hongguang, “Wang Hongguang: Decisively Setting East China Sea as Our Primary Strategic Direction,” *Sohu Military*, March 2, 2016. Translation; China’s State Council Information Office, *China’s Military Strategy*, May 2015; Shou Xiaosong, ed., *The Science of Military Strategy*, Military Science Press, 2013, 117. Translation.

† Antiaccess actions are intended to slow the deployment of an adversary’s forces into a theater or cause them to operate at distances farther from the conflict than they would prefer. Area denial actions affect maneuvers within a theater, and are intended to impede an adversary’s operations within areas where friendly forces cannot or will not prevent access. China, however, uses the

pabilities to deter, delay and, if needed, defeat foreign intervention in a military operation along China's periphery.¹⁴ However, these modernization efforts were not fully successful in transforming the PLA into a force capable of conducting joint operations at long distances from China's coast.

Threats and Missions

The CCP's primary objective is to maintain its hold on power by ensuring domestic stability, protecting sovereignty claims, and defending China's territorial integrity.¹⁵ China's 2015 defense white paper, *China's Military Strategy*, provides insight into how Beijing views some of the potential conflicts facing China that could challenge the CCP's national goals.* The white paper states that although a world war is unlikely, terrorism and global hotspots are concerning and could lead to war or conflict in the near term.¹⁶ The 2013 edition of *The Science of Military Strategy*, an authoritative book published by the PLA's Academy of Military Science, states that China must comprehensively prepare for the "threat of war" and make "preparations to contain ... [or win] war."¹⁷

Accordingly, the CCP has tasked the PLA with a range of strategic missions—including a formalized mission to protect "overseas interests"—which shape the services' need to develop capabilities to defend China's regional sovereignty claims and conduct expeditionary operations. China's 2015 defense white paper outlines the following missions assigned to the PLA:¹⁸

- Safeguarding the CCP;
- Safeguarding sovereignty and security of China's territorial land, air, and sea;
- Safeguarding unification of the motherland;
- Safeguarding security and interests in new domains;
- Safeguarding security of China's overseas interests;
- Maintaining strategic deterrence and ability to carry out nuclear counterattack;
- Participating in regional and international security cooperation and maintaining regional and world peace;
- Strengthening efforts against infiltration, separatism, and terrorism to maintain China's political security and social stability; and
- Performing emergency rescue and disaster relief, rights and interests protection, guard duties, and support for national economic and social development.¹⁹

term "counterintervention," reflecting its perception that such operations are reactive. U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2013*, 2013, i, 32–33; U.S. Department of Defense, *Air-Sea Battle: Service Collaboration to Address Anti-Access & Area Denial Challenges*, May 2013, 2.

*China's defense white papers are the primary publicly released official documents that describe how Beijing views national security interests at the unclassified level. To date, the State Council Information Office of China has published ten white papers that have been approved by the Central Military Commission, Ministry of National Defense, and State Council.

Military Reform in 2018: Political Control and Combat Power Growing

Among the most important developments in China's military restructuring efforts in 2018 were the major overhaul of the PLA's joint command structure and President Xi's issuance of new military training guidelines emphasizing combat realism and joint operations. These developments follow major structural changes beginning in 2016 to PLA leadership organs, combat services, and operational theaters, and second-phase reform efforts primarily focused on training officers and soldiers to operate within the PLA's new joint command structure.²⁰

Redefining National and Operational Command

President Xi Overhauls the Central Military Commission

At the CCP's 19th National Congress, President Xi proved successful in wielding the power of his anticorruption campaign to push through major changes to the CMC's composition and structure that broke a key bureaucratic roadblock to streamlining command and control and helped ensure the personal loyalty of senior military officials on the CMC to President Xi. CMC membership was reduced from 11 to 7 seats—the smallest membership in 20 years—and the PLA service chiefs were removed from the top military decision-making body, effectively placing them outside the formal chain of command from the CMC's strategic command authority to the theater's operational command authority.* Nevertheless, it remains unclear whether the service chiefs have actually been fully removed from the operational chain of command and if they will retain any role controlling PLA forces conducting out-of-area operations beyond the theater commands' geographic boundaries. Overall, these changes marked a significant shift in reducing the overall power of the PLA service chiefs and empowering the PLA's new joint theater commanders, mirroring in some ways the changes the United States made to its military command structure under the Goldwater-Nichols Department of Defense Reorganization Act of 1986.†²¹ The new streamlined structure is expected to allow the CMC to better focus on strategic management issues while empowering the theater commanders to assume full command authority over combat units in their operating area, and focuses the service staffs on the task of “force building” (similar to the U.S. concept of man, train, and equip).²²

*The new makeup of the CMC includes Xi Jinping as CMC Chairman and Commander in Chief, followed by Xu Qiliang and Zhang Youxia as vice chairmen. The remainder of the CMC is composed of Wei Fenghe (Minister of National Defense), Li Zuocheng (Chief of Joint Staff), Miao Hua (Director of the Political Work Department), and Zhang Shengmin (Secretary of the CMC Commission for Discipline Inspection). President Xi likely selected the CMC based upon personal loyalty. China's Ministry of National Defense, *Central Military Commission of the Chinese Communist Party*, November 2017. Translation. <http://www.mod.gov.cn/leaders/index.htm>; Government of China, *Central Military Commission of the Chinese Communist Party*, October 19, 2012. Translation. http://www.gov.cn/test/2012-11/19/content_2269866.htm.

†The Goldwater-Nichols Act was responsible for reorganizing the U.S. Department of Defense to improve the ability of the U.S. military to conduct joint operations. The act made significant changes to the U.S. military by strengthening the influence and staff of the Joint Chiefs of Staff chairman, compared to those of the service chiefs, and increasing the authority of the combatant commands. These measures removed barriers between the services to enable a more “joint” operational force. Goldwater-Nichols Department of Defense Reorganization Act of 1986, Pub. L. No. 99-433, 1986.

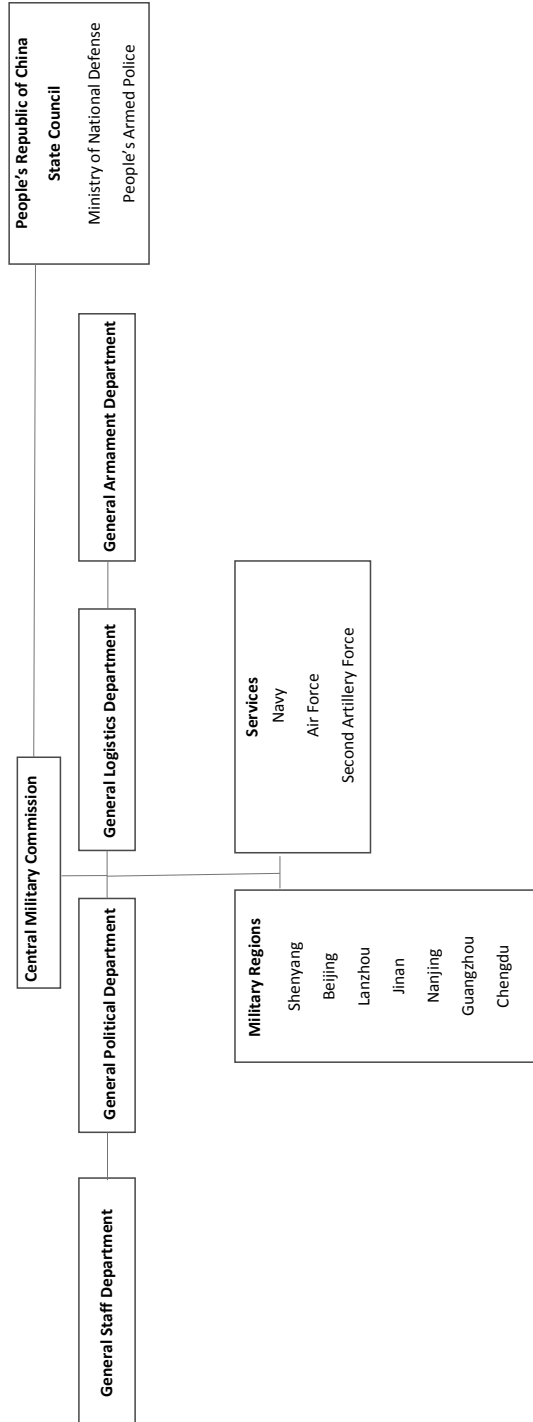
By changing the composition and reducing the size of the CMC, President Xi was also able to consolidate political control over the top military body. During the 19th Party Congress, President Xi made it clear that the CMC must remain loyal to the CCP—and by extension to him personally.²³ This demand for absolute loyalty is likely in part a message from President Xi to the PLA that he will not tolerate any opposition to his reorganization and modernization vision.²⁴ At the Party Congress, President Xi promoted General Zhang Youxia—previously the head of the CMC’s Equipment Development Department and reportedly a close childhood friend and “sworn brother” of President Xi—to vice chairman of the CMC.²⁵ General Zhang reportedly has personally “pledged loyalty to [President] Xi,” and has followed President Xi’s promotion trajectory throughout his career.²⁶ Another important change to the CMC’s composition was the addition of Zhang Shengmin, head of the CMC’s recently strengthened Discipline Inspection Commission; his membership on the top body* further highlights the important role President Xi’s anticorruption campaign plays in the broader PLA reorganization effort and in his assertion of personal control over the PLA.²⁷

Several additional organizational changes occurred in 2018 providing the CMC greater authority. On January 1, China’s national paramilitary force, the People’s Armed Police (previously subordinate to both the CMC and the State Council), was placed solely under the CMC.²⁸ In July, the China Coast Guard (formerly under the State Oceanic Administration) was also placed under sole CMC authority, reporting through the People’s Armed Police.²⁹ Prior to these more recent structural reforms, the PLA’s four general departments (the general staff, political, logistics, and armaments departments) were reorganized into 15 subordinate functional sections of the CMC in January 2016.† One of the more significant results of the 2016 restructuring was that it established two lines of authority under the CMC: the first line created a command relationship with joint theater commands through the Joint Staff Department, and the second line established a true service structure focused on the force-building mission for maintaining and improving the PLA (see Figures 1 and 2).³⁰

*The CMC Discipline Inspection Commission is the Chinese military’s top discipline body that monitors PLA officers to ensure their loyalty to the CCP and adherence to military rules and regulations. Upon its establishment in late 2015, the commission became more independent (similar to its CCP counterpart) and subsumed discipline and inspection duties that it previously shared with the General Political Department (which became the CMC Political Work Department in the PLA’s reorganization). Since mid-2016, the commission began dispatching inspection personnel to all levels of the PLA, including the theaters and services. Yan Cheng, “The General Political Department,” *The CMC’s New Round of Inspections Has Begun*, April 2, 2018. Translation; Xia Guodong, Huang Chao, and Yin Hang, “Remember the Mission Is to Trust in Loyal Performance Supervision Duties—A Review of the First Anniversary of the CMC Discipline Inspection Group,” *PLA Daily*, May 19, 2017. Translation; U.S. Department of Defense, *Directory of PRC Military Personalities*, March 2017, 9–10, 14; Roy Kamphausen, “The General Political Department” in Kevin Pollpeter and Kenneth Allen, eds., *The PLA as Organization v2.0*, Defense Group Inc., December 2015, 162, 167, 170; U.S. Department of Defense, *Directory of PRC Military Personalities*, March 2014, 10, 30.

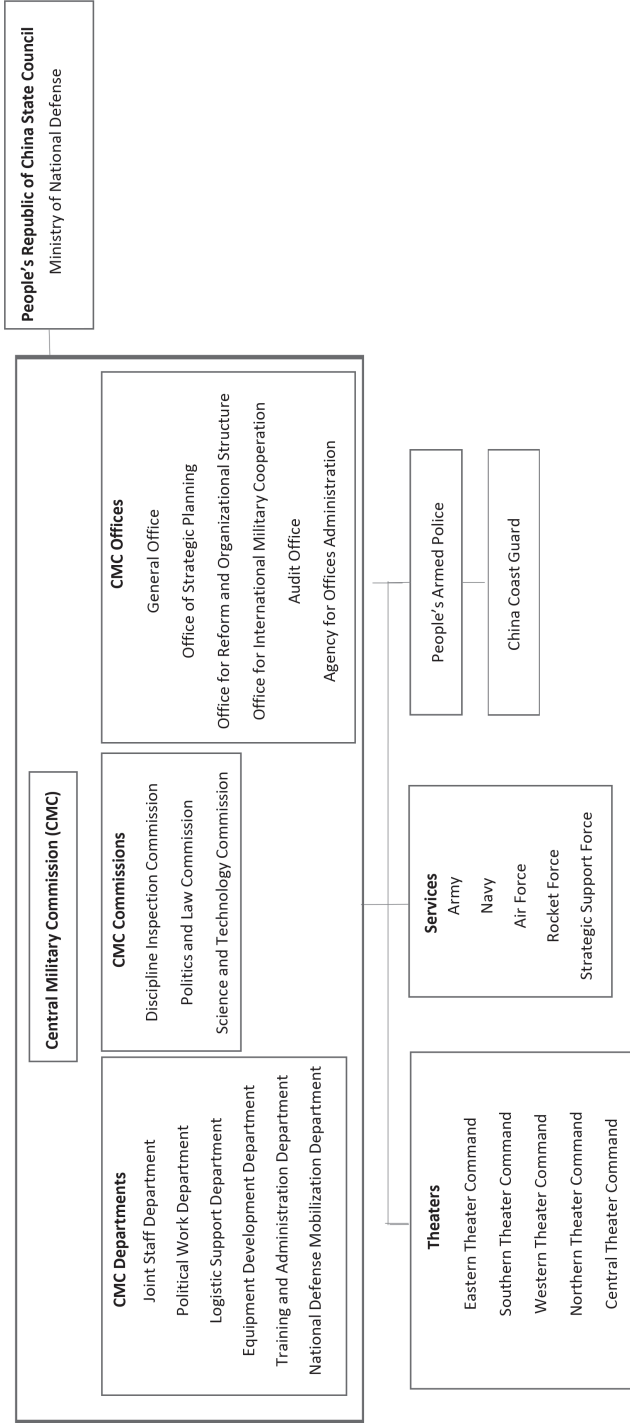
†For a more in-depth examination of reform activity that occurred in 2016, see U.S.-China Economic and Security Review Commission, *2016 Annual Report to Congress*, November 2016, 203–207.

Figure 1: PLA Pre-Reform Organizational Structure



Source: U.S. Department of Defense, *Directory of PRC Military Personalities*, March 2014, xiv.

Figure 2: PLA Post-Reform Organizational Structure



Source: Lyle Morris. "China Welcomes its Newest Armed Force: The Coast Guard," *War on the Rocks*, April 4, 2018; U.S. Department of Defense, *Directory of PRC Military Personalities*, March 2017, xvi.

Fully Militarizing the Chinese Coast Guard and People's Armed Police

The CMC's assumption of direct control over the People's Armed Police and China Coast Guard in 2018 effectively removed all remaining civilian status from both forces and clarified their essentially military nature.³¹ The move also established a clear military chain of command from President Xi and the CMC down to China Coast Guard and People's Armed Police frontline forces. Beijing's decision to move the People's Armed Police under the sole control of the CMC serves to consolidate military control over the paramilitary force, prevent unauthorized People's Armed Police operations by provincial and local officials, and increase the People's Armed Police's focus on security tasks.³² The primary reason for bringing the China Coast Guard under the People's Armed Police was likely to enhance the China Coast Guard's role in advancing China's maritime territorial claims. Having direct command of the China Coast Guard will enable Chinese military leaders to finely calibrate the force's role in "gray zone" operations to advance maritime territorial claims while keeping activities below the threshold at which other countries would respond.³³ In other words, bringing the China Coast Guard under the CMC command structure (via the People's Armed Police) makes the sea force a more effective tool for Chinese coercion campaigns under the guise of "maritime law enforcement" or "maritime rights protection," but also suggests the China Coast Guard could be viewed by Japan and other claimants in the East and South China seas as a military force rather than civilian law enforcement, due to its unambiguous military command.³⁴ China, however, maintains that the People's Armed Police and China Coast Guard still retain law enforcement responsibilities, creating a situation that increases the chance for miscalculation.

Changes within the Services

China transformed the PLA service structure in 2016 by designating the ground forces as the PLA Army, establishing a headquarters for the army, and elevating the Second Artillery Corps—responsible for China's nuclear and conventional missiles—to a service called the Rocket Force. Prior to establishing an army headquarters, leadership for the ground force had been integrated into the four general departments of the CMC. China also established a new Strategic Support Force (SSF)* that along with the PLA Navy and Air Force brought the total number of services to five, all of which will focus on the "force-building" mission.³⁵

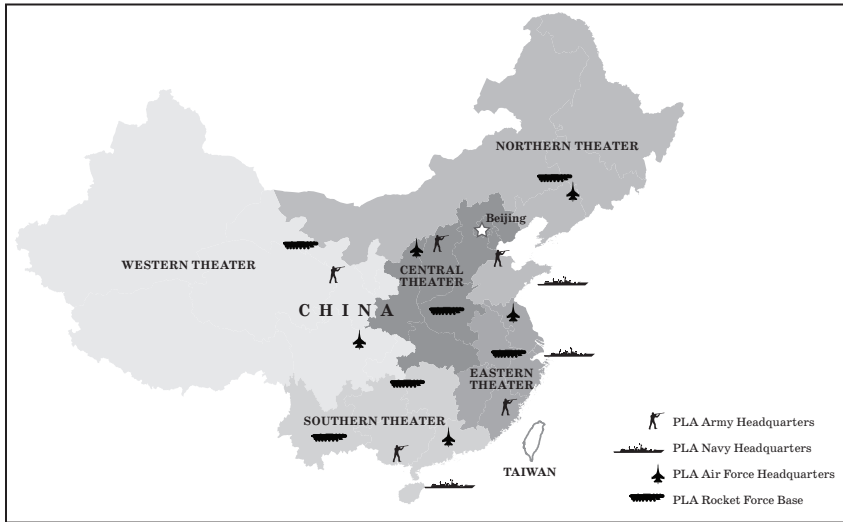
Joint Theater Command Structure

A central feature of the reorganization was the creation of a joint theater structure with combat responsibilities within the geographic

*The SSF is technically not a service; however, it is treated as such, similar to the Second Artillery Corps prior to the missile force's elevation to a service (the PLA Rocket Force) as a result of the PLA reorganization in 2016. John Costello, "The Strategic Support Force: Update and Overview," *China Brief*, December 21, 2018.

boundaries of the theater intended to improve joint operations and meet the security challenges in western China and along China's periphery.³⁶ This structure enables PLA forces to meet the requirements of specific anticipated regional war scenarios more quickly and efficiently than the previous structure, which required a transition from an administrative to an operational command structure to respond to a crisis.* However, it remains unclear what out-of-area command responsibilities, if any, theater commanders may have.

Figure 3: PLA Theater Commands



Source: U.S.-China Economic and Security Review Commission, *2017 Annual Report to Congress*, November 2017, 217.

Theater Commands Improving Joint Exercises and Operations

In January 2018, the CMC officially promulgated new training regulations that provide the services direction for improving the PLA's ability to conduct joint operations as China continues to build its "world-class military."³⁷ The training guidelines are intended to (1) help improve the consistency between joint operations and training, as well as within the framework of the new command structures; (2) promote and institute standards for combat-realistic training in addition to management standards; (3) adjust the training cycle to

*The operational focus and structure of the theater commands is likely as follows: 1) Eastern Theater: preventing Taiwan independence, compelling Taiwan unification, countering any foreign intervention during a Taiwan conflict, and defending maritime sovereignty claims in the East China Sea; 2) Southern Theater: defending maritime sovereignty claims and China's sea lines of control in the South China Sea, as well as conducting border defense with Vietnam; 3) Western Theater: combatting domestic extremism and terrorism in Xinjiang and Tibet, addressing an Indian border dispute contingency, and guarding against infiltration by Central Asian extremist and terrorist groups; 4) Northern Theater: stabilizing the Korean Peninsula and conducting border stability operations associated with a North Korea contingency, may share responsibility for contingencies involving Japan with the Eastern Theater, and likely is responsible for northern border contingencies involving Mongolia and Russia; and 5) Central Theater: conducting capital defense operations and responding to domestic emergencies. U.S.-China Economic and Security Review Commission, *2016 Annual Report to Congress*, November 2016, 206.

focus on combat readiness and rolling training; and (4) conduct mission- and task-oriented training for modern warfare.³⁸

After the establishment of the five joint theater commands, President Xi emphasized the services must conduct joint and service-specific training to guarantee the implementation of the PLA's restructuring.³⁹ Specifically, the PLA is working to identify deficiencies in command capability, force integration, and operational planning at the joint theater and service levels through training and exercises.*⁴⁰

- *Joint operations and theater training:* Joint theater-level exercises are designed to test joint command leadership and enhance transregional mobility and practicing joint operations.⁴¹ The CMC Joint Staff Department has dispatched observers to theater-level training events to identify new operational planning requirements.⁴² For example, in the fall of 2017, Joint Staff Department observers monitored the Southern Theater Command Air Force's exercise with PLA Navy Aviation units to test the PLA Air Force's ability to support the operations of dissimilar aircraft from multiple services.⁴³ From June to August 2018, the PLA focused training on improving theater and transregional operations.⁴⁴ During this time, a PLA Navy Marine Corps brigade conducted air assault training during a transregional exercise conducted in the Northern Theater Command; the PLA Air Force led an air defense exercise, Blue-Shield-18,† that included air defense from all the services; and the PLA Army's Stride exercise‡ focused on theater command and control of operational forces.⁴⁵

*The PLA has conducted joint exercises, particularly since 2005, focused on simulating combat realism to build real operational capability while identifying and addressing recurring problems. In 2015, President Xi identified "five incapables" used to criticize command capabilities of some PLA officers—reproaches that persist to this day. These criticisms included a failure to judge command situations, understand intentions of senior authorities, make operational decisions, deploy troops, and cope with unexpected situations. Mark Cozad, a senior international defense policy analyst with the RAND Corporation, underscores this issue by noting that "improved realism in joint exercises is, in part, designed to alleviate a broader lack of combat experience within the PLA; however, the degree to which [China's] military science-based approach to capability development can meet its most difficult objectives remains uncertain." Liang Pengfei and Wu Xu, "Focus on the Three Major Bottleneck Problems and Implement Resolution of Measures and Methods—Vigorously Push Forward Solving Difficult Problems Plaguuing Combat-Realistic Training PLA-Wide," *PLA Daily*, July 30, 2018. Translation; Dennis J. Blasko, "The New PLA Joint Headquarters and Internal Assessments of PLA Capabilities," *China Brief*, June 21, 2016; U.S.-China Economic and Security Review Commission, *Hearing on Developments in China's Military Force Projection and Expeditionary Capabilities*, written testimony of Mark R. Cozad, January 21, 2016, 12.

†The PLA Air Force Blue Shield exercise, held since 2002, is an annual ground-based air defense exercise focused on testing surface-to-air missile units' combat capability during live-fire confrontation drills while units are deployed. Jana Allen and Kenneth Allen, *The PLA Air Force's Four Key Training Brands*, China Aerospace Studies Institute, May 31, 2018.

‡Stride (Kuayue) is a long-distance ground force maneuver exercise that has been held six times between 2009 and 2018. Skills practiced in this exercise series have included command and control, logistics, civil-military integration, joint campaign planning, long-range firepower strike, deployment of special operational forces, urban combat, reconnaissance, information warfare, and electronic warfare. The Stride series of exercises has sought to test and evaluate combat forces and since 2014 has made use of opposing forces to increase realism. During Stride-2018 the PLA continued the theme of long-distance maneuver operations and using an opposing force to simulate combat-realistic training. Wang Zhiguo, He Zhibin, and Hu Yanhua, "Honing the Skills of Crack Troops through Hard Battles North of the Great Wall—A Direct Look at the 'Stride-2018 Zhurihe' [Kuayue-2018 Zhurihe] Real Troop Exercises," *PLA Daily*, August 16, 2018. Translation; Wu Yuanjin and Wu Keru, "The 'Stride-2017 Zhurihe' Gets to the Phase of a Real-Troop Confrontation Drill," *PLA Daily*, September 10, 2017. Translation; Li Qinghua and Wang Ting, "Stride-2016 Zhurihe' Exercise Series Begins," *Xinhua*, July 15, 2016; Zhang Jie and Shao Min, "The Curtain Goes up on the 'Stride-2016 Zhurihe' Real-Troop Confrontation Exercise Series; Five Elite Brigades under the Army Commands of the Five Major Theater Commands Will Take

- *Theater-level service training*: At the theater service level, services are conducting training to improve integration into the new command structure.⁴⁶ For example, the Western Theater Command Air Force has conducted training to identify and resolve operational deficiencies before holding larger joint exercises to test the new theater command structure.⁴⁷ Like the PLA Air Force, the PLA Navy also engages in theater-level training intended to test its capability to address maritime threats.⁴⁸

PLA Services Modernization: Aiming to Dominate the Region

National-Level Guidance and Service Force-Building Priorities

President Xi's instructions to the PLA were to complete a "world-class" military by mid-century, but the PLA services immediately embraced the new goal as an authoritative directive to redouble their modernization efforts. At the service level, modernization is driven by service strategy, which is shaped by national-level military requirements.⁴⁹ Within the PLA Army and Air Force, service modernization efforts are shaped by "new-type Army"* and "strategic Air Force"† concepts, respectively, with the ultimate objective of becoming world-class services.⁵⁰ The PLA Navy's modernization effort is shaped by the 2015 defense white paper's call for China to extend its naval operations into the distant seas‡ and is bolstered by President Xi's direction for the service to become a world-class navy.⁵¹

China's military modernization is tied to Beijing's national security objectives, and is intended to prepare the PLA to meet the state's security needs by building the capability to win "informationized local wars" and "[accomplish] diversified military tasks."⁵² The CMC's Equipment Development Department will continue to build upon the weapons development programs initiated under the General Armaments Department. The transition from the end of the 12th Five-Year Plan (2011–2015) to the 13th Five-Year Plan (2016–2020) included the

Turns Marching to the Northern Desert to Fight against the Professional 'Blue Force.'" *PLA Daily*, July 16, 2016. Translation; Wang Jiayin. "Stride 2016-Zhurihe A' Exercise Enters Position Attack Phase," *China Military Online*, July 20, 2016. Translation; Zhu Da and Hu Chunlei. "The PLA Army Trans-Regional Base Training Moves toward Normalization—The 'Stride-2014 Sanjie' Confrontation Exercise Begins," *PLA Daily*, September 9, 2014. Translation; Ji Yuan and Guo Chongde. "47th Group Army Brigade Focuses on Shortcomings in Combat Power Development: Focus on Problem Solving Hones Unit's True Fighting Ability," *PLA Daily*, October 23, 2014. Translation.

*President Xi has discussed the need for the PLA Army to develop "new-type Army" capabilities to conduct air assault, rapid reaction, and long-distance mobility operations. Li Xuanliang and Li Huaqing, "Xi Jinping Inspects Headquarters of PLA Army on Eve of Army Day," *Xinhua*, July 27, 2016. Translation.

†The 2013 edition of *The Science of Military Strategy* indicates the "objective of the Air Force's future development is to build a modern Air Force suited to China's international position, adapted to safeguarding national security and development interests, capable of comprehensively carrying out strategic and campaign missions, and having 'air and space integration, with both attack and defense [capability]." Cristina Garafola, a policy analyst at the RAND Corporation, indicates this PLA Air Force objective "has been referred to in official state media and other sources as constituting a 'strategic air force.'" Cristina L. Garafola, "The Evolution of PLAAF Missions, Roles, and Requirements," in Joe McReynolds, ed., *China's Evolving Military Strategy*, Jamestown Foundation, April 2016, 83; Shou Xiaosong, ed., *The Science of Military Strategy*, Military Science Press, 2013, 221. Translation.

‡China's 2015 defense white paper, *China's Military Strategy*, noted China would increasingly shift from focusing exclusively on its near seas to a "combination of 'offshore waters defense' with 'open seas protection.'" China's State Council Information Office, *China's Military Strategy*, May 2015.

§The concept of "diversified military tasks," introduced in China's 2006 defense white paper, emphasizes the need for the PLA to prepare not only for traditional military missions, but also for nontraditional military operations such as military operations other than war. China's State Council Information Office, *China's National Defense in 2006*, December 2006.

fielding of multimission* warships and replenishment ships and air force heavy-lift and surveillance aircraft, as well as improvements in China's conventional and nuclear strike capabilities.⁵³ Discussing the start of the 13th Five-Year Plan, Zhang Youxia, then chief of the CMC's Equipment Development Department, said:

*It is necessary to ... make vigorous efforts to push forward the innovation in science and technology for national defense and weaponry equipment, speed up the in-depth development of military-civilian fusion, ... [and promote] building of science and technology for national defense and weaponry equipment ... development.*⁵⁴

China's Pursuit of Advanced Defense Technologies

During 2018, the PLA continued to pursue advancements across a range of next-generation defense technologies and weapons systems. As Beijing pushes to transform the PLA into a modern, informationized joint force, it is also seeking to leapfrog the United States in hypersonic weapons,[†] directed energy weapons,[‡] electromagnetic railguns,[§] counterspace weapons, and unmanned and artificial intelligence-equipped weapons.[¶] Beijing views these potentially disruptive defense technologies (yet to be fully developed and deployed by the PLA, the United States, or other leading powers) as areas in which it can exploit U.S. weaknesses such as dependence on information systems and space-based assets for precision strike, navigation, and intelligence, surveillance, and reconnaissance (ISR) operations.⁵⁵ China is allocating significant whole-of-country resources in its technological competition with the United States; these include robust government funding, commercial technological exchange, foreign investment and acquisitions, and talent recruitment—much for dual-use purposes.⁵⁶ President Xi calls this process “military-civilian fusion.”⁵⁷ In particular, the PLA expects artificial intelligence will lead the next revolution in military affairs from

*The U.S. Department of Defense indicates the PLA Navy “is rapidly replacing obsolescent, generally single-purpose platforms in favor of larger, multi-role combatants featuring advanced antiship, anti-air, and anti-submarine weapons and sensors.” These ships typically are capable of operating at greater ranges from the coast and able to conduct two or more warfare areas due to their improved antiship, anti-air, and anti-submarine weapons and sensors. U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2018*, May 16, 2018, 28; Michael S. Chase et al., “China's Incomplete Military Transformation: Assessing the Weaknesses of the People's Liberation Army (PLA),” *RAND Corporation* (prepared for the U.S.-China Economic and Security Review Commission), 2015, 13–18.

†Hypersonic weapons are defined as (1) hypersonic glide vehicles, which are launched from a large rocket—on a relatively flat trajectory—that either never leaves the atmosphere or reenters it quickly before releasing the vehicle that glides unpowered to its target; and (2) hypersonic cruise missiles, which are powered by a supersonic combustion ramjet or “scramjet” engine that activates after the missile's release from a ground, sea, or air launcher. U.S.-China Economic and Security Review Commission, *2017 Annual Report to Congress*, November 2017, 560.

‡A directed energy weapon uses focused energy to damage or destroy a target. Examples include high-energy lasers, high-power microwave weapons, and particle beam weapons. A directed energy beam arrives at its target almost instantaneously, surpassing even the fastest-moving weapons currently fielded. U.S.-China Economic and Security Review Commission, *2017 Annual Report to Congress*, November 2017, 563.

§An electromagnetic railgun launches rounds using electromagnetic force rather than an explosive propellant. The rails are a pair of parallel conductors through which an electromagnetic current, generated from an external source, is passed, using the projectile along the rails. U.S.-China Economic and Security Review Commission, *2017 Annual Report to Congress*, November 2017, 565.

¶For more detailed coverage of China's pursuit of these advanced systems, see Tate Nurkin et al., “China's Advanced Weapons Systems,” *Jane's by IHS Markit* (prepared for the U.S.-China Economic and Security Review Commission), May 12, 2018.

informationized to “intelligentized” warfare,* and is focusing considerable effort in this area.⁵⁸ If China succeeds at surpassing the United States in these emerging defense technologies, it will further enhance the PLA’s offensive capabilities and cause operational risks for the United States and its allies and partners in the Indo-Pacific.

Notable recent developments in China’s advanced military technology research and development (R&D) include:

- *Hypersonic weapons:* Michael Griffin, U.S. Under Secretary of Defense for Research and Engineering and the Department of Defense’s (DOD) chief technology officer, noted in March 2018 that over the last decade China has conducted 20 times more hypersonic missile technology tests than the United States.⁵⁹ In August 2018, China conducted its first “waverider” hypersonic vehicle test, which used the shock waves generated by the launch vehicle upon separation and successfully glided to its target. Chinese state-run media notably reported on the test—the first hypersonic weapon test China has publicly acknowledged.⁶⁰ In November 2017, the *Diplomat* reported that China conducted its first two ballistic missile tests using a hypersonic glide vehicle—the DF-17 medium-range ballistic missile—reportedly with a range between 1,800 and 2,500 kilometers (km).⁶¹ The DF-17 is expected to be capable of delivering nuclear and conventional payloads and may be interchangeable with a maneuverable reentry vehicle † in place of a hypersonic glide vehicle.⁶² Since 2014, China has reportedly conducted seven other tests using its Wu-14 (DF-ZF) hypersonic glide vehicle, with six having been successful.⁶³
- *Counterspace weapons:* In February 2018, China successfully conducted a flight test of its first reusable hypersonic spaceplane with dual civilian and military missions, though it was reportedly a “scaled-down model.”⁶⁴ In theory, spaceplanes could be launched from an airport, fly in near space (roughly 12 to 60 miles in altitude), circumnavigate the globe in a matter of hours out of reach of traditional air defenses, and potentially threaten U.S. space assets.⁶⁵ China’s Institute of Mechanics at the Chinese Academy of Sciences indicated plans were in place to build a factory in Hefei for the commercial production of scramjets to be used for hypersonic missiles and spaceplanes.⁶⁶ The United States reportedly plans to conduct a flight test for a similar spaceplane in 2020.⁶⁷

*“Intelligentized” warfare refers to leveraging artificial intelligence and its various applications in combat. According to Liu Guozhi, director of the Science and Technology Commission under China’s CMC, “Artificial intelligence will speed up the process of military transformation, and it will bring about changes to force organization, operation modes, equipment systems, combat effectiveness models, etc.” *China National Radio Military*, “Lieutenant General Liu Guozhi, Deputy to the NPC and Director of the Science and Technology Commission at the Central Military Commission: Artificial Intelligence Will Accelerate the Process of Military Transformation,” March 7, 2017. Translation.

†A maneuverable reentry vehicle (MaRV) is a ballistic missile reentry vehicle that is capable of maneuvering after reentering Earth’s atmosphere, in contrast to a standard reentry vehicle, which continues on its trajectory without any course correction capability. MaRVs can be more difficult to intercept and therefore better able to penetrate adversary missile defenses. They also offer greater potential than standard reentry vehicles for striking moving targets, if configured to do so. Lauren Caston et al., “The Future of the U.S. Intercontinental Ballistic Missile Force,” *RAND Corporation*, 2014, 67–69; U.S. Department of Defense, *Ballistic Missile Defense Glossary Version 3.0*, June 1997, 168.

- *Unmanned vehicles*: China is continuing R&D efforts in autonomous and swarming unmanned systems. In May 2018, China demonstrated a record-breaking formation of 1,374 rotary-wing unmanned aerial vehicles in Xi'an.⁶⁸ In another test in May 2018, China demonstrated an unmanned swarm of 56 small, unarmed boats in the South China Sea.⁶⁹ The test followed China's announced plans for the world's largest facility for unmanned ship research, covering 225 square nautical miles near Macau.⁷⁰
- *Electromagnetic railguns*: Images surfaced on the internet in late January 2018 depicting a railgun mounted on the bow of a Type 072III-class tank landing ship, purportedly for a sea trial of the weapon system.⁷¹ According to the PLA Naval University of Engineering research fellow who led the project, the breakthrough occurred after over 50,000 tests and "hundreds of failures," confirming the railgun test.⁷²

In the near term, China's defense technology push is already challenging the United States' longstanding technological superiority. According to former and current U.S. defense officials, China is quickly catching up to the United States in some areas, while leading in others.⁷³ In June 2018, Vice Chairman of the Joint Chiefs of Staff and U.S. Air Force General Paul Selva assessed the United States had fallen behind China in hypersonic weapons and electronic warfare, and former Deputy Defense Secretary Robert O. Work (2014–2017) called the U.S.-China race in artificial intelligence "too close to call."⁷⁴ According to a *Jane's by IHS Markit* report contracted for the Commission in May 2018, China's pursuit of advanced weapons systems occupies the linked domains of space and missile defense "that are central to [U.S.] military dominance, potentially 'discounting not only the U.S. military advantage, but also the way Americans prepare for and fight wars.'"⁷⁵ China's rapid development and upgrading of advanced weapons systems that bolster its offensive military capabilities, along with its transition to an integrated joint command structure emphasizing networked, precision strike capabilities, poses considerable challenges to the U.S. lead in defense technology and military superiority in the Indo-Pacific over the long term.⁷⁶ DOD officials and U.S. security analysts in recent years have emphasized the challenge presented by China and the need to protect the U.S. edge in defense technology.⁷⁷

Emphasis on "Military-Civilian Fusion" as a Resource Multiplier

"Military-civilian fusion" is a concept designed to remove longstanding barriers in China's defense science and technology sector by facilitating cooperation across civilian and defense resources to help develop China's military capabilities and support economic growth.⁷⁸ Although Chinese leaders have promoted civil-military integration in the past, President Xi in late 2013 elevated the military-civilian fusion concept to a national strategy and expanded it beyond the defense industry to include all areas of the economy.⁷⁹ The 13th Five-Year Plan (2016–2020) reaffirmed

Emphasis on “Military-Civilian Fusion” as a Resource Multiplier—Continued

the strategy, stating that the Chinese government seeks to “encourage the flow of factors such as technology, personnel, capital, and information between the economic and defense sectors” and strengthen the “coordination between the military and civilian sectors in the sharing of advanced technologies, industries, products, and infrastructure.”⁸⁰ Military-civilian fusion also will help China mobilize for war or disaster relief. In January 2017, the CCP created the Central Commission for Integrated Military and Civilian Development to deepen this coordination.⁸¹ Since its formation, President Xi—who heads the commission—has convened three meetings, during which the commission approved implementation of military-civilian fusion in various national guidelines and plans, including demonstration zones, military logistics, and the defense, science, technology, and industry sectors.⁸²

China’s pursuit of its military-civilian fusion strategy poses important economic and national security implications for the United States. Close integration between Chinese civilian and military entities raises concerns that technology, expertise, and intellectual property shared between U.S. firms and Chinese commercial partners could be transferred to the PLA and help enhance military capabilities.⁸³ For cutting-edge sectors such as artificial intelligence, robotics, and biotechnology, commercial entities rather than the military are increasingly driving global R&D breakthroughs, making access to the most advanced technologies harder for the U.S. export control regime to protect.⁸⁴ Further, China’s drive to use military-civilian fusion to advance indigenous innovation within its defense R&D sector could result in leapfrogging the United States in certain areas, such as artificial intelligence, which would close the technological gap.⁸⁵

Navy Reorganization and Modernization: Challenging U.S. Naval Dominance in the Indo-Pacific

China’s 2015 defense white paper, *China’s Military Strategy*, elevated the maritime domain in China’s strategic thinking, asserting “[China’s] traditional mentality that land outweighs sea must be abandoned.”⁸⁶ It noted China would increasingly shift from focusing exclusively on its near seas to a “combination of ‘offshore waters defense’ with ‘open seas protection.’”⁸⁷ President Xi reaffirmed this shift while inspecting PLA Navy headquarters in May 2017, when he reiterated the need to build a strong, modern navy to “fulfill the Chinese Dream and the strong military dream” and quicken the process of modernization to build a “world-class first-rate strategic service.”⁸⁸ As China continues its rapid buildup of the PLA Navy, it will result in a blue water force projection capability as early as 2025, well ahead of the larger PLA modernization mandate to be completed by 2035.⁸⁹

In a mid-2013 speech to the CCP Politburo, President Xi declared China to be a “great maritime power” and claimed the

country's success in implementing this vision would bear directly on the "great rejuvenation of the Chinese nation."⁹⁰ Today, China's naval modernization efforts are intended to enhance the PLA Navy's capability to engage adversaries farther from its coast and defeat technologically superior adversaries such as the United States, presenting a fundamental challenge to the United States' longstanding maritime dominance in the Western Pacific.⁹¹ Dr. James Holmes, J. C. Wylie Chair of Maritime Strategy at the U.S. Naval War College, testified to the Commission in February 2018 that China "has approached sea power in a patient, methodical, sequential manner" that has resulted in a PLA Navy—along with supporting long-range, land-based missiles—able to outrange the U.S. Navy and potentially put U.S. naval forces in the region at a numbers disadvantage.⁹²

According to Dr. Holmes, in a potential conflict scenario China's increasing naval capabilities—led by its surface combatants equipped with advanced systems, including phased-array radar and long-range antiship cruise missiles—are "progressively eroding or nullifying altogether some of the U.S. Navy's tactical advantages."⁹³ The ranges of antiship cruise missiles on PLA Navy ships are often greater than those of U.S. ships, giving China the ability to keep U.S. forces at bay even if Chinese ships are inferior on a ship-to-ship basis.⁹⁴ In short, Dr. Holmes concludes, the "U.S. Navy's surface battle capacity has fallen behind the times," driving home his point that:

*Long-held assumptions about American naval superiority are coming under mounting duress as the Chinese navy continues transforming itself into an oceangoing force. There is no reason to suppose China will fare more poorly than past maritime competitors as it takes to the sea. Hubris makes a slipshod guide to maritime strategy. Americans and their Asian allies must refuse to yield to overweening pride—lest pride presage a fall.*⁹⁵

In his testimony before the House Armed Services Committee in February 2018, Admiral Harry Harris—then Commander of U.S. Pacific Command*—provided an example of how China's growing maritime capabilities are already challenging U.S. presence in the region. Admiral Harris stated:

*Across the South China Sea, China's air force, navy, coast guard, and maritime militia all maintain a robust presence. Routine patrols and exercises ensure Chinese forces are in and around all the features, not just the ones they occupy. China routinely challenges the presence of non-Chinese forces, including other claimant nations and especially the U.S., often overstating its authority and insisting foreign forces either stay away or obtain Chinese permission to operate.*⁹⁶

*U.S. Defense Secretary James N. Mattis announced during the U.S. Pacific Command change-of-command ceremony on May 30, 2018, where Admiral Philip S. Davidson relieved Admiral Harry B. Harris, Jr., that DOD would rename the combatant command the U.S. Indo-Pacific Command. Jim Garamone, "Pacific Command Change Highlights Growing Importance of Indian Ocean Area," *DoD News*, May 30, 2018.

The China Coast Guard and People's Armed Forces Maritime Militia have both expanded in number and quality in recent years, further increasing the challenges faced by the United States and China's neighbors operating in the region. According to DOD, since 2010 the China Coast Guard's fleet of large ships (over 1,000 tons) has doubled from around 60 to more than 130 ships, making it the largest in the world and allowing it to operate concurrently in multiple disputed areas. Its latest ships have more capabilities, including helicopter docks, larger guns and water cannons, and improved endurance. The maritime militia comprises civilian fishing boats and other ships trained, directed, and equipped by the PLA. It has also built larger, more capable ships equipped with water cannons and reinforced hulls. Together with the PLA Navy, the China Coast Guard and maritime militia greatly outnumber the maritime forces of China's neighbors.⁹⁷

PLA Navy Marine Corps Expanding

Before the reorganization of the PLA Navy Marine Corps (PLA Marines), the marine force consisted of two brigades based in the PLA Navy's South Sea Fleet. In 2017, the PLA Army appears to have transferred at least one army brigade to the PLA Marines, and the PLA Marines established a PLA Marine brigade in the Northern Theater Command's North Sea Fleet.⁹⁸ According to DOD, by 2020 the PLA Marines will grow to seven brigades and its mission will expand to overseas expeditionary operations.⁹⁹ Admiral Harris testified before Congress in February 2018 that the "expansion of the [PLA Navy] Marines continues as well, as the force [has] grown from two brigades to possibly eight, with two brigades each allocated to most of the Theater Commands."¹⁰⁰ Admiral Harris went on to state that since late summer 2017, PLA marines have been stationed at the PLA's first overseas base in Djibouti.¹⁰¹ China, however, has not officially announced the intended strength for this force by 2020, when the restructuring is complete.

The missions of the PLA Marines are also expanding. While the PLA Marines have traditionally been responsible for taking and holding Taiwan's offshore islands and islands and reefs in the East and South China seas as their primary mission,¹⁰² it is now being described as a "new-type combat force" capable of operating from land, air, and sea and conducting operations in maritime, urban, jungle, tropical, desert, and cold environments.¹⁰³ These environments have been reflected in PLA Marine transregional training since 2014.¹⁰⁴ Based on the stated intent to expand the PLA Marines as part of the overall PLA restructuring, coupled with the expansion of training environments, it is likely the PLA will use this force not only for amphibious assault missions, but also as a rapid reaction force capable of operating in all conditions and environments supporting a range of operations.

Figure 4: First and Second Island Chains



Source: U.S. Department of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2012*, May 2012, 40.

Missions

The PLA Navy is tasked with defending China's maritime interests, including protecting Chinese sovereignty in territorial seas and safeguarding the maritime rights and interests along China's maritime periphery.¹⁰⁵ Furthermore, the PLA Navy conducts presence patrols to safeguard China's sea lines of communication, prevent invasion of the Mainland from the sea, and carry out nuclear deterrence.¹⁰⁶ According to the 2015 edition of *The Science of Military Strategy*, these missions conducted in the near and far seas, as well as antiaccess tasks, reflect a service "composed of multiple layers and multiple branches" that shapes China's naval force-building program.¹⁰⁷

Training

The PLA Navy is focusing on combat-realistic military training by operating in a complex electromagnetic environment, conducting real-troop confrontation exercises, and participating in transregional joint exercises.¹⁰⁸ These types of training events are intended to improve the PLA Navy's ability to operate in the type of contested environment it may face in a future conflict.

Force-Building Priorities

The PLA Navy's priority is to develop aircraft carriers and modernize its submarine force, multimission surface forces (capable of anti-air, anti-surface, and anti-submarine warfare), and amphibious ships for expeditionary, amphibious assault, disaster relief, and antipiracy operations.¹⁰⁹ Beijing seeks to complement these naval priorities with more robust capabilities for its other armed maritime forces (which have also increased substantially in quantity) to defend its sovereignty claims. See Table 1 for an overview of PLA Navy equipment under development or nearing entry into service.

Table 1: Select Advanced PLA Navy Systems Entering Service and under Development

Equipment	Mission Area	Estimated Service Entry	Implications
Type 055 REN-HAI-class cruiser	Anti-Air Warfare (AAW); Anti-Surface Warfare (ASUW); Anti-Submarine Warfare (ASW)	2018–2019	China has produced four Type 055 cruisers that are undergoing sea trials. The cruisers reportedly will be equipped with phased-array radars and a multipurpose vertical launch system for surface-to-air antiship cruise missiles and anti-submarine missiles. They will increase China's anti-surface, force projection, and expeditionary capabilities.
CV-17, Type 001A aircraft carrier	AAW; ASW	2019–2020	Slightly larger than its first aircraft carrier, <i>Liaoning</i> , and expected to accommodate up to eight more aircraft than <i>Liaoning</i> 's 36, CV-17 will boost China's ability to project force.

Table 1: Select Advanced PLA Navy Systems Entering Service and under Development—Continued

Equipment	Mission Area	Estimated Service Entry	Implications
J-31 (FC-31) fifth-generation stealth fighter	Air Superiority	2022	The J-31 (and its export variant, the FC-31) will be equipped with modern systems and stealth features that could rival the U.S. F-35 fighter and challenge U.S. aircraft in the Western Pacific. Some Chinese commentators have speculated that China could use the fighters for carrier operations.
Type 075 landing helicopter dock	Transport; Amphibious Assault; Humanitarian Assistance and Disaster Relief (HA/DR)	2020	The Type 075 will reportedly be larger than China's YUZHAO-class amphibious transport dock and have a greater capacity to carry helicopters, providing the PLA increased expeditionary capability.
Type 096 nuclear-powered ballistic missile submarine (SSBN)	Deterrence	Early 2020s (construction)	Complementing China's four JIN-class nuclear-powered ballistic missile submarines (comprising China's sea-based second strike capability) will be the next-generation Type 096. According to DOD, it may be armed with the JL-3 submarine-launched ballistic missile, which will be capable of striking the continental United States from China's periphery.
Type 093B SHANG-class guided-missile nuclear attack submarine (SSGN)	ASUW; A2/AD; Strike	2020–2030 (construction)	According to DOD, the Type 093B SSGN submarine will improve the PLA Navy's anti-surface warfare capability and "might also provide [the PLA Navy a] more clandestine land-attack option."

Table 1: Select Advanced PLA Navy Systems Entering Service and under Development—Continued

Equipment	Mission Area	Estimated Service Entry	Implications
Railgun mounted on Type 072 III-class tank landing ship	ASUW	Unknown	In January 2018, images appeared on Chinese social media appearing to show a prototype electromagnetic railgun mounted on a Type 072 tank landing ship. When a railgun is in service on Chinese ships, it will increase the PLA's anti-surface warfare capabilities with the ability to fire projectiles at high speeds and low costs compared to missiles.
Heavy-lift helicopter (joint China-Russia production)	Transport; HA/DR; ASW	2023	When this helicopter enters service, it will provide the PLA with a heavy-lift capability with a longer range and more lift capacity than current helicopters. For the PLA Navy, it could eventually operate from the Type 075 helicopter landing dock, Type 055 destroyer, and aircraft carriers.
AG-600 seaplane	Transport; HA/DR; Search and Rescue; ASW; Maritime Surveillance	2022	With a reported maximum payload of 60 tons, the AG-600 is the world's largest seaplane. It will increase China's ability to resupply the land features it controls in the South China Sea and boost its ability to conduct military operations other than war.

Source: Various.¹¹⁰

Air Force Reorganization and Modernization: Seeking Air Superiority

In 2017, President Xi stressed the need to “accelerate the construction of a powerful people’s air force that integrates air and space and is simultaneously prepared for offensive and defensive

operations.”¹¹¹ The 2013 edition of *The Science of Military Strategy* defines PLA Air Force modernization objectives as needing to “build a modern Air Force suited to China’s international position, adapted to safeguarding national security and development interests, capable of ... carrying out strategic and campaign missions, and having ... both attack and defense [capabilities].”¹¹²

The PLA Air Force is making progress through its modernization efforts and degrading U.S. air superiority around China’s periphery. According to Brendan Mulvaney, director of the China Aerospace Studies Institute, “No longer can the [United States] and its allies plan for and count on being able to achieve air superiority, much less air superiority as rapidly as we do now.”¹¹³ The PLA Air Force and PLA Navy Aviation’s modernization goals to enhance China’s offensive and defensive capabilities farther from its coast are contributing to an increasingly contested regional air domain. The air force’s prioritization of modern fighter jets, strike aircraft, and surface-to-air missile systems with extended ranges, along with improved aerial refueling and strategic lift capabilities that can support operations beyond China’s immediate periphery, all contribute to this trend.¹¹⁴ Since 2015, PLA Air Force and PLA Navy Aviation long-distance over-water training has become more frequent, featured a greater variety of aircraft, and expanded in geographic scope (for more information on the PLA’s over-water training, see Chapter 2, Section 1, “Year in Review: Security and Foreign Affairs”).¹¹⁵

Missions

The PLA Air Force is tasked with conducting “offensive and defensive operations” against challenges emanating from Taiwan (China’s “main strategic direction”),* performing homeland air defense, safeguarding China’s maritime rights and interests, and maintaining domestic stability.¹¹⁶ The PLA Air Force is likewise expected to execute missions in addition to defending China’s airspace, to include conducting offensive operations against potential adversaries beyond the first island chain.¹¹⁷ Furthermore, China is extending the range within which it can interdict foreign forces operating through much of the Western Pacific through the development of long-range land attack cruise missiles capable of striking Guam from PLA Air Force H-6K bombers (see Figure 4).¹¹⁸

Training

The PLA Air Force continues to conduct training and exercises intended to gauge its progression in conducting new missions and support cross-theater operations associated with the PLA’s transformation.¹¹⁹ The training objectives focus on improving the air force’s offensive and defensive air capabilities, enhancing realistic combat training, improving joint training, and training over distant seas to move the force closer to achieving the goal of building a world-class air force.¹²⁰

*While Taiwan is the main strategic direction for the PLA, China’s 2015 defense white paper calls for the PLA to prepare for crises in multiple domains and geographic regions. Xiao Tianliang, ed., *The Science of Military Strategy*, National Defense University Press, 2015, 375. Translation; China’s State Council Information Office, *China’s Military Strategy*, May 2015.

Force-Building Priorities

The PLA Air Force continues to build and procure long-range surface-to-air missiles, field fourth-generation aircraft, develop fifth-generation fighters, construct long-range bombers—to include a new strategic bomber expected around 2025—and deploy new heavy-lift aircraft.¹²¹ The PLA Air Force’s continuing development, acquisition, and deployment of increasingly advanced aircraft are furthering its ability to project force into the Western Pacific and challenge what the PLA terms “powerful enemies,” such as the United States.¹²² See Table 2 for an overview of PLA Air Force equipment under development or nearing entry into service.

Table 2: Select Advanced PLA Air Force Systems Entering Service and under Development

Equipment	Mission Area	Estimated Service Entry	Implications
J-20 fifth-generation fighter	Air Superiority	2017	Having officially entered service in September 2017, the J-20 is China’s most advanced indigenously produced fighter, with similar capabilities as the J-31 in terms of stealth features and advanced radar. The J-20 will pose challenges to U.S. aircraft in the Western Pacific.
Su-35 4.5-generation fighter	Air Superiority	2017–2018	Purchased from Russia (24 in total, receiving the last batch of 10 by the end of 2018), the Su-35 provides the PLA improved counter-air and strike capabilities with its advanced avionics and radar. It will boost the PLA’s ability to conduct air operations in the Western Pacific.
J-31 (FC-31) fifth-generation stealth fighter	Air Superiority	2022	The J-31 (and its export variant, the FC-31) will be equipped with modern systems and stealth features that could rival the U.S. F-35 fighter and challenge U.S. aircraft in the Western Pacific. Some Chinese commentators have speculated that China could use the fighters for carrier operations.

Table 2: Select Advanced PLA Air Force Systems Entering Service and under Development—Continued

Equipment	Mission Area	Estimated Service Entry	Implications
H-20 long-range stealth bomber	Strike; Nuclear Deterrence; A2/AD	2025	China's next-generation bomber will integrate fifth-generation technologies and be capable of carrying nuclear weapons, according to DOD. Replacing the H-6, the H-20 will have an increased range of at least 5,000 miles (mi), boosting China's ability to operate farther from its shores and putting Hawaii at risk.
Y-20 strategic heavy-lift aircraft	Transport	2016	The Y-20 reportedly has a maximum payload of 66 tons, and is in the same category as the Russian IL-76 and U.S. C-17. As China produces more of these aircraft, they will extend the PLA's expeditionary capabilities.
AN-225 strategic heavy-lift aircraft	Transport	2019–2020	As part of a China-Ukraine agreement, a Ukrainian aircraft firm is restarting production on the AN-225 and transferring the technology to China. As the largest transport aircraft in the world, the AN-225 has a maximum payload of 280 tons. It will be the PLA's largest strategic lift aircraft, increasing its expeditionary capabilities.

Table 2: Select Advanced PLA Air Force Systems Entering Service and under Development—Continued

Equipment	Mission Area	Estimated Service Entry	Implications
S-400 surface-to-air missile (SAM) system	Air Defense; A2/AD	2018	Receiving its first regiment of S-400 SAM systems in April 2018 from Russia, China reportedly will receive four to six battalions as part of a 2014 deal. The S-400's 250-mi range expands China's air coverage over the South China Sea and Taiwan if deployed near either area.
HQ-19 SAM system	Air Defense; A2/AD; Ballistic Missile Defense	Unknown	DOD assesses the HQ-19 "may fill the mid-tier of China's [ballistic missile defense] network," and testing so far has focused on intercepting 3,000 km-ranged ballistic missiles. This system will increase China's ability to challenge an adversary's attempt to control airspace or conduct strike operations in China's periphery.

Source: Various.¹²³

Army Reorganization and Modernization: Developing a Deployable Force

While the PLA Army has undergone significant restructuring and has experienced strength reductions under the ongoing reorganization effort, the ground forces remain critical to many PLA missions such as defending China's borders, spearheading an invasion of Taiwan and its offshore islands, and conducting expeditionary operations. PLA Army modernization is focused on creating a smaller, more mobile, and modular force suited for offensive and defensive operations, as well as increasing deployments abroad.¹²⁴ Developing modular forces requires improving and increasing network-centric, special operations, helicopter, electronic warfare, light mechanized, and long-range artillery unit capabilities.¹²⁵ Ben Lowsen, a former U.S. Army assistant attaché in China, testified before the Commission in February 2018 that this development "marks a fundamental change to the [PLA Army's] former operating concept of 'winning [informationized] local wars,' implying the capacity to fight battles of a greater scale, more geographically dispersed, and more technically oriented than the small-scale, localized skirmishes previously envisioned."¹²⁶ Therefore, the PLA Army's development of these capabilities would not only support missions along China's land borders and maritime periphery,¹²⁷ but would also enhance the PLA's ability to conduct expeditionary operations beyond China's territorial boundaries.¹²⁸

PLA Army: Example of Major Service Structure Change

The PLA Army experienced the greatest structural change of the reorganization. Before establishing the PLA Army service headquarters, the leadership for the ground force had been integrated into the PLA's four general departments.¹²⁹ This change means that for the first time the PLA Army is now aligned with the other PLA services in assuming responsibility for managing and equipping its force. Furthermore, while establishing a PLA Army headquarters is not revolutionary, it does signify that the CMC sees a need for an army that has its own missions and command as part of a joint structure.

Another significant development for the PLA Army was the disbanding of five group armies—reducing the number of group armies from 18 to 13—and a reorganization of the group army structure in April 2017.¹³⁰ PLA troops and newer equipment from disbanded group armies were transferred to the group armies that remained intact, while older equipment and other units were decommissioned or retired from the PLA.¹³¹ Furthermore, some group armies transferred PLA Army units to other services, such as the 77th Motorized Infantry Brigade, which moved to the PLA Navy Marine Corps in 2017.¹³²

Missions

PLA Army missions include traditional missions such as conducting amphibious island landing operations and border defense, in addition to defending strategic locations and land corridors that pose security challenges for Beijing.¹³³ The PLA also has been the last resort to restore order in case of serious unrest in China, and has been the main force provider to respond to serious national disasters.¹³⁴ PLA Army amphibious operations capabilities are a means for China to deter Taiwan from pursuing independence or to ultimately compel its unification, as well as to protect “maritime sovereignty” if China’s neighbors encroach on Chinese territorial claims in the East or South China seas.¹³⁵ Offensive ground operations conducted by the PLA Army would counter any incursions into Chinese territory during a Korean Peninsula or India contingency (or other contingences in far western China), as well as provide China the ability to extend operations across a border for other political purposes, such as intervening in an external crisis.*¹³⁶ The new requirement to protect strategic overland passages and energy routes suggests the PLA Army is exploring missions associated with the Belt and Road Initiative and counterterrorism operations.¹³⁷ The PLA Army also conducts a range of military activities abroad, such as humanitarian assistance/disaster relief (HA/DR) and peacekeeping operations, providing experience that supports operations in peacetime and war.

*China used a border dispute with Vietnam in 1979 as a pretext for the PLA to conduct an incursion across the border with the intention of “teaching Vietnam a lesson,” changing Vietnam’s policy of intervention in Cambodia and preventing Vietnam from dominating its neighbors. Henry J. Kenny, “Vietnamese Perceptions of the 1979 Vietnam War with China,” in Mark A. Ryan, David M. Finkelstein, and Michael A. McDevitt, eds., *Chinese Warfighting: The PLA Experience since 1949*, Routledge, 2003, 218.

Training

The PLA Army continued to conduct exercises and training intended to reinforce reorganization efforts at the theater level.¹³⁸ To carry out President Xi's training guidance to focus on "combat-realistic training," the PLA Army conducted transregional, joint theater, and theater service training in 2018.¹³⁹ These types of training events were used to identify problems at the brigade level and develop solutions for addressing deficiencies.¹⁴⁰

Force-Building Priorities

PLA Army modernization is focused on army aviation, artillery systems, armored vehicles, and air defense systems.¹⁴¹ See Table 3 for an overview of key PLA Army equipment under development or nearing entry into service.

Table 3: Select Advanced PLA Army Systems Entering Service and under Development

Equipment	Mission Area	Estimated Service Entry	Implications
Z-20 medium-lift helicopter	Transport	2018–2019	The Z-20 will provide the PLA Army and PLA Navy aviation added flexibility in conducting missions at a greater range, and will increase the PLA's expeditionary capabilities.
ZTQ-15 light battle tank	Homeland and border defense; amphibious warfare	2017	This tank is designed to operate in mountainous and high-altitude environments, which would help support PLA operations in China's western border region. <i>IHS Jane's</i> reported that an image appeared on the Chinese internet in July 2018 showing the tank painted in PLA Marine Corps camouflage, suggesting it could support amphibious operations.
Heavy-lift helicopter (joint China-Russia production)	Transport	2023	When this helicopter enters service, it will provide the PLA with a heavy-lift capability with a longer range and more lift capacity than current helicopters.

Source: Various.¹⁴²

Rocket Force Reorganization and Modernization: Putting U.S. Bases and Surface Ships Increasingly at Risk

The PLA Rocket Force provides China with land-based conventional and nuclear strike capabilities.¹⁴³ President Xi described the PLA Rocket Force as the “core of strategic deterrence, a buttress to the country’s position as a major power, and an important aspect of national security.”¹⁴⁴ The PLA Rocket Force modernization program is focused on improving China’s conventional and nuclear forces to enhance long-range strike and deterrence capabilities,¹⁴⁵ as well as increasing the reliability and effectiveness of both conventional and nuclear missile systems.¹⁴⁶

China’s growing ballistic and cruise missile inventory is within range of and can target U.S. bases and surface ships, including aircraft carriers, throughout the Western Pacific.¹⁴⁷ The PLA Rocket Force’s focus on further developing China’s long-range strike and deterrence capabilities through improving its conventional and nuclear missile systems is targeted to satisfy the PLA’s broader goal to complicate U.S. presence in the region during peacetime, and deter, degrade, or defeat the entry of U.S. forces in a regional military conflict.¹⁴⁸ With the Rocket Force’s April 2018 announcement that it had deployed its DF-26 intermediate-range ballistic missile (capable of carrying conventional and nuclear warheads), China bolstered its conventional capability of reaching U.S. bases on Guam, which would likely be called upon in an Asia contingency.¹⁴⁹ According to Michael S. Chase, senior political scientist at the RAND Corporation, “China’s conventional missile force capabilities could also present serious challenges to U.S. forces in the region if the United States intervened militarily in a conflict involving China.”¹⁵⁰ The continued modernization of these capabilities could hold at risk more U.S. surface ships and other assets at greater distances from China’s coast.¹⁵¹ Furthermore, the development of the DF-41 ICBM with its multiple independently targetable reentry vehicle (MIRV)-capable warhead and ability to carry hypersonic glide vehicles significantly increases the rocket force’s nuclear threat to the U.S. mainland.¹⁵²

Missions

The PLA Rocket Force has both nuclear deterrence and conventional strike missions. Nuclear deterrence is considered the force’s foundational mission and central to deterring or containing large-scale conflicts.¹⁵³ China seeks to maintain nuclear forces capable of a retaliatory strike that inflicts unacceptable damage* on an opponent in the event of a nuclear attack.¹⁵⁴ Should deterrence fail, the force is tasked with conducting nuclear counterstrike operations.¹⁵⁵ In addition to nu-

*The 2001 edition of *The Science of Military Strategy* lays out three gradations of nuclear deterrence that are still in use today. The first gradation is “maximum nuclear deterrence,” where a country has sufficient nuclear force to threaten an opponent with a first strike capable of disarming the opponent, thereby deterring an opponent from initiating a nuclear strike. The second gradation is “minimum nuclear deterrence,” where a country relies on a small arsenal capable of holding an opponent’s cities at risk to deter an attack. The third gradation is “deterrence of moderate intensity,” where a country relies on a “sufficient and effective” nuclear force capable of threatening an opponent with “unbearable destruction.” The 2001 edition of *The Science of Military Strategy* indicates “deterrence of moderate intensity” falls between “maximum nuclear deterrence” and “minimum nuclear deterrence” in intensity. Of these three nuclear posture options, “deterrence of moderate intensity” most closely aligns with China’s desire to maintain nuclear forces capable of assured retaliation. Peng Guangqian and Yao Youzhi, eds., *The Science of Military Strategy*, Military Science Press, 2005, 218. (PLA’s Academy of Military Science English translation of the 2001 edition of *The Science of Military Strategy*.)

clear deterrence, the PLA Rocket Force is tasked with a conventional precision strike mission.¹⁵⁶ Dr. Chase asserts, “PLA strategists believe conventional ballistic and cruise missiles could serve as a powerful instrument of coercive diplomacy in addition to the important role they would play in ... PLA joint campaigns.”¹⁵⁷ Enhancing conventional capabilities could improve China’s ability to hold adversary assets at risk—particularly fixed bases,¹⁵⁸ key nodes, and large ships—at greater distances from China’s coastline.¹⁵⁹

Training

In 2018, the PLA Rocket Force conducted service training and exercises in support of deterrence, long-range strike, transregional operations, and joint theater operations.¹⁶⁰ Rocket force training, in addition to missile units exercising under combat-realistic conditions, worked on connecting missile units with theater command information systems in support of joint operations.¹⁶¹ Rocket force training has exposed some areas where missile units need to improve, such as emergency repair capabilities and logistical support to deployed forces.¹⁶²

Force-Building Priorities

In 2016, the PLA Rocket Force implemented long-term modernization plans to enhance its strategic deterrence capability.¹⁶³ The service is developing and testing several new variants of missiles, forming additional missile units, retiring or upgrading older missile systems, and developing methods to counter ballistic missile defenses.¹⁶⁴ The Equipment Department of the PLA Rocket Force manages its force modernization priorities, which include enhancing nuclear counterattack and improving conventional long-range precision strike capabilities.¹⁶⁵ See Table 4 for an overview of PLA Rocket Force equipment under development or nearing entry into service.

Table 4: Select Advanced PLA Rocket Force Systems Entering Service and under Development

Equipment	Mission Area	Estimated Service Entry	Implications
DF-41 intercontinental ballistic missile (ICBM)	Deterrence, Assured Retaliation	2018	The DF-41 will be China’s first MIRV-capable, road-mobile ICBM. The solid-fuel missile will enhance China’s deterrence capabilities.
DF-17 medium-range ballistic missile (MRBM) with Wu-14 (DF-ZF) hypersonic glide vehicle	Strike, Deterrence; A2/AD	2020	The DF-17 is reportedly designed for use with a hypersonic glide vehicle (tested with the Wu-14 [DF-ZF]) and capable of delivering both conventional and nuclear payloads. Its range reportedly falls between 1,800 and 2,500 km. This system will pose challenges to U.S. and allied missile defense systems.

Table 4: Select Advanced PLA Rocket Force Systems Entering Service and under Development—Continued

Equipment	Mission Area	Estimated Service Entry	Implications
CH-AS-X-13 nuclear-capable air-launched ballistic missile	Strike; Deterrence	2025	According to DOD, China is developing “two new air-launched ballistic missiles, one of which may include a nuclear payload.” The nuclear-capable version is reportedly a two-stage, solid-fueled ballistic missile with a range of 3,000 km, intended for use with a modified H-6N bomber that has a 6,000-km combat radius. This missile will bolster China’s deterrence capabilities.

Source: Various.¹⁶⁶

Strategic Support Force: Contesting U.S. Information Dominance

The PLA Strategic Support Force (SSF) was created to oversee PLA space and cyber capabilities and directly conduct operations in those domains.¹⁶⁷ The SSF absorbed departments that resided under the General Staff Department prior to the PLA’s restructuring, including elements from the First Department (operations), Second Department (intelligence), Third Department (technical reconnaissance), and Fourth Department (radars and electronic countermeasures).¹⁶⁸ This composition suggests the force is responsible for space warfare and surveillance, cyber warfare, signals intelligence, and electronic warfare capability at the strategic level of war.¹⁶⁹ These capabilities provide the SSF the ability to conduct operations directly in the space and cyber domains, conduct operations to deny an adversary’s use of the electromagnetic spectrum, and support operations conducted by other forces through those domains. Admiral Harris testified before Congress in April 2017 that the establishment of the SSF “is a potential game-changer if it succeeds in denying other countries the use of space, the electromagnetic spectrum, and networks.”¹⁷⁰

The SSF poses challenges for U.S. control over the electromagnetic spectrum, placing at risk U.S. command, control, communications, computers, and intelligence, surveillance, and reconnaissance (C4ISR) systems critical for military operations, including satellites, radars, and computer networks.¹⁷¹ According to a March 2017 Defense Science Board study, “Advances and proliferation in advanced electronic warfare, kinetic, space, and cyber capabilities threaten [the United States’] ability to maintain information superiority.”¹⁷² The study notes that electronic threats against U.S. satellite communication are rapidly increasing, and that jamming can render most U.S. defense satellites inoperable, which “should be considered a crisis to be dealt with immediately.”¹⁷³

Missions

As noted, the SSF will use space, cyberspace, and the electromagnetic spectrum as its primary warfighting domains, while also enabling PLA warfighting by other forces through the use of those domains to achieve the PLA's operational objectives.¹⁷⁴ The force's ability to provide space-based intelligence support and battlefield assessments helps theater commands by establishing a common intelligence picture for joint forces, which John Costello, New America Cybersecurity Policy Fellow and the Executive Director of the China Cyber and Intelligence Studies Institute, contends is needed to "fulfill the PLA's mission of winning '[informationized] local wars.'"¹⁷⁵ Furthermore, the SSF may also play a role in the conduct of both information and legal warfare.¹⁷⁶

- *Space and aerospace mission:* The SSF's Space Systems Department is responsible for PLA space operations, including: space launch and support; telemetry, tracking, and control; space attack and defense; and ISR operations.¹⁷⁷
- *Cyber mission:* The SSF's cyber forces fall under the Network Systems Department, which is responsible for computer network exploitation, cyber surveillance, computer network attack, and computer network defense missions.¹⁷⁸ This combination of capabilities, Mr. Costello suggests, indicates the SSF seeks to conduct "integrated cyber attack, defense, and reconnaissance" operations.¹⁷⁹
- *Electronic warfare mission:* The SSF is also responsible for electronic warfare* and carrying out national-level electronic warfare operations.¹⁸⁰

Training

Since the establishment of the SSF on December 31, 2015, the force has worked to build its own operational skills as well as those needed to support other services, including satellite reconnaissance, electronic warfare, cyber operations, and space-based intelligence support and battlefield assessments.¹⁸¹ The SSF is seeking to develop its operational readiness capabilities by conducting training at the joint theater and service levels to integrate the force into the PLA.¹⁸² The PLA acknowledges that embedding SSF elements into the theater commands is an ongoing process that needs continued testing to ensure successful integration.¹⁸³ For example, in May 2018 the SSF participated in an exercise intended to identify shortcomings, including restrictions on the generation of combat power, operational planning deficiencies, and command and control problems.¹⁸⁴ Resolving these types of deficiencies exposed during combat-realistic training helps the SSF become a more powerful, operational force.¹⁸⁵

Force-Building Priorities

The PLA continues to improve its C4ISR capabilities for joint operations.¹⁸⁶ The SSF force-building priorities for space, cyber, and electromagnetic spectrum operations include:

*Portions of the former General Staff Department's Fourth Department responsible for strategic-level electronic warfare were transferred to the SSF after the force was established. John Costello, "The Strategic Support Force: Update and Overview," *China Brief*, December 21, 2016.

- *Space*: Improving space-based reconnaissance capabilities remains a development priority for the SSF.¹⁸⁷ And while the SSF's role in counterspace operations and weapons development remains murky, the PLA continues to develop antisatellite weapons such as the DN-3 antisatellite missile, which was launched from the SSF's Jiuquan Satellite Launch Center in August 2017, and the experimental co-orbital satellite, the Shiyan-7.¹⁸⁸
- *Cyber*: The SSF is working to improve offensive and defensive cyber capabilities to enhance the development of a cyber force. The SSF is conducting testing and evaluation of PLA units and developing cybersecurity standards to apply to systems across the entirety of the military's information networks.¹⁸⁹
- *Electromagnetic spectrum*: The SSF appears to be focusing on capabilities to exploit and attack opponents' electromagnetic operational environment while protecting and managing the spectrum for the PLA.¹⁹⁰ The SSF has been engaged in service-specific and joint training likely intended to test the SSF's operational abilities, resolve defense issues, and identify new requirements for building future capabilities.¹⁹¹

Joint Logistics Support Force as a Force Multiplier

In September 2016, the PLA also established the Joint Logistics Support Force to support joint operations, some sustainment functions common to all services, and PLA operations abroad.¹⁹² This force seeks to reduce redundancies inherent in the services by consolidating logistics support under a joint organization.¹⁹³ Furthermore, the Joint Logistics Support Force is partnering with the civilian transportation sector through military-civilian fusion to supplement PLA lift and transport capabilities with assets from the air, rail, and shipping industries.¹⁹⁴ The Joint Logistics Support Force's objective is to strengthen the PLA's capability to sustain theater operations and ultimately support expeditionary operations and warfighting missions farther into the Western Pacific and beyond.¹⁹⁵ The development of this force suggests an effort to develop a mature logistics support capability that will have a significant impact on the PLA's ability to operate beyond the Indo-Pacific region.

Missions

The Joint Logistics Support Force was established—as a subordinate force of the CMC's new Logistics Support Department—to serve as the PLA's primary logistics force to support joint operations.¹⁹⁶ The force accomplishes this task by managing the logistics functions of the theater commanders and their joint forces, with the services overseeing the service-specific logistics operations within the theater.¹⁹⁷ The Joint Logistics Support Force has subordinate Joint Logistics Support Centers in each theater command as a bridge between the force and the services.¹⁹⁸

Joint Logistics Support Force as a Force Multiplier— Continued

Logistics Modernization Priorities

China has studied how the United States conducts sustainment of deployed U.S. forces operating abroad, which has influenced the PLA's modernization of logistics and sustainment functions.¹⁹⁹ The PLA sees the capability for joint logistics support to a deployed force as critical for sustaining combat operations at home, but also—and more importantly—for expeditionary operations.²⁰⁰ Kevin McCauley, an independent analyst who writes on PLA and Taiwan military affairs, contends the need to develop a joint capability resulted in “the CMC issuance in 2007 of the ‘Outline for Comprehensive Building of Modern Logistics’ ... [that] proposed an integrated advanced logistics supply structure, integration of a civilian logistics supply model, application of information technologies, and an accelerated logistics construction” program.²⁰¹ Mr. McCauley stated to the Commission that the PLA's strategy to optimize joint logistics for informationized warfare includes the following guidance:

- *Integrat[e] ... information technologies into logistics equipment to support precision logistics and mobilization.*
- *Accelerate innovation and “systems of systems”* integration of strategic, campaign and tactical support forces.*
- *Eliminate traditional problems of compartmentation and multi-level bureaucracy.*
- *[Integrate] [c]ivil-military ... strategic assets and projection forces, including civil air transport and large transport ships.*
- *Accelerate overseas support means and facilities construction to safeguard overseas national interests, as well as fulfill international and peacekeeping obligations.*
- *Establish an integrated theater with a base system focused on general purpose and special integrated logistics support bases to meet theater requirements.*
- *[Establish] [g]roupings of flexible, mobile strategic logistics contingency support forces, mobile maritime support forces including large supply ships, and PLA [Air Force] emergency mobile support groups and air refueling forces.*
- *[Establish] [s]mall, light, mobile, modular tactical logistics groups.²⁰²*

*The PLA “system of systems” term refers to the capability to support military operations through an integrated C4ISR structure that enables jointness and information sharing to increase the PLA's warfighting capabilities. Kevin McCauley indicates the “PLA uses system of systems operations to unify forces down to the tactical level through information technology to create seamless networked information systems that will generate increased combat effectiveness.” Kevin McCauley, *PLA System of Systems Operations: Enabling Joint Operations*, Jamestown Foundation, January 2017, 10.

Implications for the United States, U.S. Allies, and Partners

China's military reorganization and modernization intends to achieve parity with the United States and exert China's influence throughout the Indo-Pacific. At its current rate of modernization, the PLA will likely possess the capability to contest all warfighting domains in the Indo-Pacific region by 2035, and thus begin more forceful efforts to resolve all remaining sovereignty disputes in China's favor, completing China's "great rejuvenation" by the middle of the century.* China has accelerated this effort in recent years, and placed a particularly strong emphasis on maritime capabilities intended to overcome its longstanding fears of its operational inferiority vis-à-vis the United States. As a result, it will soon have an initial naval expeditionary capability that is likely to be globally capable by 2025, if not sooner. President Xi's sweeping reorganization of the PLA is a critical component of Beijing's broader military modernization efforts, and if completed on schedule in 2020 will result in the PLA posing an even greater near-term threat than the United States and its allies and partners currently face in the Indo-Pacific.

There will be areas of both concern and opportunity for the United States during this period of transition for the PLA. In the near term, China may continue to feel constrained in a crisis as it chooses between military options ranging from cautious "gray zone" operations to a contested and highly risky use of limited force. The PLA's reorganization and training efforts seek to address its limited operational experience, which combined with Chinese leaders' concerns over the force's "peace disease" give the United States important competitive advantages in dissuading China from resorting to military force to advance its national interests. However, as the PLA's modernization progresses and self-confidence increases, the United States may no longer be capable of deterring China or regaining superiority in all warfighting domains after the outbreak of a conflict in the region.

China's military reorganization and modernization efforts have already substantially improved the PLA's capability to conduct operations across the land, maritime, air, and information domains, and pose clear challenges to the ability of the United States, U.S. allies, and partners to operate freely in the Indo-Pacific. Jacqueline N. Deal, president of the Long Term Strategy Group, testified to the Commission that the PLA aims to create "more 'strategic space' for the PRC."²⁰³ The PLA has mostly discussed this concept in defensive terms, but Dr. Deal asserted the PLA is seeking this strategic space "to make it safe for the PRC to coerce regional powers and, over time, to spread the CCP's own rules and norms."^{†204} She added that a "prerequisite for accomplishing this goal is disrupting U.S.

* According to DOD's *National Defense Strategy*, published in January 2018, China "will continue to pursue a military modernization program that seeks Indo-Pacific regional hegemony in the near-term and displacement of the United States to achieve global preeminence in the future." The *National Defense Strategy* for the first time named the "reemergence of long-term, strategic competition" with revisionist powers China and Russia as the main challenge for U.S. national security. U.S. Department of Defense, *National Defense Strategy*, January 2018, 2.

† According to the 2013 edition of the *Science of Military Strategy*, "Strategic space is an area required for the national race and resistance of external interference and the maintenance of self-survival and development." It calls for the expansion of China's "strategic space" to include the western Pacific Ocean and the northern Indian Ocean. Shou Xiaosong, ed., *Science of Military Strategy*, Military Science Press, 2013, 105, 241–249. Translation.

alliances, and extruding or neutralizing the U.S. military's presence and influence in the Asia-Pacific."²⁰⁵ The PLA's reorganization and modernization efforts pose challenges to the United States and its partners across the following domains:

- *Challenges in the maritime domain:* China's maritime forces in the Indo-Pacific are among the most pressing areas of concern for U.S. allies and partners in the region; they increasingly outnumber—and in a number of areas are more advanced than—their neighbors in the region.²⁰⁶ PLA maritime operations are becoming more frequent, challenging U.S. regional presence and operations while raising the potential for accidents and miscalculation.²⁰⁷ Routine U.S. air and maritime operations in the Western Pacific and beyond are monitored and increasingly contested by modern Chinese ships and aircraft.²⁰⁸ Furthermore, China's growing ballistic and cruise missile capabilities enable the PLA to challenge INDOPACOM's ability to operate within the second island chain, and the continued modernization of these forces may soon hold U.S. and allied forces at risk beyond the second island chain.
- *Challenges in the air domain:* Given PLA Air Force and naval aviation modernization, the United States and U.S. allies can no longer assume the ability to achieve air superiority in an Indo-Pacific conflict.²⁰⁹ The PLA's air force modernization goals to enhance China's offensive capabilities farther from its coast will contribute to an increasingly contested air domain in the region as it prioritizes the development and fielding of modern fighter jets, strike aircraft, advanced surface-to-air missile systems with extended ranges, as well as improved aerial refueling and strategic lift capabilities that can support operations well beyond China's periphery.²¹⁰
- *Challenges in the information domain:* China's establishment of the SSF, which integrated its space, cyber, and electronic warfare capabilities, enables the new force to conduct independent operations across these domains and facilitate joint operations across the PLA. As the SSF further advances its own warfighting capabilities and ability to facilitate PLA joint operations, it will challenge the United States' ability to establish information dominance and control over the electromagnetic spectrum.²¹¹

China's contesting of U.S. military presence in the Indo-Pacific enables Beijing to coerce its neighbors with the implied threat of force, which impedes the United States' ability to maintain a stable regional balance, sustain adherence to international laws and norms, and uphold a free and open regional order. Beijing's strengthening military capabilities also undermine the confidence of U.S. allies and partners in the United States' ability to deter China, which could lead to negative consequences for U.S. interests; these include a degraded U.S. alliance network, more aggressive behavior from China and its partners, greater hedging by regional countries, and increased Chinese military sales.²¹² The PLA's growing nuclear capabilities could also raise concerns among U.S. allies and partners regarding the credibility of U.S. extended deterrence.²¹³ Finally, the PLA's modernization and its emphasis on developing offensive ca-

pabilities present serious threats to U.S. allies and partners in the region—including Japan, South Korea, and India—and even an existential threat to Taiwan.²¹⁴

The United States faces a rising power in China that sees the security structures and political order of the Indo-Pacific as being out of balance and designed to limit its power and influence. China is increasingly confident in its ability to seek changes to that order through competition with the United States and its allies and partners. Kathleen Hicks, senior vice president, the Henry A. Kissinger Chair, and director of the International Security Program at the Center for Strategic and International Studies, testified to the Commission that “China’s power is not growing benignly. With a decided lack of transparency in its investments and intentions, alongside a manifest series of coercive and, at times, extralegal actions in the cyber, air, and maritime domains, China has largely demonstrated a will to compete rather than cooperate.”²¹⁵

In the near term, as China bolsters its competitive advantage through modernization efforts accelerated by its new military structure, the United States will face ever-greater uncertainty over its ability to operate freely in the region. In an era of intensifying competition, U.S. allies and partners will also be increasingly threatened by China’s growing military strength, and will continue looking to the United States for leadership in maintaining the region’s balance. At the 2018 Shangri-La Dialogue in Singapore, U.S. Secretary of Defense James Mattis stated, “The U.S. [Indo-Pacific] strategy recognizes no one nation can or should dominate the Indo-Pacific.”²¹⁶

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